Evidence Report/Technology Assessment
Number 206

Enabling Patient-Centered Care Through Health Information Technology

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Number 206

Enabling Patient-Centered Care Through Health Information Technology

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The information in this report is intended to help health care decisionmakers—patients and clinicians, health system leaders, and policymakers, among others—make well-informed decisions and thereby improve the quality of health care services. This report is not intended to be a substitute for clinical judgment. Anyone who makes decisions concerning the provision of clinical care should consider this report in the same way as any medical reference and in conjunction with all other pertinent information, i.e., in the context of available resources and circumstances presented by individual patients.

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Preface

The Agency for Healthcare Research and Quality (AHRQ), through its Evidence-based Practice Centers (EPCs), sponsors the development of evidence reports and technology assessments to assist public- and private-sector organizations in their efforts to improve the quality of health care in the United States. The reports and assessments provide organizations with comprehensive, science-based information on common, costly medical conditions, and new health care technologies and strategies.

The EPCs systematically review the relevant scientific literature on topics assigned to them by AHRQ and conduct additional analyses when appropriate prior to developing their reports and assessments. To bring the broadest range of experts into the development of evidence reports and health technology assessments, AHRQ encourages the EPCs to form partnerships and enter into collaborations with other medical and research organizations. The EPCs work with these partner organizations to ensure that the evidence reports and technology assessments they produce will become building blocks for health care quality improvement projects throughout the Nation. The reports undergo peer review and public comment prior to their release as a final report.

AHRQ expects that the EPC evidence reports and technology assessments will inform individual health plans, providers, and purchasers as well as the health care system as a whole by providing important information to help improve health care quality.

We welcome comments on this evidence report. They may be sent by mail to the Task Order Officer named below at: Agency for Healthcare Research and Quality, 540 Gaither Road, Rockville, MD 20850, or by email to epc@ahrq.hhs.gov.

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Enabling Patient-Centered Care Through Health Information Technology

Structured Abstract

Objectives. The main objective of the report is to review the evidence on the impact of health information technology (IT) that supports patient-centered care (PCC) on: health care processes; clinical outcomes; intermediate outcomes (patient or provider satisfaction, health knowledge and behavior, and cost); responsiveness to needs and preferences of patients; shared decisionmaking and patient–clinician communication; and access to information. Additional objectives were to identify barriers and facilitators for using health IT to deliver PCC, and to identify gaps in evidence and information needed by patients, providers, payers, and policymakers.

Data Sources. MEDLINE®, Embase®, Cochrane Library, Scopus, Cumulative Index to Nursing and Allied Health Literature, PsycINFO, INSPEC, and Compendex databases through July 31, 2010.

Methods. Paired members of our team reviewed citations to identify randomized controlled trials of PCC-related health IT interventions and studies that addressed barriers and facilitators for health IT for delivery of PCC. Independent assessors rated studies for quality. Paired reviewers abstracted data.

Results. The search identified 327 eligible articles, including 184 articles on the impact of health IT applications implemented to support PCC and 206 articles addressing barriers or facilitators for such health IT applications. Sixty-three articles addressed both questions. The study results suggested positive effects of PCC-related health IT interventions on health care process outcomes, disease-specific clinical outcomes (for diabetes mellitus, heart disease, cancer, and other health conditions), intermediate outcomes, responsiveness to the needs and preferences of patients, shared decisionmaking, patient-clinician communication, and access to medical information.

Studies reported a number of barriers and facilitators for using health IT applications to enable PCC. Barriers included: lack of usability; problems with access to the health IT application due to older age, low income, education, cognitive impairment, and other factors; low computer literacy in patients and clinicians; insufficient basic formal training in health IT applications; physicians' concerns about more work; workflow issues; problems related to new system implementation, including concerns about confidentiality of patient information; depersonalization; incompatibility with current health care practices; lack of standardization; and problems with reimbursement. Facilitators for the utilization of health IT included ease of use, perceived usefulness, efficiency of use, availability of support, comfort in use, and site location.

Conclusions. Despite marked heterogeneity in study characteristics and quality, substantial evidence exists confirming that health IT applications with PCC-related components have a positive effect on health care outcomes.

Contents

Executive Summary ES-1
Introduction 1
Background 1
Purpose of Evidence Report 1
Key Questions 5
Methods 6
Introduction 6
Recruitment of Technical Experts and Peer Reviewers 6
Key Questions 6
Conceptual Framework 7
Literature Search Methods 8
Health IT Classification Methodology 9
Sources 10
Search Terms and Strategies 10
Organization and Tracking of Literature Search 10
Title Review 10
Abstract Review 11
Article Review 11
Data Abstraction 11
Quality Assessment 12
Data Synthesis 12
Data Entry and Quality Control 12
Grading of the Evidence 12
Quality 13
Quantity 13
Consistency 13
Overall Rating of the Strength of the Body of Evidence 13
Other Criteria Not Used 13
Peer Review 14
Results 15
Results of the Literature Search 15
Description of Types of Studies Retrieved 15
Key Question 1a. Are health IT applications that address one or more components of PCC effective in improving health care process outcomes, and how do these improvements vary by type of health IT application? 17
General Study Characteristics 17
Specific Findings 17
How Does the Impact on Process Outcomes Vary by Type of Health IT Application? 25
Key Question 1b. Are health IT applications that address one or more components of PCC effective in improving clinical outcomes for patients, and how do these improvements vary by type of health IT application? 41
General Study Characteristics 41
Specific Findings 41

How Does the Impact on Clinical Outcomes Vary by Type of Health IT Application? 49
Key Question 1c. Are health IT applications that address one or more components of PCC effective in improving intermediate outcomes for patients, and how do these improvements vary by type of health IT application? 68
General Study Characteristics 68
Specific Findings 68
How Does the Impact on Intermediate Outcomes Vary by Type of Health IT Application? 75
Key Question 1d. Are health IT applications that address one or more components of PCC effective in improving responsiveness to the needs and preferences of individual patients, and how do these improvements vary by type of health IT application? 89
General Study Characteristics 89
Specific Findings 89
How Does the Responsiveness to Patient Needs, Preferences, and Values Vary by Type of Health IT Application? 90
Key Question 1e. Are health IT applications that address one or more components of PCC effective in improving shared decisionmaking between patients, their families, and providers; patient–clinician communication; and access to medical information; and how do these improvements vary by type of health IT application? 94
General Study Characteristics 94
Specific Findings 95
How Does the Impact on Shared Decisionmaking Between Patients, Their Families, and Providers, Patient-Clinician Communication, and Access to Medical Information in Patients Vary by Type of Health IT Application? 99
Key Question 2. What are barriers and facilitators that clinicians, developers, patients and their families or caregivers encounter that may impact implementation and use of health IT applications that address patient-centered care, and how do these barriers and facilitators vary by type of health IT application? 105
Barriers 105
Facilitators 109
Variation by Health IT Type 111
Key Question 3. What knowledge or evidence deficits exist regarding needed information to support estimates of cost, benefit, impact, sustainability, and net value with regard to enabling PCC through health IT? 112
Key Question 4. What critical information regarding the impact of health IT applications implemented to enable PCC is needed to give consumers, their families, clinicians, and developers a clear understanding of the value proposition particular to them? 114
Discussion 116
Process Outcomes 116
Clinical Outcomes 117
Intermediate Outcomes 117
Improved Responsiveness to the Needs, Preferences, and Values of Individual Patients 118

Improved Shared Decisionmaking Between Patients, Their Families, and Providers; Patient–Clinician Communication; and Access to Medical Information 119
Additional Observations 119
Barriers and Facilitators 119
Limitations 120
Future Research Needs 121
Implications and Conclusions 122
References 123

Tables

Table 1. Categorization of Outcomes Addressed in Key Question 1 3
Table 2. Categorization of Barriers and Facilitators Addressed in Key Question 2 3
Table 3. Categorization of Health Information Technology 4
Table 4. Categorization of Components of Patient Centered Care 4
Table 5. Studies Addressing the Effect of Health IT Applications on Process Outcomes in Specific Target Conditions, Target Populations, and Care Focus Areas 25
Table 6. Studies Addressing the Effect of Health IT Applications on Process Outcomes 26
Table 7. Studies Addressing the Effect of Health IT Applications on Process Outcomes, Broken Down by Specific Components of PCC 27
Table 8a. Summary of the Impact of Health IT Applications on Process Outcomes for Patients With Diabetes Mellitus 28
Table 8b. Overall Grade of the Quality of Evidence in Diabetes Mellitus Studies Addressing Health Care Process Outcomes 30
Table 9a. Summary of the Impact of Health IT Applications on Process Outcomes for Patients With Heart Disease 31
Table 9b. Overall Grade of the Quality of Evidence in Heart Disease Studies Addressing Health Care Process Outcomes 37
Table 10a. Summary of the Impact of Health IT Applications on Process Outcomes for Patients With Cancer 37
Table 10b. Overall Grade of the Quality of Evidence in Cancer Studies Addressing Health Care Process Outcomes 38
Table 11a. Summary of the Impact of Health IT Applications on Process Outcomes for Patients With Hypertension 39
Table 11b. Overall Grade of the Quality of Evidence in Hypertension Studies Addressing Health Care Process Outcomes 40
Table 12. The Impact on Health Care Process Outcomes by Type of Health IT Application 41
Table 13. Studies Addressing the Effect of Health IT Applications on Clinical Outcomes in Specific Target Conditions, Target Populations, and Care Focus Areas 49
Table 14. Studies Addressing the Effect of Health IT Applications on Clinical Outcomes 50
Table 15. Studies Addressing the Effect of Health IT Applications on Clinical Outcomes, Broken Down by Specific Components of PCC 51
Table 16a. Summary of the Impact of Health IT Applications on Clinical Outcomes for Patients With Diabetes Mellitus 52
Table 16b. Overall Grade of the Quality of Evidence in Diabetes Mellitus Studies Addressing Clinical Outcomes 56

Table 17a. Summary of the Impact of Health IT Applications on Clinical Outcomes for Patients With Heart Disease 57
Table 17b. Overall Grade of the Quality of Evidence in Heart Disease Studies Addressing Clinical Outcomes 62
Table 18a. Summary of the Impact of Health IT Applications on Clinical Outcomes for Patients With Cancer 63
Table 18b. Overall Grade of the Quality of Evidence in Cancer Studies Addressing Clinical Outcomes 64
Table 19a. Summary of the Impact of Health IT Applications on Clinical Outcomes for Patients With Hypertension 65
Table 19b. Overall Grade of the Quality of Evidence in Hypertension Studies Addressing Clinical Outcomes 67
Table 20. The Impact on Clinical Outcomes by Type of Health IT Application 67
Table 21. Studies Addressing the Effect of Health IT Applications on Intermediate Outcomes in Specific Target Conditions, Target Populations, and Care Focus Areas in Studies 76
Table 22. Studies Addressing the Effect of Health IT Applications on Intermediate Outcomes 77
Table 23. Studies Addressing the Effect of Health IT Applications on Intermediate Outcomes, Broken Down by Specific Components of PCC 78
Table 24a. Summary of the Impact of Health IT Applications on Intermediate Outcomes for Patients With Diabetes Mellitus 79
Table 24b. Overall Grade of the Quality of Evidence in Diabetes Mellitus Studies Addressing Intermediate Outcomes 81
Table 25a. Summary of the Impact of Health IT Applications on Intermediate Outcomes for Patients With Heart Disease 82
Table 25b. Overall Grade of the Quality of Evidence in Heart Disease Studies Addressing Intermediate Outcomes 85
Table 26a. Summary of the Impact of Health IT Applications on Intermediate Outcomes for Patients With Cancer 85
Table 26b. Overall Grade of the Quality of Evidence in Cancer Studies Addressing Intermediate Outcomes 86
Table 27a. Summary of the Impact of Health IT Applications on Intermediate Outcomes for Patients With Hypertension 87
Table 27b. Overall Grade of the Quality of Evidence in Hypertension Studies Addressing Intermediate Outcomes 88
Table 28. The Impact on Intermediate Outcomes by Type of Health IT Application 88
Table 29. Studies Addressing the Effect of Health IT Applications on Responsiveness to Patient Needs, Preferences, and Values in Specific Target Conditions, Target Populations, and Care Focus Areas 90
Table 30. Studies Addressing the Effect of Health IT Applications on Responsiveness to Patient Needs, Preferences, and Values 91
Table 31. Studies Addressing the Effect of Health IT Applications on Responsiveness to a Patient's Needs, Preferences, and Values, Broken Down by Specific Components of PCC 91

Table 32a. Summary of the Impact of Health IT Applications on Responsiveness to a Patient's Needs, Preferences, and Values for Patients With Cancer 92
Table 32b. Overall Grade of the Quality of Evidence in Cancer Studies Addressing Responsiveness to the Needs and Preferences of Individual Patients 94
Table 33. The Impact on Responsiveness to Patient Needs, Preferences, and Values by Type of Health IT Application....94
Table 34. Studies Addressing the Effect of Health IT Applications on Shared Decisionmaking, Patient-Clinician Communication, and Access to Medical Information in Specific Target Conditions, Target Populations, and Care Focus Areas....100
Table 35. Studies Addressing the Effect of Health IT Applications on Shared Decisionmaking With Patients, Their Families, and Providers; Patient-Clinician Communication; and Access to Medical Information 100
Table 36. Studies Addressing the Effect of Health IT Applications on Shared Decisionmaking With Patients, Their Families, and Providers; Patient-Clinician Communication; and Access to Medical Information, Broken Down by Specific Components of PCC 101
Table 37a. Summary of the Impact of Health IT Applications on PCC Outcomes Related to Diabetes Mellitus in Studies Addressing Shared Decisionmaking With Patients, Their Families, and Providers; Patient-Clinician Communication; and Access to Medical Information (N=1) 101
Table 37b. Overall Grade of the Quality of Evidence in Diabetes Mellitus Studies Addressing Shared Decisionmaking With Patients, Their Families, and Providers; Patient-Clinician Communication; and Access to Medical Information 101
Table 38a. Summary of the Impact of Health IT Applications on PCC Outcomes Related to Heart Disease in Studies Addressing Shared Decisionmaking With Patients, Their Families, and Providers; Patient-Clinician Communication; and Access to Medical Information 102
Table 38b. Overall Grade of the Quality of Evidence in Heart Disease Studies Addressing Shared Decisionmaking Between Patients, Their Families, and Providers; Patient-Clinician Communication; and Access to Medical Information....103
Table 39a. Summary of the Impact of Health IT Applications on PCC Outcomes Related to Cancer in Studies Addressing Shared Decisionmaking With Patients, Their Families, and Providers; Patient-Clinician Communication; and Access to Medical Information 104
Table 39b. Overall Grade of the Quality of Evidence in Cancer Studies Addressing Shared Decisionmaking With Patients, Their Families, and Providers; Patient-Clinician Communication; and Access to Medical Information 104
Table 40. The Impact on Shared Decisionmaking Between Patients, Their Families, and Providers; Patient-Clinician Communication; and Access to Medical Information by Type of Health IT Application....105
Table 41. Variation in Reported Barriers by Health IT Type 112
Table 42. Variation in Reported Facilitators by Health IT Type 112
Table 43. Knowledge or Evidence Deficits Regarding Health IT Applications....113
Table 44. Information Needs of Various Stakeholders Regarding Health IT Applications 115

Figures

Figure 1. Conceptual Framework on Enabling Patient-Centered Care Through Health Information Technology 2
Figure 2. Summary of Literature Search (Number of Articles)... 16

Appendixes

Appendix A. List of Acronyms
Appendix B. Glossary of Terms
Appendix C. Detailed Search Strategies
Appendix D. Summary of Health IT Applications
Appendix E. Screen and Data Abstraction Forms
Appendix F. Excluded Articles
Appendix G. Evidence Tables

Executive Summary

Introduction

The Institute of Medicine defines patient-centered care (PCC) as "care that is respectful of and responsive to individual patient preferences, needs and values," ensuring that patient values guide all clinical decisions.[1] The Institute of Medicine has recognized PCC as one of six major domains of health care quality. While the health care community widely recognizes the potential of health information technology (IT) in enabling PCC, we have yet to see an evidence-based comprehensive analysis of its impact on quality of care. In addition, there does not yet exist a systematic review of barriers and facilitators for health IT–enabled PCC. This report reviews the evidence on the impact of health IT applications developed and implemented to enhance the provision of PCC. The report identifies barriers and facilitators for the use of health IT applications to deliver PCC. It also identifies gaps in the literature and recommends future research endeavors. The report pays particular attention to the role of health IT in improving shared decisionmaking, patient–clinician communication, and access to medical information by patients.

Key Questions

The following Key Questions are addressed in this report.

Key Question 1. Are health IT applications that address one or more components of PCC effective in improving the following outcomes, and how do the outcomes vary by type of health IT application?

a. Health care process outcomes (e.g., receiving appropriate treatment)
b. Clinical outcomes for patients (including quality of life)
c. Intermediate outcomes such as patients' improved health knowledge, health behaviors and physiologic measures, patient satisfaction, and reduced costs
d. Responsiveness to the needs and preferences of individual patients
e. Shared decisionmaking between patients, their families, and providers; patient-clinician communication; or providing patients or clinicians access to medical information

Key Question 2. What are barriers or facilitators that clinicians, developers, patients, and their families or caregivers encounter that may impact implementation and use of health IT applications to enable PCC?

Key Question 3. What knowledge or evidence deficits exist regarding needed information to support estimates of cost, benefit, impact, sustainability, and net value with regard to enabling PCC through health IT?

Key Question 4. What critical information regarding the impact of health IT applications implemented to enable PCC is needed to give consumers, their families, clinicians, and developers a clear understanding of the value proposition particular to them?

Methods

We used a conceptual framework to guide our systematic review and based it on a synthesis of existing models of PCC. We used a systematic approach to searching the literature to minimize the risk of bias in selecting articles for inclusion in the review. Searching the literature involved identifying reference sources, formulating a search strategy for each source, and

executing and documenting each search. For the searching of electronic databases, we began our search process by identifying relevant medical subject heading terms.

Our comprehensive search included electronic and hand searching of peer-reviewed literature databases and gray literature databases. We ran searches of the MEDLINE®, Embase®, Cochrane Library, Scopus, Cumulative Index to Nursing and Allied Health Literature (CINAHL), PsycINFO, INSPEC, and Compendex databases through July 31, 2010.

The systematic review followed the protocol of the Evidence-based Practice Center Program and included the following steps: title review, abstract review, article review, data abstraction, quality assessment, data synthesis, and grading of the strength of evidence.

Results

The search process identified 17,749 citations that were potentially relevant to Key Questions 1 and/or 2, and 150 additional articles were identified through hand searching. Ultimately, we found 327 articles that met our eligibility criteria and that were applicable to Key Question 1 (184) and/or Key Question 2 (206), with 63 articles that were eligible for both questions.

Key Question 1a. Are health IT applications that address one or more components of PCC effective in improving health care process outcomes, and how do these improvements vary by type of health IT application?

We identified 97 articles evaluating the effect of health IT applications that facilitate PCC on health care process outcomes. The studies most commonly employed the following health IT applications: clinical decision aids (34 studies), IT-guided disease management (17 studies), and telemedicine or telemonitoring systems (20 studies). The components of PCC addressed most frequently were related to coordination and integration of care, and an enhanced clinician-patient relationship. The process outcomes most frequently focused on compliance with standards of care for testing and treatment, or use of health care resources. The study results suggested an overall positive effect of health IT interventions on process outcomes. Overall, study quality was high, but quality scores were highly variable. The primary reasons for lower quality scores were issues with studies not being double blinded or not describing loss to followup.

Many high-quality randomized controlled trials have examined the effectiveness of health IT applications on process outcomes, and the breadth of clinical conditions studied has been substantial. Study populations have varied from as few as 10 patients to more than 1,000. The studies have targeted physicians, nurses, and patients and have used many different types of health IT. Settings have included hospitals, outpatient practices, and patients' homes. These numerous differences make direct comparisons between studies difficult, and yet the majority of effects on process outcomes have been positive, and many of them have been statistically significant.

Each type of health IT application studied, from decision support to telemedicine to tools for patient self-management, has resulted in positive, and often significant, improvements in process outcomes. The evidence is insufficient to determine whether any particular type is more effective than the others, but telehealth applications and care management tools were the health IT types most frequently cited as having a positive impact on at least one health care process outcome.

Key Question 1b. Are health IT applications that address one or more components of PCC effective in improving clinical outcomes for patients, and how do these improvements vary by type of health IT application?

Ninety-two studies evaluated the impact of health IT applications on clinical outcomes. They most commonly employed the following health IT applications: clinical decision aids (23 studies), IT-guided disease management (19 studies), and telemonitoring systems (18 studies). The studies related to this Key Question most commonly targeted heart disease (16 studies), diabetes (21 studies), asthma (9 studies), obesity (7 studies), mental health (6 studies), chronic obstructive pulmonary disease (COPD) and chronic lung disorders (4 studies), and cancer (4 studies). The components of PCC addressed most frequently were related to coordination and integration of care, and an enhanced clinician–patient relationship. Overall, we found that various health IT applications implemented to enhance PCC generally improved clinical outcomes for patients with diabetes, heart disease, cancer, and other health conditions, and several of these interventions showed a statistically significant favorable impact. The evidence is insufficient to determine whether any particular type of health IT application is more effective than the others, but the studies we reviewed more frequently cited telehealth applications and care management tools as having a positive impact on at least one clinical outcome.

Key Question 1c. Are health IT applications that address one or more components of PCC effective in improving intermediate outcomes for patients, and how do these improvements vary by type of health IT application?

Eighty-seven studies evaluated the effect of health IT applications on intermediate outcomes. The health IT applications most commonly addressed in these studies were telemonitoring (18 studies), clinical decision aids (16 studies), and IT-guided self-management (16 studies). The studies most commonly targeted diabetes mellitus (13 studies), heart disease (6 studies), or cancer (6 studies, including breast cancer, prostate cancer, melanoma, and other cancer). The most frequently included components of PCC were related to coordination and integration of care, and an enhanced clinician-patient relationship.

While the number of studies is large, the studies are heterogeneous in a number of aspects. Many of the studies did not report patient characteristics that are relevant to interpreting intermediate outcomes. These studies considered a wide range of outcomes, which is both a strength, contributing to their applicability to clinical experience, and a weakness, making it more difficult to summarize the findings. The most prominent heterogeneity among these studies, however, was the lack of consistent measures of intermediate outcomes.

The target condition for which the most evidence is available for effective interventions is diabetes mellitus. This could be explained by the fact that diabetes had the largest number of studies considering intermediate outcomes.

The studies most frequently cited telehealth applications as having an effect on intermediate outcomes, but less than half of the telehealth applications had a statistically significant positive effect on at least one intermediate outcome. In contrast, for three of the health IT types that had fewer studies of intermediate outcomes (care management tools, personal health records/patient portals, and electronic messaging), the majority of studies reported a statistically significant positive effect on at least one intermediate outcome. This observation makes it difficult to

formulate any strong conclusion about how the impact on intermediate outcomes varies by type of health IT application.

Key Question 1d. Are health IT applications that address one or more components of PCC effective in improving responsiveness to the needs and preferences of individual patients, and how do these improvements vary by type of health IT application?

Fourteen studies addressed the impact of health IT applications on improving responsiveness to the needs and preferences of individual patients. The studies evaluated several types of health IT, including clinical decision aids, IT-guided disease management tools, and shared decisionmaking tools. Three studies addressed cancer, and the remainder addressed asthma, COPD, hormone replacement therapy, obesity, osteoporosis, pregnancy, smoking, and wounds. The studies most commonly addressed components of PCC related to coordination and integration of care, and an enhanced clinician-patient relationship.

The majority of identified studies reported positive outcomes related to the use of health IT. In the case of cancer (for which the review identified seven studies) and diabetes (for which the review identified three studies), most studies reported positive outcomes, suggesting a positive impact of health IT on improving responsiveness to the needs and preferences of individual patients.

The studies reviewed for this Key Question most frequently cited telehealth as the health IT application that improved responsiveness to patient needs, but only three of the seven telehealth studies reported a statistically significant impact. In contrast, for three of the health IT types that had fewer studies on responsiveness to patient needs (care management tools, personal health records/patient portals, and electronic messaging), at least half of the studies reported a statistically significant positive effect on at least one measure of responsiveness. This observation makes it difficult to formulate any strong conclusion about how the impact on responsiveness to patient needs varies by type of health IT application.

Key Question 1e. Are health IT applications that address one or more components of PCC effective in improving shared decisionmaking between patients, their families, and providers; patient-clinician communication; and access to medical information; and how do these improvements vary by type of health IT application?

Twenty-five studies addressed the impact of health IT applications on improving shared decisionmaking or related measures of patient-clinician communication or access to information. The studies most frequently used clinical decision aids (six studies), shared decisionmaking tools (seven studies), and telemedicine or telemonitoring systems (seven studies). The components of PCC addressed most frequently were related to coordination and integration of care, and an enhanced clinician–patient relationship. Heart disease was the clinical condition targeted most frequently (five studies). Three studies addressed cancer, and three studies addressed menopause or hormone replacement therapy.

The outcomes measured were highly variable. They included health care choices after exposure to health IT interventions, satisfaction with decisions, decisional conflict, and communications with providers. Overall, the health IT applications reviewed improved patient communication with providers and patient knowledge levels, thereby indicating improved access

to medical information. Interventions that focused on integration of care and information exchange had consistently positive effects. Decision aids for patients and providers had variable effects on shared decisionmaking and decisional conflict. The studies did not report any negative effects.

The studies most frequently cited shared decisionmaking applications as having at least one positive effect on shared decisionmaking or communication, and in most cases those studies reported a statistically significant effect. Although only four studies used care management tools to assess the impact on shared decisionmaking and communication, all four of those studies reported at least one positive outcome, which was statistically significant in three of the studies. Telemedicine and other interventions that focused on integration of care and information exchange generally had positive effects on patient–provider communications and satisfaction among patients and providers. Tailored health IT interventions aimed at increasing patient engagement during the clinical encounter yielded positive results on patients' question-asking behaviors and patient and provider satisfaction.

Key Question 2. What are barriers and facilitators that clinicians, developers, patients, and their families or caregivers encounter that may impact implementation and use of health IT applications that address patient-centered care, and how do these barriers and facilitators vary by type of health IT application?

Two hundred six studies addressed the barriers or facilitators for the use of health IT applications to enable PCC. The reviewed studies included randomized controlled trials, quasi-experimental studies, pilot studies, case studies, surveys, cost-benefit analysis, and qualitative research. Studies focused on a wide variety of clinical conditions, including diabetes mellitus, cardiovascular disease, heart failure, COPD, cancer, asthma, mental health, sickle cell disease, and chronic pain. Health IT barriers and facilitators can apply to the patients, clinicians, and developers.

The studies identified several barriers or facilitators for utilization of health IT applications to deliver PCC. The barriers included poor interface usability and problems with access to the health IT application due to older age, low income, education, cognitive impairments, and other factors. The studies also mentioned low computer literacy in patients and clinicians, and insufficient basic formal training in use of the health IT application as barriers to effective use. Studies also identified physicians' concerns about potential new work, problems with workflow, and problems related to new system implementation, including the lack of adequate funding. Both patients and physicians worried about confidentiality of patient information. Other studies cited depersonalization, incompatibility with current health care systems, concerns over privacy, the need for standardization of health IT applications, and problems with reimbursement as potential barriers. Several studies suggested that a high rate of satisfaction with an application's ease of use, perceived usefulness, and efficiency of use can drive utilization of health IT in patients and physicians. Other studies mentioned availability of support, comfort in use, and site location as facilitators of health IT implementation and use.

In the published literature on care coordination tools, increases in workload or changes in workflow were noted as the most common barriers to use, while the most common facilitator was ease of use. Among telehealth studies, access, training, and usability were reported as frequent barriers to use, while satisfaction was the most prominent facilitator. More than 30 percent of studies examining use of personal health records and patient portals reported access as

a barrier to use, while satisfaction and ease of use were seen as facilitators in another 20 percent of studies. Studies of secure electronic communication cited training and confidentiality issues as substantial barriers to use, while ease of use and efficiency were the most common facilitators of use. Two studies of shared decisionmaking reported increases in workload or changes in workflow as a barrier to use, while satisfaction, ease of use, and efficiency were commonly seen as facilitators of shared decisionmaking interventions.

Key Question 3. What knowledge or evidence deficits exist regarding needed information to support estimates of cost, benefit, impact, sustainability, and net value with regard to enabling PCC through health IT?

Despite the substantial body of evidence on Key Questions 1 and 2, we found important deficits regarding the information needed to support estimates of the cost, benefit, impact, sustainability, and net value of using health IT to enable PCC. Most of the existing evidence focuses on process outcomes, clinical outcomes, and intermediate outcomes, with a paucity of research on the effects of health IT on responsiveness to the needs, preferences, and values of individual patients or on shared decisionmaking with patients, their families, and providers. Also, very few studies addressed the cost or sustainability of using health IT to promote PCC. Without stronger evidence on specific PCC-related outcomes, it will be difficult to determine the net value of enabling PCC through health IT. Furthermore, few studies examined the role of health IT in improving PCC among pediatric and elderly populations, and no studies were designed to assess how the effectiveness of health IT in promoting PCC may differ by racial and ethnic background, education, or socioeconomic status. Finally, relatively little evidence exists on the effectiveness of health IT for enabling PCC for patients with clinical conditions other than diabetes mellitus, heart disease, hypertension, or cancer.

Key Question 4. What critical information regarding the impact of health IT applications implemented to enable PCC is needed to give consumers, their families, clinicians, and developers a clear understanding of the value proposition particular to them?

To understand the value of health IT in promoting PCC, all stakeholders need information not only about the effectiveness of health IT applications for specific purposes, but also about their applicability to particular settings. To meet the needs of different types of stakeholders, investigators should engage consumers, their families, clinicians, and developers in the design of studies and the selection of the most important outcomes to assess. Stakeholders will gain better understanding of the value of health IT for promoting PCC if the selected outcomes are defined in a more standardized way. The outcomes in such studies should include measures of the effects of health IT on costs and provider efficiency.

Limitations

One of the major limitations of this review is the wide heterogeneity of included articles. We believe that this heterogeneity reflects the current trend of explosive expansion of health IT applications in various areas of health care delivery. However, such heterogeneity prevented us from being able to perform a meta-analysis, since too few articles had fully comparable

interventions with similar outcomes. In addition to the heterogeneity of the subjects, settings, conditions, and technologies studied, a few other limitations to these studies are notable. First, the primary outcomes studied were very diverse even in the framework of each Key Question. While real improvements in all outcomes are the ultimate goal, standardization of core outcomes pertinent to each Key Question may be helpful in future analyses. Second, more studies are needed on clinical conditions other than diabetes, hypertension, and heart disease in order to determine the extent to which positive results can be achieved for a wide variety of conditions. Particularly lacking are studies focusing on women, children, the elderly, cancer, substance abuse, infectious diseases, surgical conditions, and critical illnesses. Finally, only a few studies presented here have described the effects of health IT implemented to enable PCC on cost and provider efficiency, and even fewer have done so in a high-quality fashion. Without more demonstrations of health IT used to deliver PCC being at least cost neutral and time neutral, improvements in health care processes may not be enough to justify their implementation.

Implications

This review provides a comprehensive picture of the current state of the art regarding health IT interventions implemented to enable PCC. We conclude that significant evidence exists confirming the positive impact of PCC-related health IT applications on health care outcomes. The evidence points to clinical areas in which health IT is most likely to foster PCC and yield clinical benefits, but the evidence is not strong enough to provide clear guidance to health care systems on how best to use health IT in promoting PCC systemwide. We clearly need more research, as indicated above, to determine the extent to which health IT interventions will enhance the delivery of PCC and improve clinical outcomes for patients with different types of clinical conditions. We also need more research to give health care providers better information on how to weigh the value of health IT applications for promoting PCC relative to the investment of resources needed. To fully realize the potential for health IT applications to facilitate PCC, future research and development should incorporate the principles of PCC in a more systematic and comprehensive way.

Reference

1. Institute of Medicine. Crossing the Quality Chasm: A New Health System for the 21st Century, vol. 6. Washington, DC: National Academy Press; 2001.

Introduction

Background

The Institute of Medicine defines patient-centered care (PCC) as "care that is respectful of and responsive to individual patient preferences, needs and values, and ensuring that patient values guide all clinical decisions."[1] The Institute of Medicine recognizes PCC as one of the six major domains of health care quality (the other domains include effectiveness, safety, timeliness, efficiency, and equity). To enhance our understanding of what is involved in delivering PCC, experts have identified several different components of PCC: coordination and integration of care, whole-person orientation, enhanced clinician-patient relationship, clinical information systems, and socio-cultural competence

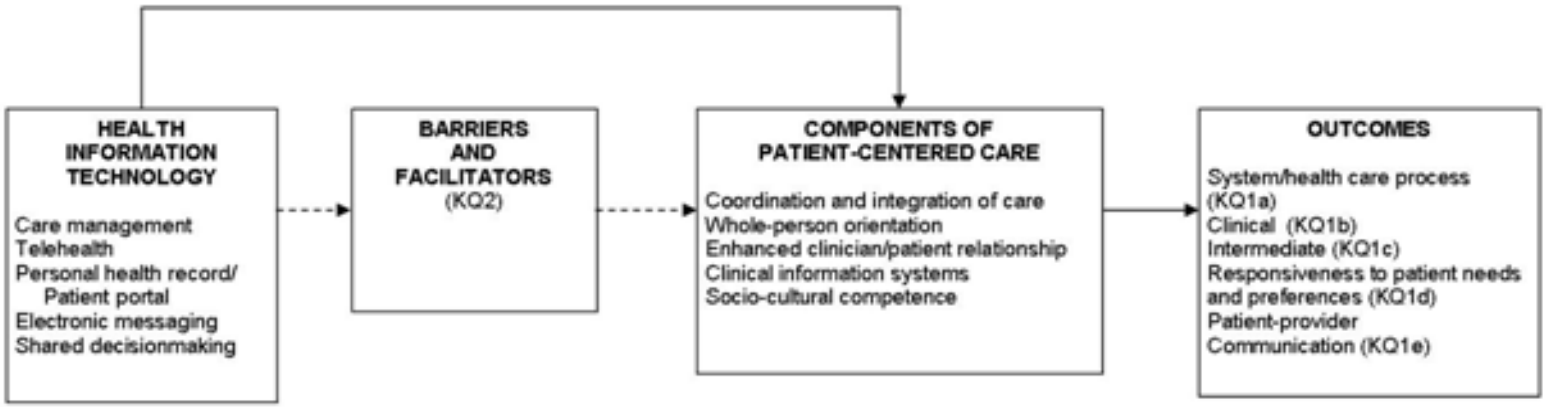
(See Figure 1 and Tables 1-4).[2-6] Despite the fact that many experts agree about the importance of PCC, the United States health care system faces enormous challenges in finding ways to deliver it.

One of the most promising ways to support the delivery of PCC is through the use of health information technology (health IT). For this evidence report, we broadly define health IT as "the use of information and communication technology in health care to support the delivery of patient or population care or to support patient self-management."[7] In this report, we will examinie health IT types in the following categories: care management tools, telehealth, personal health records/patient portals, secure electronic messaging, and shared decisionmaking. (See the Glossary for definitions and examples of health IT applications.) In recent years, the health care industry has developed an increasing number of health IT applications designed to provide PCC. However, studies of such applications have varied widely in their methods and results, making it challenging to determine the overall role and usefulness of health IT in delivering this level of care.

Purpose of Evidence Report

The purpose of this evidence report is to improve our understanding of the impact of health IT applications that address PCC. While the health care community has widely recognized the potential of health IT to enable PCC, to date no one has conducted a comprehensive evidence-based analysis of the effectiveness of health IT enabled PCC. In addition, we have yet to clearly identify barriers and facilitators that affect health IT's ability to enable PCC. For this report, we reviewed the evidence regarding four specific Key Questions. The first Key Question focuses on the outcomes of health IT applications that address components of PCC, and how those outcomes vary by type of health IT application. The second Key Question focuses on identifying barriers and facilitators to the implementation of health IT applications that address PCC. The last two Key Questions focus on defining gaps in our knowledge about health IT applications that address PCC, and identifying their specific value to consumers, their families, clinicians, and developers of this technology. The target population of interest includes health care providers using health IT to deliver PCC. By addressing these questions in a systematic way, we sought to provide a comprehensive synthesis of the evidence on the effectiveness of using health IT in promote PCC. We hope this review will inform both the designers and adopters of health IT applications as well as health policy makers.

Figure 1. Conceptual framework* on enabling patient-centered care through health information technology



KQ = Key Question
*Key questions 3 (knowledge of evidence deficits) and 4 (critical information regarding health IT applications) are not included in this conceptual framework.

Table 1. Categorization of outcomes addressed in Key Question 1

System/health care process (KQ1a)
Receiving appropriate treatment
Guideline adherence
Quality of care metrics
Documentation completeness
Cost-effectiveness
Timeliness
Clinical (KQ1b)
Disease-specific parameters
Quality of life
Safety
Intermediate (KQ1c)
Health knowledge
Health behaviors
Patient satisfaction
Responsiveness to patient needs and preferences (KQ1d)
Patient
Patient preferences, values, and treatment needs
Patient-provider communication (KQ1e)
Shared decisionmaking
Health communication
Patient and clinician access

Table 2. Categorization of barriers and facilitators addressed in Key Question 2

Barriers
Usability
Access
Training
Cost
Computer literacy
Increased workload or change in workflow
Implementation
Confidentiality
Facilitators
Satisfaction
Ease of use
Usefulness
Efficiency

Table 3. Categorization of health information technology

Care management tools
Information technology guided self care
Social networking
Peer-to-peer support
Information technology guided disease management
Electronic medical records
Computerized order entry
Disease registry
Electronic prescribing
Clinical decision support
Telehealth
Telemonitoring systems
Telemedicine
Personal health record and patient portal related applications (PHR/patient portals)
Personal health record
Patient portal
Education via information technology
Interactive lifestyle counseling
mHealth
Secure electronic messaging
Information exchange
Communication via e-mail
Social networking/peer-to-peer sites
Shared decisionmaking
Shared decisionmaking tools

Table 4. Categorization of components of patient centered care

Coordination and integration of care
Quality improvement
Quality and safety
Integrated care
Prevention and health promotion
Routine patient feedback to the practice
Transition and continuity of care
Whole-person orientation
Alleviation of fear and anxiety
Respecting patients' values, preferences and needs
Emotional support
Exploring the disease and illness condition
Physical comfort
Enhanced clinician-patient relationship
Patient engagement in their care
Patient empowerment
Finding common ground
Clinical information systems
Publicly available information on practices
Practice-based learning
Socio-cultural competence
Community outreach
Family and friend involvement in care

Key Questions

Key Question 1. Are health IT applications that address one or more components of PCC effective in improving the following outcomes, and how do the outcomes vary by type of health IT application?

a. Health care process outcomes (e.g., receiving appropriate treatment)
b. Clinical outcomes for patients (including quality of life)
c. Intermediate outcomes (such as patients' improved health knowledge, health behaviors and physiologic measures, patient satisfaction, and reduced costs)
d. Responsiveness to the needs and preferences of individual patients
e. Shared decisionmaking between patients, their families, and providers; patient-clinician communication; and access to medical information

Key Question 2. What are barriers or facilitators that clinicians, developers, patients and their families or caregivers encounter that may impact implementation and use of health IT applications to enable PCC?

Key Question 3. What knowledge or evidence deficits exist regarding needed information to support estimates of cost, benefit, impact, sustainability, and net value with regard to enabling PCC through health IT?

Key Question 4. What critical information regarding the impact of health IT applications implemented to enable PCC is needed to give consumers, their families, clinicians, and developers a clear understanding of the value proposition particular to them?

Methods

Introduction

The objective of this report is to develop a comprehensive understanding of the impact of health information technology (health IT) applications designed to address patient-centered care (PCC). To accomplish this objective, the Johns Hopkins Evidence-based Practice Center reviewed literature on the impact of health IT applications that address PCC. The Center assessed the value of these applications, with particular attention to health IT's role in improving a variety of outcomes, heightening the responsiveness of caregivers to the needs and preferences of individual patients, and enhancing shared decisionmaking between patients and clinicians. We also examined barriers and facilitators that might affect how well clinicians, developers, patients, and families interface with health IT applications. In addition, we examined the cost, benefit, impact, sustainability, and net value of enabling PCC through health IT. We identified gaps in current research and made recommendations for further research. Finally, we determined critical information that might help stakeholders better see the value of this new technology.

Recruitment of Technical Experts and Peer Reviewers

We assembled a primary team of experts and advisors to evaluate the effectiveness of health IT applications in addressing PCC. This included a core team from the Johns Hopkins University who are highly knowledgeable in health care informatics and PCC to reduce health disparities as they relate to pediatric populations, primary care settings, Medicaid and geriatric populations, patients with mental health problems, and those receiving home care. In addition to this core team, we had two external advisors, as well as representatives from the Agency for Healthcare Research and Quality (AHRQ) who gave input throughout the project. We also recruited six external experts to serve on the project's Technical Expert Panel from diverse professional backgrounds including patient-physician communication, patient-provider communication using health IT, and shared decisionmaking. The Technical Expert Panel assisted the primary team in refining the key questions, search strategies, and the conceptual framework. The Technical Expert Panel also served as peer reviewers of the draft evidence report. In addition, two additional Peer Reviewers were recruited to review this report; unlike the primary team members, they were not involved during the project development phase and were not contacted for input regarding the project's development.

Key Questions

The primary team refined a set of key questions originally proposed by AHRQ for this project. These key questions are presented in the "The Purpose of This Evidence Report" section of the introduction. Before searching for the relevant literature, we clarified the definitions of the key questions and the types of evidence that we would include in our review.

Key Question 1 addresses existing evidence on health IT applications implemented to enable PCC, their impact on various health care outcomes, and how the outcomes vary by type of health IT application. The primary team agreed that the best evidence available to answer this question would be found in randomized controlled trials (RCTs). Furthermore, since few studies evaluated health IT that supports all components of PCC simultaneously, we agreed to include in this

review any study that evaluated how one or more health IT applications affected at least one component of PCC, as defined in our conceptual framework (see Figure 1).

Key Question 2 addresses barriers and facilitators encountered by users (clinicians and patients and/or their families or caregivers) and health IT developers related to health IT applications that addressed PCC. The primary team agreed that RCTs were not the best study design for identifying and evaluating barriers and facilitators. Therefore, we decided to include articles with any study design whose specified purpose was to look at these barriers and facilitators. We also reviewed all RCTs evaluated for Key Question 1 to determine whether barriers and facilitators were assessed as well.

Key Questions 3 and 4 address knowledge and evidence deficits regarding estimates of cost, benefit, impact, sustainability, and net value of health IT applications designed to enable PCC, and the critical information needed by health IT users and developers to best assess the PCC-specific value of these applications. These questions were also intended to suggest possible public and private organizations best suited to perform additional research and/or analysis.

The primary team agreed that the answers to Key Questions 3 and 4 (about knowledge deficits and needed information) would emerge from our review of the evidence for Key Questions 1 and 2.

Conceptual Framework

PCC has various components. Since each patient is unique, we have to account for any combination of these components to best serve a patient's needs, values and preferences. Therefore, we decided that dividing PCC attributes into "primary" and "secondary" was impractical and counterproductive for the purposes of this review.

For this report, we defined "patient engagement" as how a patient's behavior regarding their health care (rather than the actions of clinicians or the policies of institutions) affects outcomes. We based this on the definition of "patient engagement" set forth by The Engagement Behavior Framework.[8] The purpose of the Engagement Behavior Framework is to present a realistic and comprehensive picture of what individuals must do to benefit from the health care available to them. Specifying these behaviors allows the public and other stakeholders to understand the magnitude and scope of the challenges people face in finding and using safe, decent care. The white paper from the Center for Advancing Health titled "A New Definition of Patient Engagement: What is Engagement and Why is it Important?"[9] further explores this health-behavior centered approach to the definition of patient engagement. Recognizing that the definition of patient engagement is related to a patient's ability to accept and carry out certain behaviors, we felt that it was important to consider several different types of health care outcomes that are closely related to patient engagement (see Table 1, Key Questions 1c, 1d, and 1e).

The conceptual model of PCC has been constantly evolving since its presentation by Balint in 1969.[10] Several conceptual frameworks for PCC exist (as described in the literature) and have overlapping components. In 1993, the Picker/Commonwealth Program for Patient-Centered Care delineated seven dimensions of PCC: (1) respect for patients' values, preferences, and expressed needs; (2) coordination and integration of care; (3) information, communication, and education; (4) physical comfort; (5) emotional support and alleviation of fear and anxiety; (6) involvement of family and friends; and (7) transition and continuity.[6] Stewart,[5] in a 1995 book on patient-centered medicine, described six components of the patient-centered medical method: (1) exploring both the disease and the illness experience, (2) understanding the whole person, (3)

finding common ground, (4) incorporating prevention and health promotion, (5) enhancing the patient–doctor relationship, and (6) being realistic. In 2004, Davis[2] described "A 2020 Vision of Patient-Centered Primary Care" that included the following seven components of PCC: (1) superb access to care; (2) patient engagement in care; (3) clinical information systems that support high-quality care, practice-based learning, and quality improvement; (4) care coordination; (5) integrated, comprehensive care and smooth information transfer across a fixed or virtual team of providers; (6) ongoing, routine patient feedback to a practice; and (7) publicly available information on practices. A 2006 report prepared by the Economic and Social Research Institute for the W. K. Kellogg Foundation listed the following "Core Components of Patient-Centered Care for Underserved Populations"[4]: (1) a welcoming environment, (2) respect for patients' values and expressed needs, (3) patient empowerment or "activation," (4) sociocultural competence, (5) coordination and integration of care, (6) comfort and support, (7) access and navigation skills, and (8) community outreach. The Joint Principles of the Patient-Centered Medical Home,[11] released in 2007 by the American Academy of Physicians, American Academy of Family Physicians, American College of Physicians, and American Osteopathic Association, included the following components of PCC: (1) personal physician, (2) physician-directed medical practice, (3) whole-person orientation, (4) coordinated and/or integrated care, (5) quality and safety, (6) enhanced access, and (7) payment. In 2007, the National Cancer Institute published a monograph that identified six core functions of patient-centered communication in cancer care, including: fostering healing relationships, exchanging information, responding to emotions, managing uncertainty, making decisions, and enabling patient self-management.[12]

The Johns Hopkins Evidence-based Practice Center team developed a conceptual framework to define PCC and illustrate how it is interrelated to outcomes and various aspects of health IT. (see Figure 1 and Tables 1-4). We based this framework on the above mentioned models of PCC and included elements from the corresponding publications: Balint, 196910, Gerteis, 1993[6]; Stewart, 1995[5]; Davis, 2004[2]; Economic and Social Research Institute 2006[4]; The Joint Principles of the Patient-Centered Medical Home, 2007[3]; and Epstein 2007.[12] In addition to using these resources, we consulted the Technical Expert Panel and external advisors for specific input on components of PCC, related health IT applications and key patient outcomes, as well as barriers and facilitators to health IT applications specific to PCC.

We used the framework to direct our review of the relevant literature and to assist reviewers in understanding which articles fit our criteria for inclusion.

Literature Search Methods

We used a systematic approach to searching the literature to minimize the risk of bias in selecting articles for inclusion in the review. Searching the literature involved identifying reference sources, formulating a search strategy for each source, and executing and documenting each search. For our searches of electronic databases, we began by identifying relevant medical subject heading terms.

To identify articles that were potentially relevant to Key Question 1, we searched for terms relevant to our definition of "health IT applications," combined with terms that identified "PCC components" (see Appendix B: Glossary of Specific Study Terms). We also used a validated search string identifying RCTs as the study design of interest.[13]

The preliminary review of the literature showed that there was a broad spectrum of health IT applications that could potentially be used to support PCC, and the applications could be delivered at the level of the patient, clinician, or health care system. The articles describing these

applications used a wide variety of terms to label these applications. No standard terminology is currently available to uniquely identify these applications and to streamline the literature search. Therefore, to ensure completeness of our search, the core team carefully reviewed the existing literature and produced an extensive list of possible keywords, which the team, in turn, used to identify health IT applications that potentially supported PCC. The project's Technical Experts Panel reviewed this list of keywords in several iterative steps and the core team adjudicated all comments. The team used these terms in the literature search to identify potentially relevant articles in a reliable manner.

The team used a similar approach to identify articles describing the components of PCC, resulting in the following five domains: coordination and integration of care, whole-person orientation, enhanced clinician/patient relationship, clinical information systems, and socio-cultural competence (Figure 1 and Table 4).

To identify articles that that were potentially relevant to Key Question 2, we conducted a separate search for terms relevant to our definition of "health IT applications," combined with terms relevant to our definition of "barrier" and "facilitator," (see Appendix B, Glossary of Specific Study Terms). This search string did not include the limiting string for RCTs used for the search of Key Question 1 articles, because we agreed not to limit articles that applied to this key question to any particular study design.

We limited both search strings to studies involving only humans, written in English, and published in 1998 or later. We also excluded all titles catalogued with a publication type of editorial, letter, or comment. These publication types generally do not contain data and would not have been useful to this review. We did not apply any sex, age, or geographic limitations.

We also searched for eligible studies by reviewing the references in pertinent reviews, by querying our experts, and by taking advantage of knowledge shared at team meetings. (See Appendix C for the detailed search strategies.)

Health IT Classification Methodology

The list of health IT applications described above was instrumental in the identification of all eligible articles during the literature search phase. To ensure completeness of the literature search, the list included overlapping or similar terms describing health IT from different perspectives including functionality, technology, and capabilities.

To address key questions related to the impact of different types of health IT on the various outcome variables, we needed a consistent method for classifying health IT applications. The core team conducted a comprehensive review of health IT taxonomies. Currently, no universally accepted taxonomy of health IT applications is available. The most frequently used taxonomy of health IT functionality has been developed by the Institute of Medicine in the report titled "Key Capabilities of Electronic Health Systems"[14] and Chaudhry, 2006.[15] The taxonomy included the following categories: health information and data, results management, order entry management, decision support, electronic communication and connectivity, patient support, administrative processes, reporting, and population health management. Based on this taxonomy, we summarized the impact of different health IT applications on key outcomes depending on each application's Institute of Medicine-defined functionality in Appendix D.

Using the Institute of Medicine classification for the purposes of this review has limitations since it is too broad and focuses only on the core functionalities of contemporary electronic health record systems. To provide systematic evidence of the impact of various types of health IT on different outcomes, the core team, in collaboration with the Technical Experts Panel and

AHRQ, divided health IT into five major groups based on their definition and functionality related to PCC. As described in Table 3, the health IT types included are: care management tools, telehealth, personal health records (PHRs)/patient portals, secure electronic messaging, and shared decisionmaking. The mapping between the original list of health IT applications used for the literature search and this classification is provided in Appendix D.

Sources

Our comprehensive search included electronic searching of peer-reviewed literature databases and grey-literature databases as well as hand-searching. We ran searches of the MEDLINE®, EMBASE®, Cochrane Library, Scopus, Cumulative Index to Nursing and Allied Health Literature (CINAHL), PsycINFO, INSPEC, and Compendex databases through July 31, 2010.

Search Terms and Strategies

We designed search strategies specific to each database to enable the team to focus the available resources on articles that were most likely to be relevant to the key questions. We developed a core strategy for MEDLINE®, accessed via PubMed, on the basis of an analysis of the relevant medical subject heading terms and text words of key articles identified *a priori*. The PubMed strategy formed the basis for the strategies developed for the other electronic databases (see Appendix C, Detailed Search Strategies).

Organization and Tracking of the Literature Search

We downloaded the results of the searches into ProCite® version 5.0.3 (ISI ResearchSoft, Carlsbad, CA). We removed duplicate articles retrieved from the multiple databases prior to initiating the review. We uploaded the articles to SRS 4.0 from ProCite (TrialStat© 2003-2007). SRS is a secure, Web-based collaboration and management system designed to speed the review process and introduce better process control and scientific rigor. Mobius Analytics (Ottawa, Canada) assumed ownership of the SRS system in February of 2009. This did not change the functionality of the system. We used this database to store full articles in portable document format (PDF) and to track the search results at the title review, abstract review, article inclusion/exclusion, and data abstraction levels.

Title Review

The core study team scanned all the titles retrieved. Two team members independently reviewed the titles. For a title to be eliminated at this level, both reviewers had to indicate that it was ineligible. If the first reviewer marked a title as eligible, it was promoted to the next elimination level, or if the two reviewers did not agree on the eligibility of an article, it was automatically promoted to the next level (see Appendix E Title Review Form).

We designed the title review phase to capture as many studies as possible that reported on either the impact of health IT applications on PCC or on barriers and facilitators to the use of health IT applications in enabling PCC. We promoted all titles that we thought addressed these criteria to the abstract review phase.

Abstract Review

We designed the abstract review phase to identify articles that applied to Key Questions 1 and/or 2. We excluded an abstract at this level if it did not apply to one of these key questions or for any of the following reasons: did not address health IT, did not address PCC delivered by clinicians, addressed health IT impact on PCC but was not a RCT (this exclusion did not apply to studies designed to assess barriers and facilitators [Key Question 2]), had no original data (e.g., letter to the editor, comment, systematic review), was published before 1998, or was not in English (see Appendix E, Abstract Review Form).

We promoted abstracts to the article review level if two reviewers agreed that the abstract could apply to Key Questions 1 and/or 2 and did not meet any of the exclusion criteria. We resolved differences of opinion by discussion between the two reviewers.

Article Review

Full articles that we selected for review during the abstract review phase underwent another independent review by paired members of the study team to determine whether they should be included in the full data abstraction. At this phase of review, the reviewers determined which of the key question(s) and sub-question(s) each article addressed (see Appendix E, Article Inclusion/Exclusion Form). If reviewers determined the articles had applicable information, the articles were included in the data abstraction. We resolved differences of opinion regarding article eligibility through consensus adjudication between the reviewers. We listed articles excluded at this level in Appendix F.

Data Abstraction

Once we included an article at this level, we gave reviewers a final option to exclude the article if it was found to be inapplicable once the data abstraction was underway. We used this process to eliminate articles that did not contribute to the evidence under review (see Appendix E, General Data Abstraction Form). If the reviewers excluded an article at this level, they tagged it with the appropriate reason for exclusion.

We used a sequential review process to abstract data from the final pool of articles. In this process, the primary reviewer completed all of the relevant data abstraction forms. The second reviewer checked the first reviewer's data abstraction forms for completeness and accuracy. We formed several reviewer pairs to include personnel with both clinical and methodological expertise. We did not blind the reviews in terms of the articles' authors, institutions, or journal.[16] We resolved differences of opinion through consensus adjudication between the reviewers.

For all articles, reviewers extracted information on general study characteristics, including: study design, location, disease of interest, inclusion and exclusion criteria, description of the population under study, and description of the interventions focusing on the health IT application(s) (see Appendix E, General Data Abstraction). Reviewers took data from any and all articles that applied to Key Question 1. They took data from articles that applied to Key Question 2 only if they addressed the following inclusively: condition of interest, the health IT application, data collection/study design, and barriers and facilitators. (See Appendix E, General Data Abstraction and Outcomes Abstraction.)

Quality Assessment

We assessed each study, in regards to Key Question 1, on the basis of the quality of reporting of the relevant data. For these RCTs, we used the scoring system developed by Jadad et al. to assess the quality of RCTs (see Appendix G, Jadad).[17] This scoring system consists of five questions: (1) Did the authors describe the study as randomized (this includes the use of words such as "randomly," "random," and "randomization")? (2) Did the authors describe the method used to generate the sequence of randomization, and was it appropriate? (3) Did the authors describe the study as double-blind? (4) Did the authors describe the method of double-blinding, and was it appropriate? (5) Did the authors include a description of withdrawals and dropouts? Our scoring system for these questions resulted in a score for each study ranging from -3 to +3. We assigned a score of 0 to +3 a quality rating of "high" reliability, and we assigned a negative score a rating of "moderate" reliability.

Data Synthesis

We created a set of detailed evidence tables containing information extracted from the eligible studies. We stratified the tables according to the applicable key question (and sub-question, in the case of Key Question 1). In addition, tables were further stratified to pool together the common target conditions of interest. We did not quantitatively pool the data for any of the outcomes because of the marked heterogeneity of the interventions, target conditions, and outcomes studied.

Data Entry and Quality Control

One reviewer abstracted data and entered it into the online data abstraction forms (see Appendix E). The second reviewers were generally more experienced members of the research team, and one of their main priorities was to check the quality and consistency of the first reviewers' answers. Once evidence tables were created, we re-checked selected data elements against the original articles. If there was a discrepancy between the abstracted data and the data appearing in the article, we brought this discrepancy to the attention of the study team member in charge of the specific data set, who then corrected the data in the final evidence tables.

Grading of the Evidence

We graded the quality, quantity, and consistency of the best available evidence addressing Key Question 1. For this assessment, we adapted an evidence grading scheme derived from the GRADE Working Group,[18] modified in Chapter 11 of the Evidence-based Practice Center manual.[19] We separately considered the evidence from studies addressing the five identified outcomes of Key Question 1: health care process outcomes, clinical outcomes for patients, intermediate outcomes, responsiveness to the needs and preferences of individual patients, and shared decisionmaking between patients, their families, and providers. We further stratified each of these main categories into subcategories by target disease or condition. We stratified the evidence grading this way because the body of evidence was too heterogeneous to be graded without stratification into more homogenous groups of studies. If an outcome was evaluated by only one RCT, we did not grade the body of evidence, but merely described the information available. Two reviewers graded the evidence in each category. We did not use these criteria to

grade the evidence on Key Questions 2, 3, and 4 because the evidence grading scheme of the GRADE Working Group was not designed for those types of questions.

Quality

For each body of evidence in Key Question 1 (see Tables 1–33), we used the mean of the individual study Jadad scores described above under "Quality Assessment" to assign an initial rating of study quality based on the same rule as for the individual studies. We further modified this initial rating by assessing quantity and consistency according to the following *a priori* rules.

Quantity

We considered a body of five studies or fewer sparse, and lowered the rating for strength of evidence one level (for example, from high to moderate, moderate to low, or low to insufficient).

Consistency

We tallied the direction of effects in the evidence tables, indicating whether each type of intervention had a positive or negative impact on outcomes, across all studies and outcomes within a body of evidence. For bodies of evidence with three or fewer outcome results, we gave any disagreement an inconsistent rating. For bodies of evidence with four to 10 results, we considered 25 percent or more disagreement inconsistent. For those with more than 10 results, we considered 33 percent or more disagreement inconsistent. We intended these criteria to account for the greater instability of results in smaller bodies of evidence. An inconsistent rating lowered the overall rating of the strength of evidence by one level.

Overall Rating of the Strength of the Body of Evidence

We combined the initial quality rating based on the mean Jadad score for a body of evidence with the quantity and consistency ratings to arrive at an overall rating of the strength of evidence. For example, a group of studies comprising a body of evidence could be rated "high" in quality in terms of study design, as assessed by the mean Jadad score, but could be lowered by two levels to "low" strength of evidence if that body of evidence was judged by our a priori criteria to be sparse and inconsistent. There were four levels in our grading of the strength of evidence: (1) "high" grade (high confidence that the evidence reflected the true effect; further research is very unlikely to change our confidence in the estimate of the effect); (2) "moderate" grade (moderate confidence that the evidence reflected the true effect; further research may change our confidence in the estimate of effect and may change the estimate); (3) "low" grade (low confidence that the evidence reflected the true effect; further research is likely to change the confidence in the estimate of effect and is likely to change the estimate); and (4) "insufficient" (evidence was either unavailable or did not permit the estimation of an effect).

Other Criteria Not Used

The GRADE method and Evidence-based Practice Center manual have other criteria for assessing the strength of evidence in comparative effectiveness reviews that were difficult to apply to the highly heterogeneous body of evidence included in this review. For example, the "directness" criterion is intended to assess the directness of comparisons in a body of evidence. In studies comparing interventions A, B, and C, are A and C compared directly to each other, or

are they each compared only to B? The large numbers of interventions and outcome measures in each body of evidence made this type of assessment impractical. “Precision” is intended to assess the variability of quantitative measurements for a single intervention and single outcome. In the present review, the interventions and outcomes are so heterogeneous, with widely varying magnitudes of effect, that it would be misleading to formulate quantitative estimates of the overall precision of the reported outcome measures.

Peer Review

Throughout the project, the core team sought feedback from the advisors and the Technical Experts Panel. A draft of the report was sent to the Technical Experts Panel and peer reviewers as well as to representatives of AHRQ. In response to the comments from the Technical Experts Panel and peer reviewers, we revised the evidence report and prepared a summary of the comments and their disposition for submission to AHRQ.

Results

Results of the Literature Search

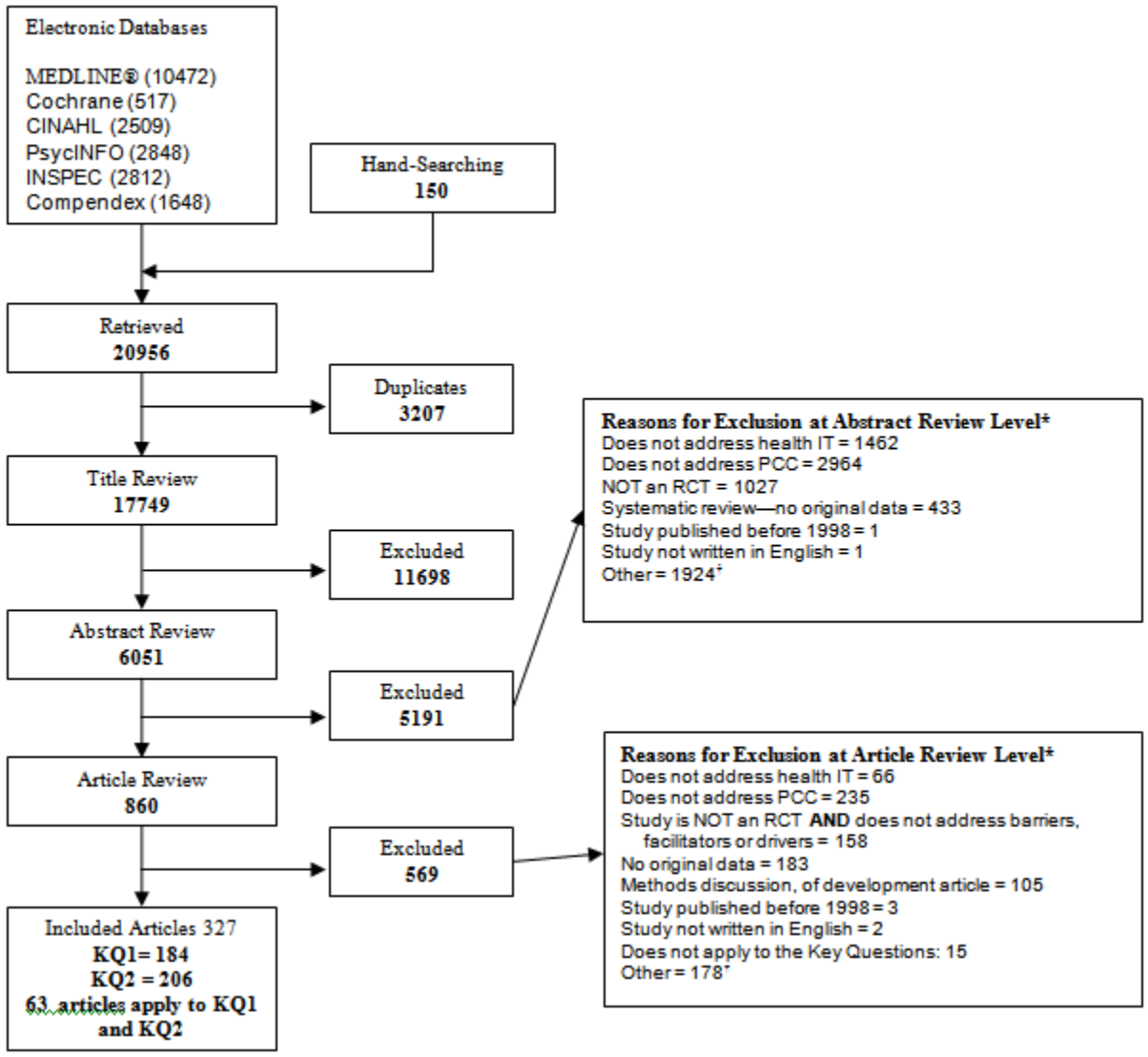
The literature search and hand searching process identified 17,749 citations that were deemed potentially relevant to Key Questions 1 and/or 2 (Figure 2). We excluded 3,207 duplicate citations from the electronic search results. Most duplicates came from concurrently searching MEDLINE®, The Cochrane Library, CINAHL, and PsycINFO.

During the title screening process, we excluded 11,698 citations that clearly did not apply to the key questions. The abstract screening process excluded 5,191 citations that did not meet one or more of the eligibility criteria for this study listed in Chapter 2. At the article-screening phase, we excluded an additional 567 articles that did not meet one or more of the eligibility criteria. Ultimately we were left with 327 articles that were applicable to Key Questions 1 and/or 2—184 for Key Question 1, 206 for Key Question 2, and 63 articles that were applicable to both Key Questions 1 and 2 (see Appendix F for a list of excluded articles). We did not search for studies in the gray literature because we found a more than adequate number of applicable studies in the main search.

Description of the Types of Studies Retrieved

The primary research team agreed that RCTs provided the best evidence for measuring how well health IT applications enable PCC. Therefore, all 184 studies relevant to Key Question 1 were RCTs. The team also agreed that all study designs should be included when searching for articles investigating barriers and facilitators for using health IT application in PCC (Key Question 2). The 206 articles addressing barriers and facilitators were for the most part RCTs, qualitative studies, and usability studies.

Figure 2. Summary of literature search (number of articles)



* Total exceeds the # in the exclusion box because reviewers were allowed to mark more than 1 reason for exclusion
† Other reasons for exclusion include: study addressed health IT but was not an RCT, no original data, no abstractable data, methodological paper, descriptive studies. Other exclusions were heterogeneous.

Key Question 1a. Are health IT applications that address one or more components of PCC effective in improving health care process outcomes, and how do these improvements vary by type of health IT application?

General Study Characteristics

We identified 97 articles evaluating how health IT applications, that address PCC, affect process outcomes (Appendix G, Evidence Tables 1–3). These studies predominantly targeted the clinical conditions diabetes mellitus, hypertension, congestive heart failure, cancer and asthma (Table 5). They predominantly employed health IT applications that were classified as clinical decision aids, IT-guided disease management, electronic medical records, telemedicine, and telemonitoring systems (Table 6). They most commonly addressed the PCC components that were classified as patient engagement in care, quality improvement, quality and safety, prevention and health promotion, and integrated care (Table 7). They predominantly studied the process outcomes of adherence to standards of care for testing and treatment and use of health care resources (Tables 8–11). The study results suggested process outcomes generally improve with the health IT interventions that address one or more components of PCC.

Specific Findings

Health Care Process Outcomes in Studies Addressing Diabetes Mellitus

We identified 11 studies that evaluated the impact of health IT on process outcomes in patients with diabetes mellitus (Table 8a; Appendix G, Evidence Tables 1–4). Most showed a positive impact of health IT on process outcomes, and many of these effects were statistically significant. The study quality was high, but the quality scores were variable. The primary reasons for lower-quality scores were issues with studies not being double-blinded or not describing loss to followup. The overall grade of the strength of evidence in these studies was moderate (Table 8b; Appendix G, Evidence Tables 1–4).

In a large randomized study described by Filippi in 2003,[20] 150 general practitioners in Italy had access to an electronic reminder system integrated into their usual clinical practice software. A control group of 150 general practitioners did not have access to the electronic reminder system. The reminder system prompted the general practitioners in the intervention group to consider prescribing an antiplatelet medication when they opened the medical records for diabetic patients 30 years old or older. The study used an intention-to-treat approach, and included the selected general practitioners whether or not they chose to activate the system. After 7 months, patients not at high risk for cardiovascular disease who were treated by general practitioners in the intervention group were 1.99 (95% confidence interval [CI] 1.79 to 2.22) times more likely to have been prescribed an antiplatelet drug than were similar patients whose physicians were in the control group (Table 8a; Appendix G, Evidence Table 4).

A study published by Hetlevik in 2000[21] described a computerized decision support system accessible from the record system that 24 physicians in Norway used for 18 months. This system contained diagnostic and therapeutic modules that guided doctors in the diagnosis and management of patients with diabetes, hypertension, and hypercholesterolemia (although the article only discussed patients with diabetes). Physicians only used the system for 14 percent of the eligible patients, and while it did result in significantly increased notations about patients'

smoking status and cardiac risk scores, the rates of increase in notations about patients' glycated hemoglobin (HbA1c), cholesterol, and cardiovascular risk inheritance were not statistically significant (Table 8a; Appendix G, Evidence Table 4).

Sequist (2005)[22] described a 7-month trial where the intervention group used a patient data-specific electronic reminder system embedded in electronic medical records. The control group received usual care. A composite score (based on adherence to five measures of diabetes care) increased after implementation of the IT intervention; however, this increased score was attributable only to an increased hazard ratio of 1.41 (95% CI 1.15 to 1.72) for performing an annual cholesterol exam. Hazard ratios did not significantly increase in the intervention group for performance of a biennial HbA1c test or annual dilated eye exam, use of an angiotensin-converting enzyme inhibitor in hypertensive patients, or use of a statin in patients with a low-density lipoprotein (LDL) cholesterol $\geq$ 130 mg/dL (Table 8a; Appendix G, Evidence Table 4).

Thomas (2007)[23] studied the effects of quarterly feedback and patient-specific reminders from a computerized diabetes registry integrated with a clinical information system used by 78 internal medicine residents. Residents in the control group did not receive any computerized reminders. Patients cared for by physicians in the intervention group were more likely to have an HbA1c measurement within 6 months (61.5% vs. 48.1%, p=0.01), or an LDL cholesterol measurement within 12 months (75.8% vs. 64.1%, p=0.02) (Table 8a; Appendix G, Evidence Table 4).

A 2008 study by Persell and colleagues,[24] provided all physicians with a reminder to prescribe aspirin when they opened the electronic records for diabetic patients greater than 40 years of age who were not on aspirin. The study sent an additional email recommending aspirin prescription to the physicians of only 130 intervention patients; if deemed appropriate by the physician, patients received a letter and a phone call from a nurse advising aspirin use. Aspirin use did not significantly increase in the intervention group (46% vs. 39%, p=0.20) (Table 8a; Appendix G, Evidence Table 4).

A 3-year study, described by Ziemer (2006),[25] randomized 345 internal medicine residents to be controls or to receive patient-specific computerized recommendations and/or biweekly feedback on care performance for patients in the Grady Medical Clinic. Care for patients with elevated glucose levels increased to the greatest extent in the first year, and most significantly in the two groups receiving performance feedback, as opposed to the group receiving computerized recommendations alone (Table 8a; Appendix G, Evidence Table 4).

A cellular phone-based diabetes-management system described by Quinn (2008)[26] coached patients about glucose monitoring and diabetes control and provided feedback about blood glucose levels to physicians for 15 patients over 3 months. Patients using the system were more likely than patients in the control group to have their diabetes medications intensified (84.6% vs. 23.3%, p=0.002) and more likely to have medication errors identified (53.4% vs. 0%, p=0.002). Providers for these patients were also more likely to receive patients' glucose readings (100% vs. 7.7%, p<0.001) (Table 8a; Appendix G, Evidence Table 4).

A "virtual consultation" was provided by an endocrinologist for 358 diabetic patients via telemedicine and email in a 2008 study by Smith and colleagues.[27] The control group received no "virtual consultation." In the 12-month followup period, aspirin use increased (odds ratio [OR] 1.99, 95% CI 1.31 to 3.02), and more patients were noted to be not smoking or to have been advised to quit smoking (OR 1.80, 95% CI 1.04 to 3.13). However, there were no significant differences in the odds of being prescribed an angiotensin-converting enzyme inhibitor, angiotensin receptor blocker, or statin, or in the frequency of office visits, referrals for endocrine

consultation, or visits and calls with the diabetes educator (Table 8a; Appendix G, Evidence Table 4).

Gomez (2002)[28] described an intervention using a telemedicine system facilitating communication between patients and their care providers. They conducted a 6-month crossover pilot study with 10 type 1 patients with diabetes. During the telemedicine period, providers performed more therapeutic medication changes (2.9 vs. 0.2) (Table 8a; Appendix G, Evidence Table 4).

In the Diabetes Priority Program described by Glasgow (2000);[29] that enrolled 417 patients, the intervention group used a computerized touch screen assessment and action planning procedure prior to two diabetes-related visits, at 6 and 12 months. Their physicians were given a printout describing the patients' self-management goals and needs assessments. Patients in the intervention group reported having received more "lab procedures" (blood pressure evaluation, dilated eye exam, foot exam, microalbumin or HbA1c testing) during the study (4.29 procedures vs. 4.01, p=0.001). They also reported completion of more patient-centered activities (goal-setting, medical nutrition treatment, self-monitoring blood glucose, meeting patient satisfaction items): 3.74 vs. 3.31, p<0.001 (Table 8a; Appendix G, Evidence Table 4).

A study described by Ralston (2009)[30] randomized 39 patients to receive Web-based care management for 22 months, including electronic access to medical records, secure electronic messaging with providers, and feedback on blood glucose readings. The control group received usual care. No significant difference was found between intervention and control groups in the number of primary care or specialty physician visits or the number of days spent hospitalized (Table 8a; Appendix G, Evidence Table 4).

Health Care Process Outcomes in Studies Addressing Heart Disease

Fifteen studies evaluated the impact of health IT on process outcomes in patients with heart disease other than hypertension (Table 9a; Appendix G, Evidence Tables 1–3 and 5). Most showed a positive impact of health IT on process outcomes, and many of these results were statistically significant. Study quality was moderate. The primary reasons for lower quality scores were issues with studies not being double-blinded or not describing loss to followup. The overall grade of the strength of evidence in these studies was moderate (Table 9b; Appendix G, Evidence Tables 1–3 and 5).

An article by Murtaugh (2005)[31] reported on a study randomizing home health nurses for patients with heart failure to either usual care (n=122), a one-time email reminder highlighting heart failure recommendations (n=114), or an augmented intervention of email plus additional prompts, educational material, and outreach by a nurse specialist (n=118). For the basic email intervention, significantly more nurses recorded a comprehensive heart failure assessment and assessment of medication adherence and also documented instruction about shortness of breathe as a symptom. They were also more likely to document instructing patients to weigh themselves, consume a low-salt diet, and use methods to improve adherence with recommended therapy. For the augmented intervention, significantly more nurses recorded a comprehensive heart failure and diet assessment and assessed medication side effects. They were significantly more likely than usual care nurses to instruct patients about the symptom of fluid weight gain and to give global instruction about signs and symptoms. They also were more likely to document instructing patients to weigh themselves, to consume a low salt diet, to contact a physician for certain circumstances, and to provide educational material. Other findings also favored the basic

and augmented interventions, but these differences were not significant (Table 9a; Appendix G, Evidence Table 5).

Feldman (2005)[32] studied the effects of an email to the homecare nurses for 628 outpatients with heart failure; the email highlighted heart failure recommendations, with or without additional educational materials. Home care-related and overall costs per patient were higher for patients in the intervention groups than for a group not receiving email about heart failure recommendations, but this difference was only significant for patients whose nurses received the additional materials (Table 9a; Appendix G, Evidence Table 5).

In Kaner (2007),[33] verbal and non-verbal behaviors were compared for providers using paper-based guidelines versus a computer-based decision aid to discuss the use of warfarin with 29 patients who had atrial fibrillation. Consultation times were significantly greater for providers using the computer-based tool, and these providers spent significantly less time seeking information from patients and more time pausing, nodding, and gazing at the tool (Table 9a; Appendix G, Evidence Table 5).

Kucher (2005)[34] reported on the effects of a computer program designed to identify patients who were at risk for deep venous thrombosis and not on prophylaxis. The providers for 1,255 of these patients were randomly assigned to receive or not receive a computerized alert about patient risk. Significantly more intervention patients received mechanical (10.0 vs. 1.5%, $p<0.001$) or pharmacologic (23.6 vs. 13.0%, $p<0.001$) prophylaxis (Table 9a; Appendix G, Evidence Table 5).

A study by Lowensteyn in 1998[35] randomized 253 providers for 958 patients to either receive early post-visit, patient-specific, computerized coronary risk profiles or standard notification. Intervention patients were significantly more likely to return for followup (1.23 vs. 0.77, $p<0.05$) (Table 9a; Appendix G, Evidence Table 5).

Subramanian's 2004 study[36] randomized physicians to either receive patient-specific care suggestions based on electronic medical record data and patient symptom reports, or care suggestions based only on electronic medical record data, for a total of 720 patients. There were no significant differences in physician adherence to care suggestions at 12 months between the two groups. The intervention patients had more all-cause hospitalizations at 6 and 12 months; however, there were no significant differences between the two groups in terms of congestive heart failure and congestive heart failure-related hospitalizations (Table 9a; Appendix G, Evidence Table 5).

Tierney's 2003[37] study randomized physicians and pharmacists caring for 706 outpatients with heart failure and/or ischemic heart disease to receive or not receive evidence-based care suggestions. No significant differences were found between intervention and control groups in the number of patients with care that was compliant with recommendations, hospitalizations for any cause, or heart disease-specific hospitalizations (Table 9a; Appendix G, Evidence Table 5).

The randomized, prospective study by Bailey (2007)[38] used computerized alerts identifying inpatients with troponin levels greater than 1.4ng/ml within the first 24 hours of hospitalization; pharmacists were notified via email and then conducted academic detailing with the physicians caring for 365 intervention patients. As compared to standard care, the intervention patients were significantly more likely to be discharged on angiotensin-converting enzyme inhibitors and statin drugs ($p<0.01$); they were also more likely to be discharged on beta blockers, but this finding was not significant (Table 9a; Appendix G, Evidence Table 5).

A study described by Murray (1999)[39] randomized 28 pharmacists at a hospital-based outpatient pharmacy to receive or not receive telehealth for heart failure, ischemic heart disease,

reactive airways disease, and hypertension. Pharmacists in the intervention group spent significantly less time filling prescriptions, and significantly more time advising or informing patients or problem solving (Table 9a; Appendix G, Evidence Table 5).

Research described in the article by Jerant (2001)[40] compared usual care for 12 recently hospitalized patients with heart failure to that of 13 patients receiving video-based, home telehealth and 12 receiving telephone care. As compared to the usual care group, the mean heart failure-related readmission charges were 86 percent lower in the telehealth group and 84 percent lower in the phone group, but these differences were not significant. Both intervention groups had significantly fewer heart failure-related emergency department visits than did those receiving usual care (Table 9a; Appendix G, Evidence Table 5).

A randomized study by McCrossan (2007),[41] compared videoconferencing, teleconferencing, and usual care in 66 children at home with a new diagnosis of congenital heart disease. Parents of children receiving videoconferencing had more calls and longer calls than those with telephone care, but neither of these findings was significant. The rates at which particular concerns were raised were similar between the two groups, but more videoconferences resulted in an assessment that no action was needed or that the consultant should be informed, whereas phone conferences resulted in more referrals to the family doctor, emergency department, or inpatient cardiology ward; this last finding was statistically significant (Table 9a; Appendix G, Evidence Table 5).

A study by Wakefield (2008)[42] compared videophone, telephone, and usual care in 148 patients after hospitalization for heart failure. The time to readmission was significantly longer in the intervention group, but the readmission rate itself was not significantly different, and hospital days and urgent care clinic use were not significantly affected (Table 9a; Appendix G, Evidence Table 5).

Another study examining telehealth, Noel (2004),[43] randomized 104 patients with complex heart failure, chronic lung disease, and/or diabetes to receive either usual care or home telehealth for 6-12 months; the intervention patients also had at-home vital-sign monitoring. Telehealth patients had a significant decrease at 6 months in bed days of care ($p<0.0001$) and urgent clinic/emergency room visits ($p=0.023$) (Table 9a; Appendix G, Evidence Table 5).

Ross (2004)[44] described the effects of giving 54 of 107 outpatients with heart failure a combination of online access to their medical records, an educational guide, and a messaging system with clinic staff. Intervention patients had significantly higher compliance scores ($p=0.01$) (Table 9a; Appendix G, Evidence Table 5).

Scherr (2009)[45]described the effects of a telemonitoring system on heart disease patients in a randomized sample of 120 patients. Process outcomes of interest included re-hospitalization, system availability, system transmissions, length of stay, and dosage management. Fifty-four patients were randomized to the intervention. Intervention patients who were hospitalized had a shorter length of stay ($p=0.04$) than the control group (Table 9a; Appendix G, Evidence Table 5).

Health Care Process Outcomes in Studies Addressing Cancer

We identified four studies that evaluated the impact of health IT on process outcomes in patients with cancer; each showed almost exclusively positive effects, and a sizable number of these effects were statistically significant (Table 10a; Appendix G, Evidence Tables 1-3 and 6). Study quality was high, but the scores were variable. The primary reasons for lower-quality scores were issues regarding loss to followup. The overall grade of the strength of evidence in

studies of health care process outcomes addressing cancer was moderate (Table 10b; Appendix G, Evidence Table 6).

A study by Jones (1999)[46] offered 169 patients a personalized "consultation" about their condition using a touch screen computer, 167 patients general computer-based information about cancer, and another 180 access to booklets about various types of cancer. More patients who received personalized computer information indicated that they would prefer the computer to a 10-minute consultation with a physician and that they had used printed materials generated by the program at home. Physicians assessed more patients to be above average in knowledge in the group given general computerized information (35%) than in the group given a personalized consultation (25%) or booklets (20%) (p=0.01) (Table 10a; Appendix G, Evidence Table 6).

A study by Ruland (2003)[47] examined the effects of the computerized patient support system CHOICES: Creating better Health Outcomes by Improving Communication about Patients' Experiences with 27 of 52 patients with various cancer diagnoses. The study showed improved congruence between patient-reported symptoms and those addressed in a consult visit (Table 10a; Appendix G, Evidence Table 6).

McDonald (2005)[48] studied documentation by home care nurses caring for cancer patients with pain. Intervention nurses received either a patient-specific, one-time email (121 subjects) or an email plus supplemental education material and specialist nurse outreach (97 subjects) when eligible patients were enrolled in home care. The control group received usual care. While the basic and augmented interventions had positive effects on nurse documentation of the presence of pain, medication assessment, mood assessment, and the provision of instruction about medication management and education materials, none of these differences were significant. Nurses in the basic intervention group had a slightly lower probability of documenting bowel function (89.0%) than did control nurses (94.7%), (p=0.02). Cost differences between the three groups were not statistically significant (Table 10a; Appendix G, Evidence Table 6).

A study by Nguyen and colleagues in 2000[49] randomized 20 Vietnamese physicians to receive computerized or manual cancer screening reminders and educational materials, or no intervention. The duration of the intervention was 3 years. The study saw positive effects on rates of routine checkup performance, clinical breast exams, mammography, hepatitis B testing, and hepatitis B immunization; however, the study saw statistically significant improvement only for performance of smoking cessation counseling (p=0.02), Pap testing (p=0.004), and pelvic examinations (p=0.01) (Table 10a; Appendix G, Evidence Table 6).

Health Care Process Outcomes in Studies Addressing Other Targeted Care Focus Areas

After diabetes, heart disease, and cancer, the next most commonly targeted care focus areas were hypertension, asthma, mental health, and smoking cessation (Table 5).

Hypertension

Nine studies evaluated the impact of health IT on process outcomes in patients with hypertension. Study quality was high, and quality scores were consistent across studies (Table 11a; Appendix G, Evidence Table 7). The overall grade of the strength of evidence in studies of health care process outcomes addressing hypertension was high (Table 11b; Appendix G, Evidence Table 7). Eight of those studies that we deemed significant are outlined below.

Freitheim (2006)[50] randomized 146 general practices to an intervention or control group for the care of patients with preexisting or newly treated hypertension or hypercholesterolemia.

Intervention physicians received educational visits from pharmacists and patient-specific computerized reminders linked to the medical record system. Thiazide prescriptions increased significantly for the intervention patients; however, there was no difference in the percentage of patients who had cardiac risk assessments performed or whose treatment goals were achieved (Table 11a; Appendix G, Evidence Table 7).

A study described in Hetlevik (1998)[51] randomized physicians for 2,239 patients with hypertension to either use or not use a diagnostic and therapeutic decision support system. The study revealed no significant difference in the percentage that had registered blood pressure or cholesterol levels between the intervention and control groups during 12 months of followup. Similarly, there was no difference between the percentages that had recorded smoking status, cardiovascular inheritance, or body mass index (BMI) at 18 months (Table 11a; Appendix G, Evidence Table 7).

A study by Roumie (2006)[52] randomized the providers for 1,341 Tennessee veterans with hypertension on a single agent to receive either an email with Joint National Commission version 7 guidelines, the email plus patient-specific computerized alerts, or the email, alerts, and patient education. No significant differences were found between the percentages of patients in each group that had a dose increase, a drug added, or any change in antihypertensive medication (Table 11a; Appendix G, Evidence Table 7).

Montgomery (2000)[53] reported on a study that randomized 614 hypertensive patients to receive either usual care, a cardiac risk chart, or integrated patient-specific decision support and a cardiac risk chart. The primary outcomes were cardiac risk reduction and blood pressure control. Only the patients who received just the cardiac risk chart had significantly more cardiovascular drugs prescribed. The chart-only group was twice as likely to be prescribed two classes of cardiovascular drugs and more than three times as likely to be prescribed three or more classes of drugs than were the other groups (Table 11a; Appendix G, Evidence Table 7).

A study described by Mitchell (2004)[54] randomized 52 practices with 265,572 patients in Scotland to receive provider feedback based on general electronic medical record audits, or to receive patient-specific ("strategic") feedback or neither. The greatest increase in the number of patients with blood pressure recorded was in the general audit group (Table 11a; Appendix G, Evidence Table 7).

Hicks and colleagues (2008)[55] conducted a study that randomized the providers for 2,027 adult patients with hypertension to receive either 18 months of computerized patient-specific decision support recommendations or usual care. Intervention providers had significantly increased rates of Joint National Committee guideline-adherent prescribing, although the rates remained extremely low (7% vs. 5%, $p<0.001$) (Table 11a; Appendix G, Evidence Table 7).

Green (2008)[56] randomized 778 patients with uncontrolled hypertension and Internet access to receive either: usual care; home blood pressure monitoring and secure patient Web training; or home blood pressure monitoring, secure Web training, and pharmacist management via Web communications. The primary outcome was blood pressure control; however, the number of medications taken by the two intervention groups was significantly greater than that for individuals receiving usual care, and those in the pharmacist group also had significantly higher aspirin use. The number of primary care visits did not differ among the three groups (Table 11a; Appendix G, Evidence Table 7).

A study described by Parati (2009)[57] randomized 329 patients with hypertension to receive either usual care or home blood pressure telemonitoring. The intervention patients required

significantly fewer treatment changes than did the patients receiving usual care (Table 11a; Appendix G, Evidence Table 7).

Asthma

Six studies evaluated the use of health IT in asthma care (Appendix G, Evidence Tables 1-3). Eccles (2002)[58] examined the effects of providing caregivers with computerized guidelines for the management of asthma; there was no significant effect on the odds of assessing lung function, assessing inhaler technique, checking compliance, recording smoking status, or providing asthma education. There was also no difference in the prescription rates of certain asthma medications (Appendix G, Evidence Table 3).

Shiffman (2000)[59] studied the use of a handheld device in practitioners' offices that provided structured encounter documentation and offered recommendations for care. Documentation regarding peak expiratory flow rate (PEFR), oxygen saturation measurements, and nebulization treatments was significantly increased during the intervention period.

Taylor (2008)[60] found that an electronic decision support tool for patients with an asthma flare in an emergency department resulted in significantly higher rates of documentation in seven out of 10 variables (Appendix G, Evidence Table 3).

Chan (2003)[61] examined the effect of an Internet-based home-telehealth education, peak flow, and video-assessment system on patient symptoms and adherence in a 10-patient pediatric study. Inhaler technique improved significantly for those children in the intervention group (Appendix G, Evidence Table 3).

Kattan (2006)[62] used phone calls to children's caretakers to generate computerized letters to their providers about the children's symptoms, health service use, and medication use, along with treatment recommendations. Significantly more children in the intervention group kept their scheduled appointments and had their asthma medications appropriately stepped up (Appendix G, Evidence Table 3).

Finally, a study by Krishna (2003)[63] focused on using the Internet to educate children about their asthma and resulted in significant improvements in a process outcome—visits to the emergency department (Appendix G, Evidence Table 3).

Mental Health

Three eligible studies targeted the use of health IT in treatment of mental health conditions (see Appendix G, Evidence Tables 1–3). Two used computerized decision support to improve screening, diagnosis, and/or treatment for psychiatric conditions, Cannon (2000)[64] and Rollman (2002)[65]. However, only Cannon[64] found significant improvements in screening rates for mood disorders, and complete documentation of diagnostic criteria. One used electronic surrogates for psychiatric care, Marks (2004)[66]. This study found a significant decrease in clinician time when randomized patients received computerized self-exposure therapy for their phobia or panic disorder, without any decline in symptom improvement or treatment satisfaction (Appendix G, Evidence Table 3).

Smoking Cessation

Three studies evaluated the use of smoking cessation addressing health care process outcomes; each used electronic medical record-embedded decision support to improve smoking care by outpatient providers (see Appendix G, Evidence Tables 1–3).

Linder (2009)[67] is a large (132,630-patient) study that found significant improvement in documentation of smoking status and rates of contact with a cessation counselor but no difference in the likelihood of being prescribed smoking cessation medication.

Wolfenden (2005)[68] found that intervention patients were more likely to report receiving brief smoking advice by nurses and anesthesiologists and to report being prescribed postoperative nicotine replacement therapy at a preoperative clinic (Appendix G, Evidence Table 3).

Bentz (2007),[69] found that electronic health record-documented rates of advising, assessing, and assisting smokers increased significantly in intervention clinics (Appendix G, Evidence Table 3).

There were one or two studies addressing health care process outcomes that focuseed on a number of other conditions (Table 5 and Appendix G, Evidence Table 3).

How Does the Impact on Process Outcomes Vary by Type of Health IT Application?

Table 12 summarizes how health care process outcomes vary according to the type of health IT application described in Chapter 2. The analysis demonstrated that, among all reviewed health IT applications that address components of PCC, telehealth applications and care management tools were most frequently cited as having a positive impact on at least one health care process outcome. Although there were fewer studies examining the other three types of health IT, these other types of health IT applications had at least one statistically significant positive outcome in the majority of studies.

Table 5. Studies addressing the effect of health IT applications on process outcomes in specific target conditions, target populations, and care focus areas

Target Care Focus Area	N (Specific Reference)
Heart disease	15[45 70-83]
Diabetes mellitus	11[20-28 30 84]
Hypertension	9[50-57 85]
Asthma	6[58-62 86]
Cancer	4[46-49]
Mental health	3[64-66]
Smoking cessation	3[67-69]
Alcohol abuse	1[87]
Chronic obstructive pulmonary disease	2[88 89]
Pregnancy	3[90-92]
All the preventive procedures for families enrolled in the study	1[93]
Ambulatory patients	1[94]
Blood transfusion	1[95]
Chronic condition/health problem	1[96]
Anemia, diabetes mellitus, glandular fever, hypercholesterolemia, hypertension, liver problems, urine complaints	1[97]
Domestic violence	1[98]
Emergency department patients	1[99]
Evaluate the use of both medical services and drugs before and after the implementation of computer decisionmaking support.	1[100]
Fever without apparent source in 1-36 month old.	1[101]
Genetic counseling	1[102]
Hemophilia	1[103]

Table 5. Studies addressing the effect of health IT applications on process outcomes in specific target conditions, target populations, and care focus areas (continued)

Target Care Focus Area	N (Specific Reference)
Hyperlipidemia	1[104]
Infection antibiotic management and prophylaxis	1[105]
Influenza immunization in high-risk adult patients	1[106]
Menopause/ hormone replacement therapy	1[107]
Multiple conditions	1[43]
Osteoporosis	1[108]
Overactive bladder symptoms	1[109]
Patients over 65 who are prescribed certain medications (age-specific prescribing)	1[110]
Patients with trauma as the primary risk factor for acute respiratory distress syndrome	1[111]
Polypharmacy and falls in ambulatory rural elderly	1[112]
Preventive medicine (routine laboratory monitoring to reduce the risk of adverse medication events)	2[113 114]
Recurrent headache	1[115]
Skin lesions	1[116]
Sleep apnea	1[117]
Spinal cord injuries	1[118]
Thrombotic or bleeding events	1[119]
Upper respiratory infections	1[120]
Wound care	1[121]
Other or unspecified	12[122-134]

IT: Information Technology

Table 6. Studies addressing the effect of health IT applications on process outcomes

Health IT Application	N (Specific Reference)
Care Management Tools	
Clinical decision aids	34[70 78 81 123-125 128 129 132-157]
IT-guided disease management	17[74 81 82 126 137 140 146 151 158-166]
Electronic medical records	17[72 80 81 122 128 138 141 150 154 160-163 167-170]
IT-guided self-management	6[72 84 86 114 171 172]
Computer-assisted self-care	5[155 158 171 173 174]
Care coordination tools	5[146 164 169 175 176]
Computerized order entry	2[92 133]
Electronic prescribing	1[92]
Disease registry	1[155]
Telehealth	
Telemedicine	10[71 79 127 173 177-182]
Telemonitoring systems	11[45 73 80 81 159 167 173 183-186]
Personal Health Record and Patient Portal Related Applications	
Education via information technology	8[86 123 159 165 167 172 187 188]
mHealth	5[131 146 166 183 189]
Interactive lifestyle counseling	2[84 190]
Patient portals	2[122 165]
Personal health records	1[72]
Secure Electronic Messaging	
Communication via e-mail	9[72 75 76 122 141 159 167 187 191]
Information exchange	6[159 166 168 187 190 192]
Shared Decisionmaking	
Shared decisionmaking tools	5[78 91 188 189 192]

E-mail: Electronic Mail, IT: Information Technology, mHealth: Mobile Health

Table 7. Studies addressing the effect of health IT applications on process outcomes, broken down by specific components of PCC*

Component of PCC	N (Specific References)
Coordination and Integration of Care	
Quality improvement	25[45 77 79 81 84 86 92 114 132 136 138 146-148 150 158 161 162 168 170 173 179 180 183 193]
Quality and safety	20[71 91 124 126 132 134 142 145 158 163 165 168 178 182 184 186 190 192 194 195]
Integrated care	21[77 127-129 131 144 146 153 161 162 164 167 168 170-172 184 188 191 194 196]
Prevention and health promotion	21[70 84 122 133 135 141 144 145 147 148 157 159 160 165 169 172 177 180 181 188 196]
Routine patient feedback to practice	9[73 79 86 149 165 174 184 189 196]
Transition and continuity	2[77 151]
Whole-Person Orientation	
Respecting patients' values, preferences and needs	9[81 92 125 155 170 171 182 187 189]
Alleviation of fear and anxiety	6[137 140 153 166 167 173]
Emotional support	3[131 152 189]
Physical comfort	[180 197]
Exploring the disease and illness condition	3[149 152 182]
Enhanced Clinician-Patient Relationship	
Patient engagement in care	49[70 72 74 76-82 84 86 114 123 125 127 128 131 135 139 140 143 144 146 148 150 152-156 159 164 167-171 173 174 176 180 183 185 189 191 192 196 197]
Patient empowerment	16[73-75 78 81 123 137 140 146 150 152-155 159 185]
Finding common ground	1[155]
Clinical Information Systems	
Practice-based learning	2[141 158]
Publicly available information on practices	1[166]
Socio-Cultural Competence	
Community outreach	2[78 177]
Family and friend involvement	2[146 151]

IT: Information Technology, PCC: Patient-Centered Care

* Table includes all of the studies that were included in the evidence tables, not just the studies of frequently studied conditions that were highlighted in the text.

Table 8a. Summary of the impact of health IT applications on process outcomes for patients with diabetes mellitus

Study, Year	Health IT Application	Interventions Compared	Outcomes Measure	Positive Impact*
Filippi, 2003[20]	Clinical decision aids	Electronic reminder integrated into a routine computer system in order to increase the use of antiplatelet drugs for diabetic patients vs. patients receiving a letter but no electronic reminder	Number of high-risk diabetic patients with antiplatelet drug prescriptions	+
Hetlevik, 2000[21]	Clinical decision aids	Diabetes mellitus patients whose physicians used a CDSS vs. diabetes mellitus patients whose physicians used pre-existing routines for treatment	Fractions of patients without baseline registration of HbA1c	+
			Fractions of patients without a baseline registration of blood pressure	-
			Fractions of patients without a baseline registration of serum cholesterol	+
			Fractions of patients without a registered number of cigarettes,	+
			Fractions of patients without registered CV inheritance	+
			Fractions of patients without registered height/weight or BMI	+
			Fractions of patients without at least one variable making risk score calculation possible	+
			Percentage of registered patients who are smokers	+
			Percentage of registered patients with CV risk inheritance	+
Glasgow, 2000[29]	IT-guided self-management, interactive lifestyle counseling	Telephone followup vs. the basic intervention condition received by all participants, which involved a meeting with a health counselor at a central location and having specific dietary goals set with the aid of a multimedia touch screen computer	Proportion received touch screen goal setting	+
		Community resources vs. the basic intervention condition received by all participants involved a meeting with a health counselor at a central location and having specific dietary goals set with the aid of a multimedia touch screen computer	Proportion received touch screen goal setting	+
		Telephone followup support and community resources vs. the basic intervention condition received by all participants involved a meeting with a health counselor at a central location and having specific dietary goals set with the aid of a multimedia touch screen computer	Proportion received touch screen goal setting	-

Table 8a. Summary of the impact of health IT applications on process outcomes for patients with diabetes mellitus (continued)

Study, Year	Health IT Application	Interventions Compared	Outcomes Measure	Positive Impact*
Gomez, 2002[28]	Telemedicine	Group using DIABTel telemedicine system vs. usual care group (patients used a blood glucose meter with memory One Touch™ Profile from LifeScan) and they registered the monitoring data in their conventional logbook. No intermediate visits were scheduled but patients were free to make phone calls to the Diabetes Centre when needed.	Therapeutic medication prescriptions increased	+
Persell, 2008[24]	Telemonitoring systems	Eliciting physicians' input and directly contacting patients by mail and phone vs. reminder to physician only	All patients - regular aspirin use	+
			Regular aspirin use excluding long-term aspirin users and patients reporting medical contraindication	+
Quinn, 2008[26]	IT-guided disease management, information exchange, mHealth	Well-Doc Intervention vs. control group. The intervention group received cell phone-based software designed by endocrinologists and certified diabetes educator. Patients randomized to the control group received glucometers, adequate blood glucose testing strips and lancets for the duration of the trial.	Medication intensified	+
			Medication errors identified	+
			Physician received logbook	+
			New diagnosis depression	-
			Provider management improved	+
			Physician received data	+
			Physician received more patient data	+
Ralston, 2009[30]	Communication via email, education via IT, electronic medical records, telemonitoring systems	Web-based care management vs. usual care	Inpatient days	0
			Outpatient visits	0
			Primary care provider visits	0
			Specialty physician visits	0
Sequist, 2005[22]	Clinical decision aids	Physicians received either evidence-based electronic reminders within the electronic medical record vs. usual care	Number of diabetes reminders per patient	-
			Mean coronary artery disease Reminders per patient	-
Smith, 2008[27]	Telemedicine	Virtual consultation vs. no virtual consultation	ADA-NCQA provider score, median	-
			Minnesota community aggregate optimal diabetes score	+
			Mean total cost	+
			Mean outpatient cost	+

Table 8a. Summary of the impact of health IT applications on process outcomes for patients with diabetes mellitus (continued)

Study, Year	Health IT Application	Interventions Compared	Outcomes Measure	Positive Impact*
Thomas, 2007[23]	Clinical decision aids, computer-assisted self-care, disease registry	Computerized diabetes registry vs. control group (usual clinic education)	No. of patients who had HbA1c monitoring within 6 months	+
			No. of patients who had LDL cholesterol monitoring within 1 year	+
Ziemer, 2006[25]	Care coordination tools, IT-guided disease management	Health care providers received clinical reminders vs. usual care	Effect of the interventions on therapy intensification	0
			Therapy intensification on change in HbA1c level	0
		Health care providers received feedback vs. usual care	Effect of the interventions on therapy intensification	0
			Therapy intensification on change in HbA1c level	0
		Health care providers received clinical reminders and feedback vs. usual care	Effect of the interventions on therapy Intensification	0
			Therapy intensification on change in HbA1c level	0

ADA-NCQA: American Diabetes Association-National Committee for Quality Assurance, BMI: Body Mass Index, CDSS: Clinical Decision Support System, CV: Cardiovascular, E-mail: Electronic Mail, HbA1c: Glycated Hemoglobin, IT: Information Technology, LDL: Low-Density Lipoprotein, mHealth: Mobile Health

* "+" indicates that the intervention had a positive effect on the outcome in comparison with the control
"-" indicates that the intervention had a negative effect on the outcome in comparison with the control
"0" indicates that the intervention had no effect on the outcome in comparison with the control

Table 8b. Overall grade of the quality of evidence in diabetes mellitus studies addressing health care process outcomes

1	Protection against risk of bias (relates to study design, study quality, and reporting bias*	High
*	Mean Jadad score†	0.27
2	Number of studies	11
3	Did the studies have important inconsistency?	Yes
4	Were the studies sparse?	No
5	Overall grade of evidence	Moderate

* The Jadad scoring method, and rules for converting the numerical score to a rating for protection against risk of bias are described in the Quality Assessment subsection of Chapter 2, Methods.
†The rules for assessing the quantity and consistency of a body of evidence, and combining that with the mean Jadad score to produce the overall grade are described in the Grading of the Evidence subsection of Chapter 2.

Table 9a. Summary of the impact of health IT applications on process outcomes for patients with heart disease

Study, Year	Health IT Application	Interventions Compared	Outcomes Measure	Positive Impact
Bailey, 2007[38]	Clinical decision aids, IT-guided disease management, electronic medical records, telemonitoring systems	Computerized alerts identifying hospitalized patients with elevated troponin I levels routed to clinical pharmacists vs. usual care group	Proportion of eligible patients discharged on a regimen of ACE inhibitor	+
			Proportion of eligible patients discharged on aspirin	-
			Proportion of eligible patients discharged on a beta-blocker	+
			Proportion of eligible patients discharged on a statin	+
			Proportion of eligible patients discharged on all 4 classes of medications	+
Feldman, 2005[32]	Communication via email	Heart failure patients whose nurses received email recommendations (basic intervention) vs. heart failure patients receiving usual care	Home care-related costs / patient	-
			Overall costs / patient	-
			Home care-related costs to produce a 5 % improvement in KCCQ summary score	+
			Overall costs to produce a 5 % improvement in KCCQ summary score	+
			Home care-related costs / patient	-
			Overall costs / patient	-
			Home care-related costs to produce a 5 % improvement in KCCQ summary score	+
			Overall costs to produce a 5 % improvement in KCCQ summary score	+
Jerant, 2001[40]	Telemonitoring systems	Home telecare videoconferencing vs. usual care	Median health care utilization	+
			Mean health care utilization	+
		Nurse phone calls with nurse vs. usual care	Median health care utilization	+
			Mean health care utilization	+

Table 9a. Summary of the impact of health IT applications on process outcomes for patients with heart disease (continued)

Study, Year	Health IT Application	Interventions Compared	Outcomes Measure	Positive Impact
Kaner, 2007[33]	Clinical decision aids, shared decisionmaking tools	Implicit computer-based decision aid, DARTS II used for clinician-patient treatment decision vs. paper-based guidelines for clinician-patient treatment decision	Median consultation times	-
			Median clinician verbal dominance in 10 minutes preceding decision	-
			Median doctors information-seeking	-
			Median doctors pause	-
			Median patients negative talk	+
			Median doctors nodding	+
			Median doctors head shake	-
			Median doctors smiling	+
			Median doctors point at the patient	+
			Median doctors touching/pointing at tool	-
			Median doctors eye-gaze toward tool	+
			Median Patients eye-gaze toward tool	+
		Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision vs. paper-based guidelines for clinician-patient treatment decision	Median consultation times	-
			Median clinician verbal dominance in 10 minutes preceding decision	-
			Median doctors information-seeking	+
			Median doctors pause	-
			Median patients negative talk	+
			Median doctors nodding	+
			Median doctors head shake	-
			Median doctors smiling	+
			Median doctors point at the patient	-
			Median doctors touching/pointing at tool	0
			Median doctors eye-gaze toward tool	+
			Median patients eye-gaze toward tool	+
Kucher, 2005[34]	Clinical decision aids, education via IT	Computerized alert to physician about patient's risk of deep vein thrombosis vs. no computerized alert	Prophylactic measures were ordered	+
			mechanical prophylaxis	+
			pharmacologic prophylaxis	+
Lowensteyn, 1998[35]	Information exchange	Computerized coronary risk profile to physician vs. no profile risk to physician	ratio of high risk / low risk patients returning for followup	+

Table 9a. Summary of the impact of health IT applications on process outcomes for patients with heart disease (continued)

Study, Year	Health IT Application	Interventions Compared	Outcomes Measure	Positive Impact
McCrossan, 2007[41]	Telemedicine	Videoconferencing for children with congenital heart disease vs. teleconferencing	Proportion concern about video conferencing by parents	+
			Proportion no action needed for video conferencing	+
			Proportion inform consultant about video conferencing	+
			Proportion advised NHS action about video conferencing	+
Murray, 1999[39]	IT-guided disease management	Pharmacist with access to electronic treatment suggestions via pharmacy module used by pharmacists vs. usual care	% time spent filling prescription	-
			% time spent advising or informing	+
			%time spent problem solving	+
Murtaugh, 2005[31]	Communication via email	Nurses who received email recommendations to treat heart failure patients (basic intervention) vs. nurses treating heart failure patients that provide usual care	Estimate of percent of nurses that recorded a comprehensive heart failure assessment	+
			Estimate of percent of nurses that recorded a diet assessment	+
			Estimate of percent of nurses that recorded medication knowledge assessment	+
			Estimate of percent of nurses that recorded medication adherence assessment	+
			Estimate of percent of nurses that recorded medication side-effects assessment	+
			Estimate of percent of nurses that instructed patients about heart failure symptom, shortness of breath	+
			Estimate of percent of nurses that instructed patients about heart failure symptom, fluid weight gain	+
			Estimate of percent of nurses that instructed patients about heart failure symptom, fatigue	-
			Estimate of percent of nurses that instructed patients about global heart failure symptoms	+
			Estimates of percent of nurses that recorded instructions to patients about self weighing	+
			Estimates of percent of nurses that recorded instructions to patients about managing fluid weight gain	+
			Estimates of percent of nurses that recorded instructions to patients about low salt diet	+
			Estimates of percent of nurses that recorded instructions to patients about medication management	+

Table 9a. Summary of the impact of health IT applications on process outcomes for patients with heart disease (continued)

Study, Year	Health IT Application	Interventions Compared	Outcomes Measure	Positive Impact
Murtaugh, 2005 (continued)	Communication via email (continued)	Nurses who received email recommendations to treat heart failure patients (basic intervention) vs. nurses treating heart failure patients that provide usual care (continued)	Estimates of percent of nurses that recorded instructions about methods to improve adherence	+
			Estimates of percent of nurses that recorded instructions to patients about self contacting an MD	+
			Estimates of percent of nurses that recorded instructions to patients about education material	+
		Nurses who received email recommendations and additional resources to treat heart failure (augmented intervention) vs. Nurses treating heart failure patients that provide usual care	Estimate of percent of nurses that recorded a comprehensive heart failure assessment	+
			Estimate of percent of nurses that recorded a diet assessment	+
			Estimate of percent of nurses that recorded medication knowledge assessment	+
			Estimate of percent of nurses that recorded medication adherence assessment	+
			Estimate of percent of nurses that recorded medication side-effects assessment	+
			Estimate of percent of nurses that instructed patients about heart failure symptom, shortness of breath	+
			Estimate of percent of nurses that instructed patients about heart failure symptom, fluid weight gain	+
			Estimate of percent of nurses that instructed patients about heart failure symptom, fatigue	+
			Estimate of percent of nurses that instructed patients about global heart failure symptoms	+
			Estimates of percent of nurses that recorded instructions to patients about self weighing	+
			Estimates of percent of nurses that recorded instructions to patients about managing fluid weight gain	+
			Estimates of percent of nurses that recorded instructions to patients about low salt diet	+
			Estimates of percent of nurses that recorded instructions to patients about medication management	+
			Estimates of percent of nurses that recorded instructions about methods to improve adherence	+

Table 9a. Summary of the impact of health IT applications on process outcomes for patients with heart disease (continued)

Study, Year	Health IT Application	Interventions Compared	Outcomes Measure	Positive Impact
Murtaugh, 2005 (cont.)	Communication via email (continued)	Nurses who received email recommendations and additional resources to treat heart failure (augmented intervention) vs. Nurses treating heart failure patients that provide usual care (continued)	Estimates of percent of nurses that recorded instructions to patients about self contacting an MD	+
			Estimates of percent of nurses that recorded instructions to patients about education material	+
Noel, 2004[43]	Electronic medical records, telemonitoring systems	Intervention patients received home telehealth units that used standard phone lines to communicate with the hospital and integrated into hospital electronic health records vs. usual home health care services plus nurse case management.	Bed-days-of-care	+
Ross, 2004[44]	Communication via email, IT-guided self-management, electronic medical records, PHR	Participants in the intervention group were given a user identification and password to SPPARO to access electronic hospital records vs. patients in the control group continued to receive standard care in the practice	General adherence Medical Outcomes Study compliance score	+
Scherr, 2009[45]	Telemonitoring	Participants in the intervention group received pharmacological treatment with telemedical surveillance	Re-hospitalization	+
			Length of stay	+
			Dosage management	+
Subramanian, 2004[36]	Clinical decision aids	Physicians' care suggestions generated with electronic medical record data and symptom data from patient questionnaires within 2 weeks of scheduled outpatient visits (intervention group) vs. physicians whose suggestions were generated with EMR data alone (control group).	Number of all clinical decisions	+
			Mean all-cause hospitalizations	-
			Mean admissions for heart failure	+

Table 9a. Summary of the impact of health IT applications on process outcomes for patients with heart disease (continued)

Study, Year	Health IT Application	Interventions Compared	Outcomes Measure	Positive Impact
Tierney, 2003[37]	IT-guided disease management	Evidence-based cardiac care suggestions, approved by a panel of local cardiologists and general internists, were displayed to physicians and pharmacists as they cared for enrolled patients vs. control group where suggestions were withheld	Mean number of all hospitalizations	+
			Mean number of heart disease specific hospitalizations	0
		Printed a note (rather than bottle labels) instructing the pharmacist to view the care suggestions in Pharmacist Intervention Recording System. Vs. control group where suggestions were withheld	Mean number of all hospitalizations	0
			Mean number of heart disease specific hospitalizations	0
		Evidence-based cardiac care suggestions, approved by a panel of local cardiologists and general internists, were displayed to physicians and pharmacists as they cared for enrolled patients and a printed a note (rather than bottle labels) instructing the pharmacist to view the care suggestions in Pharmacist Intervention Recording System vs. control group where suggestions were withheld	Mean number of all hospitalizations	0
			Mean number of heart disease specific hospitalizations	0
Wakefield, 2008[42]	Telemedicine	Videophone followup vs. usual care. Usual care subjects contacted their primary care nurse case manager by telephone if needed. Intervention subjects contacted their assigned study nurse via videophone if needed after discharge. The intervention nurses reinforced discharge plans, had full access to patient records and employed strategies to improve subjects' adherence to prescribed treatment plans.	Percent readmitted to hospital	+

ACE: Angiotensin-Converting Enzyme, DARTS: Decision Analysis in Routine Treatment, E-mail: Electronic Mail, EMR: Electronic Medical Record, HF: heart failure, KCCQ: Kansas City Cardiomyopathy Questionnaire, MOS: Medical Outcomes Study, NHS: National Health Service, SPPARO: System Providing Access to Records Online

***** "+" indicates that the intervention had a positive effect on the outcome in comparison with the control

"-" indicates that the intervention had a negative effect on the outcome in comparison with the control

"0" indicates that the intervention had no effect on the outcome in comparison with the control

ACE: Angiotensin-converting enzyme, BMI: Body Mass Index, BP: blood pressure, HF: heart failure, KCCQ: Kansas City Cardiomyopathy Questionnaire, MOS: Medical Outcomes Study, NHS: National Health Service, SPPARO: System Providing Access to Records Online, USD: United States dollars

Table 9b. Overall grade of the quality of evidence in heart disease studies addressing health care process outcomes

1	Protection against risk of bias (relates to study design, study quality, and reporting bias*	Moderate
*	Mean Jadad score†	**-0.43**
2	Number of studies	14
3	Did the studies have important inconsistency?	No
4	Were the studies sparse?	No
5	Overall grade of evidence	Moderate

* The Jadad scoring method, and rules for converting the numerical score to a rating for protection against risk of bias are described in the Quality Assessment subsection of Chapter 2, Methods.
†The rules for assessing the quantity and consistency of a body of evidence, and combining that with the mean Jadad score to produce the overall grade are described in the Grading of the Evidence subsection of Chapter 2.

Table 10a. Summary of the impact of health IT applications on process outcomes for patients with cancer

Study, Year	Health IT Application	Interventions Compared	Outcomes Measure	Positive Impact
Jones, 1999[46]	IT-guided disease management, education via IT, patient portals	Personal computer based information vs. booklet information	Doctors assessment — patients above average in knowledge	+
		General computer information vs. booklet information	Doctors assessment- patients above average in knowledge	+
McDonald, 2005[48]	Communication via email	Patient-specific, one-time email reminder with pain-specific recommendations vs. usual care	Presence of pain assessed by nurse	+
			Medication assessment by nurse	+
			Mood assessment by nurse	+
			Educational materials delivered by nurse	+
			Probability of hospitalization	+
			Probability of emergency department use	+
			Home care-related costs	-
			Overall costs	+
			Inadequate pain management	+
		Email reminder + provider prompts +patient education + clinical nurse specialist outreach vs. usual care	Presence of pain assessed by nurse	+
			Medication assessment by nurse	+
			Mood assessment by nurse	+
			Educational materials delivered by nurse	+
			Inadequate pain management	+
			Probability of hospitalization	+
			Probability of emergency department use	+
			Home care-related costs	-
			Overall costs	+
Nguyen, 2000[49]	Clinical decision aids	Cancer screening reminder system, including both manual and computerized reminders vs. usual care	Checkups	+
			Smoking cessation counseling	+
			Pap testing	+
			Pelvic exams	+
			Clinical breast exams	-
			Mammography	+
			Hepatitis B serologies	+
			Hepatitis B immunizations	+

Table 10a. Summary of the impact of health IT applications on process outcomes for patients with cancer (continued)

Study, Year	Health IT Application	Interventions Compared	Outcomes Measure	Positive Impact
Ruland, 2003[47]	mHealth, shared decisionmaking tools	Used computerized system for shared decisionmaking for cancer symptoms care vs. usual care	Congruence between patient-reported symptoms and those addressed in consult visit	+
			Importance-weighted congruence between patient reported symptoms and those addressed in consult visit	+
			Number of reported symptoms (0-10)	+
			Number of reported symptoms (0-15)	+
			Number of reported symptoms (0-20)	+
			Number of reported symptoms (0-25)	+
			Number of reported symptoms (0-30)	+
			Number of reported symptoms (0-40)	+
			Number of reported symptoms (0-50)	+

E-mail: Electronic Mail, IT: Information Technology, mHealth: Mobile Health
* "+" indicates that the intervention had a positive effect on the outcome in comparison with the control
"-" indicates that the intervention had a negative effect on the outcome in comparison with the control
"0" indicates that the intervention had no effect on the outcome in comparison with the control
mHealth: mobile health

Table 10b. Overall grade of the quality of evidence in cancer studies addressing health care process outcomes

1	Protection against risk of bias (relates to study design, study quality, and reporting bias*	High
*	Mean Jadad score†	**0.75**
2	Number of studies	4
3	Did the studies have important inconsistency?	No
4	Were the studies sparse?	Yes
4	Overall grade of evidence	Moderate

* The Jadad scoring method, and rules for converting the numerical score to a rating for protection against risk of bias are described in the Quality Assessment subsection of Chapter 2, Methods.
†The rules for assessing the quantity and consistency of a body of evidence, and combining that with the mean Jadad score to produce the overall grade are described in the Grading of the Evidence subsection of Chapter 2.

Table 11a. Summary of the impact of health IT applications on process outcomes for patients with hypertension

Study, Year	Health IT Application	Intervention Compared	Outcomes Measure	Positive Impact
Fretheim, 2006[50]	Clinical decision aids, IT-guided disease management	Educational outreach visit with audit and feedback, and computerized reminders linked to the medical record system vs. passive dissemination of guidelines	Thiazides prescription	+
			CV risk assessment done	+
			Treatment goal achieved	-
Green, 2008[56]	Communication via email, IT-guided disease management, education via IT, information exchange, telemonitoring systems	Blood pressure monitoring and patient Web services vs. usual care	Electronic messaging and subsequent responses	+
			Telephone encounters	+
		Blood pressure monitoring and patient Web services and pharmacist care vs. usual care	Electronic messaging and subsequent responses	+
			Telephone encounters	+
		Blood pressure monitoring and patient Web services vs. usual care	Primary care visits	0
			Primary care visits	0
Hetlevik, 1998[51]	Clinical decision aids	CDSS vs. usual care	Fractions of patients without registration of blood pressure	-
			Fractions of patients without registration of serum cholesterol	-
			Fractions of patients without registration of cigarettes	+
			Fractions of patients without registration of cardio vascular inheritance	-
			Fractions of patients without registration of BMI	+
			Fractions of patients without registration of risk score	+
Hicks, 2008[55]	Clinical decision aids	Computerized support vs. usual care	Prescribing Joint National Committee adherent drug class	— no data
Mitchell, 2004[54]	IT-guided disease management, electronic medical records	Audit only practices vs. patients who received no feedback	All patients with no recorded blood pressure	-
			All patients with no recorded blood pressure	+
		Patients receiving audit plus strategic practices (patient-specific list ranking patients with risk of death from stroke) vs. patients receiving no feedback	Final proportion with controlled blood pressure in hypertensive patients	-
			All patients with no recorded blood pressure	+
Montgomery, 2000[53]	Clinical decision aids	Risk chart alone vs. usual care	Number of patients with 0-1 classes of drugs prescribed	0
			Number of patients with 2 classes of drugs prescribed	+
			Number of patients with >=3 classes of drugs prescribed	+
		CDSS plus risk chart vs. usual care	Number of patients with 0-1 classes of drugs prescribed	-
			Number of patients with 3 classes of drugs prescribed	-
			Number of patients with >=3 classes of drugs prescribed	-

Table 11a. Summary of the impact of health IT applications on process outcomes for patients with hypertension (continued)

Study, Year	Health IT Application	Intervention Compared	Outcomes Measure	Positive Impact
Parati, 2009[57]	Computer-assisted self-care, telemedicine, telemonitoring systems	Teletransmitted home blood pressure vs. usual care	Frequency of treatment changes	+
			Health care costs	+
		Teletransmitted home blood pressure vs. patients that received usual care	Frequency of treatment changes	+
			Health care costs	+
Roumie, 2006[52]	Communication via email, education via IT, information exchange	Provider who received email message and alert vs. provider who received only the email message.	Drug added	-
			Both increased dose and drug added	+
		Provider who received email message, alert and patient education vs. provider who received only the email message	Drug added	+
			Both increased dose and drug added	-
Santamore, 2008[85]	Telemedicine	Blood pressure measurements transmitted through an Internet based telemedicine system vs. not through a telemedicine system	Percent error for similarity between telemedicine recorded systolic blood pressure and recorded systolic blood pressure	Insufficient data
			Percent error for similarity between telemedicine recorded diastolic blood pressure and recorded diastolic blood pressure	Insufficient data
			Blood pressure monitoring	+

BMI: Body Mass Index, CDSS: Clinical Decision Support System, CV: Cardiovascular, E-mail: Electronic Mail, IT: Information Technology

***** "+" indicates that the intervention had a positive effect on the outcome in comparison with the control
"-" indicates that the intervention had a negative effect on the outcome in comparison with the control
"0" indicates that the intervention had no effect on the outcome in comparison with the control

Table11b. Overall grade of the quality of evidence in hypertension studies addressing health care process outcomes

1	Protection against risk of bias (relates to study design, study quality, and reporting bias*	High
*	Mean Jadad score†	**0.71**
2	Number of studies	9
3	Did the studies have important inconsistency?	Yes
4	Were the studies sparse?	No
5	Overall grade of evidence	Moderate

***** The Jadad scoring method, and rules for converting the numerical score to a rating for protection against risk of bias are described in the Quality Assessment subsection of Chapter 2, Methods.
†The rules for assessing the quantity and consistency of a body of evidence, and combining that with the mean Jadad score to produce the overall grade are described in the Grading of the Evidence subsection of Chapter 2.

Table 12. The impact on health care process outcomes by type of health IT application

Health IT Type	Number of Studies	Studies With at Least 1 Outcome Having a Positive Impact, n (%)	Studies With at Least 1 Outcome Having a Statistically Significant Positive Impact, n (%)
Care management tools	22	20 (91)	16 (73)
Telehealth	28	25 (89)	16 (57)
PHR/patient portals	12	11 (92)	9 (75)
Secure electronic messaging	9	8(89)	6 (67)
Shared decisionmaking	2	2(100)	2(100)

IT: Information Technology, PHR: Personal Health Record

Key Question 1b. Are health IT applications that address one or more components of PCC effective in improving clinical outcomes for patients, and how do these improvements vary by type of health IT application?

General Study Characteristics

We identified 92 articles evaluating how health IT applications that address PCC affect clinical outcomes. The most commonly targeted clinical conditions were heart disease, diabetes, asthma, obesity, mental health, chronic obstructive pulmonary disease and cancer (Table 13). The health IT applications most commonly employed were clinical decision aids, IT-guided disease-management, telemonitoring systems, IT-guided self-management, and social networking/peer-to-peer sites (Table 14). The PCC components most commonly addressed were patient engagement in their care, quality improvement, quality and safety, and integrated care (Table 15). The study results suggested clinical outcomes generally improve with health IT applications that address one or more components of PCC.

Specific Findings

Clinical Outcomes in Studies Addressing Diabetes Mellitus

Twenty-one studies examined the impact of health IT use on clinical outcomes related to diabetes mellitus (Table 16a; Appendix G, Evidence Tables 8–11). The study quality was high, but the study quality scores were somewhat variable. The primary reasons for lower-quality scores were issues with studies not being double-blinded or not describing loss to followup. The overall grade of the strength of evidence in studies of clinical outcomes addressing diabetes mellitus was moderate (Table 16b; Appendix G, Evidence Tables 8–11).

These studies assessed several different clinical outcomes. All of them assessed glycemic control by measuring HbA1c. The other outcomes the studies assessed were blood pressure,[21 23 198] lipids,[23 198-200] quality of life (QOL), [29 199 201] BMI or weight,[21 198 199 202] depression, [26 29 201 202] anxiety,[201] fat/fruit and vegetable intake,[199 202] coronary risk,[21] sick days,[201] and pregnancy outcomes (Appendix G, Evidence Table 11).[203]

Several of the studies did not find a statistically significant difference in outcomes between the intervention and control groups.[2923 27 28 204 205] The studies that detected at least one statistically significant difference in an outcome between the intervention and control groups are summarized below.

In a study by Glasgow (2000),[199] one group received a telephone followup call, a second group had access to a multimedia computer to set specific dietary goals and could meet with a health counselor, and a final group received all three interventions. The clinical outcomes measured were HbA1c, serum lipids, weight, and QOL. Both groups that had access to the computer and also met with a counselor had a more favorable total/high-density lipoprotein (HDL) lipid ratio than the group that just received a telephone followup call (Table 16a; Appendix G, Evidence Table 11).

One study by Hetlevik (2000)[21] examined how using a computer-based, clinical decision support system in the care of patients with diabetes might compare with standard protocols. The clinical outcomes studied were HbA1c, systolic and diastolic BP, cholesterol, BMI, coronary risk, and the percentage of patients who were smokers and had cardiovascular inheritance. The intervention had no impact on serum cholesterol (difference =0). However, it had a favorable impact on BMI (difference +0.3; 95% CI -0.8 to 1.4), and the percentage of patients who were smokers (difference +3.0; CI -4.0 to 10.0). It had a small negative impact on HbA1c (-0.1%; CI -0.4 to 0.1%) and on systolic (-1.2 mm Hg; CI -4.4 to 2.0 mm Hg) and diastolic blood pressure (-2.3 mm Hg; CI -3.8 to -0.8 mm Hg) (Table 16a; Appendix G, Evidence Table 11).

A study by Piette (2000)[201] examined how a biweekly automated telephone disease management system with phone followup might impact depression, anxiety, and a number of health-related QOL parameters.[201] The intervention had a positive effect on depression scores (13.7 vs. 17.6, p=0.023), self-efficacy (4.5 vs. 4.2, p=0.006), and days in bed because of illness (0.5 vs. 1.0, p=0.026) when compared to standard care (Table 16a; Appendix G, Evidence Table 11).

Quinn (2008)[26] showed that a cell phone-based software application had a favorable impact on HbA1c when compared with standard care. The mean absolute decrease in HbA1c for intervention patients was 2.03 percent, as compared to 0.68 percent for the control group (p<0.02) (Table 16a; Appendix G, Evidence Table 11).

Cadario (2007)[206] found that Glucobeeb, a Web-based tool, had a favorable impact on HbA1c when compared with usual protocols in diabetes care (-0.7% at 3 months and -0.7% at 6 months, p=0.03) (Table 16a; Appendix G, Evidence Table 11).

Farmer in 2005[207] examined how special diabetes nurses, providing clinical advice in response to real-time glucose readings, might affect three clinical outcomes—mean HbA1c, a patient achieving a specific HbA1c level, and the proportion of transmitted glucose tests in the hypoglycemia range. Farmer found a significant difference in the proportion of transmitted blood glucose tests in the hypoglycemic range between the intervention group and the control group that received usual care (5.3% vs. 3.5%, p<0.0001) (Table 16a; Appendix G, Evidence Table 11).

The Glasgow (2006)[202] study compared tailored self-management with computer-aided enhanced usual care, assessing HbA1c, lipids, Patient Health Questionnaire-9, diabetes distress scale, and weight. Tailored self-management had a positive impact on weight when compared with the other group (-0.68 kg, p=0.0007) (Table 16a; Appendix G, Evidence Table 11).

Harno (2006)[198] reported favorable results when studying an e-health application with a diabetes management system and a home care link. When compared with standard care, the

intervention had a positive impact on post-intervention diastolic blood pressure (79 vs. 82 mm Hg, p<0.05), HbA1c (7.32 vs. 7.83%, p<0.05), fasting glucose (8.88 vs. 1.87 mmol/l, p<0.001), total cholesterol (4.74 vs. 5.03 mmol/l, p<0.05), LDL (2.52 vs. 2.76 mmol/l, p<0.05), and triglycerides (1.44 vs. 1.67 mmol/l, p<0.05) (Table 16a; Appendix G, Evidence Table 11).

Homko (2007)[203] used the Internet to send blood glucose and other health data directly to the health care providers of pregnant women and then send feedback to the women. The study assessed the percentage of patients requiring therapy (diet, glyburide, or insulin), fasting blood glucose, HbA1c at delivery, mean blood glucose, and pregnancy outcomes. Compared with usual care, the Internet intervention had a positive impact only on the percentage of patients receiving insulin (31% vs. 4%, p<0.05) (Table 16a; Appendix G, Evidence Table 11).

A study by Montori (2004)[208] used telehealth to send glucometer readings. The intervention had a positive impact on mean HbA1c levels at 6 months when compared with usual care (8.2 vs. 7.8%, p=0.03) (Table 16a; Appendix G, Evidence Table 11).

Yoon (2008)[200] compared using a Web site, to transmit glucose readings and provide feedback, with usual care. There was a significant change in HbA1c in the intervention group, with a mean absolute percentage change of -1.32 percent at 12 months versus 0.81 percent in the control group (p<0.05) (Table 16a; Appendix G, Evidence Table 11).

Shea (2007)[209] showed that when compared with normal care, using a home telemedicine unit for the management of diabetes had a positive impact on mean HbA1c at one year (difference: 0.18%, p=0.006), systolic and diastolic blood pressures (difference: 3.4 mm Hg, p=0.001, and 1.9 mm Hg, p<0.001, respectively), and LDL cholesterol (difference: 9.5 mg/dL, p<0.001) (Table 16a; Appendix G, Evidence Table 11).

A study by Noel (2004)[43] assessed the impact of using telehealth services on HbA1c in patients with diabetes. At 6 months, subjects in the intervention group showed a decrease in HbA1c levels (mean = 7.30%, p<0.001), as compared with an increase in HbA1c levels in the control group (mean = 7.83percent, p=0.002) (Table 16a; Appendix G, Evidence Table 11).

Ralston (2009)[167] assessed the impact of a Web-based care management system on persons with diabetes mellitus versus usual care. The Web-based program included access to medical records and secure e-mail with the provider, feedback on blood glucose readings and education. The outcome measure of HbA1c declined by 0.7 percent (95% CI 0.2-1.3) in the intervention group.

Grant (2008)[210] assessed whether a ptient-held record where participants could update their medical status would impact the number of followup visits recorded and whether the personal healt record would increase the rate of medication changes. Followup visits increase significantly from 15 to 53% (p> 0.001) and a significant number of participants in the intervention arm had their treatment regimens adjusted (Table 16a; Appendix G, Evidence Table 11).

Benhamou (2007)[211] examined patiens with poorly controlled HbA1c. The intervention involved participants receiving short message service messages advising them based on the previous submitted levels compared to usual care. There were no significant differences between the usual care group and the intervention groups in respect to reduction in HbA1c levels or glucose levels (Table 16a; Appendix G, Evidence Table 11).

Clinical Outcomes in Studies Addressing Heart Disease

Sixteen studies evaluated the impact of health IT on clinical outcomes related to heart disease (Table 17a; Appendix G, Evidence Tables 8–10 and 12). Specific conditions evaluated were heart failure, anticoagulation and thrombosis, and cardiovascular risk. Overall, the study quality

was high, but the scores were somewhat variable. The primary reason for lower-quality scores was loss to followup. The overall grade of the strength of evidence was moderate (Table 17b; Appendix G, Evidence Table 12). Below is a summary of studies that had statistically significant findings on direct clinical outcome measures.[35]

A study by Feldman (2005)[32] examined how a basic intervention involving recommendations sent by email to nurses caring for the patients, and an augmented intervention involving recommendations and additional resources sent by email to nurses caring for the patients might compare to usual care in patients with heart failure. The study assessed the clinical outcomes physical limitation, symptom domains, QOL, social limitation, self-efficacy, and depression. Results show additional interventions had a positive impact when compared with usual care, specifically in the summary score for the Kansas City Cardiomyopathy Questionnaire (46.5 vs. 40.4, p=0.013 and 45.6 vs. 40.4, p=0.048; basic and augmented interventions, respectively) and the EuroQoL health-related QOL score (score: 48.9 vs. 39, p=0.003; basic intervention vs. usual care) (Table 17a; Appendix G, Evidence Table 12).

Noel (2004)[43] assessed the impact of using telehealth services on the cognitive status of patients with heart failure. Results for cognitive level showed a statistically significant difference in the intervention group when compared with a control group receiving usual home health care services (p<0.001) (Table 17a; Appendix G, Evidence Table 12).

Subramanian (2004)[36] compared an intervention in which physicians received care suggestions from an electronic medical record and symptom data from questionnaires with an intervention that provided symptom data from questionnaires alone. The study examined the impact on the physical and mental components of the Short-Form 36 Health Status Questionnaire. Patients in the control group had greater improvement in the physical component scale of the questionnaire at 12 months (1.3 vs. -0.6, p=0.03) (Appendix G, Evidence Tables 8, 9, and 12).

Ross (2004)[44] studied the effect of System Providing Access to Records Online and telemonitoring versus usual care on the self-efficacy domain of the Kansas City Cardiomyopathy Questionnaire in patients with heart failure. At 12 months, the symptom stability score for the intervention group was superior to that for the control group (63 vs. 46; difference: +17; CI 4 to 29, p<0.01) (Table 17a; Appendix G, Evidence Table 12).

Kucher (2005)[34] used a computer program linked to a patient database to alert physicians about patients at risk of deep vein thrombosis and suggest measures to prevent it. The comparison group received no alert. The clinical outcomes considered were death, hemorrhage, and the presence of mechanical or pharmacological prophylaxis for deep vein thrombosis. More patients in the intervention group received mechanical (10.0% vs. 1.5%, p<0.001) or pharmacologic prophylaxis (23.6% vs. 13.0%, p<0.001). The computer alert reduced the risk of deep vein thrombosis or pulmonary embolism at 90 days by 41 percent (heart rate, 0.59; 95% CI 0.43 to 0.81; p=0.001) (Table 17a; Appendix G, Evidence Table 12).

Poller (2008)[119] used two different computer-assisted dosage programs to determine the correct anticoagulation dosage. The study evaluated the length of time during which the International Normalized Ratio was in the therapeutic range, and the incidence of clinical events, bleeds, thrombotic events, deaths, and total events. Computer assistance made a positive impact on time in the therapeutic range (time in targeted International Normalized Ratio range): 1.2%, 95% CI 0.7 to 1.8). In the patients with established deep vein thrombosis and/or pulmonary embolism, the incidence of clinical events was lower with computer-assisted dosage (incidence rate ratio=0.67; 95% CI 0.52 to 0.85; p=0.001) (Table 17a; Appendix G, Evidence Table 12).

A second study by the same authors[212] compared the PARMA-5 computer-assisted dosage program with manual dosing. The study examined anticoagulation-related outcomes, including the incidence of clinical events, minor and major bleeds, thrombotic events, total events, and the proportion of time patients were maintained within the locally decided target anticoagulation range. This study found an overall non-significant reduction in total events, but in the subgroup of patients with deep vein thrombosis/pulmonary embolism, the intervention resulted in a reduction in number of total events (incidence rate ratio= 0.69; 95% CI 0.53 to 0.89, p=0.005) (Table 17a; Appendix G, Evidence Table 12).

A study by Lowensteyn (1998)[35] assessed how providing a coronary risk profile to the physician might impact lipids, blood pressure, BMI, smoking, coronary risk, and cardiovascular age. The study favored the intervention group over a comparison group that did not receive the risk profile, with differences at 3 months of followup in total cholesterol (difference: -0.238 mmol/l, p=0.05), LDL (difference: -0.226 mmol/l, p=0.05), total cholesterol/HDL ratio (difference: -0.287 mmol/l, p=0.005), 8-year coronary risk percentage (difference: -1.426, p<0.01) and cardiovascular age (difference: -0.571, p<0.01) (Table 17a; Appendix G, Evidence Table 12).

Scherr (2009)[45]described the effects of a telemonitoring system on heart disease patients in a randomized sample of 120 patients. Fifty-four patients were randomized to the intervention. Clinical outcomes of interest included cardiovascular mortality. The intervention showed a 15 percent reduction in the risk of death (p=0.04) (Table 17a; Appendix G, Evidence Table 12).

Jerant (2001)[73] addressed molbility and health care utilization/readmission in a population receiving home telecare equipment. Health care readmission charges were lower in the intervention group atients receiving the intervention plus usual care were more likely to have a reduced cardiovascular risk than those receiving the intervention plus chart alone.

Montgomery (2000)[144] examined clinical decision support systems and their impact on mean 5-year CV risk. P

Five other studies showed that health IT that addressed PCC had either no significant impact or a negative impact on clinical outcomes. [37 42 52 213 214] (Appendix G, Evidence Tables 8, 9, and 12).

Clinical Outcomes in Studies Addressing Cancer

Four studies examined the effects of health IT that addressed PCC on clinical outcomes for patients with cancer (Table 18a; Appendix G, Evidence Tables 8–10 and 13). The study quality was high, but the quality scores were variable. The primary reasons for lower-quality scores were studies not being double-blinded or not describing loss to followup. The overall grade of the strength of evidence in these studies was low (Table 18b; Appendix G, Evidence Table 13).[48 46 47 215 216]

McDonald (2005)[48] compared three groups: a control group that received usual care and two interventions groups, one that received a patient-specific, one-time email reminder with pain-specific recommendations (the basic intervention) and another that received an email reminder, provider prompts, patient education, and clinical nurse outreach. The study measured impact in terms of pain levels, QOL, insomnia, and constipation. The basic intervention had a positive impact on average pain level difference (pain interface scale: -1.5, p=0.03) and on the nursing assessment of bowel movements (-5.7, p=0.02) (Table 18a; Appendix G, Evidence Table 13).[48]

Maslin (1998)[215] studied how the use of an interactive videodisk system might affect the mental health and anxiety of cancer patients. There was a fall in the anxiety score on the Hospital

Anxiety and Depression scale in both intervention and usual care groups at 9 months ($p<0.001$). The study did not report a difference in actual score between the intervention and usual care groups (Table 18a; Appendix G, Evidence Table 13).

A study of lung cancer patients by Taenzer in 2000[216] assessed physical, emotional, cognitive, role, social, and global functioning, as well as symptoms such as fatigue, nausea and vomiting, pain, dyspnea, sleep disturbance, appetite, constipation, diarrhea, financial difficulties and a number of scales showing compromised function. The groups included patients who completed a computerized version of the European Organization for Research and Treatment of Cancer QLQ-C30 instrument versus patients who completed a paper version of the same instrument. The patients in the intervention arm reported more QOL issues with regard to physical functioning (60.0 vs. 76.9, $p<0.05$) and role functioning (55.6 vs. 84.6, $p<0.01$) and more dyspnea (51.9 vs. 34.6, $p<0.05$) (Table 18a; Appendix G, Evidence Table 13).

Ruland (2003)[47] assessed the usefulness and feasibility of the computer application CHOICES (Creating better Health Outcomes by Improving Communication about Patients' Experiences) in evaluating symptoms in cancer patients. Patients using this application had significantly higher scores on symptom reporting than did the control group (group differences in congruence controlled for number of reported symptoms: 7.63 vs. 2.83, $p<0.05$ for total symptoms) (Table 18a; Appendix G, Evidence Table 13).

Clinical Outcomes in Studies Addressing Other Disease Categories

In addition to the main disease categories of diabetes, heart disease, and cancer, health IT applications have been used for a number of other diseases and conditions. Below we provide a brief description of the outcomes according to disease category. We provide additional details in the accompanying evidence tables (Appendix G, Evidence Tables 8–10).

Hypertension

Eight studies examined clinical outcomes associated with the use of health IT applications related to PCC for patients with hypertension (Table 19a; Appendix G, Evidence Tables 8–10 and 14).[50 54-57 144 217 218] The study quality was high, and the quality scores were somewhat variable. The primary reasons for lower-quality scores were studies not being double-blinded or not describing loss to followup. The overall grade of the strength of evidence in studies of clinical outcomes addressing hypertension was high (Table 19b; Appendix G, Evidence Table 14). Below is a summary of those studies that were most significant.

Green (2008) [159] assessed the impact on blood pressure of two interventions, a Web-based home monitoring system with Web training, and a Web-based home monitoring system with Web training and Web-based pharmacist care. Results showed that adding Web-based pharmacist care significantly increased the percentage of patients with controlled blood pressure (56%; 95% CI 49 to 62) when compared with usual care ($p<0.01$) or Web-based home monitoring system with Web training alone ($p<0.01$). Patients who had baseline systolic blood pressures of 160 mm Hg or higher and who received a Web-based home monitoring system, Web training and a Web-based pharmacist care had a greater net reduction in systolic (13.2 mm Hg; 95% CI -19.2 to -7.1, $p<0.001$) and diastolic blood pressure (-4.6mm Hg; 95% CI -8.0 to -1.2, $p<0.01$) and improved blood pressure control (relative risk [RR] 3.32; 95% CI 1.86 to 5.94, $p<0.001$) when compared with usual care (Table 19a; Appendix G, Evidence Table 14).

Hicks (2008)[153] assessed the impact of computerized decision support versus usual care on blood pressure control.[55] After 18 months of followup, there was a significant difference in mean

diastolic blood pressure between the intervention and control groups and no significant difference in systolic blood pressure (77 vs. 78 mm Hg, p>0.05; 137 vs. 138, p=0.67) (Table 19a; Appendix G, Evidence Table 14).

Montgomery (2000)[144] compared the effect on cardiovascular risk and blood pressure of two interventions, a risk chart alone and a risk chart plus a computer-based, clinical-decision, support system.[53] In the risk chart-alone group, patients had lower systolic blood pressure than did those in the usual care group at 12 months (difference: 4.6 mm Hg; 95% CI 0.8 to 8.4, p=0.02). Also, a greater proportion of patients in the computer-based, clinical decision support system group were at no higher risk than usual care or chart only groups of having a cardiovascular event at 12 (adjusted OR 2.3, 95% CI 1.1 to 4.8; p=0.02) (Table 19a; Appendix G, Evidence Table 14).

Parati (2009) [173] assessed how telehealth delivery of home blood pressure affected QOL and the percentage of patients with daytime blood pressure normalization. The percentage of daytime blood pressure normalization was higher in the intervention group than in the control group (62 vs. 50%, p<0.05)[57] (Table 19a; Appendix G, Evidence Table 14).

Madsen (2006)[219] evaluated the impact of telemonitoring versus conventional monitoring on blood pressure, change in blood pressure, and achievement of blood pressure targets. Results showed telehealth made a positive impact on the percentage of patients achieving their blood pressure target (62% vs. 50%, p<0.05), and resulted in fewer treatment changes (9 vs. 14%, p<0.05)[217] (Table 19a; Appendix G, Evidence Table 14).

Mitchell (2004)[161] evaluated the impact on blood pressure control of an audit versus an audit plus strategic practices. Results showed the audit plus strategic practices arm had a much higher proportion of patients with controlled blood pressure than did the usual care group (adjusted relative risk 1.72; 95% CI 1.06 to 2.79, p=0.028) (Table 19a; Appendix G, Evidence Table 14).

Pulmonary Disease

Nine studies examined the impact of health IT on clinical outcomes for asthma.[59 60 62 63 137 183 220-222]These studies assessed the daily dose of inhaled corticosteroids,[63] symptom days and activity limitations,[62] QOL and health status,[220] asthma symptoms,[221] peak flow measurements,[59 222] oxygen saturation and nebulizer use,[59] and nighttime and daytime symptoms (Appendix G, Evidence Tables 8–10).[63 222]

Three studies examined the impact of health IT on clinical outcomes for chronic obstructive pulmonary disease.[88 89 220] These studies assessed mortality,[88] QOL,[220] dyspnea with activities of daily living, ability to exercise, fatigue, and emotional and physical health (Appendix G, Evidence Tables 8–10).[89]

Two studies assessed the impact of health IT on clinical outcomes for acute respiratory distress syndrome, including the management of mechanical ventilation, barotrauma, morbidity, oxygen requirement, and survival (Appendix G, Evidence Table 10).[111 223]

One study assessed the impact of health IT on clinical outcomes for chronic lung disease, focusing on QOL and functional level (Appendix G, Evidence Tables 8–10).[43]

One study assessed the use of health IT on clinical outcomes related to PCC for sleep apnea, including the use of continuous positive airway pressure and functional status (Appendix G, Evidence Tables 8–10).[117]

Mental Health

Six studies examined the impact of health IT on clinical outcomes for mental health.[224-229] Two studies evaluated depression using a screening survey instrument.[224 225] One study screened

for anxiety.[225] One study assessed subjective QOL in schizophrenia and psychotic disorders.[229] One study assessed discomfort and work/social adjustment in obsessive-compulsive disorder.[228] One study assessed various quality of life parameters and unmet needs (Appendix G, Evidence Tables 8–10).[227]

Obesity

Seven studies examined the impact of health IT on clinical outcomes for obesity.[230-236] All seven studies assessed weight loss using a combination of weight, BMI, waist circumference, or body fat percentage. Two studies assessed physical activity.[233 236] Three studies assessed dietary intake (Appendix G, Evidence Tables 8–10).[233-235]

Chronic Conditions/Health Problems

Four studies[96 237-239] examined the impact of health IT on chronic health problems or chronic pain. For example, one study assessed the impact of having a chronic health condition on blood pressure.[237] A second study assessed symptoms of dyspnea, health distress, self-reported global health, and also whether patients exercised and practiced stress management.[96] A third study focused on back pain and assessed pain and life control, ability to decrease pain, and associated mental health parameters (Appendix G, Evidence Tables 8–10).[238]

Spinal Cord Injuries

Two studies examined the impact of health IT on outcomes for neurologic conditions, specifically spinal cord injuries, assessing function and QOL interventions[118] as well as depression and well-being (Appendix G, Evidence Tables 8–10).[240]

Medication Safety and Adverse Events

Five studies evaluated the use of health IT applications for improving PCC in the areas of patient safety, medication safety and reconciliation, or potential adverse drug events.[100 241-244] Three were considered significant. One of these focused on medication safety for pregnant women[243] and another on potentially inappropriate prescriptions and therapeutic duplication by the physician and iatrogenic drug interactions.[100] One study assessed polypharmacy and falls in a rural elderly population (Appendix G, Evidence Tables 8–10).[112]

Infectious Diseases

One study assessed the use of health IT to improve PCC involving antibiotic management and prophylaxis, with a focus on in-hospital mortality (Appendix G, Evidence Tables 8–10).[105]

Endocrinology/Bone Metabolism

One study evaluated the use of health IT to improve PCC for osteoporosis, focusing on bone mineral density evaluation, osteoporosis medication, and total calcium intake (Appendix G, Evidence Tables 8–10).[108]

Dental Disease

One study evaluated the use of health IT to improve PCC for periodontal disease management, focusing on gingival inflammation, plaque accumulation, and oral hygiene (Appendix G, Evidence Tables 8–10). [245]

Obstetrics and Gynecology

One study evaluated the use of health IT to improve patient-centered decisionmaking regarding the mode of delivery in pregnant women with a previous Caesarian section (Appendix G, Evidence Tables 8–10).[246]

How Does the Impact on Clinical Outcomes Vary by Type of Health IT Application?

Table 20 summarizes how clinical outcomes varied according to the type of health IT application (Chapter 2). Our analysis showed that among the studies we included in our review, the types of health IT applicationsmost frequently cited as having a positive impact on at least one clinical outcome were telehealth applications and care management tools. Personal health recordsand patient portals, and secure electronic messaging were studied less frequently, but they also had a statistically significant improvement in at least one clinical outcome in the majority of studies. None of the studies reporting on clinical outcomes involved the remaining type of health IT, shared decisionmaking.

Table 13. Studies addressing the effect of health IT applications on clinical outcomes in specific target conditions, target populations, and care focus areas

Target Care Focus Area	N (Specific Reference)
Diabetes mellitus	21[21 23 26-30 43 198-209 247]
Heart disease	16[34-37 40 42-45 52 53 76 119 212 213 248]
Cancer	4[47 48 215 216]
Hypertension	8[50 54-57 144 217 218]
Asthma	9[60 62 63 220 221 59 137 183 222]
Obesity	7[230-236]
Mental health	6[224-227 228 229]
Medications and adverse drug events	5[100 241-244]
COPD and chronic lung disease	4[88 89 180 249]
Acute respiratory distress syndrome	[149 250]
Spinal cord injury	2[118 240]
Chronic conditions/health problems	4[96 237 239 251]
Hyperlipidemia	1[104]
Infectious disease	1[105]
Endocrinology/Bone metabolism	1[108]
Dental disease	1[245]
Obstetrics and gynecology	1[246]
Physical therapy	1[252]
Polypharmacy	1[150]

COPD: Chronic Obstructive Pulmonary Disease, IT: Information Technology

Table 14. Studies addressing the effect of health IT applications on clinical outcomes

Type of Health IT Application	N (Specific References)
Care Management Tools	
Clinical decision aids	23[21 23 27 29 34 36 50 55 58-60 100 104 105 111 112 119 218 220 221 223 226 244]
IT-guided disease management	19[26 50 56 119 247 29 37 54 58 59 89 108 202 203 227 228 96 225 231]
IT-guided self-management	14[198 199 204 253 63 202 222 225 228 232 233 235 238 254 229]
Computer-assisted self-care	11[23 57 207 228 89 213 225 230 231 234 245]
Electronic medical records	10[30 60 112 247 255 43 54 104 108 220]
Computerized provider order entry	3[241-243]
Disease registry	1[23]
Electronic prescribing	1[243]
Telehealth	
Telemonitoring systems	18[30 40 43 45 56 57 61 204-206 208 212 217 222 228 240 241 256]
Personal Health Record and Patient Portal Related Applications	
Education via information technology	6[30 34 56 235 245 46 63]
mHealth	7[26 206 244 256 59 61 47]
Interactive lifestyle counseling	6[199 224 234 235 230 232]
Personal health records	4[206 237 247 256]
Secure Electronic Messaging	
Social networking/peer-to-peer sites	15[28 57 62 88 117 118 201 207 208 248 257 200 203 225 240]
Communication via e-mail	10[27 30 32 56 247 48 104 217 235 236]
Information exchange	5[159 166 210 83 219]

E-mail: Electronic Mail, IT: Information Technology, mHealth: Mobile Health

* Table includes all of the studies that were included in the evidence tables, not just the studies of frequently studied conditions that were highlighted in the text.

Table 15. Studies addressing the effect of health IT applications on clinical outcomes, broken down by specific components of PCC

Component of PCC	N (Specific References)
Coordination and Integration of Care	
Quality improvement	39[21 57 59 62 63 70 72 74 77 80 89 108 112 117 141 161 183 199-201 205 208 212 222 223 227 230 234-236 239 240 242 243 248 249 253 258-260]
Quality and safety	22[27 45 46 88 89 96 201-203 217 224 229 230 232 233 240 244-247 254 257 258]
Integrated care	17[30 48 55 59 100 108 202 203 207 208 212 217 223 224 231 234 244 253 261]
Prevention and health promotion	9[56 105 117 199 206 207 236 255 262 231]
Routine patient feedback to the practice	6[40 46 47 63 111 221 227]
Transition and continuity of care	5[119 235 236 240 253]
Whole-Person Orientation	
Alleviation of fear and anxiety	8[26 30 50 55 57 58 225 228]
Respecting patients values, preferences and needs	5[23 243 247 47 225]
Emotional component	3[47 228 237]
Exploring the disease and illness condition	2[111 228]
Physical comfort	1[117]
Enhanced Clinician-Patient Relationship	
Patient engagement in their care	37[76 83 84 86 130 135 140 146 150 153-155 159 167 173 180 189 191 210 211 214 219 251 252 263-276]
Patient empowerment	14[23 29 40 50 55 56 58-60 112 204 225 229 255]
Finding common ground	1[23]
Clinical Information Systems	
Publicly available information on practices	1[26]
Practice-based learning	1[242]
Socio-Cultural Competence	
Community outreach	3[28 212 245]
Family and friend involvement in care	2[59 119]

IT: Information Technology, PCC: Patient-Centered Care

*Table includes all of the studies that were included in the evidence tables, not just the studies of frequently studied conditions that were highlighted in the text.

Table 16a. Summary of the impact of health IT applications on clinical outcomes for patients with diabetes mellitus

Study, Year	Health IT Application	Intervention Compared	Outcome Measures	Positive Impact*
Benhamou, 2007[205]	Telemonitoring systems	Weekly medical support through SMS based upon weekly review of glucose values vs. patients downloading SMBG values on a weekly basis without receiving SMS	Glycemia (mg/dL)	0
			HbA1c	0
Cadario, 2007[206]	mHealth, PHR, telemonitoring systems	Glucobeeb, a Web-based tool to support the diabetes care vs. patients who did not use Glucobeeb	Median HbA1c percentage	+
			Median HbA1c percentage	+
Farmer, 2005[207]	Computer-assisted self-care, telemedicine	Clinical advice from a diabetes specialty nurses in response to real-time blood glucose readings vs. patients who received minimal feedback from nurses	Mean HbA1c level	+
			Proportion of transmitted blood glucose tests in the hypoglycemic range	+
			Proportion of participants achieving an HbA1c reduction of >=0.7 % and an HbA1c ≤ 8.0 % at 9 months	+
Glasgow, 2000[199]	IT-guided self-management, interactive lifestyle counseling	Telephone followup vs. the basic intervention condition received by all participants involving a meeting with a health counselor at a central location and having specific dietary goals set with the aid of a multimedia touch screen computer	HbA1c	-
			Total cholesterol	+
			Weight	0
			Lipid ratio: total/HDL	+
			Diabetes intrusiveness	-
		Community resources vs. the basic intervention condition received by all participants involving a meeting with a health counselor at a central location and having specific dietary goals set with the aid of a multimedia touch screen computer	HbA1c	0
			Total cholesterol	+
			Weight	-
			Lipid ratio: total/HDL	+
			Diabetes intrusiveness	-
		Telephone followup support and community resources vs. the basic intervention condition receiving by all participants involved a meeting with a health counselor at a central location and having specific dietary goals set with the aid of a multimedia touch screen computer	HbA1c	-
			Total cholesterol	+
			Weight	-
			Lipid ratio: total/HDL	+
			Diabetes intrusiveness	-

Table 16a. Summary of the impact of health IT applications on clinical outcomes for patients with diabetes mellitus (continued)

Study, Year	Health IT Application	Intervention Compared	Outcomes Measure	Positive Impact*
Glasgow, 2005[29]	Clinical decision aids, IT-guided disease management	Touch screen treatment components, physician goal setting. care manager meetings and followup phone calls vs. a touch screen computer assessment that focused on general health risks but did not address the Provider Recognition Program measures	HbA1c	-
			Ratio of total cholesterol to HDL cholesterol	-
Glasgow, 2006[202]	IT-guided disease management, IT-guided self-management	Tailored self-management vs. computer-aided enhanced usual care	Hba1c (%)	+
			Total cholesterol/HDL cholesterol	0
			Total cholesterol	+
			HDL cholesterol	+
			Weight	+
			Patient Health Questionaire-9 total score	0
			Diabetes Distress Scale	+
Gomez, 2002[28]	Telemedicine	Usual care vs. a telemonitoring system designed to make the patients' self-monitring data available to caregivers	Median HbA1c Level	+
Grant, 2008[247]	Communication via email, IT-guided disease management, electronic medical records, information exchange, PHR	Web-based PHR that imported clinical and medications data, provided patient- tailored decision support, and enabled the patient to author a "Diabetes Care Plan" for electronic submission to their physician prior to upcoming appointments vs. PHR that updated and submitted family history and health maintenance information	Diabetes treatement regimine adjustments	+
			Followup visits	+
			HbA1c levels	0

Table 16a. Summary of the impact of health IT applications on clinical outcomes for patients with diabetes mellitus (continued)

Study, Year	Health IT Application	Intervention Compared	Outcomes Measure	Positive Impact*
Harno, 2006[198]	IT-guided self-management	E-health application with a diabetes management system and a home care link vs. usual care that did not involve e-health	Body mass index	-
			Systolic blood pressure	+
			Diastolic blood pressure	+
			HbA1c	+
			Fasting glucose	+
			Cholesterol	+
			HDL	+
			LDL	+
			Triglyceride	+
			Creatinine	-
Hetlevik, 2000[21]	Clinical decision aids	CDSS vs. pre-existing routines for treatment for physicians of diabetes mellitus patients	Average HbA1c in registered patients	+
			Systolic blood pressure in registered patients	+
			Diastolic blood pressure in registered patients	+
			Serum cholesterol in registered patients	+
			BMI in registered patients	-
			Coronary heart disease risk score (female)	-
			Coronary heart disease risk score (male)	-
			Percentage of registered patients who are smokers	NR
			Percentage of registered patients with CV inheritance	NR
Homko, 2007[203]	IT-guided disease management, telemedicine	Internet exchange of blood glucose and other health data to care providers and advice to patients vs. blood glucose and other health data recorded in a logbook, which was reviewed by the medical team at prenatal visit	Percent of patients requiring diabetes therapy (Diet)	+
			Percent of patients requiring diabetes therapy (Glyburide)	+
			Percent of patients requiring diabetes therapy (Insulin)	-
			Fasting blood sugar	-
			Hba1c at delivery	+
			Maternal mean blood glucose	-
			Cesarean delivery	0
			Premature rupture of membranes	+
			Placental abruption	-
			Pre-eclampsia/ gestational hypertension	-
Laffel, 2007[204]	IT-guided self-management, telemonitoring systems	Integrated glucose meters and electronic logbooks (electronic group) vs. paper log books (control group)	Mean decrease in HbA1c	+

Table 16a. Summary of the impact of health IT applications on clinical outcomes for patients with diabetes mellitus (continued)

Study, Year	Health IT Application	Intervention Compared	Outcomes Measure	Positive Impact*
Montori, 2004[208]	Telemedicine, telemonitoring systems	Telehealth (glucometer transmission with feedback) vs. glucometer transmission without feedback	Mean HbA1c Level	+
			Proportion of patients with HbA1c with HbA1c ≤0.7% after 6 months	+
Noel, 2004[43]	Telemedicine	Home telehealth that used standard phone lines to communicate with the hospital and integrate with hospital electronic health record system vs. usual home health care services and nurse case management	Bed-days-of-care	+
			Urgent clinic/emergency room visits	+
			HbA1c	+
			Cognitive status	+
Piette, 2000[201]	Telemedicine	Biweekly ATDM calls with telephone followup vs. usual care	Depression Score	+
			Anxiety Score	-
			Self-efficacy Score	+
			Days in bed because of illness	+
			Days cut down on activities because of illness	+
			Diabetes-specific HRQL-summary scale	0
			General HRQL- physical functioning	+
			General HRQL- role limitations (physical)	+
			General HRQL- social functioning	+
			General HRQL- bodily pain	-
			General HRQL- role limitations (mental)	-
			General HRQL- general health perceptions	+
Quinn, 2008[26]	IT-guided disease management, information exchange, mHealth	Well-Doc, a cell phone-based software designed by endocrinologists and clinical diabetes educators vs. glucometers, testing strips and lancets	HbA1c level	+
			New diagnosis depression	+
Ralston, 2009[30]	Communication via email, education via IT, electronic medical records, telemonitoring systems	Web-based care management vs. usual care	Mean HbA1c	+
			Glycohemoglobin <7 %	+

Table 16a. Summary of the impact of health IT applications on clinical outcomes for patients with diabetes mellitus (continued)

Study, Year	Health IT Application	Intervention Compared	Outcomes Measure	Positive Impact*
Shea, 2007[209]	Telemedicine	Home telemedicine unit vs. no home telemedicine unit	Mean HbA1c Level	+
			HbA1c in subgroup with HbA1c >7 % at baseline	+
Smith, 2008[27]	Clinical decision aids, communication via email	Virtual consultation vs. no virtual consultation	HbA1c (%), median	0
			Systolic blood pressure	-
			Diastolic blood pressure	0
			LDL	+
			UKPDS 10-y risk	+
			Minnesota community aggregate optimal diabetes score	+
Thomas, 2007[23]	Clinical decision aids, computer-assisted self-care, disease registry	Computerized diabetes registry vs. control group (usual clinic education)	Mean HbA1c	+
			Mean LDL cholesterol	-
			Mean systolic blood pressure	-
			Mean diastolic blood pressure	+
			HbA1c <7.0 %	+
			Mean LDL <100 mg/dL	+
			Blood pressure <130/85 mmHg	0
Yoon, 2008[200]	Telemedicine	Access to a Web site through cellular phones or wired connections transmitting blood glucose levels weekly through telecare and receiving feedback and suggestions from providers vs. Usual care that did not use cellular phones for treatment	Mean HbA1c level	+

ATDM: Automated Telephone Disease Management, BMI: Body Mass Index, CDSS: Clinical Decision Support System, CV: Cardiovascular, E-mail: Electronic Mail, HbA1c: Glycated Hemoglobin, HDL: High-Density Lipoprotein, IT: Information Technology, LDL: Low-Density Lipoprotein, mHealth: Mobile Health, PHR: Personal Health Record, QOL: Quality of Life, SMBG: Self-Monitoring of Blood Glucose, SMS: Short Message Service, UKPDS: United Kingdom Prospective Diabetes Study
* "+" indicates that the intervention had a positive effect on the outcome in comparison with the control
"-" indicates that the intervention had a negative effect on the outcome in comparison with the control
"0" indicates that the intervention had no effect on the outcome in comparison with the control

Table 16b. Overall grade of the quality of evidence in diabetes mellitus studies addressing clinical outcomes

1	Protection against risk of bias (relates to study design, study quality, and reporting bias*	High
*	Mean Jadad score†	**0.82**
2	Number of studies	22
3	Did the studies have important inconsistency?	Yes
4	Were the studies sparse?	No
5	Overall grade of evidence	Moderate

* The Jadad scoring method, and rules for converting the numerical score to a rating for protection against risk of bias are described in the Quality Assessment subsection of Chapter 2, Methods.
†The rules for assessing the quantity and consistency of a body of evidence, and combining that with the mean Jadad score to produce the overall grade are described in the Grading of the Evidence subsection of Chapter 2.

Table 17a. Summary of the impact of health IT applications on clinical outcomes for patients with heart disease

Study, Year	Health IT Application	Intervention Compared	Outcomes Measure	Positive Impact*
Feldman, 2005[32]	Communication via email	Heart failure patients whose nurses received email recommendations (basic intervention) vs. heart failure patients receiving usual care	KCCQ summary score adjusted[†] (higher score = better outcome)	+
			KCCQ physical limitation domain score adjusted (higher score = better outcome)	+
			KCCQ symptom domain score (higher score = better outcome)	+
			Depression adjusted score (higher score = presence of depression)	+
			EuroQoL health-related QOL adjusted score (higher score = better outcome)	+
			Percent with KCCQ QOL domain score >=50	+
			Percent with KCCQ social limitation domain score >= 50	+
			KCCQ percent w/ self efficacy domain score >=50	+
		Heart failure patients whose nurses received email recommendations and additional resources (augmented intervention) vs. heart failure patients receiving usual care	KCCQ summary score Adjusted score (higher score = better outcome)	+
			KCCQ physical limitation domain score Adjusted score (higher score = better outcome)	+
			KCCQ symptom domain score (higher score = better outcome)	+
			Depression Adjusted score (higher score = presence of depression)	+
			EuroQoL health-related QOL Adjusted score (higher score = better outcome)	-
			KCCQ percent w/QOL domain score >=50	+
			KCCQ percent w/social limitation domain score >= 50	+
			KCCQ percent w/ self efficacy domain score >=50	+

Table 17a. Summary of the impact of health IT applications on clinical outcomes for patients with heart disease (continued)

Study, Year	Health IT Application	Intervention Compared	Outcomes Measure	Positive Impact*
Jerant, 2001 [40]	Telemonitoring systems	Nurse phone calls with nurse vs. usual care	Median health care utilization	+
		Home telemonitoring videoconferencing vs. usual care		
Jerant, 2003 [248]	Telemedicine	Telemedicine vs. usual care	Emotional subscale on Minnesota Living With Heart Failure Questionnaire: mean	-
			Physical subscale on Minnesota Living With Heart Failure Questionnaire: mean	-
			Total score on Minnesota Living With Heart Failure Questionnaire: mean	-
			Short Form-36 mental component score	-
			Short Form-36 physical component score	+
		Telephone vs. usual care	Emotional subscale on Minnesota Living With Heart Failure Questionnaire: mean	0
			Physical subscale on Minnesota Living With Heart Failure Questionnaire: mean	-
			Total score on Minnesota Living With Heart Failure Questionnaire: mean	-
			Short Form-36 mental component score	+
			Short Form-36 physical component score	+
Kucher, 2005[34]	Clinical decision aids	Computerized alert to physician about patient's risk of deep vein thrombosis vs. no computerized alert	Death at 30 days	-
			Death at 90 days	-
			Major hemorrhage at 30 days	0
			Minor hemorrhage at 30 days	+
			Mechanical prophylaxis	+
			Pharmacologic prophylaxis	+
			Deep vein thrombosis of the arms at 90 days	+

Table 17a. Summary of the impact of health IT applications on clinical outcomes for patients with heart disease (continued)

Study, Year	Health IT Application	Intervention Compared	Outcomes Measure	Positive Impact*
Lowensteyn, 1998[35]	Information exchange	Coronary risk profile to physician vs. no profile risk to physician	Total-C	-
			HDL	-
			LDL	-
			Total-C/HDL ratio	-
			Systolic blood pressure	-
			Diastolic blood pressure	-
			Body mass index	-
			8-year coronary risk	-
			CV age	-
Montgomery, 2000[53]	Clinical decision aids	CDSS and risk chart vs. usual care	Mean 5-year CV risk	+
		CV risk chart vs. usual care (chart only)	Mean 5-year CV risk	0
Noel, 2004[43]	Electronic medical records, telemonitoring systems	Home telemonitoring that used standard phone lines to communicate with the hospital and integrate into hospital electronic health records vs. usual home health care services and nurse case management.	Bed-days-of-care	+
			Urgent clinic/emergency room visits	+
			Hba1c	+
			Cognitive status	+
			Bed-days-of-care	+
			HbA1c	+
			Cognitive status	+
Poller, 2008[212]	Telemonitoring systems	PARMA-5 computer-assisted dosage program vs. manual dosage	Incidence of clinical events	+
			Minor bleeds	+
			Major bleeds	+
			Thrombotic events	+
			Deaths	+
			Total Events in DVT/PE group	-
Poller, 2008[119]	Clinical decision aids, IT-guided disease management	Computer-assisted oral anticoagulant dosage vs. medical staff dosage	Time for which International Normalized Ratio was in range	+
			Incidence of clinical events adjudicated	+
			Minor bleeds	+
			Major bleeds	+
			Thrombotic events	+
			Deaths	+
			Total events in DVT/PE group	-
			Time for which International Normalized Ratio (INR) was in range	+
			Incidence of clinical events adjudicated	+
			Minor bleeds	+
			Major bleeds	+
			Thrombotic events	+
			Deaths	+
			Total events in DVT/PE group	-

Table 17a. Summary of the impact of health IT applications on clinical outcomes for patients with heart disease (continued)

Study, Year	Health IT Application	Intervention Compared	Outcomes Measure	Positive Impact*
Ross, 2004[44]	Electronic medical record	SPPARO to access electronic hospital records vs. standard care	KCCQ self-efficacy score	-
			Symptom stability	+
			QOL	+
			Functional status	+
			Clinical summary	+
			Physical limitations	-
Roumie, 2006[52]	Communication via email, education via IT, information exchange	Provider who received email message and alert vs. only email	Systolic blood pressure	+
			Systolic blood pressure ≤140 mmHg	-
			Dose increased	+
			Drug added	+
			Both increased dose and drug added	+
		Provider who received email message, alert and patient education vs. only email	Systolic blood pressure	+
			Systolic blood pressure ≤140 mm Hg	+
			Dose increased	-
			Drug added	+
			Both increased dose and drug added	+
Subramanian, 2004[36]	Clinical decision aids	Physicians care suggestions generated with electronic medical record data and symptom data from patient questionnaires within 2 weeks of scheduled outpatient visits (intervention group) vs. physicians whose suggestions were generated with EMR data alone (control group).	Short Form-36: Physical Component Scale	-
			Short Form-36: Mental Component Scale	+
Scherr, 2009[45]	Telemonitoring	Participants in the intervention group received pharmacological treatment with telemedical surveillance	Event free survival	+

Table 17a. Summary of the impact of health IT applications on clinical outcomes for patients with heart disease (continued)

Study, Year	Health IT Application	Intervention Compared	Outcomes Measure	Positive Impact*
Tierney, 2003[37]	IT-guided disease management	Evidence-based cardiac care suggestions, approved by a panel of local cardiologists and general internists, were displayed to physicians and pharmacists as they cared for enrolled patients vs. control group where suggestions were withheld	Mental health Short-Form 36 subscale score	0
			Overall health status (Chronic heart disease questionnaire score)	0
			Dyspnea (Chronic heart disease questionnaire score)	+
			Fatigue (Chronic heart disease questionnaire score)	0
			Emotion (Chronic heart disease questionnaire score)	-
		Printed note (rather than bottle labels) instructing the pharmacist to view the care suggestions in an electronic database of those suggestions vs. control group where suggestions were withheld	Mental health Short-Form 36 subscale score	+
			Overall health status (Chronic heart disease questionnaire score)	0
			Dyspnea (Chronic heart disease questionnaire score)	+
			Fatigue (Chronic heart disease questionnaire score)	-
			Emotion (Chronic heart disease questionnaire score)	+
		Evidence-based cardiac care suggestions, approved by a panel of local cardiologists and general internists, were displayed to physicians and pharmacists as they cared for enrolled patients and a printed a note (rather than bottle labels) instructing the pharmacist to view the care suggestions in an electronic database of those suggestion vs. control group where suggestions were withheld	Mental health Short-Form 36 subscale score	+
			Overall health status (Chronic heart disease questionnaire score)	–
			Dyspnea (Chronic heart disease questionnaire score)	+
			Fatigue (Chronic heart disease questionnaire score)	0
			Emotion (Chronic heart disease questionnaire score)	0
Verheijden, 2004[213]	Computer-assisted self-care	Web-based nutrition counseling and social support vs. usual care	Mean perceived social support	0
			Mean BMI	+
			Mean systolic blood pressure	-
			Mean diastolic blood pressure	-
			Mean total cholesterol	-

Table 17a. Summary of the impact of health IT applications on clinical outcomes for patients with heart disease (continued)

Study, Year	Health IT Application	Intervention Compared	Outcomes Measure	Positive Impact*
Wakefield, 2008[42]	IT-guided disease management, interactive lifestyle counseling	Usual care subjects contacted their primary care nurse case manager by telephone if needed. Intervention subjects contacted their assigned study nurse via videophone if needed after discharge. Intervention nurses reinforced discharge plans, had full access to patient records and employed strategies to improve adherence with treatment plans.	Minnesota Living with Heart Failure (higher score= worse QOL)	-
			Mortality	+

BMI: Body Mass Index, CDSS: Clinical Decision Support System, CV: Cardiovascular, DVT: deep vein thrombosis, E-mail: Electronic Mail, EMR: Electronic Medical Record, HbA1c: Glycated Hemoglobin, HDL: high-density lipoprotein, IT: Information Technology, KCCQ: Kansas City Cardiomyopathy Questionnaire, LDL: low-density lipoprotein, PE: Pulmonary Embolism, QOL: quality of life, SPPARO: System Providing Access to Records Online

* "+" indicates that the intervention had a positive effect on the outcome in comparison with the control
"-" indicates that the intervention had a negative effect on the outcome in comparison with the control
"0" indicates that the intervention had no effect on the outcome in comparison with the control

†Adjusted for patient, nurse, and location characteristics.

Table 17b. Overall grade of the quality of evidence in heart disease studies addressing clinical outcomes

1	Protection against risk of bias (relates to study design, study quality, and reporting bias*	High
*	Mean Jadad score†	**0.27**
2	Number of studies	15
3	Did the studies have important inconsistency?	Yes
4	Were the studies sparse?	No
5	Overall grade of evidence	Moderate

* The Jadad scoring method, and rules for converting the numerical score to a rating for protection against risk of bias are described in the Quality Assessment subsection of Chapter 2, Methods.

†The rules for assessing the quantity and consistency of a body of evidence, and combining that with the mean Jadad score to produce the overall grade are described in the Grading of the Evidence subsection of Chapter 2.

Table 18a. Summary of the impact of health IT applications on clinical outcomes for patients with cancer

Study, Year	Health IT Application	Intervention Compared	Outcomes Measure	Positive Impact*
Maslin, 1998[215]	Interactive lifestyle counseling	Interactive video disk system vs. usual care	Mental health score on Short-Form 36 questionnaire	0
			Anxiety score on the Hospital Anxiety and Depression Scale	+
McDonald, 2005[48]	Communication via email	Patient-specific, one-time email reminder with pain-specific recommendations vs. usual care	Pain at its worst (range: 0-10)	+
			Pain on average (range: 0-10)	+
			Pain interference scale (range: 0-10)	+
			Best QOL	-
			Severe pain	-
			Severe insomnia	+
			Severe constipation	-
		Patient-specific, one-time email reminder with pain-specific recommendations vs. email reminder, provider prompts, patient education and clinical nurse specialist outreach vs. usual care	Pain at its worst (range: 0-10)	+
			Pain on average (range: 0-10)	+
			Pain interference scale (range: 0-10)	+
			Best QOL	-
			Severe pain	-
			Severe insomnia	+
			Severe constipation	-
Ruland, 2003[47]	mHealth, shared decisionmaking tools	Computerized system for shared decisionmaking for care of cancer symptoms vs. usual care	Number of reported symptoms (0-10)	+
			Number of reported symptoms (0-15)	+
			Number of reported symptoms (0-20)	+
			Number of reported symptoms (0-25)	+
			Number of reported symptoms (0-30)	+
			Number of reported symptoms (0-40)	0
			Number of reported symptoms (0-50)	+

Table 18a. Summary of the impact of health IT applications on clinical outcomes for patients with cancer (continued)

Study, Year	Health IT Application	Intervention Compared	Outcomes Measure	Positive Impact*
Taenzer, 2000[216]	IT-guided self-management	Lung cancer patients whose physicians and nurses received quality of life training and patients completed the computerized EORTC QLQ-C30 vs. patients completed a paper- and pencil version of the EORTC QLQ-C30 only	Physical functioning	-
			Role functioning	-
			Emotional functioning	-
			Cognitive functioning	-
			Social functioning	-
			Global functioning	-
			Number of functional scales indicating compromised function	-
			Fatigue	-
			Nausea and vomiting	+
			Pain	-
			Dyspnea	-
			Sleep disturbance	-
			Appetite	+
			Constipation	-
			Diarrhea	+
			Financial difficulties	+
			Number of symptom scales indicating compromised functioning	-
			Number of functional and symptom scales indicating compromised function	-
			Total number of items endorsed	+

E-mail: Electronic Mail, EORTC-QLQ: European Organization for Research and Treatment of Cancer QOL Questionnaire, IT: Information Technology, mHealth: Mobile Health, QOL: Quality of Life

***** "+" indicates that the intervention had a positive effect on the outcome in comparison with the control

"-" indicates that the intervention had a negative effect on the outcome in comparison with the control

"0" indicates that the intervention had no effect on the outcome in comparison with the control

EORTC-QLQ: European Organization for Research and Treatment of Cancer QOL Questionnaire

Table 18b. Overall grade of the quality of evidence in cancer studies addressing clinical outcomes

1	Protection against risk of bias (relates to study design, study quality, and reporting bias*	High
*	Mean Jadad score†	**0.25**
2	Number of studies	4
3	Did the studies have important inconsistency?	Yes
4	Were the studies sparse?	Yes
5	Overall grade of evidence	Low

* The Jadad scoring method, and rules for converting the numerical score to a rating for protection against risk of bias are described in the Quality Assessment subsection of Chapter 2, Methods.

†The rules for assessing the quantity and consistency of a body of evidence, and combining that with the mean Jadad score to produce the overall grade are described in the Grading of the Evidence subsection of Chapter 2.

Table 19a. Summary of the impact of health IT applications on clinical outcomes for patients with hypertension

Study, Year	Health IT Application	Intervention Compared	Outcomes Measure	Positive Impact*
Bosworth, 2009[218]	Clinical decision aids	Patient behavioral intervention group vs. control group (hypertension reminder) whose providers did not receive decision support	Estimated mean systolic blood pressure	-
			Estimated percent in blood pressure control	+
		Combined patient and provider intervention vs. control group (hypertension reminder) whose providers did not receive decision support	Estimated percent in blood pressure control	0
		Provider decision support system group vs. control group (hypertension reminder)	Estimated mean systolic blood pressure	+
			Estimated percent in blood pressure control	-
Fretheim, 2006[50]	Clinical decision aids, IT-guided disease management	Educational outreach visit with audit and feedback, and computerized reminders linked to the medical record system vs. passive dissemination of guidelines	CV risk among patients started on treatment	+
			†Patients with CV risk above 20%	+
			Treatment goal achieved among diabetes patients	-
			Treatment goal for hypertension achieved	+
			Treatment goal for cholesterol achieved	-
Green, 2008[56]	Communication via email, IT-guided disease management, education via IT, information exchange, telemonitoring systems	Web-based blood pressure monitoring and Web training vs. usual care	Adjusted change in systolic blood pressure at 12 months	+
			Percent with controlled blood pressure at 12 months	+
		Web-based blood pressure monitoring and Web training and Web-based pharmacist care vs. usual care	Adjusted change in systolic blood pressure at 12 months	+
			Percent with controlled blood pressure at 12 months	+
Hicks, 2008[55]	Clinical decision aids	Computerized support vs. usual care	Blood pressure control	+
			Mean systolic blood pressure at outcome visit	-
			Mean diastolic blood pressure at outcome visit	+

Table 19a. Summary of the impact of health IT applications on clinical outcomes for patients with hypertension (continued)

Study, Year	Health IT Application	Intervention Compared	Outcomes Measure	Positive Impact*
Madsen, 2008[217]	Communication via email, information exchange, telemonitoring systems	Telemonitoring of blood pressure vs. conventional monitoring of blood pressure	Day time ambulatory blood pressure monitoring systolic blood pressure	+
			Day time ambulatory blood pressure monitoring diastolic blood pressure	+
			Night time ambulatory blood pressure monitoring systolic blood pressure	+
			Night time ambulatory v monitoring diastolic blood pressure	+
			Day time ambulatory blood pressure monitoring systolic blood pressure (age >=60)	+
			Day time ambulatory blood pressure monitoring diastolic blood pressure (age >=60)	+
			Change in Day Time ambulatory blood pressure monitoring systolic blood pressure (age >=60)	+
			Change in Day time ambulatory blood pressure monitoring diastolic blood pressure (age >=60)	+
			Percent achieved Target blood pressure	+
Montgomery, 2000[144]	IT-guided decision support	Chart alone vs patients who received decision support	At risk for cardiovascular event at 12 months.	0
Mitchell, 2004[54]	IT-guided disease management, electronic medical records	Audit only practices vs. patients who received no feedback	Final systolic blood pressure	-
			Final systolic blood pressure	+
			Final proportion with controlled blood pressure in hypertensive patients	-
			All patients with blood pressure <160/90 mmHg	-
			All patients with BP>=160/90 mmHg	+
			All patients with no recorded blood pressure	-
		Audit and strategic practices vs. patients who received no feedback	Final proportion with controlled blood pressure in hypertensive patients	-
			All patients with blood pressure <160/90	+
			All patients with blood pressure >=160/90	-
			All patients with no recorded blood pressure	+
			Blood pressure control (%)	-
			Blood pressure control (%)	-

Table 19a. Summary of the impact of health IT applications on clinical outcomes for patients with hypertension (continued)

Study, Year	Health IT Application	Intervention Compared	Outcomes Measure	Positive Impact*
Parati, 2009[57]	Computer-assisted self-care, telemonitoring systems	Telemonitoring home blood pressure vs. usual care	QOL at end of study per QOL assessment in hypertension patients questionnaire	+
			Percent with daytime blood pressure normalization	+
		Telemonitoring home blood pressure vs. patients that received usual care	QOL at end of study per QOL assessment in hypertension patients questionnaire	+
			Percent with daytime blood pressure normalization	+

CV: Cardiovascular, E-mail: Electronic Mail, IT: Information Technology, QOL: quality of life
***** "+" indicates that the intervention had a positive effect on the outcome in comparison with the control
"-" indicates that the intervention had a negative effect on the outcome in comparison with the control
"0" indicates that the intervention had no effect on the outcome in comparison with the control
† as defined by SmartHeart (Phizer)

Table 19b. Overall grade of the quality of evidence in hypertension studies addressing clinical outcomes

1	Protection against risk of bias (relates to study design, study quality, and reporting bias*	High
*	Mean Jadad score†	**0.71**
2	Number of studies	7
3	Did the studies have important inconsistency?	No
4	Were the studies sparse?	No
5	Overall grade of evidence	High

* The Jadad scoring method, and rules for converting the numerical score to a rating for protection against risk of bias are described in the Quality Assessment subsection of Chapter 2, Methods.
†The rules for assessing the quantity and consistency of a body of evidence, and combining that with the mean Jadad score to produce the overall grade are described in the Grading of the Evidence subsection of Chapter 2.

Table 20. The impact on clinical outcomes by type of health IT application

Health IT Type	Number of Studies	Studies With at Least 1 Outcome Having a Positive Impact, n (%)	Studies With at Least 1 Outcome Having a Statistically Significant Positive Impact, n (%)
Care management tools	22	20 (91)	13 (59)
Telehealth	37	36 (97)	21 (57)
PHR/patient portals	14	14 (100)	9 (64)
Secure electronic messaging	10	9 (90)	6 (60)

IT: Information Technology, PHR: Personal Health Record

Key Question 1c. Are health IT applications that address one or more components of PCC effective in improving intermediate outcomes for patients, and how do these improvements vary by type of health IT application?

General Study Characteristics

We identified 87 articles evaluating how health IT applications that address PCC affect intermediate outcomes (Appendix G, Evidence Tables 15–17). These articles predominantly targeted diabetes mellitus, heart disease, obesity, cancer, hypertension, and alcohol abuse (Table 21). They predominantly employed telemonitoring, clinical decision aids, and IT-guided self-management as the types of health IT applications (Table 22). The most frequently included components of PCC were related to coordination and integration of care, and enhanced clinician-patient relationship (Table 23). They most commonly addressed the intermediate outcomes of patient knowledge or behaviors and patient satisfaction (Tables 24–27). The study results suggested that intermediate outcomes generally improve with health IT interventions having one or more components of PCC.

Specific Findings

Intermediate Outcomes in Studies Addressing Diabetes Mellitus

Thirteen studies examined the impact of health IT applications addressing components of PCC on intermediate outcomes for patients with diabetes mellitus (Table 24a; Appendix G, Evidence Tables 15–18). The studies examined a wide variety of intermediate outcomes. The quality of these studies was high, but there was a great deal of variability in quality scores. A number of studies were randomized, double-blinded, and addressed loss to followup, but others did not address blinding and/or loss to followup. The overall grade of the strength of evidence in studies of intermediate outcomes addressing diabetes mellitus was high (Table 24b; Appendix G, Evidence Tables 15–18).

Grant (2008)[247] randomized 11 primary care practices and 244 patients. Intervention practices had access to a diabetes-specific PHR that imported clinical and medications data, provided patient-tailored decision support, and enabled the patient to author a "Diabetes Care Plan" for electronic submission to his or her physician prior to upcoming appointments. Control practices received a PHR for patients to update and submit family history and health maintenance information. Half of the patients in the intervention arm (51%) who completed a Diabetes Care Plan indicated that they wished to improve their blood glucose control, 32 percent their blood pressure control, and 28 percent their control of LDL. Intervention patients who completed the Diabetes Care Plan (n=82) were more likely than the patients from the control group who submitted family history and health maintenance information (n=41) to have a medication initiation or dosage adjustment for hyperglycemia (29% vs. 15%; p=0.10), hypertension (13% vs. 0%; p=0.02), or hyperlipidemia (11% vs. 0%; p=0.03) during the subsequent episode of care (Table 24a; Appendix G, Evidence Table 18).

Smith (2008),[27] in a study of primary care physicians in Rochester, Minnesota, compared no intervention with a telemedicine intervention that delivered specialty advice and evidence-based messages regarding medication management for cardiovascular risk. After each encounter in the telemedicine intervention, endocrinologists reviewed an abstract from the medical record and

provided management recommendations and advice to the physician via email. Control physicians received email with periodic generic recommendations about cardiovascular risk reduction in diabetes. Outcome measures included diabetes care process outcomes, clinical outcomes, and the intermediate outcome of patient costs. As compared with the control, the intervention did not improve metabolic outcomes or reduce estimated coronary artery disease risk (adjusted mean difference, -1%, 95% CI -19 to 17). The mean total 1-year-cost savings was significantly greater for the intervention group ($2,311, 95% CI $266 to $4,667) (Table 24a; Appendix G, Evidence Table 18).

Quinn (2008)[26] assessed the impact on HbA1c of a cellular phone-based diabetes-management-software system combined with Web-based data analytics and therapy optimization tools. Thirty patients with type 2 diabetes were recruited from three community practices for a 3-month study and randomized to the intervention, which consisted of cell phone-based software providing real-time feedback on patients' blood glucose levels and sending computer-generated logbooks with treatment suggestions to patients' health care providers. As compared with controls, the patients undergoing the intervention reported increased engagement in care and were more likely to control their diabetes based on knowledge of food choices (91% vs. 50%), confidence (100% vs. 75%), and the provider receiving regular blood sugars (100% vs. 36%) (Table 24a; Appendix G, Evidence Table 18).

Laffel (2007)[204] examined glycemic control and persistence of glycemic improvements during long-term observational followup in two similar groups of adult and pediatric insulin-using patients (n=205) with HbA1c greater than or equal to 8.0 percent. The intervention group used integrated glucose meters and electronic logbooks and the control group used conventional meters and paper logbooks. Logbook data and HbA1c were monitored every 4 weeks for 16 weeks. The average daily documented self-monitored blood glucose frequency was significantly greater in the intervention group, with 48 percent of the electronic group versus 30 percent of the control group monitoring four or more times daily (p=0.03) (Table 24a; Appendix G, Evidence Table 18).

Harno (2006)[198] randomized 175 patients with type 1 and 2 diabetes in primary care practices and medical center outpatient departments into a study group (n=101) or usual care (n=74). The study group had access to a health IT intervention consisting of an e-health application with a diabetes management system and a home care link; the care team was able to send text messages to patients in the study group. Usual care did not involve e-health. The outcome (HbA1c) was significantly lower in the study group than in the control group, but there was no significant difference in behaviors measured in terms of contacts with physicians and nurses (Table 24a; Appendix G, Evidence Table 18).

Gomez (2002)[28] presented the results of a 6-month crossover pilot study of the use of a telemedicine system in 10 patients with type 1 diabetes. The system included a patient unit used by patients in their day-to-day activities and a medical workstation used by physicians and nurses at hospitals. This study represented a preliminary report; however, data were presented on patients' evaluation of the system's utility. Of the 60 patients, the following numbers of patients reported good utility (four or five on a five-point scale) in various domains: seven in glycemic control improvement, seven in help on diabetes education, eight in general use in diabetes care, and six in providing other advantages (not defined in article) over a traditional (face-to-face) system (Table 24a; Appendix G, Evidence Table 18).

Williams (2007),[277] in a trial of 866 adult type 2 diabetes patients in heterogeneous primary care settings in Colorado, assessed whether a patient-centered, computer-assisted

diabetes care intervention would increase perceived support for autonomy and perceived competence. The computer-assisted intervention increased patients' perception of autonomy support relative to a control (p=0.05) (Appendix G, Evidence Table 18).

Benhamou (2007)[205] enrolled 30 patients with poorly controlled diabetes (HbA1c: 7.5 to 10%) in a two-center, open-label, randomized 12-month two-period crossover study. Fifteen patients were randomly assigned to receive weekly medical support through short message service based upon weekly review of glucose values, while 15 patients continued to download self-monitored blood glucose values on a weekly basis without receiving short message service. After 6 months, patients crossed over to the alternate sequence for 6 additional months. Visits at the clinic were maintained every 3 months. The study measured the intermediate outcome adherence of patients in performing self-monitored blood glucose. The intervention had no effect on this outcome (Table 24a; Appendix G, Evidence Table 18).

Glasgow (2006)[202] compared a computer-aided self-management intervention with computer-aided enhanced usual care in 335 primary care patients with type 2 diabetes from fee-for-service and health maintenance organizations. In addition to computer-assisted self-management assessment and feedback, the intervention consisted of tailored goal-setting, barrier identification, and problem-solving, followed by health counselor interaction and telephone followup. The study measured changes in health knowledge and behavior. Although the authors observed a trend favoring the intervention, the effect was not statistically significant (Table 24a; Appendix G, Evidence Table 18).

Homko (2007)[203] randomized women with gestational diabetes mellitus (n=57) either to an Internet group (n=32), which had access to a Web site established for documentation of glucose values and communication between the patient and the health care team (i.e., IT-guided self-management and disease management), or to a control group (n=25). The study measured the maternal feelings of diabetes self-efficacy at study entry and before delivery. Women in the Internet group demonstrated significantly more feelings of self-efficacy at the study's end: mean score on a five-point scale, 4.0 (0.5) in the control group versus 4.4 (0.5) in the Internet group (p=0.053) (Table 24a; Appendix G, Evidence Table 18).

Tjam (2006)[278] randomized patients with type 2 diabetes in Ontario, Canada to an Internet disease management program (n=37) or to an in-person program using a Diabetes Management Center (n=20). The authors staggered enrollment at 3, 6, and 12 months. In addition to the clinical endpoints of HbA1c, HDL, LDL, and blood glucose levels, the study reported on patient satisfaction with care. The Internet group demonstrated improvement in patient satisfaction levels at 3 and 6 months, whereas the control group did not. In the Internet group, the mean difference in satisfaction at 3 months when compared to baseline was 0.383 (0.3) on a 4-point scale (p=0.0150); the mean difference in satisfaction at 6 months when compared to baseline was 0.58 (0.38), p=0.014 (Table 24a; Appendix G, Evidence Table 18).

Sequist (2005)[22] showed that computer-aided disease management in the form of clinical reminders to physicians within their electronic medical record improved quality-of-care by increasing the completion of recommended actions for diabetes (Table 24a; Appendix G, Evidence Table 18).

Sevick (2008)[279]reported that PDA-based IT-guided self-management did not have a significant effect on patient engagement in care, when compared with usual care. We included this study in the evidence on Key Question 1c because the study seemed to be assessing patient engagement in care as a form of health behavior.

Intermediate Outcomes in Studies Addressing Heart Disease

Six studies examined the impact of health IT applications addressing components of PCC on intermediate outcomes for patients with heart disease (Table 25a; Appendix G, Evidence Tables 15-17 and 19). Improved patient satisfaction was the most common intermediate outcome in these studies. The quality of these studies was moderate—nearly all of the studies were lacking information on loss to followup and about half were not double-blinded. The overall grade of the strength of evidence in the studies of intermediate outcomes addressing heart disease was low (Table 25b, Appendix G, Evidence Tables 15–17 and 19).

In a study by Feldman (2005)[32] nurses treated patients randomly assigned to usual care or one of two intervention groups. The basic intervention was an email to the nurse highlighting six heart failure-specific clinical recommendations that would aid in ongoing care and discharge planning, in addition to counseling the patient in self-care management techniques. The augmented intervention supplemented the initial nurse reminder with additional clinician and patient resources. Clinicians conducted patient interviews conducted 45 days after admission to measure self-management behaviors and heart failure-specific outcomes. The basic intervention yielded a higher QOL score than did usual care ($p \leq 0.05$). In addition, the interventions had a positive impact on medication knowledge, diet, and weight monitoring. The basic intervention was more cost-effective than the augmented intervention in improving clinical outcomes (Table 25a; Appendix G, Evidence Table 19).

Subramanian (2004)[36] studied primary care physicians at two Veterans Affairs Medical Centers who were treating heart failure patients. Intervention physicians were assigned to receive care suggestions generated with electronic medical record data and symptom data obtained from questionnaires mailed to patients within 2 weeks of scheduled outpatient visits. The control group received suggestions generated with electronic medical record data alone. The authors assessed physician adherence to heart failure guidelines, as well as patients' New York Heart Association class, QOL and satisfaction with care, at 6 and 12 months after enrollment. At 12 months, intervention patients were more satisfied with their physicians ($p<0.02$) and primary care visit ($p<0.02$) (Table 25a; Appendix G, Evidence Table 19).

Tierney (2003)[37] assessed the effects of computer-based cardiac-care suggestions on the care provided by primary care physicians and pharmacists. The care suggestions for chronic heart failure fell into five major categories according to the most recent clinical guidelines for cardiac care. One of the major categories included suggestions on improving intermediate outcomes in patients such as encouraging regular exercise, smoking cessation, and weight reduction. However, care suggestions generated by the electronic medical record system did not improve intermediate outcomes in heart failure and ischemic heart disease patients. Patient knowledge and attitudes toward guidelines after the intervention remained unchanged (Table 25a; Appendix G, Evidence Table 19).

Lowensteyn (1998)[35] determined the feasibility of using patient-specific, multifactorial computerized risk profiles as a clinical decision aid to support primary prevention of coronary heart disease. Study participants were 253 community physicians randomized into profile and control groups, and 958 of their patients. Profile group physicians received coronary risk profiles of their patients within 10 working days after the baseline patient assessment, so as to obtain early feedback. The control group received profiles only if the patient was clinically re-evaluated during a 3-month followup. The intermediate outcome specified was the ratio of high-risk to low-risk patients (as determined by a Framingham-based multivariate regression model of risk)

who returned for a followup visit. This ratio was significantly higher ($p<0.05$) in the profile group than in the control group (Table 25a; Appendix G, Evidence Table 19).

Jerant (2003)[248] compared three post-hospitalization nursing-care models for the reduction of rehospitalizations for heart failure within 180 days of hospital discharge. Clinicians visited the subjects at baseline and at 60 days. The patients received one of three care modalities in the interim: video-based home telehealth, telephone calls, and usual care. The study randomized 37 eligible subjects—13 to the home telehealth group and 12 each to the telephone and usual care groups. Patient self-care adherence, adherence to medications, health status, and satisfaction did not differ among the three groups. However, the authors designed the study only to detect a difference between the groups in readmission charges (the primary outcome) and not for the intermediate outcomes (Table 25a; Appendix G, Evidence Table 19).

Dansky (2008)[280] conducted a randomized field study of 284 patients with heart failure to determine the effects of telemonitoring (either one-way or two-way monitoring) on medication use and physical activity. With regard to intermediate outcomes, there was greater reduction in physical activity among patients using telemonitoring than among control patients ($p<0.001$) (Table 25a; Appendix G, Evidence Table 19).

Intermediate Outcomes in Studies Addressing Cancer

Six studies examined the impact of health IT applications addressing components of PCC applications on intermediate outcomes for patients with cancer (Table 26a; Appendix G, Evidence Tables 15–17 and 20). The studies examined a variety of intermediate outcomes. The quality of the studies was high, with little variation across studies. Quality scores were lowered mainly because the studies did not describe loss to followup. The overall grade of the strength of evidence in studies of intermediate outcomes addressing cancer was high (Table 26b; Appendix G, Evidence Tables 15–17 and 20).

Gaertner (2004)[256] conducted a randomized crossover trial in which 24 patients suffering from chronic cancer and noncancer pain completed the electronic and paper versions of a pain diary. After 4 weeks, patient satisfaction was higher for the electronic version. Fifteen users said that the electronic version better supported their health care, as compared to four users for the paper version ($p=0.012$). Twenty said that they would like to use the electronic version again, as compared with four for the paper version ($p<0.001$) (Table 26a; Appendix G, Evidence Table 20).

Taenzer (2000)[216] randomized 53 patients at a lung cancer outpatient clinic in Alberta, Canada to assess whether the use of a computerized version of a 30-item QOL questionnaire before a clinic appointment would improve patient care (compared to a paper version). In the intervention group, clinicians addressed more of the questionnaire's QOL issues during the clinic appointment than in the control group (6.4 +/- 4.1 items in the experimental group vs. 2.5 +/- 2.9 items in the control group, $p<0.01$). However, patients in both groups reported being equally satisfied with the treatment (Table 26a; Appendix G, Evidence Table 20).

Maslin (1998)[215] pilot-tested an interactive video disk system using a shared decisionmaking program for women with early breast cancer. The study's aim was to determine the acceptability of the system as a means of providing information about the risks and benefits of treatment choices. Ninety-two percent of patients using the video disk said they would recommend it, which we considered an indication of satisfaction with the intervention (Table 26a; Appendix G, Evidence Table 20).

Glazebrook (2006)[281] evaluated the impact of an interactive multimedia intervention on

patients' knowledge about melanoma and on their skin-protective behaviors. Doctors and nurses in five family practices prescribed the intervention to patients with high-risk skin characteristics. Two hundred fifty-nine patients received the intervention, and 330 patients were matched controls. At the 6-month followup, the intervention group had higher knowledge scores than the control group (3.71 vs. 3.03, p ≤0.001), reported more protective skin behaviors (5.36 vs. 5.06, p=0.007), and were more likely to report mole checking (OR 1.67, 95% CI 1.04 to 2.70, p=0.035) (Table 26a; Appendix G, Evidence Table 20).

Ruland (2003)[47] evaluated how a computerized system might better align a cancer patient's self-reported symptoms and preferences to those addressed in the clinician-patient consultation, and thus improve patient satisfaction. Cancer patients scheduled for an outpatient visit used a tablet computer to report their symptoms and preferences prior to their consultation. The study authors processed, printed, and provided the information to the patient and clinician in the intervention group (n=27), but not the control group (n=25). The intervention had no effect on the main intermediate outcome (patient satisfaction) (Table 26a; Appendix G, Evidence Table 20).

Frosch (2008)[282] evaluated the effects of patient decision support Web sites on decision quality for men considering prostate cancer screening. Six hundred eleven men older than 50 years were randomly assigned to one of four Internet interventions: a traditional didactic decision aid providing information about prostate-specific antigen screening options; a chronic disease trajectory model for prostate cancer, followed by a time-trade-off exercise; both the didactic decision aid and the chronic disease trajectory model; or links to credible public Web sites about prostate cancer (control group). The outcome measures were prostate-specific antigen test choice, prostate cancer treatment preferences, knowledge and concern about prostate cancer, and decisional conflict. Participants assigned to view public Web sites were less likely to review information (116 participants [76.8%] reviewed) than those assigned to intervention groups (399 [86.7%] reviewed; p=0.004). Greater reductions in prostate-specific antigen screening from pretest to post-test were observed among participants assigned to the traditional decision aid (−9.1%) or chronic disease trajectory model (−8.7%) than to the combination (−5.3%) or control (−3.3%) groups (p=0.047). Preferences for watchful waiting increased significantly in all four groups (baseline, 219 [35.8%]; followup, 303 [66.2%]; p=0.001). Knowledge scores were lowest for those assigned to public Web sites (mean [standard deviation] score, 7.49 [0.19] of questions correct) and highest for the traditional decision aid (8.65 [0.18] of questions correct; p=0.005). The authors concluded that public Web sites about prostate cancer provided less effective decision support than the specially designed Internet decision aids (Table 26a; Appendix G, Evidence Table 20).

Intermediate Outcomes in Studies Addressing Other Diseases and Conditions

Hypertension

Six studies examined the impact of health IT applications addressing components of PCC on intermediate outcomes for patients with hypertension (Table 27a; Appendix G, Evidence Tables 15–17 and 21). Overall, the quality of these studies was high, but there was variation across studies in quality, based on a lack of both blinding and a description of loss to followup. The overall grade of the strength of evidence in studies of intermediate outcomes addressing hypertension was high (Table 27b; Appendix G, Evidence Tables 15–17 and 21).

Bosworth (2009)[218] conducted a cluster-randomized trial with two-year followup among patients with hypertension enrolled from a Veterans Affairs Medical Center primary care clinic. Primary care providers in the intervention group (n=17) received computer-generated, guideline-concordant medical therapy reminders; control providers (n=15) received a reminder at each visit. Patients received usual care or a bimonthly tailored nurse-delivered behavioral telephone intervention to improve hypertension treatment (Table 21). The primary outcome was the proportion of patients who achieved a blood pressure less than 140/90 mm Hg (less than 130/85 for diabetic patients) over the 24-month intervention. There were no significant differences in the amount of change in blood pressure control in the three intervention groups as compared with the hypertension reminder control group. The only intermediate outcome considered in the study was provider interaction with the provider decision support intervention. For the visits in which this was displayed, providers interacted with the intervention 57 percent of the time (528 of 929 visits) (Table 27a; Appendix G, Evidence Table 21).

In Parati (2009),[57] 12 general practitioners screened 391 consecutive hypertensive patients; the study randomized 329 of these patients to either usual care based on office blood pressure (group A, n=113) or to integrated care on the basis of telemonitored home blood pressure (group B, n=216). The authors performed 24-hour ambulatory blood pressure monitoring at baseline and after 6 months; thereafter, they monitored treatment using either office or home blood pressure values. The intermediate endpoints were a need for treatment changes during followup and health care costs. There were less frequent treatment changes in group B than in group A (9 vs. 14%, $p<0.05$). Differences in the cost of patient management between the groups were not statistically significant (Table 27a; Appendix G, Evidence Table 21).

Green (2008)[56] randomized 778 participants with uncontrolled essential hypertension and Internet access to: usual care (control); home blood pressure monitoring and secure patient Web site training (intervention); or home blood pressure monitoring, secure patient Web site training, and pharmacist care management delivered through Web communication (augmented intervention). Intermediate outcomes included the mean number of antihypertensive medication classes filled. At baseline, patients took a mean of 1.6 antihypertensive medication classes. At 12 months, the mean (standard deviation) number of antihypertensive medication classes filled in the intervention group, 1.94 (0.91), was significantly higher than the 1.69 (0.91) in the control group ($p<0.01$). The augmented intervention group had an increase in the mean (standard deviation) number of antihypertensive medication classes to 2.16 (0.93), which was significantly greater than that for both the control group ($p<0.001$) and the intervention group. Physical activity, BMI, and satisfaction with the health plan did not differ among the three groups. Thus, the intervention improved participation in care, as represented by prescription filling, but it had no effect on any other intermediate outcomes (Table 27a; Appendix G, Evidence Table 21).

Roumie (2006)[52] randomly assigned 182 providers caring for 1,341 hypertensive patients to one of three interventions: receiving a Web link to the Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (control); receiving the Web link and a computer alert notifying them of the patient's blood pressure (intervention); or receiving the Web link, a computer alert, and a letter educating the patient about ways to control his or her blood pressure (augmented intervention). Intermediate outcomes were closely related to the process measures reported in the section on Key Question 1a. The study did not show improvement in patient education in the third group as compared

with other groups. There were no differences in medication adherence score among the three study groups (Table 27a; Appendix G, Evidence Table 21).

Rinfret (2009)[259] studied the impact of IT-guided self-management on adherence to medication use in 223 primary care patients. At the end of the study there was a trend toward improved drug adherence in the intervention subjects as measured using pharmacy data (Table 27a; Appendix G, Evidence Table 21).

Santamore (2008)[85] developed an Internet-based telemedicine system to improve control of hypertension and other modifiable risk factors. To minimize cost, the subjects used home monitors for blood pressure measurements and entered these values into the telemedicine system. The study randomized subjects (n=464) with 10 percent or greater 10-year risk of cardiovascular disease and with treatable risk factors into two groups, a control group and a telemedicine group. Each subject received a home sphygmomanometer with memory. The telemedicine group recorded and entered blood pressure at least weekly. During office visits, the blood pressure meters were downloaded, and recorded blood pressure was compared with blood pressure values transmitted via telemedicine. Results showed relatively little difference between telemedicine blood pressure values and meter recorded values downloaded during office visits (Table 27a; Appendix G, Evidence Table 21).

Obesity

Seven studies examined the impact of health IT applications addressing components of PCC on intermediate outcomes for patients with obesity. Of these studies, the most common intermediate outcome was patient engagement in care and QOL and safety.[268 274 283-287] Napolitano (2003)[236] showed that communication via a Web site improved prevention and health-promotion activities, in this case, physical activity. Rothert (2006)[254] showed that IT-guided self-management (using a specially designed Web site) was found to be easy to use and understood by patients who used it for weight management (Appendix G, Evidence Tables 15–17).

Asthma

Two studies examined the impact of health IT applications addressing components of PCC on intermediate outcomes for patients with asthma. Chan (2003)[61] found no influence of a clinical decision support on quality or patient engagement of care. Jan (2007)[222] showed that telemonitoring and IT-guided self-management improved the quality of asthma care (Appendix G, Evidence Tables 15–17).

How Does the Impact on Intermediate Outcomes Vary by Type Of Health IT Application?

Table 28 summarizes the impact of health IT applications addressing components of PCC on intermediate outcomes. We summarized the results in this table based on the five major health IT types described in Chapter 2. The analysis of the summary table demonstrated that, among all reviewed health IT applications, telehealth was most frequently cited as affecting intermediate outcomes. However, less than half of the telehealth applications had a statistically significant positive effect on at least one intermediate outcome. In contrast, for three of the health IT types that had fewer studies of intermediate outcomes (PHR/patient portals, secure electronic messaging, and shared decisionmaking tools), the majority of studies reported a statistically significant positive effect on at least one intermediate outcome. This observation makes it

difficult to formulate any strong conclusion about how the impact on intermediate outcomes varies by type of health IT application.

Table 21. Studies addressing the effect of health IT applications on intermediate outcomes in specific target conditions, target populations, and care focus areas in studies*

Target care focus area	N (Specific Reference)
Diabetes	13[26-28 198 202-204 209 211 277 278 288 210 197]
Heart disease	6[32 35-37 248 289]
Cancer	6[47 215 216 256 281 282]
Hypertension	6[52 56 57 85 218 259]
Obesity	7[231-234 236 254 290]
Alcohol abuse	5[87 237 248 291 292]
Asthma	2[61 222]
Mental health	3[66 226 229]
Smoking cessation	4[157 293-295]
Menopause/hormone replacement therapy	4[107 296-298]
Pregnancy	2[90 246]
Adolescent behavior	1[299]
Congestive heart failure	1[300]
Chronic back pain	1[238]
Chronic condition/health problem	1[96]
Chronic pain	1[301]
Chronic obstructive pulmonary disease	1[89]
Fertility (in vitro fertilization)	1[302]
Mechanical ventilation management in acute respiratory distress syndrome	1[223]
Osteoporosis	1[108]
Acute myocardial infarction	1[303]
Periodontal disease management	1[245]
Eating disorder	1[304]
Recurrent headache	1[115]
Safety knowledge	1[305]
Sickle cell anemia	1[306]
Substance abuse	1[307]
Wound care	2[121 308]
Other or not specified	11[122 132 309-317]

IT: Information Technology

* Table includes all of the studies that were included in the evidence tables, not just the studies of frequently studied conditions that were highlighted in the text.

Table 22. Studies addressing the effect of health IT applications on intermediate outcomes*

Type of Health Information Technology Application	N (Specific Reference)
Care Management Tools	
Clinical decision aids	16[27 33 36 53 60 90 215 216 218 220 223 226 282 297-299 301 318-320]
IT-guided self-management	16[63 66 85 198 199 202 204 222 229 232 233 238 254 259 288 292 294 304 321]
IT-guided disease management	14[26 37 56 89 96 108 202 203 216 231 278 288 301 303 322]
Computer-assisted self-care	12[57 66 89 115 231 234 245 277 288 307 322-324]
Electronic medical records	4[60 108 302 325 326]
Care coordination tools	1[327]
Telehealth	
Telemonitoring systems	18[28 57 121 183 203 209 248 266 270 289 306 323 328-335]
Personal Health Record and Patient Portal Related Applications	
Education via information technology	9[52 56 63 85 209 245 281 296 304 305 336]
Interactive lifestyle counseling	7[199 232 234 290 293-295 307 337]
mHealth	6[26 47 61 256 288 327]
Patient portals	3[85 209 318 325]
PHR	3[237 256 302]
Secure Electronic Messaging	
Communication via e-mail	8[27 32 52 56 85 236 323 325]
Information exchange	6[26 35 52 56 85 107]
Social networking/peer-to-peer sites	1[338]
Shared Decisionmaking	
Shared decisionmaking tools	6[33 47 107 215 246 296 297 339]

E-mail: Electronic Mail, IT: Information Technology, mHealth: Mobile Health, PHR: Personal Health Record

* Table includes all of the studies that were included in the evidence tables, not just the studies of frequently studied conditions that were highlighted in the text.

Table 23. Studies addressing the effect of health IT applications on intermediate outcomes, broken down by specific components of PCC*

Component of PCC	N (Specific References)
Coordination and Integration of Care	
Quality and safety	25 27 87 89 90 96 107 121 202 203 215 232 233 245 246 254 281 282 290 294 296 299 301 305 318 320 322
Quality improvement	21 57 61 63 89 108 199 216 220 222 234 236 248 278 282 291 297 301 303 304 320 332 334 336 338
Prevention and health promotion	20 28 36 53 56 199 216 223 226 231 236 277 280 292 295 297 302 319 325 326 335 336 338
Integrated care	25 27 87 89 90 96 107 121 202 203 215 232 233 245 246 254 281 282 290 294 296 299 301 305 318 320 322
Routine patient feedback to practice	21 57 61 63 89 108 199 216 220 222 234 236 248 278 282 291 297 301 303 304 320 332 334 336 338
Transition and continuity	20 28 36 53 56 199 216 223 226 231 236 277 280 292 295 297 302 319 325 326 335 336 338
Whole-Person Orientation	
Respecting patients' values, preferences and needs	6 47 52 66 121 226 277 339
Alleviation of fear and anxiety	2 26 57 321
Emotional support	2 47 237 321
Physical comfort	2 220 300
Exploring the disease and illness condition	2 121 335
Enhanced clinician-patient relationship	
Patient engagement in care	38 32 33 35-37 47 53 56 57 60 61 63 66 85 107 115 198 199 204 218 220 226 229 231 236 238 248 256 259 277 280 291 292 295 300 302 305-307 323 324 335 339 340
Patient empowerment	7 33 37 56 60 204 209 229 256 277 292
Clinical Information Systems	
Practice-based learning	3 89 282 338
Publicly available information on practices	1 26
Socio-Cultural Competence	
Community outreach	4 28 245 307 326

IT: Information Technology

* Table includes all of the studies that were included in the evidence tables, not just the studies of frequently studied conditions that were highlighted in the text.

Table 24a. Summary of the impact of health IT applications on intermediate outcomes for patients with diabetes mellitus

Study, Year	Health IT Application	Intervention Compared	Outcomes Measure	Positive Impact*
Benhamou, 2007[205]	Telemonitoring systems	Patients receiving support through SMS based upon weekly review of glucose values vs. patients downloading SMBG values on a weekly basis without receiving SMS	Adherence of patients in (number of capillary blood glucose values transmitted) performing SMBG	+
Glasgow, 2006[202]	IT-guided disease management, IT-guided self-management,	Tailored self-management vs. computer-aided enhanced usual care	Fruit and vegetable screener (NCI All Day screener (unit not specified))	+
			Daily fat intake-block fat screener	-
Gomez, 2008 [28]	Telemedicine	DIABTel telemedicine system vs. usual care	Glycemic control improvement	+
			Facilitating treatment changes	+
			Help on diabetes education	+
Grant, 2008[247]	Communication via email, IT-guided disease management, electronic medical records, information exchange, PHR	Web-based PHR that imported clinical and medications data, provided patient- tailored decision support, and enabled the patient to author a "Diabetes Care Plan" for electronic submission to their physician prior to upcoming appointments vs. PHR to update and submit family history and health maintenance information	Proportion of followup visits with diabetes mellitus–related medication changes among patients who submitted PHR journals to their physician's electronic medical record	+
Harno, 2006[198]	IT-guided self-management	E-health application with a diabetes management system and a home care link vs. usual care that did not involve e-health	Average number of physician and nurse visits	0
			Average number of physician and nurse telephone calls	0
			Average number of physician and nurse home care links	0

Table 24a. Summary of the impact of health IT applications on intermediate outcomes for patients with diabetes mellitus (continued)

Study, Year	Health IT Category	Intervention Compared	Outcomes Measure	Positive Impact
Homko, 2007[203]	IT-guided disease management, telemedicine	Women send blood glucose and other health data directly to their care providers via the Internet and received information from their health care provider vs. women in the control group were asked to record their information in a logbook, which was reviewed by the medical team at prenatal visit	Feelings of diabetes psychosocial self-efficacy	+
Laffel, 2007[204]	IT-guided self-management, telemonitoring systems	Integrated glucose meters and electronic logbooks (electronic group) vs. paper log books (control group)	Self-monitoring blood glucose frequency >4 times per day	+
Quinn, 2008[26]	IT-guided disease management, information exchange, mHealth	Cell phone-based software, Well-Doc, vs. One Touch Ultra™ BG meters, blood glucose testing strips and lancets	Diet diabetes self-care	+
			Medications diabetes self-care	+
			Exercise diabetes self-care	+
			Improved knowledge of food (self-reported)	+
			Patient self-management skills improved	+
			Patient confidence	+
Sequist, 2005[22]	Care coordination tools	Evidence-based electronic physician reminders within the electronic medical record vs. usual care	Performance of recommended action for diabetes	+
			Performance of recommended action for coronary artery disease	+
Sevick, 2008[288]	IT-guided self-management	PDA based IT-guided self-management vs. usual care	Patient engagement in care	0
Smith, 2008[27]	Clinical decisionmaking aids, communication via email	Virtual consultation vs. no virtual consultation	Estimated 10-year coronary artery disease risk	+
			Minnesota community aggregate optimal diabetes score	+

Table 24a. Summary of the impact of health IT applications on intermediate outcomes for patients with diabetes mellitus (continued)

Study, Year	Health IT Application	Intervention Compared	Outcomes Measure	Positive Impact
Tjam, 2006 [278]	IT-guided disease management	Internet program vs. diabetes	Mean difference in patient satisfaction at 3 months	+
			Mean difference in patient satisfaction at 6 months	+
Williams, 2007[277]	Computer-assisted self-care	Computer-assisted diabetes care intervention vs. usual care (did not set self-management goals, meet with a care manager, or receive followup phone calls)	Baseline to 12 month change in perceived competence	+

E-health: Electronic Health, IT: Information Technology, NCI: National Cancer Institute, SMBG: self-monitoring of blood glucose, SMS: short message service, PDA: personal digital assistant, PHR: personal health records
***** "+" indicates that the intervention had a positive effect on the outcome in comparison with the control
"-" indicates that the intervention had a negative effect on the outcome in comparison with the control
"0" indicates that the intervention had no effect on the outcome in comparison with the control

Table 24b. Overall grade of the quality of evidence in diabetes mellitus studies addressing intermediate outcomes

1	Protection against risk of bias (relates to study design, study quality, and reporting bias*	High
*	Mean Jadad score[†]	**0.36**
2	Number of studies	13
3	Did the studies have important inconsistency?	No
4	Were the studies sparse?	No
5	Overall grade of evidence	High

***** The Jadad scoring method, and rules for converting the numerical score to a rating for protection against risk of bias are described in the Quality Assessment subsection of Chapter 2, Methods.
[†]The rules for assessing the quantity and consistency of a body of evidence, and combining that with the mean Jadad score to produce the overall grade are described in the Grading of the Evidence subsection of Chapter 2.

Table 25a. Summary of the impact of health IT applications on intermediate outcomes for patients with heart disease

Study, Year	Health IT Application	Intervention Compared	Outcomes Measure	Positive Impact*
Dansky, 2008[289]	Telemonitoring	Telemonitoring and usual care vs. control	Physical activity	0
			Diet	0
		Telemonitoring plus video and usual care vs control	Physical activity	0
			Diet	0
Feldman, 2005[32]	Communication via email	Email recommendations to nurses vs. usual care	Patient skips medicine	-
			Patient is sure about when to take heart failure medicine	+
			Patient recognition of own heart failure medicines	
			Patient does not recognize any of own heart failure medicines	+
			Patient recognizes up to half of own heart failure medicines	+
			Patient recognizes more than half of own heart failure medicines	+
			Patient salts food	+
			Patient's weighing behavior	
			Patient has no scale	-
			Patient weighs self but not daily	-
			Patient weighs self daily	-
		Email recommendations to nurses and additional resources (augmented intervention) vs. usual care	Patient skips medicine	+
			Patient is sure about when to take heart failure medicine	+
			Patient recognition of own heart failure medicines	
			Patient does not recognize any of own heart failure medicines	+
			Patient recognizes up to half of own heart failure medicines	+
			Patient recognizes more than half of own heart failure medicines	+
			Patient salts food	+
			Patient's weighing behavior	
			Patient has no scale	+
			Patient weighs self but not daily	+
			Patient weighs self daily	+

Table 25a. Summary of the impact of health IT applications on intermediate outcomes for patients with heart disease (continued)

Study, Year	Health IT Application	Intervention Compared	Outcomes Measure	Positive Impact*
Jerant, 2003[248]	Telemedicine	Telemedicine vs. usual care	Emotional sub scale on Minnesota Living With Heart Failure Questionnaire: mean	-
			Physical sub scale on Minnesota Living With Heart Failure Questionnaire: mean	-
			Total score on Minnesota Living With Heart Failure Questionnaire: mean	-
			Short Form-36 mental component score	-
			Short Form-36 physical component score	+
			Medication Use: ACE inhibitor	0
			Medication use: beta blocker	0
			Medication use: calcium channel	+
			Digoxin	-
			Diuretic loop	-
			Diuretic, k+-sparing	-
			Nitrate - long action	-
			Medication compliance, self-report >75% dose taken	+
			Medication compliance, self-report ≤75% dose taken	+
			CSQ (Satisfaction) score	+
		Telephone vs. usual care	Emotional sub scale on Minnesota Living With Heart Failure Questionnaire: mean	0
			Physical sub scale on Minnesota Living With Heart Failure Questionnaire: mean	-
			Total score on Minnesota Living With Heart Failure Questionnaire: mean	-
			Short Form-36 mental component score	+
			Short Form-36 physical component score	+
			Medication use: ACE inhibitor	+
			Medication use: beta blocker	+
			Medication use: calcium channel	-
			Digoxin	-
			Diuretic loop	+
			Diuretic, k+-sparing	-
			Nitrate - long action	-
			Medication compliance, self-report >75% dose taken	-
			Medication compliance, self-report ≤75% dose taken	-
			CSQ (Satisfaction) score	-

Table 25a. Summary of the impact of health IT applications on intermediate outcomes for patients with heart disease (continued)

Study, Year	Health IT Application	Intervention Compared	Outcomes Measure	Positive Impact*
Lowensteyn, 1998 [35]	Information exchange	Coronary risk profile to physician vs. no profile risk to physician	Ratio of high risk / low risk patients returning for followup	+
Subramanian, 2004[36]	Clinical decision aids	Care suggestions generated with electronic medical record data and symptom ded from questionnaires mailed to patients within two weeks of scheduled outpatient visits vs. care suggestions generated with electronic medical record data alone	Patient satisfaction with most recent primary care visit (Change enrollment to 12 months)	+
			Mean all-cause hospitalizations	+
			Mean admissions for heart failure	+
Tierney, 2003[37]	IT-guided disease management	Evidence-based cardiac care suggestions displayed to physicians and pharmacists as they cared for enrolled patients vs. control group where suggestions were withheld	Mean number of all emergency department visits	-
			Mean number of heart disease specific emergency department visits	0
			Mean number of all hospitalizations	0
			Mean number of heart disease specific hospitalizations	0
		Printed a note (rather than bottle labels) instructing the pharmacist to view the care suggestions in PIRS vs. control group where suggestions were withheld	Mean number of all emergency department visits	-
			Mean number of heart disease specific emergency department visits	0
			Mean number of all hospitalizations	0
			Mean number of heart disease specific hospitalizations	0
		Evidence-based cardiac care suggestions displayed to physicians and pharmacists as they cared for enrolled patients and a printed a note (rather than bottle labels) instructing the pharmacist to view the care suggestions in PIRS vs. Control group where suggestions were withheld	Mean number of all emergency department visits	-
			Mean number of heart disease specific emergency department visits	+
			Mean number of all hospitalizations	0
			Mean number of heart disease specific hospitalizations	0

ACE: Angiotensin-Converting Enzyme, CSQ: Client Satisfaction Questionnaire, DARTS: Decision Analysis in Routine Treatment, E-mail: Electronic Mail, IT: Information Technology, E-MAILPIRS: Pharmacist Intervention Recording System

***** "+" indicates that the intervention had a positive effect on the outcome in comparison with the control

"-" indicates that the intervention had a negative effect on the outcome in comparison with the control

"0" indicates that the intervention had no effect on the outcome in comparison with the control

Table 25b. Overall grade of the quality of evidence in heart disease studies addressing intermediate outcomes

1	Protection against risk of bias (relates to study design, study quality, and reporting bias*	Moderate
*	Mean Jadad score†	**-0.75**
2	Number of studies	8
3	Did the studies have important inconsistency?	Yes
4	Were the studies sparse?	No
5	Overall grade of evidence	Low

* The Jadad scoring method, and rules for converting the numerical score to a rating for protection against risk of bias are described in the Quality Assessment subsection of Chapter 2, Methods.
†The rules for assessing the quantity and consistency of a body of evidence, and combining that with the mean Jadad score to produce the overall grade are described in the Grading of the Evidence subsection of Chapter 2.

Table 26a. Summary of the impact of health IT applications on intermediate outcomes for patients with cancer

Study, Year	Health IT Application	Intervention Compared	Outcomes Measure	Positive Impact*
Frosch, 2008[282]	Clinical decision aids	Traditional didactic decision aid providing information about PSA screening options and outcomes vs. links to public prostate cancer–specific Web sites from credible sources (control condition).	Total knowledge score / imputed data	+
			Total knowledge score / complete cases only	+
			PSA screening - pretest choice	-
			PSA screening - reduction	+
			Watchful waiting at pretest	-
		Chronic disease trajectory model for prostate cancer followed by a time–trade-off exercise vs. links to public prostate cancer–specific Web sites from credible sources (control condition).	Total knowledge score / imputed data	+
			Total knowledge score / complete cases only	+
			PSA screening - pretest choice	+
			PSA screening - reduction	+
			Watchful waiting at pretest	-
		Both the didactic decision aid and the chronic disease trajectory model vs. links to public prostate cancer–specific Web sites from credible sources (control condition).	Total knowledge score / imputed data	+
			Total knowledge score / complete cases only	+
			PSA screening - pretest choice	+
			PSA screening - reduction	+
			Watchful waiting at pretest	+
Glazebrook, 2006[281]	Education via IT	Skinsafe multimedia intervention (for melanoma knowledge protective skin behaviors) vs. no intervention (control condition)	Melanoma knowledge score (0-12)	+
			Skin protective behavior score (0-12)	+
			Number of participants checking moles	-

Table 26a. Summary of the impact of health IT applications on intermediate outcomes for patients with cancer (continued)

Study, Year	Health IT Application	Intervention Compared	Outcomes Measure	Positive Impact*
Maslin, 1998[215]	Clinical decision aids, shared decisionmaking tools	Intervention — interactive video disk system + usual care from multidisciplinary team vs. usual care from multidisciplinary team	Viewing IVD had impact on surgical choice	0
			Viewing IVD had impact on adjuvant therapy choice	0
Ruland, 2003[47]	mHealth, shared decisionmaking tools	Used computerized system for SDM for cancer symptoms care vs. usual care	Congruence between patient reported symptoms and those addressed in consult visit	+
			Importance-weighted congruence between patient reported symptoms and those addressed in consult visit	+
Taenzer, 2000[216]	Clinical decision aids, IT-guided disease management	Lung cancer patients whose physicians and nurses received QOL training and patients completed the computerized EORTC QLQ-C30 vs. patients completed a paper-and pencil version of the EORTC QLQ-C30 only	Actions taken / patient	+
			Percentage of categories identified that were acted upon by the patient	+
Gaertner,2004 [256]	mHealth, PHR, telemonitoring systems	Electronic pain diary vs. paper diary	Patient satisfaction	+
			Patient preference for electronic diary	+
			Health care support	+

EORTC-QLQ: European Organization for Research and Treatment of Cancer QOL Questionnaire
IT: Information Technology, IVD: interactive video disk, mHealth: Mobile Health, PHR: Personal Health Record, PSA: prostate specific antigen, QOL: Quality of Life
***** "+" indicates that the intervention had a positive effect on the outcome in comparison with the control
"-" indicates that the intervention had a negative effect on the outcome in comparison with the control
"0" indicates that the intervention had no effect on the outcome in comparison with the control

Table 26b. Overall grade of the quality of evidence in cancer studies addressing intermediate outcomes

1	Protection against risk of bias (relates to study design, study quality, and reporting bias*	High
*	Mean Jadad score†	**0.67**
2	Number of studies	6
3	Did the studies have important inconsistency?	No
4	Were the studies sparse?	No
5	Overall grade of evidence	High

* The Jadad scoring method, and rules for converting the numerical score to a rating for protection against risk of bias are described in the Quality Assessment subsection of Chapter 2, Methods.
†The rules for assessing the quantity and consistency of a body of evidence, and combining that with the mean Jadad score to produce the overall grade are described in the Grading of the Evidence subsection of Chapter 2.

Table 27a. Summary of the impact of health IT applications on intermediate outcomes for patients with hypertension

Study, Year	Health IT Application	Intervention Compared	Outcomes Measure	Positive Impact*
Bosworth, 2009[218]	Clinical decision aids	Patient behavioral intervention group vs. control group (hypertension reminder) whose providers did not receive decision support system	Estimated percent in blood pressure control	+
		Provider decision support system group vs. control group (hypertension reminder) whose providers did not receive decision support system	Estimated percent in blood pressure control	-
		Combined patient and provider intervention vs. control group (hypertension reminder) whose providers did not receive decision support system	Estimated percent in blood pressure control	0
Green, 2008[56]	Communication via email, IT-guided disease management, education via IT, information exchange, telemonitoring systems	Blood pressure monitoring and patient Web services vs. usual care	Mean increase in patient-initiated threads	+
			Primary care visits	0
			Telephone encounters	+
		Blood pressure monitoring and patient Web services and pharmacist care vs. usual care	Mean increase in patient-initiated threads	+
			Telephone encounters	+
			Primary care visits	0
Parati, 2009[57]	Computer-assisted self-care, telemedicine, telemonitoring systems	Teletransmitted home blood pressure vs. usual care	QOL at end of study per QOL assessment in hypertension patients questionnaire	+
			Percent with daytime blood pressure normalization	+
			Frequency of treatment changes	+
Rinfret, 2009[341]	IT-guided self-management, telemonitoring systems	Participants in the intervention group were given a digital blood pressure monitor, log book, and access to an IT-supported, telephone-linked management system.	Medication adherence	+

Table 27a. Summary of the impact of health IT applications on intermediate outcomes for patients with hypertension (continued)

Study, Year	Health IT Application	Intervention Compared	Outcomes Measure	Positive Impact*
Roumie, 2006[52]	Communication via email, education via IT, information exchange	Provider education and alert vs. provider education	Medication adherence	0
		Provider education, alert and patient education vs. provider education	Medication adherence	-
Santamore, 2008[85]	Communication via email, IT-guided self-management, education via IT, patient portals, telemonitoring systems	Blood pressure measurements transmitted through a Internet based telemedicine system vs. no telemedicine system	Blood pressure monitoring	+

CDSS: Clinical Decision Support Systems, E-mail: Electronic Mail, IT: Information Technology, JNC: Joint National Committee on Prevention Detection Evaluation and Treatment of High Blood Pressure, QOL: Quality of Life
***** "+" indicates that the intervention had a positive effect on the outcome in comparison with the control
"-" indicates that the intervention had a negative effect on the outcome in comparison with the control
"0" indicates that the intervention had no effect on the outcome in comparison with the control

Table 27b. Overall grade of the quality of evidence in hypertension studies addressing intermediate outcomes

1	Protection against risk of bias (relates to study design, study quality, and reporting bias*	High
*	Mean Jadad score†	**0.33**
2	Number of studies	6
3	Did the studies have important inconsistency?	Yes
4	Were the studies sparse?	No
5	Overall grade of evidence	Moderate

* The Jadad scoring method, and rules for converting the numerical score to a rating for protection against risk of bias are described in the Quality Assessment subsection of Chapter 2, Methods.
†The rules for assessing the quantity and consistency of a body of evidence, and combining that with the mean Jadad score to produce the overall grade are described in the Grading of the Evidence subsection of Chapter 2.

Table 28. The impact on intermediate outcomes by type of health IT application

Health IT Type	Number of Studies	Studies With at Least 1 Outcome Having a Positive Impact, n (%)	Studies With at Least 1 Outcome Having a Statistically Significant Positive Impact, n (%)
Care management tools	9	8 (89)	4 (44)
Telehealth	21	19(90)	8 (38)
PHR/patient portals	8	7 (88)	6 (75)
Secure electronic messaging	8	7 (88)	6 (75)
Shared decisionmaking	3	2 (67)	2 (67)

IT: Information Technology, PHR: Personal Health Record

Key Question 1d. Are health IT applications that address one or more components of PCC effective in improving responsiveness to the needs and preferences of individual patients, and how do these improvements vary by type of health IT application?

General Study Characteristics

A total of 14 articles applied to this key question. The studies most commonly targeted cancer (Table 29). They most often employed the clinical decision aids, IT-guided disease management, and telemedicine as the health IT applications (Table 30). The studies most commonly addressed the PCC components related to quality and safety, quality improvement, and patient engagement in care (Table 31). The results suggested that responsiveness to the needs, preferences, and values of individual patients generally improve with health IT interventions having one or more components of PCC, but the available data are too limited to draw firm conclusions for any targeted clinical focus area other than cancer.

Specific Findings

Improving the Responsiveness to Needs, Values, and Preferences of Patients in Studies Addressing Cancer

Three studies addressed the impact of health IT on the needs, values, or preferences of patients with cancer (Table 32a; Appendix G, Evidence Tables 22-25). The overall quality of these studies was high, with little variability across studies. The overall grade of the strength of evidence in these studies was low (Table 32b; Appendix G, Evidence Tables 22-25).

Taenzer (2000)[216] evaluated the impact of providing patient-specific computerized QOL information to clinic staff before an appointment in a lung cancer outpatient clinic. The authors found that a computerized screening tool was effective in increasing detection of QOL problems during the clinic appointment and resulted in a trend toward more concerns being charted. The tool also marginally increased the level of action taken with regard to these concerns. Patients reported being equally and highly satisfied with the treatment in both groups (Table 32a; Appendix G, Evidence Table 25).

Ruland (2003)[47] conducted an RCT with Norwegian cancer patients that evaluated the feasibility and impact of a computerized decision support system (intervention group) on the congruence between patients' reported symptoms and preferences, and those addressed in the patient consultation. The computerized system provided intervention clinicians with information regarding patients' reported symptoms and preferences prior to consultation. Results indicated that were no significant group differences in patient satisfaction as measured by the "Patient Satisfaction with Decision Making" questionnaire ($p=0.45$) between the intervention group and the control group that did not use the computerized decision support system. However, clinicians in the intervention group addressed significantly more of patients' reported symptoms during patient consultations. Given a mean of approximately 15 symptoms, an average of approximately 51 percent was addressed in the experimental group, versus only 19 percent in the control group. These group differences persisted when patients' symptoms were weighted according to patients' importance ratings. Despite its small sample size, this pilot study demonstrated significant initial effects of this intervention (Table 32a; Appendix G, Evidence Table 25).

Frosch (2008)[282] conducted an RCT to evaluate the effects of patient decision support Web sites on decision quality for men considering prostate cancer screening. This study revealed that the Web site was more effective at impacting decision quality and prostate cancer knowledge. The intervention also led to reductions in requests for prostate-specific antigen testing. Preferences for watchful waiting increased significantly in all four groups (baseline, 219 [35.8%]; followup, 303 [66.2%]; p<0.001) (Table 32a; Appendix G, Evidence Table 25).

How Does the Responsiveness to Patient Needs, Preferences, and Values Vary by Type of Health IT Application?

Table 33 summarizes the impact of health IT applications addressing components of PCC on responsiveness to patient needs, preferences, and values. The results in this table were summarized based on the five major health IT types described in Chapter 2. There were an insufficient number of studies to address the question of whether responsiveness to patient needs, preferences, and values vary by type of health IT application.

Table 29. Studies addressing the effect of health IT applications on responsiveness to patient needs, preferences, and values in specific target conditions, target populations, and care focus areas*

Target Care Focus Area	N (Specific Reference)
Cancer (breast)	3[47 216 282]
Asthma /chronic obstructive pulmonary disease	1[220]
COPD	1[89]
Menopause/hormone replacement therapy	2[107 296]
Mental health (depression and anxiety)	1[342]
Obesity	2[254 343]
Osteoporosis	1[108]
Pregnancy	1[90]
Smoking	1[293]
Wounds	1[333]

COPD = chronic obstructive pulmonary disease, IT = information technology, PCC = patient-cnetered care

* Table includes all of the studies that were included in the evidence tables, not just the studies of frequently studied conditions that were highlighted in the text.

Table 30. Studies addressing the effect of health IT applications on responsiveness to patient needs, preferences, and values*

Health IT Application	N (Specific Reference)
Care Management Tools	
Clinical decision support	4 [142 249 344 345]
IT-guided disease management	3 [158 162 345]
IT-guided self-management	2 [158 283]
Electronic medical records	2 [162 249]
Electronic prescribing	1 [346]
Telehelath	
Telemedicine	1 [308]
Personal Health Record and Patient Portal Related Applications	
Education via information technology	1 [347]
Interactive lifestyle counseling	1 [348]
mHealth	2 [189 343]
Secure Electronic Messaging	
Information exchange	1 [192]
Shared Decisionmaking	
Shared decisionmaking tools	3 [189 192 347]

IT: Information Technology, PHR: Personal Health Record

* Table includes all of the studies that were included in the evidence tables, not just the studies of frequently studied conditions that were highlighted in the text.

Table 31. Studies addressing the effect of health IT applications on responsiveness to a patient's needs, preferences, and values, broken down by specific components of PCC*

Component of PCC	N (Specific References)
Coordination and Integration of Care	
Quality and safety	7 [344 158 192 346 283 142 347]
Quality improvement	5 [344 158 345 162 249]
Integrated care	3 [346 162 348]
Routine patient feedback to practice	3 [189 249 308]
Prevention and health promotion	1 [345]
Transition and continuity	1 [308]
Whole-Person Orientation	
Respecting patients' values, preferences, and needs	1 [189]
Emotional support	1 [189]
Physical comfort	1 [249]
Enhanced Clinician-Patient Relationship	
Patient engagement in care	4 [189 192 249 343]
Clinical Information Systems	
Practice-based learning	2 [344 158]

IT: Information Technology

*Table includes all of the studies that were included in the evidence tables, not just the studies of frequently studied conditions that were highlighted in the text.

Table 32a. Summary of the impact of health IT applications on responsiveness to a patient's needs, preferences, and values for patients with cancer

Study, Year	Health IT Application	Intervention Compared	Outcomes Measure	Positive Impact*
Frosch, 2008[282]	Clinical decision aids	Traditional didactic decision aid providing information about PSA screening options and outcomes vs. links to public prostate cancer–specific Web sites from credible sources	PSA screening - pretest choice	+
			PSA screening - reduction	+
			Watchful waiting at pretest	-
		Chronic disease trajectory model for prostate cancer followed by a time–trade-off exercise vs. links to public prostate cancer–specific Web sites from credible sources	PSA screening - pretest choice	+
			PSA screening - reduction	+
			Watchful waiting at pretest	-
		Both the didactic decision aid and the chronic disease trajectory model vs. links to public prostate cancer–specific Web sites from credible sources (control condition)	PSA screening - pretest choice	+
			PSA screening - reduction	+
			Watchful waiting at pretest	+
Ruland, 2003[47]	mHealth, shared decisionmaking tools	Computerized system for shared decisionmaking for cancer symptoms care vs. usual care	congruence between patient reported symptoms and those addressed in consult visit	+
			Importance-weighted congruence between patient reported symptoms and those addressed in consult visit	+
			Number of reported symptoms (0-10)	+
			Number of reported symptoms (0-15)	+
			Number of reported symptoms (0-20)	+
			Number of reported symptoms (0-25)	+
			Number of reported symptoms (0-30)	+
			Number of reported symptoms (0-40)	+
			Number of reported symptoms (0-50)	+

IT: Information Technology, mHealth: Mobile Health, PSA: Prostate Specific Antigen

Table 32a. Summary of the impact of health IT applications on responsiveness to a patient's needs, preferences, and values for patients with cancer (continued)

Study, Year	Health IT Application	Intervention Compared	Outcomes Measure	Positive Impact*
Taenzer, 2000[216]	Clinical decision aids, IT-guided disease management	Clinician receive QOL training and patients complete the computerized EORTC QLQ-C30 vs. patients completed a paper- and pencil version of the EORTC QLQ-C30 only	Actions taken / patient	+
			Percentage of categories identified that were acted upon	+
			Physical functioning (higher indicate better function)	-
			Role functioning (higher indicate better function)	-
			Emotional functioning (higher indicate better function)	-
			Cognitive functioning (higher indicate better function)	-
			Social functioning (higher indicate better function)	-
			Global functioning (higher indicate better function)	-
			Number of functional scales indicating compromised function (mean)	-
			Fatigue (higher scores indicate more symptomatology-mean)	-
			Nausea and vomiting (higher scores indicate more symptomatology-mean)	+
			Pain (higher scores indicate more symptomatology-mean)	-
			Dyspnea (higher scores indicate more symptomatology-mean)	-
			Sleep disturbance (higher scores indicate more symptomatology)	-
			Appetite (higher scores indicate more symptomatology)	+
			Constipation (higher scores indicate more symptomatology)	-
			Diarrhea (higher scores indicate more symptomatology)	+
			Financial difficulties (higher scores indicate more symptomatology)	+
			Number of symptom scales indicating compromised functioning	-
			Number of functional and symptom scales indicating compromised function	-
			Total number of items endorsed	+

EORTC-QLQ: European Organization for Research and Treatment of Cancer Quality of Life Questionnaire, IT: Information Technology, PSA: Prostate specific antigen, QOL: Quality of Life

*"+" indicates that the intervention had a positive effect on the outcome in comparison with the control

"-" indicates that the intervention had a negative effect on the outcome in comparison with the control

"0" indicates that the intervention had no effect on the outcome in comparison with the control

Table 32b. Overall grade of the quality of evidence in cancer studies addressing responsiveness to the needs and preferences of individual patients

1	Protection against risk of bias (relates to study design, study quality, and reporting bias*	High
*	Mean Jadad score†	**0.57**
2	Number of studies	3
3	Did the studies have important inconsistency?	Yes
4	Were the studies sparse?	Yes
5	Overall grade of evidence	Low

* The Jadad scoring method, and rules for converting the numerical score to a rating for protection against risk of bias are described in the Quality Assessment subsection of Chapter 2, Methods.
†The rules for assessing the quantity and consistency of a body of evidence, and combining that with the mean Jadad score to produce the overall grade are described in the Grading of the Evidence subsection of Chapter 2.

Table 33. The impact on responsiveness to patient needs, preferences, and values by type of health IT application

Health IT Type	Number of Studies	Studies With at Least 1 Outcome With a Positive Impact, n (%)	Studies With at Least 1 Outcome With a Statistically Significant Positive Impact, n (%)
Care Management	9	4 (44)	2 (22)
Telehealth	7	6 (86)	3 (43)
PHR/patient portals	4	3 (75)	2 (50)
Secure electronic messaging	1	1 (100)	1 (100)

IT: Information Technology, PHR: Personal Health Record

Key Question 1e. Are health IT applications that address one or more components of PCC effective in improving shared decisionmaking between patients, their families, and providers; patient-clinician communication; and access to medical information; and how do these improvements vary by type of health IT application?

General Study Characteristics

We identified 25 articles evaluating how health IT applications affect: shared decisionmaking between patients, their families, and providers; patient-clinician communication; and access to medical information. The articles predominantly targeted cancer, heart disease, and hormone replacement therapy for perimenopausal and postmenopausal care (Table 34). The articles most commonly employed clinical decision aids, shared decisionmaking tools, and education via IT as the health IT applications (Table 35). They predominantly addressed the PCC components related to quality and safety, patient engagement in care, and quality improvement (Table 36). They most commonly studied the outcomes of health care choices after exposure to health IT interventions, satisfaction with decisions, decisional conflict, and communication with providers. The studies provided moderate strength of evidence that health IT interventions having one or more components of PCC can help to improve shared decisionmaking with patients, their families, and providers, or help to improve patient-clinician communication, and provide access to medical information for patients with heart disease or cancer.

Specific Findings

Outcomes Related to Improved Shared Decisionmaking With Patients, Their Families, and Providers; Patient-Clinician Communication; and Access to Medical Information in Patients With Diabetes Mellitus

One study addressed diabetes mellitus (Table 37a; Appendix G, Evidence Tables 26-29). This study received a moderate quality score because of the lack of blinding and the lack of detailed information on loss to followup. The overall grade of the strength of evidence in research on shared decisionmaking addressing diabetes mellitus was low (Table 37b; Appendix G, Evidence Tables 26–29).

Gomez, 2002[28] evaluated a telemedicine system (DIABTel) to support diabetes monitoring and intensive management via telemonitoring and telemedicine services. The system, which included a "patient unit" and a "medical workstation" for providers, allowed data collection and viewing as well as exchange of data and sending of messages. It included IT-guided self-care, IT-guided self-management, telemonitoring services, patient portals, and coordination of care tools that affect the clinician, the patient, and the overall health system. The average number of communications per patient was 21.6; mean number of days between communications was 5.4. System messages pertained to blood glucose levels, insulin doses, and exercise and dietary plans. Physicians sent 118 text messages. Providers using the system initiated more therapeutic changes than those who did not have access to it (Table 37a; Appendix G, Evidence Table 29).

Outcomes Related to Improved Shared Decisionmaking With Patients, Their Families, and Providers; Patient-Clinician Communication; and Access to Medical Information in Patients With Heart Disease

Five studies addressed cardiovascular disease and its prevention (Table 38a; Appendix G, Evidence Tables 26–28 and 30). These studies addressed hypertension and cardiovascular risk reduction,[50 56 83] atrial fibrillation and anticoagulation,[33] and congenital heart disease.[41] The quality of the studies was high, with some variability in scores due to a lack of blinding and of information about loss to followup. The overall grade of the strength of evidence in studies of shared decisionmaking addressing heart disease was moderate, with relatively modest effects on shared decisionmaking, patient-clinician communication, or access to medical information (Table 38b; Appendix G, Evidence Tables 26–28 and 30).

Lowensteyn (1998)[35] investigated the use of computerized coronary risk profiles to reduce cardiovascular risk and improve shared decisionmaking in a study of 253 providers and their 958 patients. The study gave coronary risk profiles to all patients and mailed results to their providers either within 10 working days (intervention group) or during their 3-month followup (control group). Patients were enrolled if their age was between 30 to 74 years, they had no diagnosis of coronary vascular disease, and their provider thought that performing a coronary risk profile for them would be clinically useful. The intervention affected patient-clinician communication in that providers in the intervention had a significantly higher ratio of high-risk to low-risk patients returning for followup visits (1.23 vs. 0.77). Intervention patients also had significantly higher reductions in total cholesterol (average reduction of -0.5 vs. - 0.1 mmol/L), low-density lipoproteins cholesterol (- 0.4 vs. 0.0 mmol/L), and predicted 8-year coronary risk (-1.8 vs. -0.3%) at followup[35](Table 38a; Appendix G, Evidence Table 30).

Kaner (2007)[33] conducted a small video-based study comparing paper-based guidelines with two computer-based decision aids (an implicit aid and an explicit aid) during clinical encounters between patients and general physicians. The study randomized 25 elderly patients with atrial fibrillation into three groups to make treatment decisions on warfarin treatment for stroke prevention, and their clinical encounters were videotaped. The authors analyzed the videos to study the impact of decision support tools on shared decisionmaking. Paper-based guidelines took 21 minutes (range: 19–26 minutes) to work through versus 31 minutes (range: 16–41 minutes) for the implicit decision aid and 44 minutes (range: 39–55 minutes) for the explicit decision aid. In the 10 minutes immediately preceding the decision point, general practitioners dominated the conversation, accounting for 64 percent (58–66%) of all utterances, and this trend was similar across all three arms of the trial. Information-giving was the most frequent activity for both general physicians and patients, and the rate at which physicians gave information was twice that of the patients. These rates were higher in consultations involving computerized decision aids. The physicians' language was highly technically focused, and only 7 percent of their conversations were socio-emotional in content; the patients' language had twice the socio-emotional content (15%). However, frequent head nodding and a close mirroring in the direction of eye-gaze suggested that both parties were active participants in the conversation. Irrespective of the arm of the trial, both the patients' and physicians' behavior showed that they were reciprocally engaged in these consultations. However, even in consultations aimed at promoting shared decisionmaking, the physicians were verbally dominant, and they worked primarily as information providers for patients (Table 38a; Appendix G, Evidence Table 30).

McCrossan (2007)[41] conducted a study testing the impact of videoconferencing (n= 25) versus telephone followup (n=22) or usual followup care (n=19) on improving the transition from hospital to home during the first 24 hours post-discharge for children with complex congenital heart disease. The videoconferencing allowed for education and ongoing contact with hospital staff and for providers to be able to visually assess the child. Study participants needed to have a child less than 3 years of age who was carrying a new diagnosis of congenital heart disease. Videoconferences required more time than telephone contacts (mean difference = 5.4 minutes, standard deviation = 0.62) but resulted in more adequate assessments of patients. The assessment rating was at least adequate in 94 percent of the videoconferencing assessments, as compared with 64 percent of the telephonic ones. The parental frequency of raising concerns was similar in both groups. After the telephone consultations, providers recommended contact with health service professionals in 22 percent of occasions, as compared with 4 percent after videoconference consultations. The results did not seem to reflect improved shared decisionmaking, although results did show improved access to medical information on the part of the families (Table 38a; Appendix G, Evidence Table 30).

Fretheim (2006)[50] compared a passive dissemination of guidelines with a tailored intervention including a pharmacist outreach visit to patients and computerized reminders to providers. The tailored intervention resulted in higher rates of prescribing antihypertensive medication types that were adherent to guidelines, but had no statistically significant impact on shared decisionmaking (Table 38a; Appendix G, Evidence Table 30).

Green, (2008)[56] compared usual care with two interventions, a home blood pressure monitoring intervention with a secure patient Web site, and a home blood pressure monitoring, a secure patient Web site, and pharmacist care. The patient Web site and pharmacist-care arm had significantly better blood pressure control, higher frequency of communications between patient and pharmacist, and a higher percentage of those communications initiated by patients than in

the other two study arms. Telephone interactions initiated by patients were also higher in this arm (Table 38a; Appendix G, Evidence Table 30).

Outcomes Related to Improved Shared Decisionmaking With Patients, Their Families, and Providers; Patient-Clinician Communication; and Access to Medical Information in Patients With Cancer

Three studies (one each) addressed breast, prostate, and colon cancer (Table 39a; Appendix G, Evidence Tables 26–28 and 31). The quality of these three studies was high, with variability between the studies in terms of blinding and information regarding loss to followup. The overall grade of the strength of evidence in studies of shared decisionmaking addressing cancer was low, with a tendency toward improved patient-clinician communication but variable effects on shared decisionmaking (Table 39b; Appendix G, Evidence Tables 26–28 and 31)

Maslin (1998)[215] compared the impact of using an interactive video disk system before a provider visit, versus standard informational materials to support decisionmaking for women with early breast cancer. The study measured patients' anxiety and satisfaction with their care by using the Hospital Anxiety and Depression Scale and a patient-satisfaction survey. Patients gave the video disk system a high rating, and 92 percent said they would recommend it to "someone they knew with a diagnosis of breast cancer." When asked whether the interactive video disk system had actually helped them make a decision, over half stated that it had not, while 30 percent reported that "it had definitely influenced their treatment decision." The majority of patients in both arms of the study, however, reported that the doctor shared decisions with them (16%) or with them and a clinical specialist (44%). Overall, patients' satisfaction with their decision was high, and no difference was detected between study groups. Both arms of this study reported that the clinical specialist played a strong role in decisionmaking (Table 39b; Appendix G, Evidence Table 31).

A study on prostate cancer by Frosch (2008)[282] tested multiple approaches to support men's decisions on having a prostate-specific antigen screening test. This study, which included 611 men over 50 years old, randomized its participants into four groups: a control group that was provided with links to general Web sites providing information on prostate cancer screening, a second group that had access to a didactic decision support aid on prostate cancer screening and its outcome, a third group that had access to a chronic disease trajectory model followed by a trade-off exercise, and a final group that had access to a combination of the didactic decision support aid, chronic disease trajectory model, and tradeoff exercise. The study found that patients in the control group were least likely to view information and had the lowest knowledge scores. Those in the second and third groups were most likely to view information, and those in the final combined-intervention group had the highest knowledge scores, followed by those in the second group who viewed the didactic decision aid. In general, patients in all four groups had high preferences for prostate-specific antigen testing at baseline (96.2%), which was reduced at the end of the study in favor of "watchful waiting" (66.2%), suggesting a positive impact of information exposure in all study groups. Study investigators commented that participants in the combined-intervention group were perhaps exposed to too much information, as only 21 percent of them reviewed both intervention materials (Table 39b; Appendix G, Evidence Table 31).

In a pilot study, Chan (2008)[349] compared a generic reminder letter from the provider about colon cancer screening with an intervention involving a personalized email reminder from the provider with access to an intervention Web page that contained a video on fecal occult blood testing, a video-decision aid about colon cancer screening, and multiple links to other

informational screening Web sites. The intervention resulted in an increased percentage of patients who discussed colon cancer screening with their doctor from 60 percent in control group to 83 percent in the intervention group. A quarter of patients in both the control and intervention groups returned the fecal occult blood test kits (Table 39b; Appendix G, Evidence Table 31).

Outcomes Related to Improved Shared Decisionmaking With Patients, Their Families, and Providers; Patient-Clinician Communication; and Access to Medical Information in Patients With Other Diseases and Conditions

Hormone Replacement Therapy

Three RCTs[192 339 347] compared the impact of a Web-based decision support tool about hormone replacement therapy with a printed brochure and usual care. The first trial (409 participants visiting women's health care and family medicine clinics in academic centers, inner city community health centers, and suburban women's health clinics in two cities) compared 3 months of access to the support tool with a print brochure. The second trial (54 participants visiting a women's health clinic at an academic center that serves predominantly white, well-educated, middle- to upper-income women) compared the Web-based decision support tool with usual care. Participants were all females with ages of 45 to 75 years. The first trial recruited women based on their attendance at a women's health or family medicine clinic. The second trial screened women before recruitment and recruited only those who were "actively trying to make decisions addressed by the support." The study measured decisional satisfaction, decisional conflict, and knowledge, and compared results of both trials. Patient knowledge levels were improved in one study.[339] This study did not report any significant impact from the patient decisionmaking applications, except in the case of higher-educated patients who were actively "trying to make a decision." intervention participants had a greater increase in knowledge in both trials and greater increases in decisional satisfaction in the second trial[339] (Appendix G, Evidence Tables 26–28).

The Schapira (2007) study[296] also evaluated the impact of a computer-based decision aid to support women making decisions on hormone replacement therapy in an RCT of 177 postmenopausal women. The study participants were patients receiving care at a Veterans Affairs Medical Center. The study randomized the patients to either using this decision aid or receiving a printed brochure. Inclusion criteria limited the patients to English-speaking women with no cognitive dysfunction who were amenorrheic for 12 months or had a documented follicle stimulating hormone level greater than 25 IU/L. The trial reported no significant difference between study groups in knowledge acquisition, decisional conflict or satisfaction, or use of hormone replacement therapy (Appendix G, Evidence Tables 28).

Barnabei (2008)[107] studied the impact of a Web-based hormone replacement therapy support tool that created printouts of customized patient data and questions for patients to ask their providers. This study was an RCT of 288 women and 26 health care providers. The study assessed the impact of the tool on patient-provider communication and patient satisfaction with the discussion on hormone therapy. Patients using this tool were more engaged, asked more relevant questions, and were more likely to prepare for their visits with their provider. They thought that their providers responded well to their questions. Providers were more satisfied with the discussions they had with the patients in the intervention group and thought that those visits were more efficient (Appendix G, Evidence Tables 28).

Women's Health

A large clinical trial evaluated a decisionmaking support tool to help pregnant women decide on undergoing further genetic testing (e.g., amniocentesis)[90]. The trial involved 496 pregnant women at less than or equal to 20 weeks of gestation. The study assigned participants to receive an interactive prenatal testing decision tool or the California Department of Health Services' educational booklet. The study excluded women who did not speak English, were beyond 20 weeks of gestation, had already undergone genetic testing, were carrying more than one fetus, had become pregnant using in vitro fertilization, or were candidates for prenatal diagnosis because of family history. The primary outcomes were knowledge, risk awareness, intervention satisfaction, and decisional conflict. Women using this decisionmaking tool acquired more knowledge and were able to more accurately estimate their risk of having a baby with Down syndrome and miscarriage risk related to testing procedures. As compared to the control group, the women using the decision tool had less decisional conflict and were more likely to make decisions other than those they were originally inclined to make before using the tool (Appendix G, Evidence Tables 28).

An RCT, involving 742 pregnant women in Scotland who had had one previous lower segment Caesarean section,[246] evaluated two approaches for computer-based decision support to help with decisionmaking on Caesarean section against usual care. The study randomized participants to one of three arms: usual care, use of a computer-based information program about clinical outcomes of vaginal birth and elective and emergency Caesarean section, and use of a computer-based decision analysis tool that provided delivery mode recommendations based on utility assessments provided by the pregnant woman and risk analysis based on a "concealed decision tree." The study excluded non-English speakers and women whose most recent delivery was not a Caesarean section. The study outcome measures included the impact on decisional-conflict scale and mode of delivery. Women using both approaches had less decisional conflict than women in the usual care group. Vaginal birth rates, however, were similar among the usual care group and the group using the information-based computer program but significantly higher among women using the decision aid (Appendix G, Evidence Tables 28).

How Does the Impact on Shared Decisionmaking Between Patients, Their Families, and Providers, Patient-Clinician Communication, and Access to Medical Information in Patients Vary by Type of Health IT Application?

Table 40 summarizes how the impact on shared decisionmaking, communication with patients, and access to medical information varied according to the type of health IT application (based on the five major health IT types as described in Chapter 2). The analysis demonstrated that relatively few studies have examined these outcomes for any of the types of health ITapplications. The studies cited shared decisionmaking applications most frequently as having at least one positive effect on shared decisionmaking or communication, and in most cases those studies reported having a statistically significant effect. Although only four studies used care management tools to assess the impact on shared decisionmaking and communication, all four of those studies reported at least one positive outcome, which was statistically significant in three of them.

Table 34. Studies addressing the effect of health IT applications on shared decisionmaking, patient-clinician communication, and access to medical information in specific target conditions, target populations, and care focus areas

Target Focus Care Area	N (Specific Reference)
Heart disease	5 [41 56 33 35 50 350]
Diabetes	1 [28]
Cancer	3 [215 282 349]
Chronic condition/health problem	1 [96]
Genetic counseling	1 [102]
Menopause/hormone replacement therapy	3 [107 296 339]
Migraine	1 [351]
Obesity	2 [290 343]
Pregnancy	2 [90 246]
Primary care	2 [318 352]
Skin lesions	1 [116]
Smoking	1 [293]
Wound care	2 [121 333]

* Table includes all of the studies that were included in the evidence tables, not just the studies of frequently studied conditions that were highlighted in the text.

Table 35. Studies addressing the effect of health IT applications on shared decisionmaking with patients, their families, and providers; patient-clinician communication; and access to medical information

Health IT Application	N (Specific Reference)
Care Management Tools	
Clinical decision aids	6 [33 50 90 215 282 318]
Computer-assisted self-care	1 [323 351]
IT-guided disease management	3 [50 56 96]
Personal Health Record and Patient Portal Related Applications	
Education via IT	4 [56 102 296 352 353]
Interactive lifestyle counseling	2 [290 293]
Patient portals	1 [318]
mHealth	1 [343]
Shared Decisionmaking	
Shared decisionmaking tools	7 [33 102 107 215 246 296 339]
Telehealth	
Telemedicine	4 [28 41 121 333]
Telemonitoring systems	3 [56 116 350 352]
Secure Electronic Messaging	
Information exchange	4 [35 56 107 349]
Communication via e-mail	1 [56]

E-mail: Electronic Mail, IT: Information Technology, mHealth: Mobile Health

* Table includes all of the studies that were included in the evidence tables, not just the studies of frequently studied conditions that were highlighted in the text.

Table 36. Studies addressing the effect of health IT applications on shared decisionmaking with patients, their families, and providers; patient-clinician communication; and access to medical information, broken down by specific components of PCC

Component of PCC	N (Specific References)
Coordination and Integration of Care	
Quality and safety	11 [90 96 107 116 121 215 246 282 290 296 318 320]
Quality improvement	4 [41 282 320 351 352]
Integrated care	3 [102 116 293 353]
Routine patient feedback to practice	4 [41 116 333 349]
Prevention and health promotion	3 [28 56 102]
Transition and continuity	1 [333]
Whole-Person Orientation	
Respecting patients' values, preferences and needs	3 [121 339 351]
Alleviation of fear and anxiety	1 [50]
Exploring the disease and illness condition	1 [121]
Enhanced Clinician-Patient Relationship	
Patient engagement in care	11 [33 35 41 50 56 107 339 343 349-352]
Patient empowerment	3 [33 50 56 353]
Clinical Information Systems	
Practice-based learning	1 [282]
Socio-Cultural Competence	
Community outreach	2 [28 33]

IT: Information Technology

* Table includes all of the studies that were included in the evidence tables, not just the studies of frequently studied conditions that were highlighted in the text.

Table 37a. Summary of the impact of health IT applications on PCC outcomes related to diabetes mellitus in studies addressing shared decisionmaking with patients, their families, and providers; patient-clinician communication; and access to medical information (N=1)

Study, Year	Intervention Compared	Outcomes Measure	Positive Impact
Gomez, 2008 [28]	DiabTel telemedicine system vs. usual care	Improving communication with the doctor	+
		Help on diabetes education	+

IT: Information Technology

"+" indicates that the intervention had a positive effect on the outcome in comparison with the control

"-" indicates that the intervention had a negative effect on the outcome in comparison with the control

"0" indicates that the intervention had no effect on the outcome in comparison with the control

Table 37b. Overall grade of the quality of evidence in diabetes mellitus studies addressing shared decisionmaking with patients, their families, and providers; patient-clinician communication; and access to medical information

1	Protection against risk of bias (relates to study design, study quality, and reporting bias*	Moderate
*	Mean Jadad score†	**-2**
2	Number of studies	1
3	Did the studies have important inconsistency?	Not applicable
4	Were the studies sparse?	Yes
5	Overall grade of evidence	Low

* The Jadad scoring method, and rules for converting the numerical score to a rating for protection against risk of bias are described in the Quality Assessment subsection of Chapter 2, Methods.

†The rules for assessing the quantity and consistency of a body of evidence, and combining that with the mean Jadad score to produce the overall grade are described in the Grading of the Evidence subsection of Chapter 2.

Table 38a. Summary of the impact of health IT applications on PCC outcomes related to heart disease in studies addressing shared decisionmaking with patients, their families, and providers; patient-clinician communication; and access to medical information

Study, Year	Intervention Compared	Outcomes Measure	Positive Impact
Fretheim, 2006[50]	Educational outreach visit with audit and feedback, and computerized reminders linked to the medical record system vs. passive dissemination of guidelines	Shared decisionmaking	0
Lowensteyn, 1998[35]	Coronary risk profile to physician vs. no profile risk to physician	Ratio of high-risk to low-risk patients returning for followup visits	+
Green, 2008[56]	Blood pressure monitoring and patient Web services vs. usual care	Electronic messaging and subsequent responses	+
		Telephone encounters	+
	Blood pressure monitoring and patient Web services and pharmacist care vs. usual care	Electronic messaging and subsequent responses	+
		Telephone encounters	+
Kaner, 2007[33]	Implicit computer-based decision aid, DARTS II used for clinician-patient treatment decision vs. paper-based guidelines for clinician-patient treatment decision	Median consultation times	-
		Median clinician verbal dominance in 10 minutes preceding decision	-
		Median doctors information-seeking	-
		Median doctors pause	-
		Median patients negative talk	+
		Median doctors nodding	+
		Median doctors head shake	-
		Median doctors smiling	+
		Median doctors point at the patient	+
		Median doctors touching/pointing at tool	-
		Median doctors eye-gaze toward tool	+
		Median patients eye-gaze toward tool	+

Table 38a. Summary of the impact of health IT applications on PCC outcomes related to heart disease in studies addressing shared decisionmaking between patients, their families, and providers; patient-clinician communication; and access to medical information (continued)

Study, Year	Intervention Compared	Outcomes Measure	Positive Impact
Kaner, 2007[33] (cont.)	Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision vs. paper-based guidelines for clinician-patient treatment decision	Median consultation times	-
		Median clinician verbal dominance in 10 minutes preceding decision	-
		Median doctors information-seeking	+
		Median doctors pause	-
		Median patients negative talk	+
		Median doctors nodding	+
		Median doctors head shake	-
		Median doctors smiling	+
		Median doctors point at the patient	-
		Median doctors touching/pointing at tool	0
		Median doctors eye-gaze toward tool	+
McCrossan, 2007[41]	Videoconferencing for children with congenital heart disease vs. teleconferencing	Proportion with concern raised by parents	0
		Proportion for whom no action needed after the post-discharge assessment	0
		Proportion inform consultant of breathing difficulties	0
		Proportion advised NHS action by consultant	+

BMI: Body Mass Index, CV: Cardiovascular, DARTS: Decision Analysis in Routine Treatment, HDL: High-Density Lipoprotein, HRT: Hormone Replacement Therapy, IT: Information Technology, IVD: Interactive Video Disk [system], LDL: Low-Density Lipoprotein, NetLET: Internet Letter, NHS: National Health Service, PSA: Prostate Specific Antigen, RCT: Randomized Controlled Trial

"+" indicates that the intervention had a positive effect on the outcome in comparison with the control

"-" indicates that the intervention had a negative effect on the outcome in comparison with the control

"0" indicates that the intervention had no effect on the outcome in comparison with the control

Table 38b. Overall grade of the quality of evidence in heart disease studies addressing shared decisionmaking between patients, their families, and providers; patient-clinician communication; and access to medical information

1	Protection against risk of bias (relates to study design, study quality, and reporting bias*	High
*	Mean Jadad score[†]	**0.20**
2	Number of studies	5
3	Did the studies have important inconsistency?	Yes
4	Were the studies sparse?	No
5	Overall grade of evidence	Moderate

* The Jadad scoring method, and rules for converting the numerical score to a rating for protection against risk of bias are described in the Quality Assessment subsection of Chapter 2, Methods.

[†]The rules for assessing the quantity and consistency of a body of evidence, and combining that with the mean Jadad score to produce the overall grade are described in the Grading of the Evidence subsection of Chapter 2.

Table 39a. Summary of the impact of health IT applications on PCC outcomes related to cancer in studies addressing shared decisionmaking with patients, their families, and providers; patient-clinician communication; and access to medical information

Study, Year	Intervention Compared	Outcomes Measure	Positive Impact
Chan, 2008 [349]	Emailed the NetLet vs. information sent through regular mail	Fecal occult blood tests returned	0
		Percentage of patients who made appointments todiscuss colon cancer screening with their doctor	+
Frosch, 2008[282]	Traditional didactic decision aid providing information about prostate specific antigen (PSA) screening options and outcomes vs. links to public prostate cancer–specific Web sites from credible sources (control condition)	Total knowledge score / imputed data	+
		Total knowledge score / complete cases only	+
		Reduced interest in PSA screening indicating increased interest in watchful waiting	+
	Chronic disease trajectory model for prostate cancer followed by a time–trade-off exercise vs. links to public prostate cancer–specific Web sites from credible sources (control condition)	Total knowledge score / imputed data	+
		Total knowledge score / complete cases only	+
		Reduced interest in PSA screening indicating increased interest in watchful waiting	+
	Both the didactic decision aid and the chronic disease trajectory model vs. links to public prostate cancer–specific Web sites from credible sources (control condition)	Total knowledge score / imputed data	+
		Total knowledge score / complete cases only	+
		Reduced interest in PSA screening indicating increased interest in watchful waiting	+
Maslin, 1998[215]	Intervention (interactive video disk system) plus usual care from multidisciplinary team vs. usual care from multidisciplinary team	Mental health score on Short Form-36 questionnaire	0
		Anxiety score on the hospital anxiety and depression scale	+
		Viewing interactive video disk had impact on surgical choice	0
		Viewing interactive video disk had impact on adjuvant therapy choice	0

E-mail: Electronic Mail, IT: Information Technology, NetLET: Internet Letter, PSA: Prostate Specific Antigen
"+" indicates that the intervention had a positive effect on the outcome in comparison with the control
"-" indicates that the intervention had a negative effect on the outcome in comparison with the control
"0" indicates that the intervention had no effect on the outcome in comparison with the control

Table 39b. Overall grade of the quality of evidence in cancer studies addressing shared decisionmaking with patients, their families, and providers; patient-clinician communication; and access to medical information

1	Protection against risk of bias (relates to study design, study quality, and reporting bias*	High
*	Mean Jadad score[†]	**0.67**
2	Number of studies	3
3	Did the studies have important inconsistency?	Yes
4	Were the studies sparse?	Yes
5	Overall grade of evidence	Low

* The Jadad scoring method, and rules for converting the numerical score to a rating for protection against risk of bias are described in the Quality Assessment subsection of Chapter 2, Methods.
[†]The rules for assessing the quantity and consistency of a body of evidence, and combining that with the mean Jadad score to produce the overall grade are described in the Grading of the Evidence subsection of Chapter 2.

Table 40. The impact on shared decisionmaking between patients, their families, and providers; patient-clinician communication; and access to medical information by type of health IT application

Health IT Type	Number of Studies	Studies With at Least 1 Outcome With a Positive Impact, n (%)	Studies With at Least 1 Outcome With a Statistically Significant Positive Impact, n (%)
Care management tools	4	4 (100)	3 (75)
Telehealth	3	3 (100)	0 (0)
PHR/patient portals	1	0 (0)	0 (0)
Secure electronic messaging	4	3 (75)	2 (50)
Shared decisionmaking	7	6(86)	4 (57)

IT: Information Technology, PHR: Personal Health Record

Key Question 2. What are barriers and facilitators that clinicians, developers, patients and their families or caregivers encounter that may impact implementation and use of health IT applications that address patient-centered care, and how do these barriers and facilitators vary by type of health IT application?

We identified 206 articles that examined barriers and facilitators to the use of health IT applications that address components of patient-centered care. Studies focused on a wide variety of clinical conditions, including diabetes mellitus, cardiovascular disease, heart failure, chronic obstructive pulmonary disorder, cancer, asthma, mental health, sickle cell disease, and chronic pain. The articles included usability and feasibility studies, RCTs, quasi-experimental studies, pilot studies, case studies, surveys, cost-benefit analyses, and qualitative research. Health IT barriers and facilitators can apply to the health care system, clinicians, or patients (Appendix G, Evidence Tables 32 and 33) (Figure 1).

Barriers

Usability

Forty-nine studies addressed the usability of computer applications as a major barrier to the effective use of the applications by medical providers and patients (Appendix G, Evidence Table 32 and 33). We listed four of those studies that we deemed particularly significant.

A study conducted by Saleem (2005)[354] addressed the usability of computerized clinical reminders. For two days, three observers recorded how clinicians interacted with the computerized clinical reminders. The study subjects were 35 nurses and 55 physicians and mid-level practitioners at four Veterans Administration medical centers. The authors coded field notes and sorted them into categories, and then integrated the findings into meaningful patterns and themes. Nine themes translated directly to barriers to effective use of the computerized reminders. Several comments were directly related to the poor interface usability of the reminders. Authors reported inflexibility of the dialogue options within the dialogue box of the

specific reminders. Because of this problem, nurses and providers had difficulty satisfying certain computerized reminders. They needed more options; without more options they often used workarounds. Another barrier they encountered was that the summary cover sheet (a list of patient's problems, allergies, and appointments) would often not load quickly. This delay resulted in the use of strategies that lessened the effectiveness of the reminders. For instance, some nurses and providers clicked on the progress notes tab before the reminders were displayed, or reported setting a default tab to bypass the cover sheet.

A study conducted by Ash (2003)[355] evaluated the perceptions of medical professionals involved in computerized provider order entry. The study collected data at three teaching and nonteaching hospitals in the United States using observation, focus groups, and interviews with clinical, administrative, and information technology staff. The study employed an inductive approach to code field notes and transcripts to identify patterns and themes in the data. Technical and implementation issues included usability, time, training, and support. In particular, participants reported that there were often too many screens that needed to be accessed to place an order. Authors also reported frequent use of workarounds by clinicians as a way to make the system more effective for users.

Tierney (2003)[37] assessed the barriers to using computer-based cardiac-care suggestions by primary care physicians and pharmacists. The study provided evidence-based cardiac care suggestions approved by local cardiologists and internists to physicians and pharmacists as they cared for a total of 706 outpatients with heart failure and/or ischemic heart disease. The intervention had no effect on physician adherence to these care suggestions (23% for intervention patients vs. 22% for controls). One barrier the researchers identified was physicians were reluctant to integrate these computer-based suggestions with their practice. Although physicians viewed guidelines as providing helpful information, they resisted using the guidelines because they said the guidelines constrained their practice and did not see the guidelines as helpful in making decisions for individual patients.

Kaufman (2006)[356] conducted an RCT involving Medicare beneficiaries living in medically underserved areas in New York state. The study evaluated the usability of a telemedicine diabetes education and monitoring device. The PCC components evaluated in this study included quality and safety. The investigators observed numerous barriers to patients' use of the Web components, including: perceptual-motor skills, especially in relation to the use of the mouse; mental models that referred to a basic understanding of system navigation; and health literacy, including basic literacy.

Access

Forty-seven studies identified barriers or facilitators related to access to the Internet, computers, or devices that could affect the use of health IT by patients and providers (Appendix G, Evidence Table 32 and 33). Two of those studies that we deemed particularly significant are listed here.

Lober (2006)[357] evaluated barriers to the use of a PHR by 38 low-income elderly and disabled patients residing in a publicly subsidized housing project. Twenty-seven of the participants did not own computers and reported access as a barrier to using the system. Their access to computers was limited to the open hours of the computer room in the building. The entire group reported difficulties gaining access to assistance with data entry because of problems with nurse schedules and/or the availability of the social worker. The study also revealed cognitive barriers to access to the computers in one-third of the participants. Among the

barriers were problems with memory and cognitive impairments as a result of Alzheimer's dementia, or other conditions. These conditions affected the residents' ability to enter or maintain their PHR and to access the Web site because of an inability to remember their password, user name, or the site's uniform resource locator.

In a study of an integrated pediatric health care delivery system, Kleiner (2002)[358] explored issues that parents, general pediatricians, and subspecialty pediatricians had using email for physician-patient communication. Some of the information parents wanted to communicate using email included scheduling appointments, getting information or test results, and discussing a particular symptom. A total of 325 parents, pediatricians, and medical staff were interviewed using a standardized survey tool for parents and a separate instrument for physicians. One barrier that was identified was almost half of the parents did not have access to email. Factors that improved the likelihood of access to email included a higher family income, parental education and age (parents aged 31 to 40 years were more likely to have access to email than were those in the other age groups). The study also showed that although parents were generally positive about the idea, physicians were opposed to the practice of using email for physician-patient communication.

Training

Forty-five studies addressed a need for clinic staff to obtain additional training in order to use a new health IT application (Appendix G, Evidence Table 32 and 33). One of those studies that we deemed particularly significant, Patterson (2005),[359] identified the lack of clinicians' computer training as one of the barriers to the effective and consistent use of computerized reminders in the Veteran's Health Administration. The authors conducted two studies. In the first study, they used ethnographic observations and semi-structured interviews of HIV-related computerized reminders to identify barriers to effective use. The two barriers to effective use that they identified were limited knowledge of how to use the computerized reminder software and an insufficient basic formal training class on the computerized patient record system. The second study assessed more general barriers and facilitators. The authors collected open-ended and closed-ended data through a survey of 261 participants at a national informatics meeting. Seven percent of the respondents indicated that insufficient training made using computerized reminders more difficult. In particular, the respondents felt that more training was needed in the following areas: computerized reminder use in general, removing inapplicable reminders, general computer skills, creating computerized reminders, generating reports, and viewing active reminders.

Cost

Thirty-two studies mentioned the cost of health IT implementation (Appendix G, Evidence Table 32 and 33). The evidence clearly indicated that the higher cost associated with implementation of electronic health records was a significant barrier.

Computer Literacy

Thirty-one studies explored deficits in patients' and clinicians' computer literacy and skills as barriers to the use of a health IT application (Appendix G, Evidence Table 32 and 33). We listed two of those studies we deemed particularly significant.

Trivedi (2009)[360] examined the feasibility and effectiveness of a clinical decision support system for depression in routine public mental health care implemented in Texas. Fifteen study clinicians (13 physicians and two advanced nurse practitioners) from five sites participated in the study, accruing over 300 outpatient visits with 168 patients. They identified computer literacy and hardware/software requirements as barriers to the use of a clinical decision support system for depression. Specifically, for many clinicians, technical errors encountered during the introduction and early use of the software program frequently precipitated a loss of confidence in the program. Some clinicians were not willing to tolerate technical errors during the patient visit. Finally, almost all physicians thought the clinical decision support system was too complex.

Another study conducted by Chu (2009)[353] evaluated the computer literacy and psychosocial influence of computer anxiety, computer confidence, and computer self-efficacy on older adults at six meal congregate sites. The study randomized 137 participants, aged 65 and older, in a controlled, two-group, pre-post, repeated measures design. Participants in the intervention group received a two-hour training session once a week for five weeks. Of the 112 participants eligible for analysis, 70 percent had never used a computer before. Among the reasons given for not using a computer or Internet, participants mentioned they did not have the opportunity to learn or did not have access to a computer or Internet. Surprisingly, almost 92 percent of the participants were not aware of the availability of computers and Internet access to the public at community centers and public libraries. The intervention group demonstrated a reduction in computer anxiety and increases in computer confidence and computer self-efficacy in retrieving and evaluating online health information.

Increases in Workload or Changes in Workflow

Thirty-eight studies identified workload-related issues as barriers (Appendix G, Evidence Table 32 and 33). One of the studies that we found particularly illustrative was Varonen (2008)[361] which identified potential barriers implementing clinical decision support systems in health care, as perceived by clinicians. The authors conducted a qualitative focus group study with 39 physicians representing primary and secondary health care settings in six areas of Finland. Respondents identified a potential increase in workload due to excessive computerized reminders as one of the barriers to implementing these support systems.

Implementation

Twenty-eight articles discussed issues with implementation of health IT applications (Appendix G, Evidence Table 32 and 33). One example that we deemed significant, Samoutis (2007),[362] introduced an electronic medical record system in two public primary care centers in Cyprus that did not previously have computers. One urban and one rural primary care center and their personnel (physicians and nurses) participated in the project. The study used both qualitative and quantitative evaluation tools during the implementation phase. A total of 10 health professionals served as electronic medical record system evaluators. Physicians, nurses and patients stated that they saw clear benefits to having electronic medical records. However, physicians said they believed the system was difficult to use and that it negatively affected their workflow and raised legal concerns. They cited system breakdowns, software design problems, transition difficulties, and lack of familiarity with electronic equipment as some of the main implementation issues.

Confidentiality

Twenty-two articles discussed confidentiality issues resulting from use of health IT, three of these we highlighted below (Appendix G, Evidence Table 32 and 33).

The study by Garcia-Sanchez (2008)[363] assessed the prevalence of worries among patients about confidentiality breaches of computer records. Sixty-two patients filled out a questionnaire. Forty-eight percent of them experienced confidentiality worries during past consultations. The subjects who worried most about confidentiality were those who were less familiar with computers and less aware about their general practitioner's actions at the computer.

In the study by Likourezos (2004),[364] researchers surveyed 44 emergency medicine clinicians (23 physicians and 21 nurses) regarding their satisfaction with an electronic medical record system recently introduced in the emergency department at a large urban teaching hospital. The questionnaire assessed computer background and experience, perceptions regarding electronic medical record use, and concerns about impact upon quality of patient care. The clinicians found the electronic medical record easy to use and were generally satisfied with the impact on their work. However, they were concerned about issues related to the confidentiality of patient information.

Kleiner, 2002[358] explored attitudes of parents and clinicians regarding the potential issues involved in using email for physician–patient communication. The authors interviewed a total of 325 parents, general pediatricians, and subspecialty pediatricians, from an integrated pediatric-health-care-delivery system, using a standardized survey tool for parents and a separate instrument for physicians. More than half of parents and general pediatricians had access to email and all subspecialty pediatricians had access to email. All three groups (parents, general pediatricians, and subspecialty pediatricians) expressed concerns about confidentiality and time demands in using email communication for patient-physician communication.

Other Barriers

Depersonalization was mentioned in 10 studies as a potential barrier. Another five studies cited incompatibility with current health care practices as a barrier. Five articles cited problems with reimbursement as barriers. Three studies identified problems with patient retention and liability as barriers.

Facilitators

Satisfaction

Forty-seven studies evaluated satisfaction with a health IT application (Appendix G, Evidence Table 32 and 33). The studies generally did not provide a sufficient level of granularity to distinguish among different dimensions of satisfaction. A number of these studies are highlighted below.

Bobrie (2007)[365] evaluated the satisfaction with and feasibility of home blood pressure measurements using telemedicine in a multicenter, prospective, single-group, open-label pilot study of 111 patients with uncontrolled hypertension despite monotherapy. Authors reported that 80 percent of the patients were satisfied or very satisfied with the program, and 52 percent of the physicians were satisfied and 22 percent very satisfied with the program.

Shore (2008)[366] compared the satisfaction of 53 rural American Indian Vietnam War veterans with telepsychiatry. The study gave The Structured Clinical Interview for DSM-IIIR to participants both in person and by videoconference. The study used a process measure to assess

participants' satisfaction with the interview and the interview process, responses to the interview type concerning the usability of the technology, the perceptions of the interviewee/interviewer interaction, and the cultural competence of the interview. The study also asked interviewers several of the same questions as the participants; answers were compared to the corresponding participant responses. Overall, interviewees were highly satisfied with both the in-person interview and the telehealth interview. Ninety-four percent (50) of the subjects had a general positive response to the videoconferencing. Interestingly, the interviewers' ratings of perceived interviewee satisfaction were universally lower than the interviewee ratings: Interviewers underestimated how comfortable the interviewee was during the interview, the interviewee's overall amount of satisfaction with the interview, and how much the interviewee understood the physician's questions and trusted the physician. The authors concluded that telepsychiatry was well-received and comparable in terms of patient comfort, satisfaction, and cultural acceptance to in-person interviews.

Ease of Use

Forty-eight studies addressed ease of use as a potential facilitator of the implementation of health IT (Appendix G, Evidence Table 32 and 33). In one of those studies, a 12-month trial in two outpatient mental health clinics in Los Angeles, Chinman (2007)[367] assessed the feasibility of using audio computer-assisted self-interviewing to ask clinical questions of patients with severe mental illness waiting for appointments. Audio computer-assisted self-interviewing is a visual and aural, Internet-based, touch screen system that asks questions about symptoms, drug use, medication adherence, and side effects. The patient gives a one-page printed summary of the results to the psychiatrist during the appointment. Authors collected data from 266 patients with severe mental illness and 14 psychiatrists using surveys and provider focus groups The results indicated that patients felt that the system was enjoyable, easy to learn and use, and improved communication with their psychiatrists. Providers evaluated the system as easy to use, having a small impact on care, and requiring outside support to continue its use.

Usefulness

Twenty-six studies evaluated the usefulness of health IT (Appendix G, Evidence Table 32 and 33). Two that we thought were especially significant we listed below.

Dombkowski (2007)[368] integrated information from Medicaid administrative claims data into the Michigan Care Improvement Registry to remind providers about influenza vaccination for children with high-risk conditions such as asthma. The authors conducted a survey to assess the attitudes of pediatric primary care providers regarding the implementation of the system. Of the 389 respondents, 48 percent believed that the implementation of a high-risk indicator in the Registry for identifying children with asthma who should receive the influenza vaccine would be "very helpful," and 27 percent believed it would be "helpful."

Eminovic (2004)[369] explored issues of safety, feasibility, and patient perceptions concerning the Clinical Enquiry Service, which uses a Web chat for the public to contact a nurse for any kind of health problem in the U.K. In a 6-day pilot program, the study used the service during an office visit in an inner-city general practice involving non-urgent patients. First, patients completed out three Web forms. They then used a simple Web chat application to communicate with trained National Health Service direct-triage nurses, who responded with appropriate triage advice. The general practitioner saw all patients immediately after using the Web chat service.

Twenty-five patient volunteers considered the intervention to be a useful addition to regular care, but not a replacement for it.

Efficiency

Thirty-three articles evaluated the efficiency of health IT applications (Appendix G, Evidence Table 32 and 33). The studies used different approaches to assessing efficiency. We highlighted two of these studies below that we deemed significant.

Christensen (2008)[370] studied the use of electronic patient record systems by Norwegian general practitioners. Authors examined the use of different electronic patient record functions and the time spent on using the records, as well as the potential effects of such systems on the clinician-patient relationship. They conducted a combined qualitative and quantitative study that used data collected from focus groups, observations of primary care encounters, and responses to a questionnaire survey of a random sample of 247 general practitioners to describe their use of this IT application in primary care. The focus group results indicated that a majority of the clinicians believed that these systems, compared to paper systems, saved both time and work. However, they did say that these systems resulted in the transfer of some administrative work from secretaries to the physicians.

Wang (2004)[371] evaluated Web-based PHR used by patients to collect and manage their health information, request self-referrals, and store a record of their consultations. Two patient care coordinators managed the referrals for five specialists. Results showed that 94 percent of the 32 patients who completed a survey were satisfied with the online referral process. In addition, the specialists were satisfied with the informational content of patients' PHR and were able to effectively prioritize all requested referrals based on information in the PHR that the patient provided.

Other Facilitators

Eleven studies identified comfort in use of health IT as a facilitator – defined as being comfortable with using technology, which is distinct from how easy the technology is to use. For example, a patient may find a technology easy to use but may not be comfortable placing it at home. Thirteen studies addressed issues related to support for the use of health IT applications. Nine studies explored site location as a facilitator of health IT implementation and use. The issues of operability and resources were discussed in eight articles. Six articles discussed the need for standardization of health IT applications.

Variation by Health IT Type

None of the included studies were specifically designed to assess how barriers and facilitators differed by type of health IT. When reviewing the published literature on care coordination tools, increases in workload or changes in workflow (24 of 127 studies) was noted as the most common barrier to use, while the most common facilitator was ease of use (26 of 127 studies) (Tables 41 and 42, Appendix G, Evidence Tables 32 and 33).

Among studies in telehealth, the most frequently reported barriers were access, training, and usability (12 of 59 studies each), while satisfaction was the most frequently reported facilitator (in 12 of 59 studies). In studies examining PHR use and patient portals, more than 30% of studies (31 of 41 studies) reported access as a barrier to use, while satisfaction and ease of use were seen as facilitators in another 20% of studies (9 of 41 studies). Studies of secure electronic communication cited training and confidentiality as substantial barriers to use (in 7 of 22

studies), while ease of use and efficiency wre the most common facilitators of use (in 4 studies). Two studies of shared decisionmaking reported increases in workload or changes in workflow as a barrier to use, while satisfaction, ease of use and efficiency were seen as facilitators of shared decisionmaking interventions in two studies.

Table 41. Variation in reported barriers by health IT type

	Care Management Tools (127 Studies)	Telehealth (59 Studies)	PHR/Patient Portals (41 Studies)	Secure Electronic Mesaging (22 Studies)	Shared Decisionmaking (5 Studies)	Total
Access	16	12	13	6	0	47
Training	22	12	4	7	0	45
Cost	17	9	4	2	0	32
Computer Literacy	16	6	7	2	0	31
Workflow	24	7	2	3	2	38
Implementation	14	9	3	2	0	28
Confidentiality	7	4	4	7	0	22
Usability	25	12	11	1	0	49

IT: Information Technology, PHR: Personal Health Record

Table 42. Variation in reported facilitators by health IT type

	Care Management Tools (127 Studies)	Telehealth (59 Studies)	PHR/Patient Portals (41 Studies)	Secure Electronic Messaging (22 Studies)	Shared Decisionmaking (5 Studies)	Total
Satisfaction	21	12	9	2	3	47
Ease of use	26	7	9	4	2	48
Usefulness	16	8	1	1	0	26
Efficiency	18	3	6	4	2	33

IT: Information Technology

Key Question 3. What knowledge or evidence deficits exist regarding needed information to support estimates of cost, benefit, impact, sustainability, and net value with regard to enabling PCC through health IT?

For Key Questions 1 and 2, our team identified deficits in the literature included in this review regarding estimates of cost, benefit, impact, sustainability, and net value of health IT application that enable PCC. Deficits fall into several general categories: types of conditions that are currently understudied; patient subgroups that are underrepresented; and characteristics of health IT that address components of PCC that are underspecified (see Table 43).

As can be seen in the results section for Key Question 1, the majority of the existing research focuses on "process outcomes," clinical outcomes," and "intermediate outcomes," with a clear paucity of research regarding "improved responsiveness to the needs and preferences of individual patients" and "improved shared decisionmaking between patients, their families, and providers; patient-clinician communication; and access to medical information." This is likely due to the fact that the success of health care is more traditionally gauged by clinical, intermediate, and process outcomes. In fact, most of the studies we reviewed were primarily interested in clinical outcomes, and even intermediate and process outcomes sometimes seemed to be an afterthought.

To better understand the impact of health IT on PCC, we clearly need to conduct more focused research on improving responsiveness to the needs and preferences of individual patients; shared decisionmaking between patients, their families, and providers; patient-clinician communication; and access to medical information. This is especially important since these outcome measures are more directly associated with PCC than clinical, intermediate, and process outcomes.

Another research gap is that few studies focused on the role of health IT in improving PCC among the pediatric and elderly populations. We need to better understand how patients with cognitive or physical impairments interact with health IT. More research is also needed to understand the impact that racial and ethnic backgrounds, education, and socioeconomic levels have on the effectiveness of health IT on improving PCC. Because no studies sought to answer this question, the impact of health IT on health care across populations remains unclear.

With more care being delivered in the home and community-based setting, more research needs to be done to elucidate the impact of community, environment, and culture on the health care utilization and health outcomes associated with health IT. In addition, the needs, concerns and impact of health IT on formal and informal caregivers should be explored.

It also is important to study how to make decision support tools more efficient for providers. Significant effort is needed to improve the accuracy and dependability of high impact health IT tools that address components of PCC.

Other important areas of study are: developing integrative measures for gauging compliance of health IT applications with PCC principles, integrating PCC components into electronic health record systems used in routine clinical practice, how different types of outcomes interact when health IT supports PCC, and how to use principles of PCC in a systematic way. Finally, few studies addressed cost or sustainability. These evidence deficits will need to be addressed or they will limit the future success of the use of health IT to enable patient-centered care.

Table 43. Knowledge or evidence deficits regarding health IT applications

Key Question	Conditions Which Have Not Been Sufficiently Addressed in the Literature Regarding PCC Through HIT	Subpopulations Which Have Not Been Sufficiently Addressed in the Literature	Outcomes Relating to Health IT and Definitions of Those Outcomes
1a—health care processes	Conditions other than diabetes, hypertension and heart disease; substance abuse, infectious diseases, surgical conditions, and critical illnesses	Studies among women, children, the elderly, and patients with cancer	Effects of health IT on cost and provider efficiency
1b—clinical outcomes	Conditions other than diabetes, hypertension, and heart disease; e.g., substance abuse including tobacco use, chronic pain, and cancer	Studies on women, children, the elderly	
1c—intermediate outcomes			Categorical, mutually exclusive, standardized definitions of intermediate outcomes; studies addressing "intermediate outcomes" as primary outcomes
1d—needs, values, preferences	Studies of conditions other than diabetes, heart disease, and cancer, including chronic pain and smoking cessation	Studies in vulnerable populations such as the elderly, racial and ethnic minorities, and pregnant women	

Table 43. Knowledge or evidence deficits regarding health IT applications (continued)

Key Question	Conditions Which Have Not Been Sufficiently Addressed in the Literature Regarding PCC Through HIT	Subpopulations Which Have Not Been Sufficiently Addressed in the Literature	Outcomes Relating to Health IT and Definitions of Those Outcomes
1e—shared decisionmaking		Studies among children	Impact of patient factors such as age, education, and socioeconomic status and how those can be best addressed to maximize effects of health IT applications designed to enable PCC. Time requirements for using decision support tools, especially those targeting providers
2—barriers or facilitator			Initiation, capital, and revenue concerns in implementation of health IT to enable PCC

IT: Information Technology

Key Question 4. What critical information regarding the impact of health IT applications implemented to enable PCC is needed to give consumers, their families, clinicians, and developers a clear understanding of the value proposition particular to them?

Our team also used the literature reviewed in this report to identify the information needs of various stakeholders regarding health IT and PCC, and summarized these needs in Table 44. In previous sections we discussed deficits regarding needed information to support estimates of cost, benefit, impact, sustainability, and net value with regard to enabling PCC using health IT.

The most important stakeholders are health care providers, patients, and their families. To understand the value of health IT in promoting PCC, all stakeholders need information not only about the effectiveness of specific health IT applications for specific purposes, but also information about the applicability of health IT applications to their particular settings. These needs create a dilemma for investigators. On one hand, stakeholders first need to obtain a better understanding of the effectiveness of specific health IT applications at a specific level of system implementation for achieving specific types of outcomes. This calls for studies focusing on a narrow set of promising systems using standardized definitions of interventions and outcomes, and adequate sample sizes. On the other hand, studies must be generalizable to meet the needs of stakeholders working in different settings. Research in the use of health IT deliver patient-centered care would be useful to more providers, patients, and families if researchers designed studies to maximize applicability to different settings. We need a coordinated strategy to meet these competing needs, with large generalizable studies following initial demonstrations of the effectiveness of an intervention.

The primary outcomes studied to date have been very diverse, even within the types of outcomes we defined in our analytic framework (Figure 1). Various stakeholders are likely to differ in the outcomes that are most important to them. To meet the needs of different types of stakeholders, investigators may need to engage targeted stakeholders in the design of studies and the selection of most important outcomes to assess. While real improvements in all outcomes are the ultimate goal, that may not be realistic for most studies due to funding and resource constraints. In any case, stakeholders will have a better understanding of the effects of health IT

applications on the outcomes most important to them if outcomes are defined in a more standardized way across studies. This is especially true of PCC-related outcomes, which should be included as primary study outcomes.

As mentioned above, it would also be useful to stakeholders to have more studies that describe the effects of health IT on cost and provider efficiency. More data supporting health IT as being at least cost- and time-neutral would go a long way toward encouraging providers and patients to welcome the use of health IT in daily practice.

Table 44. Information needs of various stakeholders regarding health IT applications

Stakeholders	Information That is Needed Regarding Health IT in PCC and Not Currently Available in the Literature
Patients	Quality of confidentiality, privacy, portability; whether health IT leads to improved outcomes in a wide range of health conditions; efficiency; whether health IT can be tailored to individual preferences; ease of use in real-life situations, e.g., home, clinic, work; whether implementation cost will be passed down to patients
Family members	Effectiveness of health IT interventions for improving quality of care, coordination of care, and costs
Clinicians	Effectiveness of health IT interventions to enable PCC in real-time in day-to-day practice, especially among various sub-populations (women, minorities, the elderly, children)
Developers	Preferences of patients, family members, and clinicians regarding health IT used to enable PCC

IT: Information Technology

Discussion

Health information technology (health IT) is a rapidly expanding field that is changing the way health care is administered. With patient-centered care (PCC) emerging as the agreed-upon model for best practice by patients, providers, and family members, it's not surprising that health IT's impact on PCC is of great interest to many in the health care field. Yet, to date, there has not been a comprehensive study on how health IT enables PCC. This report does just this.

Our team has successfully identified 327 articles that contain data on this important topic. We tried to examine a comprehensive range of PCC outcome measures, and feel that the chosen parameters (processes outcomes; clinical outcomes; intermediate outcomes; responsiveness to the needs and preferences of individual patients; and shared decisionmaking between stakeholders, patient-clinician communication, and access to medical information) give us a clear view of how effective health IT is at enabling PCC. Similarly, we believe the health IT types we identified (care management tools, telehealth, personal health records/patient portals, secure electronic messaging, and shared decisionmaking) cover the full gammet of pertinent health IT applications relevant to PCC.

One major challenge we faced was the diverse study populations (varying from as few as a dozen patients to more than 1,000), varied settings, and wide range of interventions (delivered at system, provider, and patient levels), making it difficult to directly compare studies. However, regardless of the heterogeneous nature of the articles reviewed, we feel the data reviewed in this report clearly shows that health IT applications are successful at enabling PCC.

Process Outcomes

After reviewing the 97 studies cited in this report, we found that diabetes mellitus, hypertension, congestive heart failure, cancer and asthma were the conditions the studies most commonly targeted (Table 5). In addition we found that process outcomes were clearly the most commonly addressed measure—among these process outcomes, the studies predominantly focused on adherence to standards of care for testing and treatment and use of health care resources (Tables 8–11). Studies cited telehealth applications and care management tools as the IT types that most commonly improved these outcomes. However, we also found that the other three types of health IT had a significant positive effect in the majority of studies (Table 6). Finally, we found that patient engagement in care, quality improvement, quality and safety, prevention and health promotion, and integrated care were the PCC components these studies most commonly addressed (Table 7).

After reviewing each of these articles, we concluded that process outcomes generally improve with health IT interventions that involve components of PCC. We found strong evidence of this in Filippi (2003),[20] where a simple electronic reminder system helped increase by two-fold the likelihood that physicians would prescribe an antiplatelet drug to diabetes patients at high risk for cardiovascular disease. Similarly, in Murtaugh (2005)[31], we saw how nurses who received electronic messages, prompts, and educational material, delivered significantly better and more comprehensive care to their patients with heart failure. In Jones (1999),[46] cancer care patients who received a personalized "consultation" about their condition using a touch screen computer had considerably better knowledge about their condition and treatment than a group given a personalized consultation or booklets.

The large volume of data uncovered in this review provides a rather convincing argument supporting the use of health IT applications that address components of PCC as a method for improving process outcomes. Perhaps one reason for this is that, in general, Internet technologies often directly address the speed and accuracy of processes. Therefore, it's not surprising that we should see this kind of result in health care.

Clinical Outcomes

Ninty-two studies examined clinical outcomes in areas that employed health IT applications addressing components of PCC. Telehealth applications and care management tools were the health IT types most frequently associated with an improvement in clinical outcomes, but personal health records/patient portals and secure electronic messaging also produced significant improvement in at least one clinical outcome in most studies (Table 14). The studies we reviewed most commonly addressed the PCC components patient engagement in their care, quality improvement, quality and safety, and integrated care (Table 15). They most commonly targeted heart disease, diabetes, asthma, obesity, mental health, chronic obstructive pulmonary disease, and cancer (Table 13).

The study results overall suggest clinical outcomes generally improve with health IT interventions that have components of PCC. One clear example was Montori (2004),[208] where using telehealth in diabetes care to send glucometer readings had a positive impact on mean HbA1c levels. In heart disease care, Feldman (2005)[32] illustrated how recommendations and additional resources sent by email to nurses caring for the patients improved physical limitation, symptom domains, qualityoflife, social limitation, self-efficacy, and depression. Also, in cancer care, Ruland (2003)[47] illustrated how a computer application resulted in significantly higher scores on symptom reporting.

Not all health IT applications studied provided a clear clinical improvement when compared with control groups. These conflicting results might be due to the relatively short duration of many of these studies—a direct product of the short history of health IT use. Future studies that span years instead of weeks or months may provide more conclusive data on the ability of health IT to enable PCC.

Intermediate Outcomes

We found 87 studies that addressed the effects of health IT applications that address components of PCC on intermediate outcomes. The studies most frequently reported telehealth applications as having the most significant positive effect on intermediate outcomes, but less than half of the telehealth applications had a significant positive effect on an intermediate outcome (Table 20). Fewer studies reported personal health records/patient portals, secure electronic messaging, and shared decisionmaking tools as having a significant positive effect on intermediate outcomes, but most of those studies reported a positive effect on at least one intermediate outcome. The studies most commonly targeted telemonitoring systems, clinical decision aids, IT-guided self-management, IT-guided disease management, and computer-assisted self-care as PCC components (Table 23). They predominantly addressed the intermediate outcomes patient knowledge or behaviors and patient satisfaction (Tables 24–26). The studies predominantly targeted diabetes, heart disease, obesity, cancer, hypertension, and alcohol abuse (Table 22).

The study results suggested intermediate outcomes generally improve with health IT interventions that have components of PCC. Good examples of this are Homko (2007),[203] where

women with gestational diabetes felt a greater sense of self-efficacy when given access to a Web site established for documentation of glucose values and communication between the patient and the health care team. In Feldman (2005),[32] heart disease patients had a higher quality of life score and better medication knowledge, diet, and weight monitoring as a result of an email reminder sent to their nurse highlighting six heart failure-specific clinical recommendations. In Gaertner (2004),[256] patients suffering from chronic cancer pain had a higher level of satisfaction with an electronic version of a pain diary.

Not all of the articles reviewed provided convincing evidence that health IT applications that address components of PCC improved intermediate outcomes. However, similar to with clinical outcomes, it's believed that as health IT becomes more common practice, the evidence supporting a positive effect on intermediate outcomes will be more consistent and abundant. It should also be noted that most of the data addressed these first three outcomes, process outcomes, clinical outcomes, and intermediate outcomes. The reason for this is two-fold. One, these outcomes are more easily assessed since they are more concrete in nature than the remaining two outcomes: responsiveness to the needs, preferences, and values of individual patients; and shared decisionmaking between patients, their families, and providers, patient-clinician communication, and access to medical information. Secondly, the success of health care is more often gauged by process measures, clinical measures and intermediate outcome measures. Since these measures are significant to health care—from the perspective of patients, providers, and administrators alike—the positive results may have a significant effect on encouraging more widespread implementation of health IT applications in the health care industry.

Improved Responsiveness to the Needs, Preferences, and Values of Individual Patients

We found only 14 studies that directly examined the effect of health IT applications on responsiveness to the needs, preferences, and values of individual patients. Three of these studies related to cancer care (Table 28). There were too few studies to draw any conclusion about how the effects on these outcomes might vary by the type of health IT. The studies addressed the PCC components of patient satisfaction; quality of life; medication recognition and adherence; patient symptom recognition; patient knowledge; patient preferences for in-person or IT-based consultation; health care processes; and patient social, emotional, cognitive, and physical functioning (see Table 30).

With the small number of studies that addressed the effect of health IT applications on responsiveness to the needs, preferences, and values of individual patients, it's difficult to make any significant conclusion about the effect of health IT on this important outcome. However, it is encouraging that the three articles addressing cancer reported a positive effect in this important outcome category. Taenzer (2000),[216] provided patient-specific computerized quality of life information to clinic staff before an appointment in a lung cancer outpatient clinic resulting in a trend towards clinicians charting more concerns and taking more action with regard to these concerns. In Ruland (2003),[47] cancer patients using a computerized decision support system reported that significantly more symptoms were addressed in patient consultations. In Frosch (2008),[282] a patient decision support Web site was more effective at improving decision quality and prostate cancer knowledge and reducing decisional conflict than was guiding patients to public sources of information. Hopefully, these positive results will generate future studies on this important aspect of the use of health IT to deliver patient-centered care.

Improved Shared Decisionmaking Between Patients, Their Families, and Providers; Patient-Clinician Communication; and Access to Medical Information

Twenty five studies reported on how health IT applications affected shared decisionmaking between patients, their families, and providers; patient-clinician communication; and access to medical information. The studies most frequently cited shared decisionmaking applications as the type of health IT having least one positive effect on shared decisionmaking or communication, and in most cases those studies reported having a statistically significant effect (Table 32). Although only four studies used care management tools to assess the impact on shared decisionmaking and communication, three of those studies reported at least one statistically significant positive outcome. The studies we reviewed most commonly addressed the PCC components quality and safety, patient engagement in care, and quality improvement (Table 34). These studies predominantly examined outcomes that included health care choices after exposure to health IT interventions, satisfaction with decisions, decisional conflict, and communication with providers (Tables 36–38). The studies most commonly targeted cardiovascular conditions, cancer, and hormone replacement therapy for perimenopausal and postmenopausal care (Table 33).

One of the studies that clearly showed improvements in these outcome areas was Gomez (2002),[28] where a telehealth system to support diabetes monitoring increased communication significantly between providers and patients. Also, in Green (2008),[56] home blood pressure monitoring, a secure patient Web site, and pharmacist care resulted in a higher frequency of communications between patient and pharmacist.

We were surprised to see so few studies related to this outcome, since it is intuitive to assume health IT would improve information sharing between stakeholders. Once again, as this field matures, we predict we will see more studies that show how health IT affects information sharing, decisionmaking, and access to medical information.

Additional Observations

It is important to note that, among the articles we reviewed, often the health IT applications the researchers most commonly studied were not the ones that proved most effective. This is likely due to the fact that health IT is a relatively new field with little available data to guide usage. What might appear to be effective theoretically might not produce practical results. We also likely see this discrepancy because the decision to implement many of these applications was often made on an availability basis, rather than on a need basis. We believe that as health IT applications gain longevity and ubiquity, consistency and predictability will improve. In addition, we learned that an impact on some outcomes does not necessarily mean a positive impact on PCC. Equally important, an impact on the PCC outcomes does not necessarily translate into an improvement in clinical outcomes. This was the rationale for our analytical framework, which did not make too many assumptions about the relationships between the different types of outcomes.

Barriers and Facilitators

We encountered a number of barriers to the use of health IT applications that enable PCC. We saw poor interface usability due to old age, low income, education, cognitive impairments,

low computer literacy, and insufficient training. We also saw physicians who were concerned about potential more or new work, unfavorable workflow, and problems related to new system implementation—including the lack of adequate funding. Both patients and physicians worried about confidentiality of patient information. Other barriers cited in these articles were depersonalization, incompatibility with current health care, the need for standardization of health IT applications, and problems with reimbursement.

Some of the facilitators we saw were high rates of satisfaction with an application's ease of use, perceived usefulness, and efficiency of use. We recognize the complexity of the satisfaction construct and that it can be gauged across various dimensions. However, in this review we used a less granular approach to assessing this concept due to significant heterogeneity of reviewed studies and approaches used for measuring satisfaction. A number of these studies also named availability of support, comfort in use, and site location as facilitators of health IT implementation and use. These results led us to conclude that health IT is in fact effective at enabling PCC and that although barriers do exist, they are not significant enough to discredit the benefits of health IT in enabling PCC. Furthermore, facilitators exist that help offset the barriers. Finally, we conclude that the results obtained in this study warrant further research on how to address the barriers and promote the facilitators in this emerging field.

Limitations

Health IT clearly is an emerging field. As such, interested parties do not agree on the definitions and categorizations of its various components. We considered different options for classifying and including different types of health IT and could have focused narrowly only on studies of health IT applications that were reported as being designed specifically to improve PCC. But very few, if any, studies reported that they were designed to improve PCC as it is now being defined. Furthermore, the studies we examined varied greatly in the terminology they used to characterize the health IT applications, making it more challenging to assign applications to specific categories. Therefore, we decided to include any study of any health IT application that addressed one or more components of PCC. By using a scheme that included health types that were not necessarily developed specifically to improve PCC, we learned that system-level applications may have an important role in facilitating PCC even if they are not necessarily designed specifically with that in mind.

Another limitation of this review is the wide heterogeneity of included articles. This heterogeneity pertains not only to diversity of systems used (in terms of hardware and software) or settings, sample sizes and methods, but also the level of system implementation. Some studies focused on design implications, others on implementation challenges, formative versus summative evaluation, or iterative designs. These issues affect the study designs in a manner somewhat unique to health IT-related studies, where there is no clear definition of research phases as would be the case with pharmaceutical studies or interventions. We believe that this heterogeneity reflects the current trend of explosive expansion of health IT applications in various areas of health care delivery. Such heterogeneity prevented us from being able to carry out a meta-analysis since too few articles had fully comparable interventions with similar outcomes.

In addition to the heterogeneity of the subjects, the primary outcomes studied have been very diverse even in the framework of each key question. While real improvements in all outcomes are the ultimate goal, standardization of core outcomes pertinent to each key question may be helpful in future analyses.

Another limitation is that only a few studies have described the effects of health IT on cost and provider efficiency, and even fewer have done so in a high-quality fashion. Although cost was mentioned in a number of studies, the studies generally were not designed to systematically assess costs from a well-defined economic perspective. Without more demonstrations of health IT being at least cost- and time-neutral, improvements in health care processes may not be enough to justify their implementation.

Furthermore, in many of the trials, the primary outcomes studied have been clinical, not processes of care. While real improvements in patient outcomes are the ultimate goal, the sense from reviewing the literature is that effects on process outcomes were often an afterthought. The strongest studies describing effects on process outcomes were those whose primary endpoints were indeed process outcomes.

Future Research Needs

A great deal of research is needed to address the evidence deficits we identified in our review of the literature for Key Question 3. Priority should be given to research that will provide the critical information regarding the impact of health IT applications implemented to enable PCC that will give consumers, their families, clinicians, and developers an understanding of the value proposition particular to them (as described in the results on Key Question 4).

Clearly, more research is needed to determine the extent to which health IT applications can improve clinical outcomes by promoting PCC. Particular attention needs to be given to studies that directly examine the effects of health IT applications on measures of PCC, including shared decisionmaking, patient-clinician communication, access to information, and responsiveness to the needs and preferences of individual patients.

There is also a need for categorical and mutually exclusive, standardized definitions of PCC-related study outcomes and health IT applications, so that meta-analyses and systematic reviews can provide practical and evidence-based guidance to health IT researchers and implementers. In particular, these studies should be designed with each type of outcome as a primary outcome, placing PCC at the center rather than the periphery of health IT interventions.

Future research should target the populations that have been under-studied, including the pediatric and elderly populations. We also need to better understand how patients with cognitive or physical impairments interact with health IT. More research is also needed to understand the impact that racial and ethnic backgrounds, education, and socioeconomic levels have on the effectiveness of health IT applications that address components of PCC.

With more care being delivered in the home and community-based settings, more research needs to be done to elucidate the impact of community, environment, and culture on the health care utilization and health outcomes associated with health IT. In addition, the needs, concerns and impact of health IT on formal and informal caregivers should be explored.

Few studies addressed cost or sustainability of health IT. These are clearly important areas of interest that will have enormous impact on the future success of the use of health IT to deliver patient-centered care and therefore need to be addressed and explored. Future research on the costs of health IT will need to take into consideration the specific economic perspective of stakeholders including patients, clinicians, health care providers, and health care insurers.

It also is important to study how to make decision support tools more efficient for providers. Significant effort is needed to improve the accuracy and dependability of high impact health IT tools that address components of PCC.

Other important areas of study are: developing integrative measures for gauging compliance of health IT applications with PCC principles, integrating PCC components into electronic health records used in routine clinical practice, and investigating how processes and outcomes interact when health IT supports PCC, and, finally, using principles of PCC in a systematic and comprehensive way to guide development of future health IT applications.

Implications and Conclusions

This review provides a comprehensive overview of the current state-of-the art on health IT interventions involving components of PCC. We conclude that significant evidence exists confirming the positive impact on health care outcomes of health IT applications having PCC-related components. The evidence points to clinical areas in which health IT is most likely to foster PCC and yield clinical benefits, but the evidence is not strong enough to provide clear guidance to health care systems on how best to use health IT in promoting PCC system-wide. Much more research is needed, as indicated above, to determine the extent to which health IT interventions will enhance the delivery of PCC and improve clinical outcomes for patients with different types of clinical conditions. More research also is needed to give health care providers better information on how to weigh the value of health IT applications for promoting PCC relative to the investment of resources needed. To fully realize the potential for health IT applications to facilitate PCC, future research and development should incorporate the principles of PCC in a more systematic and comprehensive way. One way to advance efforts in this area would be to develop and use an integrative measure for assessing how well health IT applications address principles of PCC. With better assessments of how outcomes relate to the incorporation of principles of PCC into health IT applications, health care providers will be in a better position to select the health IT applications that provide the best value for promoting PCC and improving clinical outcomes.

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Appendix A. List of Acronyms

A level/HND	advanced level/higher national diploma
A1C	glycated hemoglobin
AAP	American Academy of Pediatrics
ABPM	ambulatory blood pressure monitoring
ACE	angiotensin-converting enzyme inhibitors
ADA-NCQA	American Diabetes Association National Committee for Quality Assurance
ADD	anxiety and depressive disorder
ADL	activities of daily living
ADSL	asymmetric digital subscriber line
AF	Air Force
AHRQ	Agency for Healthcare Research and Quality
ALT	alanine aminotransferase
APHA	American Public Health Association
APN	advanced practice nurse
ARB	angiotensin receptor blockers
ARDS	acute respiratory distress syndrome
ATDM	automated telephone disease management
BCT	breast conserving therapy
BG	blood glucose
BIT	Behavioral Internet Treatment
BMD	bone mineral density
BMI	body mass index
BP	blood pressure
BZD	benzodiazepines
CAD	coronary artery disease
CAHE	computer-assisted health education
CC	coached care
CDEs	certified diabetes educator
CDS	clinical decision support
CDSMP	Chronic Disease Self-Management Program
CDSS	clinical decision support systems
CDT	chronic disease trajectory group
CG	control group
CGI	clinical global impressions
CHD	coronary health disease
CHESS SCRP	Comprehensive Health Enhancement Support System for Smoking Cessation and Relapse Prevention
CHESS-MAB	Comprehensive Health Enhancement Support System-Menopause and Beyond
CHI	consumer health informatics
CHOICE	creating better health outcomes by improving communication about patients' experiences
CI	confidence interval
COPD	chronic obstructive pulmonary disease

CPAP	continuous positive airway pressure
CPGs	clinical practice guidelines
CPOE	computerized provider order entry
CPR	computer-based patient record
CPRS	computerized patient record system
CR	community resources
CRQ	chronic respiratory questionnaire
CSII	continuous subcutaneous insulin infusion
CSQ	client satisfaction questionnaire
CT	computed tomography
CV	cardiovascular
CVA	cerebro vascular accident
CVD	cardiovascular disease
DA	decision aid
DBP	diastolic blood pressure
DEMS	diabetes electronic management system
Dl	deciliter
DM	diabetes mellitus
DMH	Department of Mental Health
DMS	diabetes management system
D-PHIMS	Distributed personal health information management system
DQOL	diabetes quality of life
DSS	decision support system
DV	domestic violence
DVT	deep vein thrombosis
Dx	diagnosis
EBMeDS	Evidence-based medicine electronic decision support
ECPR	electronic chronic patient record
ED	emergency department
EDECS	emergency department expert charting System
eDSMP	Internet-Based Dyspnea Self-Management Program
HER	electronic health record
EI	electronic interface
EMR	electronic medical record
EORTC-QLQ	European Organization for Research and Treatment of Cancer Quality of life Questionnaire
EPC	Evidence-based Practice Center
F/U	follow up
fDSMP	Face to Face Dyspnea Self-Management Programs
FEV	forced expiratory volume
FFB	Fat and Fiber Behavior Scale
FFQ	food frequency questionnaire
FMH	French-speaking Belgian medical houses
FP	family physician
FPG	fasting plasma glucose
FQ	fear questionnaire

FSH	follicle stimulating hormone
FT	full time
FVC	forced vital capacity
GAD	generalized anxiety disorder
GD	general diabetes
GDS	Geriatric Depression Scale
GHb	glycated hemoglobin
GHP	Geisinger Health Plan
GHQ	General Health Questionnaire
GIMC	general internal medicine clinic
GP	general practitioner
GSI	global severity index
GWU	George Washington University
H&N	head and neck
HAD	hospital anxiety and depression
HbA1c	glycated hemoglobin
HBPM	home blood pressure monitoring
HbSbthal	hemoglobin S beta-thalasemia
HbSC	hemoglobin genotype SC
HCO	Homecare organization
HDL	high-density lipoprotein
HDL-C	high-density lipoprotein cholesterol
HER	health electronic record
HF	heart failure
HIV	human immunodeficiency virus
HMG	HMG CoA Reductase Inhibitor
HMO	health maintenance organization
HPSA	health Professional Shortage Area
HRQoL	health-related quality of life
HRT	hormone replacement therapy
HS	high school
HSD	health search database
HT	hormone therapy
HTMS	home telecare management system
HTN	hypertension
HTU	home telemedicine unit
ICD9	International Statistical Classification of Diseases and Related Health Problems
ICU	intensive care unit
ICVAMC	Iowa City Veterans Affairs Medical Center
IDC	implanted cardioverter-defibrilater
IEEE	The Institute of Electrical and Electronics Engineers
IET	Institution of Engineering and Technology
IHS	International Headache Society
IIS	immunization information system
IM	internal medicine

IMPACT	Interactive Multimedia Program for Asthma Control and Tracking
INR	International Normalized Ratio
IOM	Institute of Medicine
ISDN	integrated services digital network
ISS	injury severity score
IT	information technology
IVD	interactive video disk
IVR	interactive voice response
JHH	Johns Hopkins Hospital
JHU	Johns Hopkins University
JNC	Joint National Committee on Prevention Detection Evaluation and Treatment of High Blood Pressure
KCCQ	Kansas City Cardiomyopathy Questionnaire
kg/m	kilogram per meter
km	kilometer
KQ	Key question
L	liters
LDL	low-density lipoproteins
LDL-C	low-density lipoprotein cholesterol
LMR	longitudinal medical record
MAW	maximum allowable weight
MCIR	The Michigan Care Improvement Registry
MD	Doctor of Medicine
MDD	major depressive disorder or mixed anxiety
MeSH	medical subject heading
mg	milligrams
mHealth	mobile health
MLHF	Minnesota Living with Heart Failure Score
mmHg	millimeters mercury
mmol	mill moles
MMSE	Mini Mental Status Exam
MMSE	Mini Mental Status Examination
MOS	medical outcomes study
MT	mastectomy
MTN	Missouri Telehealth Network
MUA	medically underserved area
NC	No counseling
NCI	National Cancer Institute
NetLET	internet letter
NHS	National Health Service
NICU	neuro-intensive care unit
NIH	National Institutes of Health
No	number
NP	nurse practitioner
NPI	Neuropsychiatric Inventory
NRT	nicotine replacement therapy

NS	not specified
NSAID	non-steroidal anti-inflammatory drug
NSW	New South Wales
NYHA	New York Heart Association
OAB	overactive bladder
OSAS	obstructive sleep apnea syndrome
PA	physician's assistant
PAD	panic disorder with agoraphobia
PI	principal investigator
PAPM	precaution adoption process model
PAS	pain assessment screen
PASMA	portal for assessment and self-management of asthma
PCASSO	patient-centered access to secure systems online
PCC	patient centered care
PCP	primary care provider or primary care physician
PD	paper documentation
PDA	personal digital assistant
PDF	portable document format
PE	pulmonary embolism
PEEP	positive end-expiratory pressure
PEFR	peak expiratory flow rate
PHIMS	personal health information management system
PHQ	Patient Health Questionnaire
PHR	personal health record
PIRS	Pharmacist Intervention Recording System
PRP	Provider Recognition Program
PSA	prostate specific antigen
PSDI	positive symptom distress index
PSG	polysomnography
PST	positive symptom total
PTS	patients
PTSD	post traumatic stress disorder
QOL	quality of life
QLQ	quality of life questionnaire
RCT	randomized controlled trial
RIAS	Roter Interaction Analysis System
RM	results manager
RN	registered nurse
Rx	prescription
SAS	sleep apnea syndrome
SBP	systolic blood pressure
SBT	strength and balance training
SD	standard deviation
SDM	shared decisionmaking
SDMT	symbol digit modalities test
SF	store and forward or short form

SMBG	self-monitoring of blood glucose
SMI	severe mental illness
SMS	short message service
SOS	Stomp Out Smokes
SPPARO	System Providing Access to Records Online
SPs	subspecialty pediatricians
SSRI	selective serotonin reuptake inhibitor
T1DM	type 1 diabetes mellitus
TBI	traumatic brain injury
TCA	tricyclic antidepressants
TDA	traditional decision aid
TEP	Technical Expert Panel
TF	telephone follow-up
TG	telecare group
Total-C	total cholesterol
TPC	tablet personal computers
TS	touch-screen
TSH	thyroid stimulating hormone
TSM	tailored self-management
TTM	transtheoretical model
TTYD	TalkToYourDocs
UCD	University of California Davis
UCSD	University of California San Diego
UK	United Kingdom
UKPDS	United Kingdom Prospective Diabetes Study
URI	upper respiratory infection
USAF	United States Air Force
USD	United States Dollar
VA	Veterans Affairs
VAMC	Veterans Affairs Medical Center
VCTP	video conference telepsychiatry
VLBW	very low birth weight
WHO	World Health Organization
YHP	youth health provider
YWCA	Young Women Christian Association

Appendix B. Glossary of Terms

Health Information Technology Terms

Care coordination tools: Tools (that transmit health information, clinical practice and relationships with patient with their providers[1]

Clinical decision support system: Clinical decision support including a variety of tools and interventions such as computerized alerts and reminders, clinical guidelines, order sets, patient data reports, and dashboards, documentation templates, diagnostic support, and clinical workflow tools. From: http://healthit.ahrq.gov/portal/server.pt?open=514&objID=5554&mode=2&holderDisplayURL=http://wci-pubcontent/publish/communities/k_o/knowledge_library/key_topics/health_briefing_01242006122700/clinical_decision_support.html)

Communication via e-mail: Communication delivered via the Internet between patient and physician[2]

Computer-assisted self-care: Patient manages, monitors, and improves his/her quality of care [3]

Computer-guided disease management: Coordinated care interventions using IT to impact treatment, accessibility, confidentiality, easier [4]

Computer-guided self-management: Using IT tools to minimize adverse outcome and improve self care [5]

Computerized provider order entry: Electronic health records as part of a larger IT system to assist with clinical decision support.[6]

Disease registry: An electronic collection of medical data that is often indexed.[7]

Education via IT: Behavioral education tools such as e-mail by which online self-monitoring, physician referral, automated progress reports, and as-needed communication can be done for clinical care10

Electronic medical record: An electronic record of health-related information on an individual that can be created, gathered, managed, and consulted by authorized clinicians and staff within one health care organization. From http://healthit.hhs.gov/portal/server.pt/gateway/PTARGS_0_10741_848133_0_0_18/10_2_hit_terms.pdf

Electronic prescribing: The use of computing devices to enter, modify, review, and output or communicate drug prescriptions. From: http://healthit.ahrq.gov/portal/server.pt?open=514&objID=5554&mode=2&holderDisplayURL=http://wci-pubcontent/publish/communities/k_o/knowledge_library/key_topics/health_briefing_03282006124741/electronic_prescribing.html}Information exchange: process of reliable and interoperable electronic health-related information sharing conducted in a manner that protects the confidentiality, privacy, and security of the information. From: http://healthit.hhs.gov/portal/server.pt/gateway/PTARGS_0_10741_848133_0_0_18/10_2_hit_terms.pdf

Interactive lifestyle counseling: lifestyle curriculum counseling is an online format that have the potential to increase frequency of practical clinical interventions[8]

mHealth: Portable wireless devices that continuously monitor patients' condition remotely on their personalized health and allows doctors to leverage data to make informed decisions and interventions immediacy[9]

Patient portals: " Internet-based interactive website for patients to communicate with their healthcare provider and with varied functions that gives them access to portions of their medical record and other services"[10]

Personal health records: An electronic record of health-related information on an individual that conforms to nationally recognized interoperability standards and that can be drawn from multiple sources while being managed, shared, and controlled by the individual. From: http://healthit.hhs.gov/portal/server.pt/gateway/PTARGS_0_10741_848133_0_0_18/10_2_hit_terms.pdf

Shared decision-making tools: The tools by which patients could be actively engaged in making decisions about their own health with their physicians[11]

Telemedicine: The use of medical information exchanged from one site to another via electronic communications to improve patients' health status. Closely associated with telemedicine is the term "telehealth," which is often used to encompass a broader definition of remote healthcare that does not always involve clinical services. Videoconferencing, transmission of still images, e-health including patient portals, remote monitoring of vital signs, continuing medical education and nursing call centers are all considered part of telemedicine and telehealth. From: http://www.americantelemed.org/i4a/pages/index.cfm?pageid=3333

Telemonitoring systems: An electronic communication networks that can communicate with the patient and perform physiologic measurements and ability to monitor closely patients outside the hospital setting[12]

Patient-Centered Care Terms

Alleviation of fear and anxiety: Reduction of fear or anxiety about clinical status, prognosis, and the impact of illness[13]

Community outreach: Demonstrable, proactive efforts to understand and reach out to the local community[14]

Exploring the disease and illness experience: Necessary in order to develop new practices in patient care, patient empowerment, and quality improvement.

Family and friend involvement: In decision-making and awareness and accommodation of their needs as caregivers[13]

Finding common ground: Necessary in order to facilitate patient engagement in care.

Integrated care: Bringing together inputs, delivery, management and organization of services related to diagnosis, treatment, care, rehabilitation and health promotion. Integration is a means to improve services in relation to access, quality, user satisfaction and efficiency (WHO European Office for Integrated Health Care Services).

Patient empowerment: Allowing patients access to choices that affect health outcomes[15]

Patient engagement in care: To take a more active role in the care process[13]

Physical comfort: Including pain management, help with activities of daily living, and clean and comfortable surroundings[13]

Practice-based learning: Focuses on the part of the practice cycle where program implementers and community members identify, share and apply learnings from local and other circumstances[16]

Prevention and health promotion: Services to address the health of patients before getting sick as well as encouraging patients to lead healthy lives

Quality and safety: quality care is safe, effective, patient centered, timely, efficient, and equitable. Thus safety is the foundation upon which all other aspects of quality care are built From: http://www.ahrq.gov/qual/nurseshdbk/

Quality improvement: Steps systematically applied to improve the patient care experience, such as effectively making, measuring, and managing change21[13]

Respecting patients' values, preferences, and needs: awareness of quality-of-life issues, involvement in decision-making, dignity, and attention to patient needs and autonomy.[13]

Routine patient feedback to practice: A form of quality improvement used in practice-based learning.[17]

Transition and continuity: As regards to information that will help patients care for themselves away from a clinical setting, and coordination, planning, and support to ease transitions[13]

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Appendix C. Detailed Search Strategies

Database	Terms			Returns
PubMed	HIT (search #1)	BFD (search #2)	PCC (search #3)	8814
	1. "e-mail"[tiab] 2. "electronic mail"[tiab] 3. telemonitoring[tiab] 4. telemedicine[tiab] 5. "information technology"[tiab] 6. informatics[tiab] 7. "medical informatics applications"[mh] 8. 1 thru 7 combined by “OR” 9. prescribing[tiab] 10. prescription[tiab] 11. prescriptions[mh] 12. "disease management"[tiab] 13. "cognitive modeling"[tiab] 14. "patient care management"[mh] 15. "care coordination"[tiab] 16. "shared decision making"[tiab] 17. communication[tiab] 18. communication[mh] 19. "disease registry"[tiab] 20. "personal health record"[tiab] 21. "medical order"[tiab] 22. "medical record*"[tiab] 23. "medical records"[mh] 24. "self care"[mh] 25. shared[tiab] 26. decision making"[tiab] 27. 25 and 26 28. 9 thru 27 combined by “OR” 29. "computer systems"[mh] 30. computer[tiab] 31. tool[tiab] 32. electronic[tiab] 33. 29 thru 32 combined by “OR” 34. 28 and 33 35. 8 or 34 36. "clinical decision support system"[tiab] 37. "natural language	1. barrier[tiab] 2. facilitator[tiab] 3. driver[tiab] 4. personalization[tiab] 5. impersonal[tiab] 6. "message board"[tiab] 7. "liability, legal"[mh] 8. "training support"[mh] 9. "computer user training"[mh] 10. altruism[mh] 11. reciprocity[tiab] 12. Health Insurance Portability and Accountability Act[mh] 13. Health Insurance Portability and Accountability Act[tiab] 14. HIPAA[tiab] 15. “Insurance, health, Reimbursement”[mh] 16. "health insurance"[tiab] 17. reimbursement[tiab] 18. standardization[tiab] 19. implementation[tiab] 20. operability[tiab] 21. functionality[tiab] 22. efficiency[mh] 23. "efficiency, organizational"[mh] 24. "direct service costs"[mh] 25. "hospital costs"[mh] 26. access to information"[mh] 27. usability[tiab] 28. initiation[tiab] 29. "social support"[mh] 30. "social support"[tiab] 31. "system support"[tiab] 32. 1 thru 31 combined by “OR” 33. cost[tiab] 34. costs[tiab] 35. revenue[tiab] 36. income[tiab]	1. “patient-centered care”[mh] 2. “Patient-centered care”[tiab] 3. “patient care planning”[mh] 4. "care coordination"[tiab] 5. “continuity of patient care”[mh] 6. "continuity of care"[tiab] 7. "transition of care"[tiab] 8. “preventive health services”[mh] 9. "preventive health care"[tiab] 10. "health promotion"[tiab] 11. "common ground"[tiab] 12. "patient needs"[tiab] 13. "patient values"[tiab] 14. "patient preferences"[tiab] 15. "emotional support"[tiab] 16. "physical comfort"[tiab] 17. “quality of care”[tiab] 18. “quality of health care”[tiab] 19. “professional-patient relations”[mh] 20. "Doctor-patient relation*"[tiab] 21. “delivery of health care, integrated”[mh] 22. “quality assurance, health care”[mh] 23. "quality improvement"[tiab] 24. "quality of care"[tiab] 25. "cultural competence"[tiab] 26. "social competence"[tiab] 27. "public information"[tiab] 28. "Community-Institutional Relations"[mh] 29. "Community outreach"[tiab] 30. 1 thru 29 combined by “OR” 31. clinical[tiab] 32. "information systems"[mh] 33. "information systems"[tiab] 34. 32 or 33	

	processing"[tiab] 38. "text messaging"[tiab] 39. "SMS"[tiab] 40. 35 or 36 or 37 or 38 or 39	37. capital[tiab] 38. access[tiab] 39. 33 thru 38 combined by “OR” 41. savings[tiab] 42. "health care"[tiab] 43. service[tiab] 44. hospital[tiab] 45. 41 thru 44 combined by “OR” 46. 39 and 45 47. liability[tiab] 48. legal[tiab] 49. 46 and 47 50. computer[mh] 51. computer[tiab 52. 49 or 50 53. training[tiab] 54. 52 and 53 55. 32 or 46 or 49 or 54	35. 31 and 34 36. learning[mh] 37. "practice-based"[tiab] 38. 36 and 37 39. care[tiab 40. integrated[tiab] 41. 39 and 40 42. Patients[mh] 43. patient[tiab] 44. 42 or 43 45. empowerment[tiab] 46. safety[mh] 47. safety[tiab] 48. feedback[tiab] 49. engagement[tiab] 50. 45 thru 49 combined by “OR” 51. 44 and 50 52. 30 or 35 or 38 41 or 51	
	HIT (search #1)	BFD (search #2)	PCC (search #3)	
	1. "e-mail"[tiab] 2. "electronic mail"[tiab] 3. telemonitoring[tiab] 4. telemedicine[tiab] 5. "information technology"[tiab] 6. informatics[tiab] 7. "medical informatics applications"[mh] 8. 1 thru 7 combined by “OR” 9. prescribing[tiab] 10. prescription[tiab] 11. prescriptions[mh] 12. "disease management"[tiab] 13. "cognitive modeling"[tiab] 14. "patient care management"[mh] 15. "care coordination"[tiab] 16. "shared decision making"[tiab] 17. communication[tiab] 18. communication[mh] 19. "disease registry"[tiab] 20. "personal health record"[tiab] 21. "medical order"[tiab] 22. "medical record*"[tiab] 23. "medical records"[mh] 24. "self care"[mh] 25. shared[tiab]	1. barrier[tiab] 2. facilitator[tiab] 3. driver[tiab] 4. personalization[tiab] 5. impersonal[tiab] 6. "message board"[tiab] 7. "liability, legal"[mh] 8. "training support"[mh] 9. "computer user training"[mh] 10. altruism[mh] 11. reciprocity[tiab] 12. Health Insurance Portability and Accountability Act[mh] 13. Health Insurance Portability and Accountability Act[tiab] 14. HIPAA[tiab] 15. “Insurance, health, Reimbursement”[mh] 16. "health insurance"[tiab] 17. reimbursement[tiab] 18. standardization[tiab] 19. implementation[tiab] 20. operability[tiab] 21. functionality[tiab] 22. efficiency[mh] 23. "efficiency, organizational"[mh]	1. “patient-centered care”[mh] 2. “Patient-centered care”[tiab] 3. “patient care planning”[mh] 4. "care coordination"[tiab] 5. “continuity of patient care”[mh] 6. "continuity of care"[tiab] 7. "transition of care"[tiab] 8. “preventive health services”[mh] 9. "preventive health care"[tiab] 10. "health promotion"[tiab] 11. "common ground"[tiab] 12. "patient needs"[tiab] 13. "patient values"[tiab] 14. "patient preferences"[tiab] 15. "emotional support"[tiab] 16. "physical comfort"[tiab] 17. “quality of care”[tiab] 18. “quality of health care”[tiab] 19. “professional-patient relations”[mh] 20. "Doctor-patient relation*"[tiab] 21. “delivery of health care, integrated”[mh] 22. “quality assurance, health care”[mh]	

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	1 AND 4	HIT and RCT		
	1 AND 3 AND 4	HIT and RCT and PCC		
	(1 AND 3 AND 4) NOT 5	HIT and RCT and PCC limited		
	1 AND 2	HIT and BFD		
	1 AND 2 AND 3	HIT and BFD and PCC		
	(1 AND 2 AND 3) NOT 5	HIT and BFD and PCC limited		
	8 AND 9	overlap of 2 main strings		
	8 OR 9	combination of 2 main strings		
CINAHL	((((TX shared AND TX “decision making”) OR (TX prescribing OR TX prescription OR TX prescriptions OR TX "disease management" OR TX "patient care management" OR TX "care coordination" OR TX "shared decision making" OR TX communication OR TX "disease registry" OR TX "personal health record" OR TX "medical record*" OR TX "medical records" OR TX "self care") AND (TX "computer systems" OR TX computer OR TX tool OR TX electronic OR TX computerized)) OR TX "e-mail" OR TX "electronic mail" OR TX telemonitoring OR TX telemedicine OR TX "information technology" OR TX informatics OR TX "clinical decision			2147

	support system" OR TX "natural language processing" OR TX" text messaging" OR TX "SMS") and ((TX "patient-centered care" OR TX "patient care planning" OR TX "care coordination" OR TX "continuity of patient care" OR TX "continuity of care" OR TX "transition of care" OR TX "preventive health services" OR TX "health promotion" OR TX "common ground" OR TX "patient needs" OR TX "patient values" OR TX "patient preferences" OR TX "emotional support" OR TX "physical comfort" OR TX "quality of health care" OR TX "professional-patient relations" OR TX "Doctor-patient relation*" AND TX "delivery of health care, integrated" OR TX "quality assurance, health care" OR TX "quality improvement" OR TX "quality of care" OR TX "cultural competence" OR TX "social competence" OR TX "public information" OR TX "Community-Institutional Relations" OR TX "Community outreach" OR (TX clinical AND TX "information systems") OR (TX learning AND TX "practice-based") OR (TX care AND TX integrated) OR ((TX Patients OR TX patient) AND (TX empowerment OR TX safety OR TX feedback OR TX engagement)))) and ((TX “randomized controlled trial” OR TX “randomised controlled trial” OR TX “randomized controlled trials” OR TX “randomised controlled trials” OR TX random* OR TX placebo* OR TX control* OR TX prospective OR TX volunteer* OR ((TX singl* OR TX doubl* OR TX trebl* OR TX tripl*) AND (TX blind* OR TX mask*)) OR TX cross-over OR TX crossover OR TX “latin square” OR TX “double blind method” OR TX “single blind method”)) not ((PT editorial OR PT letter OR PT comment))) or ((((TX shared AND TX “decision making”) OR (TX prescribing OR TX prescription OR TX prescriptions OR TX "disease management" OR TX "patient care management" OR TX "care coordination" OR TX "shared decision making" OR TX communication OR TX "disease registry" OR TX "personal health record" OR TX "medical record*" OR TX "medical records" OR TX "self care") AND (TX "computer systems" OR TX computer OR TX tool OR TX electronic OR TX computerized)) OR TX "e-mail" OR TX "electronic mail" OR TX telemonitoring OR TX telemedicine OR TX "information technology" OR TX informatics OR TX "clinical decision support system" OR TX "natural language processing" OR TX" text messaging" OR TX "SMS") and ((TX "patient-centered care" OR TX "patient care planning" OR TX "care coordination" OR TX "continuity of patient care" OR TX "continuity of care" OR TX "transition of care" OR TX "preventive health services" OR TX "health promotion" OR TX "common ground" OR TX "patient needs" OR TX "patient values" OR TX "patient preferences" OR TX "emotional support" OR TX "physical comfort" OR TX "quality of health care" OR TX "professional-patient relations" OR TX "Doctor-patient relation*" AND TX "delivery of health care, integrated" OR TX "quality assurance, health care" OR TX "quality improvement" OR TX "quality of care" OR TX "cultural competence" OR TX "social competence" OR TX "public information" OR TX "Community-Institutional Relations" OR TX "Community outreach" OR (TX clinical AND TX "information systems") OR (TX learning AND TX "practice-based") OR (TX care AND TX integrated) OR ((TX Patients OR TX patient) AND (TX empowerment OR TX safety OR TX feedback OR TX engagement)))) and ((TX barrier OR TX facilitator OR TX driver OR TX personalization OR TX impersonal OR TX "message board" OR TX "liability, legal" OR TX "training support" OR TX "computer user training" OR TX altruism OR TX reciprocity OR TX Health Insurance Portability and Accountability Act OR TX HIPAA OR TX "Insurance, health, Reimbursement" OR TX "health insurance" OR TX reimbursement OR TX standardization OR TX implementation OR TX operability OR TX functionality OR TX efficiency OR TX "hospital costs" OR TX "access to information" OR TX usability OR TX initiation OR TX "social support" OR TX "system support" OR (TX computer AND TX training) OR (TX liability AND TX legal) OR ((TX cost OR TX costs OR TX revenue OR TX income OR TX capital OR TX access) AND (TX savings OR TX "health care" OR TX service OR TX hospital)))) not ((PT editorial OR PT letter OR PT comment))) **Limiters - Published Date from: 199801-200904; English Language; Exclude MEDLINE records**	
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Appendix D. Summary of Health IT Applications

HIT-Access to care: An electronic tracking system that patient can access for a quality care and reducing medication errors, adverse events and decrease overall health care utilization costs. [1]

HIT-Care coordination tools: Tools (Internet) that transmit health information, clinical practice and relationships with patient with their providers[2]

HIT-Clinical decision: Health information technology (HIT) focusing on clinicians' adherence to evidence-based guidelines and the corresponding impact on patient clinical outcomes.[3]

HIT-Communication via e-mail: Adapting evidence-based intervention into practice delivered via the Internet between patient and physician.[4]

HIT-Computer-assisted self-care: Via Internet patient will able to mange monitor and improve his/her quality of care.[5]

HIT-Computer-guided disease management: Computer-guided disease management system useful in terms of less travel times for treatment, accessibility in remote and unusual locations, increased confidentiality, easier disclosure of sensitive information.[6]

HIT-Computer-guided self-management: Is an innovative techniques by which patient can minimize adverse outcome and improve self care.[7]

HIT-Computerized order entry: Computerized provider order entry (CPOE) system that makes patient safety by reducing medication errors and subsequent adverse drug events by the provider.[8]

HIT-Disease registry: Ability to generate patient registration with specific diagnosis laboratory results, or medications.[9]

HIT-Education via IT: Behavioral education tools such as e-mail by which online self-monitoring, physician referral, automated progress reports, and as-needed communication can be done for clinical care.[4]

HIT-Electronic medical records: Health information system that allows storage, retrieval and manipulation of records with data accessibility, quality and communications with medical providers.[10]

HIT-Electronic prescribing: "e-prescribing is simply an electronic way to generate prescriptions through an automated data-entry process utilizing e-prescribing software and a transmission network which links to participating pharmacies".[11]

HIT-Information exchange: "Is defined as the mobilization of healthcare information electronically across organizations within a region, community or hospital system".[12]

HIT-Interactive lifestyle counseling: lifestyle curriculum counseling is an online format that have the potential to increase frequency of practical clinical interventions.[13]

HIT-mHealth: Portable wireless devices that continuously monitor patients' condition remotely on their personalized health and allows doctors to leverage data to make informed decisions and interventions immediacy.[14]

HIT-Patient portals: "A patient portal is an Internet-based interactive website for patients to communicate with their healthcare provider and with varied functions that gives them access to portions of their medical record and other services".[15]

HIT-Personal health records: Electronic tracking system by which patient can use care services and communicates with their providers : PHR usually available through the internet, This is different from a provider's electronic health record.[16]

HIT-Shared decision-making tools: The tools by which patients could be actively engaged in making decisions about their own health with their physicians.[17]

HIT-Telemedicine: Telemedicine has been defined as the use of electronic information and communications using videoconferencing, telephones, computers, the Internet, fax, radio, or television that provide and support health care on a distance patient.[18]

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HIT-Telemonitoring systems: An electronic communication networks that can communicate with the patient and perform physiologic measurements and ability to monitor closely patients outside the hospital setting.[19]

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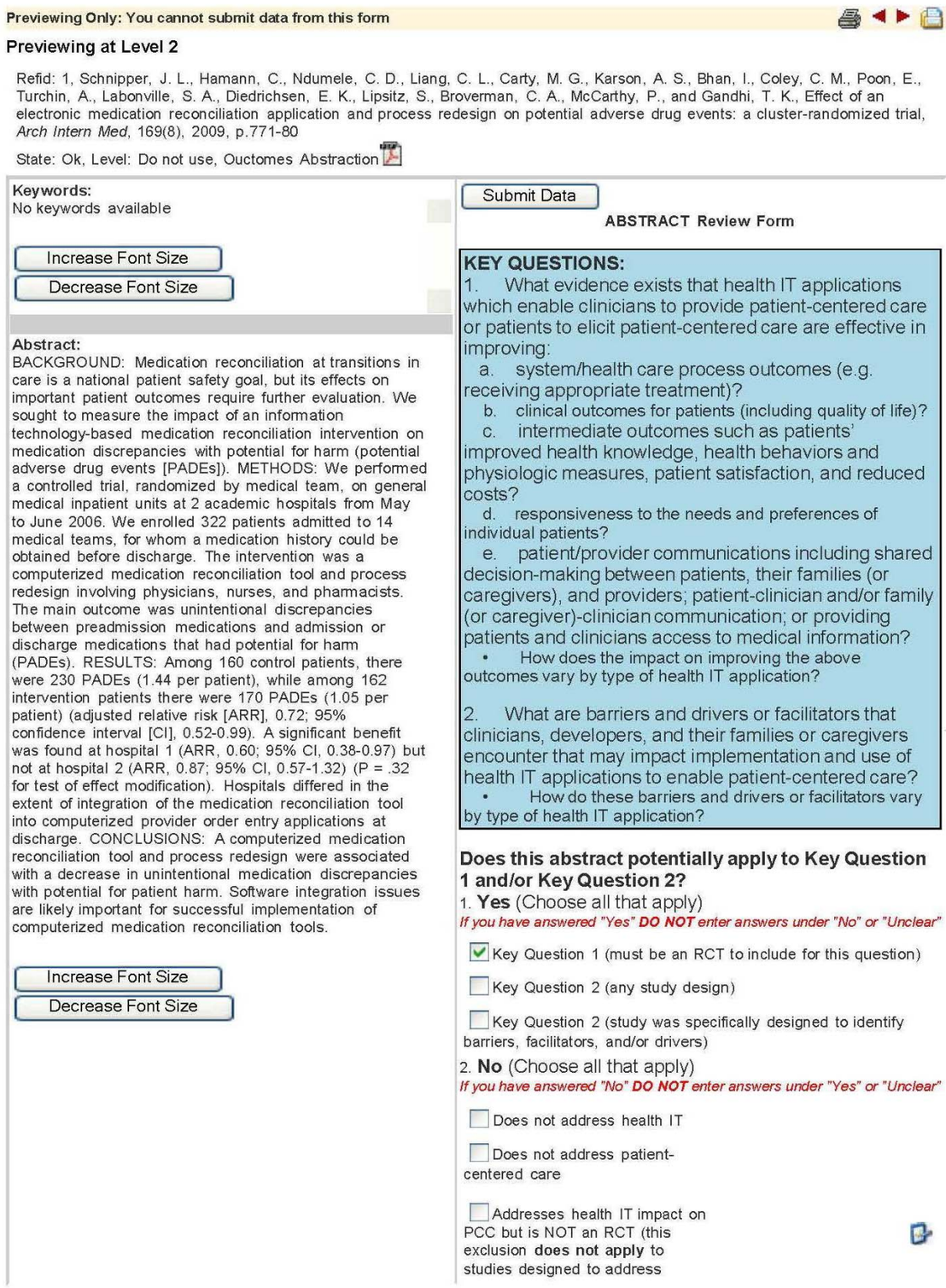
Appendix E. Screen and Data Abstraction Forms

Abstract Review Form



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Previewing at Level 2

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Abstract:
BACKGROUND: Medication reconciliation at transitions in care is a national patient safety goal, but its effects on important patient outcomes require further evaluation. We sought to measure the impact of an information technology-based medication reconciliation intervention on medication discrepancies with potential for harm (potential adverse drug events [PADEs]). METHODS: We performed a controlled trial, randomized by medical team, on general medical inpatient units at 2 academic hospitals from May to June 2006. We enrolled 322 patients admitted to 14 medical teams, for whom a medication history could be obtained before discharge. The intervention was a computerized medication reconciliation tool and process redesign involving physicians, nurses, and pharmacists. The main outcome was unintentional discrepancies between preadmission medications and admission or discharge medications that had potential for harm (PADEs). RESULTS: Among 160 control patients, there were 230 PADEs (1.44 per patient), while among 162 intervention patients there were 170 PADEs (1.05 per patient) (adjusted relative risk [ARR], 0.72; 95% confidence interval [CI], 0.52-0.99). A significant benefit was found at hospital 1 (ARR, 0.60; 95% CI, 0.38-0.97) but not at hospital 2 (ARR, 0.87; 95% CI, 0.57-1.32) (P = .32 for test of effect modification). Hospitals differed in the extent of integration of the medication reconciliation tool into computerized provider order entry applications at discharge. CONCLUSIONS: A computerized medication reconciliation tool and process redesign were associated with a decrease in unintentional medication discrepancies with potential for patient harm. Software integration issues are likely important for successful implementation of computerized medication reconciliation tools.

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ABSTRACT Review Form

KEY QUESTIONS:
1. What evidence exists that health IT applications which enable clinicians to provide patient-centered care or patients to elicit patient-centered care are effective in improving:
   a. system/health care process outcomes (e.g. receiving appropriate treatment)?
   b. clinical outcomes for patients (including quality of life)?
   c. intermediate outcomes such as patients' improved health knowledge, health behaviors and physiologic measures, patient satisfaction, and reduced costs?
   d. responsiveness to the needs and preferences of individual patients?
   e. patient/provider communications including shared decision-making between patients, their families (or caregivers), and providers; patient-clinician and/or family (or caregiver)-clinician communication; or providing patients and clinicians access to medical information?
   • How does the impact on improving the above outcomes vary by type of health IT application?

2. What are barriers and drivers or facilitators that clinicians, developers, and their families or caregivers encounter that may impact implementation and use of health IT applications to enable patient-centered care?
   • How do these barriers and drivers or facilitators vary by type of health IT application?

Does this abstract potentially apply to Key Question 1 and/or Key Question 2?

1. **Yes** (Choose all that apply)

*If you have answered "Yes" **DO NOT** enter answers under "No" or "Unclear"*

- [x] Key Question 1 (must be an RCT to include for this question)
- [ ] Key Question 2 (any study design)
- [ ] Key Question 2 (study was specifically designed to identify barriers, facilitators, and/or drivers)

2. **No** (Choose all that apply)

*If you have answered "No" **DO NOT** enter answers under "Yes" or "Unclear"*

- [ ] Does not address health IT
- [ ] Does not address patient-centered care
- [ ] Addresses health IT impact on PCC but is NOT an RCT (this exclusion **does not apply** to studies designed to address

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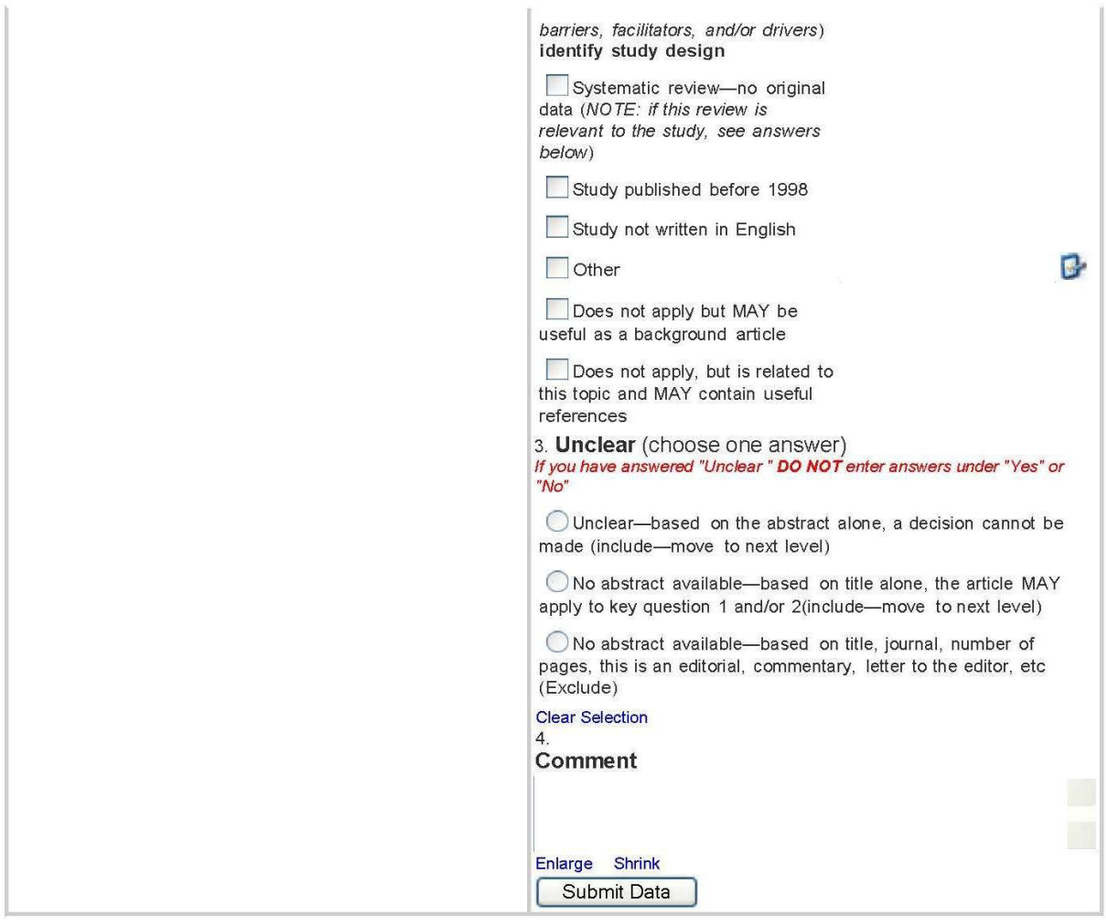

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Article Review Form

Previewing Only: You cannot submit data from this form

Previewing at Level 3

Refid: 1, Schnipper, J. L., Hamann, C., Ndumele, C. D., Liang, C. L., Carty, M. G., Karson, A. S., Bhan, I., Coley, C. M., Poon, E., Turchin, A., Labonville, S. A., Diedrichsen, E. K., Lipsitz, S., Broverman, C. A., McCarthy, P., and Gandhi, T. K., Effect of an electronic medication reconciliation application and process redesign on potential adverse drug events: a cluster-randomized trial, *Arch Intern Med*, 169(8), 2009, p.771-80

State: Ok, Level: Do not use, Ouctomes Abstraction

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ARTICLE Inclusion/Exclusion Form

KEY QUESTIONS:

1. What evidence exists that health IT applications which enable clinicians to provide patient-centered care or patients to elicit patient-centered care are effective in improving:
   a. system/health care process outcomes (e.g. receiving appropriate treatment)?
   b. clinical outcomes for patients (including quality of life)?
   c. intermediate outcomes such as patients' improved health knowledge, health behaviors and physiologic measures, patient satisfaction, and reduced costs?
   d. responsiveness to the needs and preferences of individual patients?
   e. patient/provider communications including shared decision-making between patients, their families (or caregivers), and providers; patient-clinician and/or family (or caregiver)-clinician communication; or providing patients and clinicians access to medical information?
   - How does the impact on improving the above outcomes vary by type of health IT application?

2. What are barriers and drivers or facilitators that clinicians, developers, and their families or caregivers encounter that may impact implementation and use of health IT applications to enable patient-centered care?
   - How do these barriers and drivers or facilitators vary by type of health IT application?

Does this article potentially apply to Key Question 1 and/or Key Question 2?

1. **Yes** (Choose all that apply)

*If you have answered "Yes" **DO NOT** enter answers under "No" or "Article of Interest"*
Fill in the table at the end of this form if this study applies to KQ1 and or KQ2

- ☐ Key Question 1 (must be an RCT to include for this question)
- ☐ Key Question 2 (any study design)
- ☐ KeyQuestion 2 (study specifically designed to address barriers)

2. **No** (Choose all that apply)

*If you have answered "No" **DO NOT** enter answers under "Yes"*
If the article is an "Article of Interest" answer the question below, if not, leave blank

- ☐ Does not address health IT
- ☐ Does not address patient-centered care
- ☐ Study is NOT an RCT **AND** does not address barriers, facilitators or drivers
- ☐ No original data: systematic review, editorial, commentary, etc. (*NOTE: if this review is relevant to the study, see answers below*)
- ☐ Methods discussion, of development artilce
- ☐ Study published before 1998
- ☐ Study not written in English
- ☐ Other

3. **Article of Interest** (choose one answer)

Do NOT answer questions under "Article of Interest" unless you have given a reason why the article does not apply to this study (above).

- ☐ Does not apply but MAY be useful as a background article
- ☐ Does not apply, but is related to this topic and MAY contain useful references

If this article applies to either KQ 1 and/or KQ2 fill in the table below:
*Identify the **HIT** application and **PCC** component if the study is an **RCT** and applies to **KQ1***
*Identify the **HIT** application and **PCC** component and the **barrier, facilitator, and/or driver** if the study applies to **KQ2** (any study design)*

HIT	PCC	BFD
identify the application described in the study		*identify whether the study duscusses barriers, facilitators and/or dirvers **AND** what the barrier, facilitator and/or dirver is defined as in the study*

note: "access to care" has been added to the END of this list

Application

- [ ] Care coordination tools
- [ ] Clinical decision support
- [ ] Communication via e-mail
- [ ] Computer-assisted self-care
- [ ] Computer-guided disease management
- [ ] Computer-guided self-management
- [ ] Computerized order entry
- [ ] Disease registry
- [ ] Education via IT
- [ ] Electronic medical records
- [ ] Electronic prescribing
- [ ] Information exchange
- [ ] Interactive lifestyle counseling
- [ ] mHealth
- [ ] Patient portals
- [ ] Personal health records
- [ ] Shared decision-making tools
- [ ] Social networking/peer-to-peer support sites
- [ ] Telemedicine
- [ ] Telemonitoring systems
- [ ] Other
- [ ] Other
- [ ] Other
- [ ] Other
- [ ] Other
- [ ] Access to care

choose all that apply

- [ ] barrier
- [ ] facilitator
- [ ] driver

Choose all that apply

- [ ] Access
- [ ] Altruism
- [ ] Capital
- [ ] Comfort
- [ ] Confidentiality
- [ ] Consumer groups
- [ ] Cost
- [ ] Depersonalization
- [ ] Ease of use
- [ ] Efficiency
- [ ] Implementation/use
- [ ] Initiation
- [ ] Liability
- [ ] Literacy
- [ ] Location
- [ ] Message boards
- [ ] Opperability
- [ ] Patient retention
- [ ] PCMH initiative
- [ ] Privacy
- [ ] Process
- [ ] Regulations (HIPPA)
- [ ] Reimbursement
- [ ] Resources
- [ ] Revenue
- [ ] Satisfaction
- [ ] Standardization
- [ ] Support
- [ ] Training
- [ ] Usability
- [ ] Usefulness
- [ ] Workflow
- [ ] Other
- [ ] Other
- [ ] Other
- [ ] Other
- [ ] Other

Component

- [ ] Alleviation of fear and anxiety
- [ ] Community outreach
- [ ] Emotional support
- [ ] Exploring the disease and illness experience
- [ ] Family and friend involvement
- [ ] Finding common ground
- [ ] Integrated care
- [ ] Patient empowerment
- [ ] Patient engagement in care
- [ ] Physical comfort
- [ ] Practice-based learning
- [ ] Prevention and health promotion
- [ ] Publicly available information on practices
- [ ] Quality and safety
- [ ] Quality improvement
- [ ] Respecting patients' values, preferences and needs
- [ ] Routine patient feedback to practice
- [ ] Transition and continuity
- [ ] Other
- [ ] Other
- [ ] Other
- [ ] Other

8.
Comment

Enlarge Shrink

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Previewing at Level 4

Refid: 1, Schnipper, J. L., Hamann, C., Ndumele, C. D., Liang, C. L., Carty, M. G., Karson, A. S., Bhan, I., Coley, C. M., Poon, E., Turchin, A., Labonville, S. A., Diedrichsen, E. K., Lipsitz, S., Brovernan, C. A., McCarthy, P., and Gandhi, T. K., Effect of an electronic medication reconciliation application and process redesign on potential adverse drug events: a cluster-randomized trial, *Arch Intern Med*, 169(8), 2009, p.771-80

State: Ok, Level: GENERAL data abstraction: ALL Key Questions

Submit Data

GENERAL Data Abstraction

fill in this form for ALL applicable studies

1. **Does this study apply to KQ1:**
What evidence exists that health IT applications which enable clinicians to provide patient-centered care or patients to elicit patient-centered care are effective in improving
identify sub-question

- a. clinical outcomes for patients (including quality of life)
- b. health care process outcomes (for example, receiving appropriate treatment)
- c. intermediate outcomes (patients' improved health knowledge, health behaviors and physiologic measures, patient satisfaction, and reduced costs)
- d. responsiveness to the needs and preferences of individual patients
- e. improving shared decision-making between patients, their families, and providers, clinician communication, or providing patients and clinicians access to medical information

2. **Does this study apply to KQ2:**
What are barriers, drivers or facilitators that clinicians, developers, and their families or caregivers encounter that may impact implementation and use of health IT applications to enable patient-centered care?

- Yes
- No

Clear Selection

STUDY CHARACTERISTICS

3. **Identify study design**

- RCT
- Other, define as identified by study authors

Clear Selection

4. **Data collection time line**

- Year data collection began
- Length of data collection (months)
- Not specified

Clear Selection

5. **Intervention Level**

- System
- Provider
- Patient
- other (specify)
- not specified

6. **Intervention Setting**

- Hospital
- Outpatient clinic
- Medical system (network of hospitals and/or clinics)
- other (specify)
- not specified

7. **Define the intervention (in less than 100 words)**

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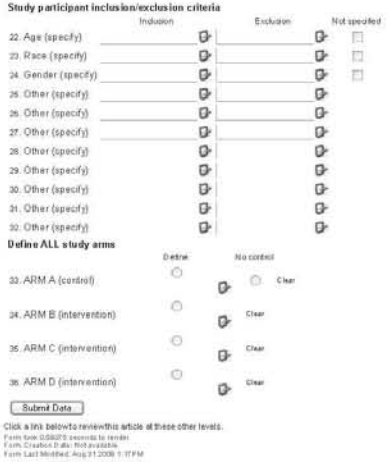
Target conditions and outcomes:

	Receiving appropriate treatment (KQ1a)	Guideline adherence (KQ1a)	Quality of care metrics (KQ1a)	Cost effectiveness (KQ1a)	Quality of life (KQ1b)	Disease specific conditions (KQ1b)	Health knowledge (KQ1c)	Health behaviors (KQ1c)	Patient satisfaction (KQ1c)	Patient centeredness (KQ1d)	Shared decision making (KQ1e)	Family support (KQ1e)	Patient and clinician access (KQ1e)	Barrier/facilitator/driver	Other
8. Alcohol abuse															
9. Asthma															
10. Cancer (breast)															
11. Cancer (other)															
12. Diabetes															
13. Diet/exercise/physical activity (NOT obesity)															
14. HIV/AIDS															
15. Hypertension															
16. Menopause/HRT															
17. Mental health (depression)															
18. Mental health (other)															
19. Obesity															
20. Smoking cessation															
21. Substance abuse															



Study participant inclusion/exclusion criteria

	Inclusion	Exclusion	Not specified
22. Age (specify)			
23. Race (specify)			
24. Gender (specify)			
25. Other (specify)			
26. Other (specify)			
27. Other (specify)			
28. Other (specify)			
29. Other (specify)			
30. Other (specify)			
31. Other (specify)			
32. Other (specify)			

Define ALL study arms

	Define	No control	
33. ARM A (control)			Clear
34. ARM B (intervention)			Clear
35. ARM C (intervention)			Clear
36. ARM D (intervention)			Clear

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Click a link below to review this article at these other levels.

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Review

Refid: 12, Skateboards: Are they really perilous? A retrospective study from a district hospital.
Rethnam U, Yesupalan RS, Sinha A.

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Study Participant Charactersitics

ARM (Follow above classification)	Age and Gender	Race	Income	Education
Arm A (control)	1. ☐ mean ☐ median ☐ range ☐ Female, n (%)	2. ☐ Not stated ☐ WWhite, non-Hispanic, n(%) ☐ Black, non-Hispanic, n(%) ☐ Latino/Hispanic, n(%) ☐ Asian/Pacific Islander, n(%) ☐ American Indian/Alaska Native, n(%) ☐ Other (specify), n(%) ☐ Other (specify), n(%) ☐ Other (specify), n(%)	3. ☐ Not specified ☐ Income range (sepcify), n(%) ☐ Income range (sepcify), n(%) ☐ Income range (sepcify), n(%) ☐ Income range (sepcify), n(%)	4. ☐ Not specified ☐ <8 years, n(%) ☐ 8-12 years, n(%) ☐ 12-16 years, n(%) ☐ >16 years, n(%) ☐ mean years ☐ median years ☐ range years ☐ Other (specify) ☐ Other (specify) ☐ Other (specify)
5. Arm B Intervention-use direct quotes from article	6. ☐ mean ☐ median ☐ range ☐ Female, n (%)	7. ☐ Not stated ☐ WWhite, non-Hispanic, n(%) ☐ Black, non-Hispanic, n(%) ☐ Latino/Hispanic, n(%) ☐ Asian/Pacific Islander, n(%) ☐ American Indian/Alaska Native, n(%) ☐ Other (specify), n(%) ☐ Other (specify), n(%)	8. ☐ Not specified ☐ Income range (sepcify), n(%) ☐ Income range (sepcify), n(%) ☐ Income range (sepcify), n(%) ☐ Income range (sepcify), n(%)	9. ☐ Not specified ☐ <8 years, n(%) ☐ 8-12 years, n(%) ☐ 12-16 years, n(%) ☐ >16 years, n(%) ☐ mean years ☐ median years ☐ range years

		☐ Other (specify), n(%)		☐ Other (specify) ☐ Other (specify) ☐ Other (specify)
10. Arm C Intervention-use direct quotes from article	11. ☐ mean ☐ median ☐ range ☐ Female, n (%)	12. ☐ Not stated ☐ WWhite, non-Hispanic, n(%) ☐ Black, non-Hispanic, n(%) ☐ Latino/Hispanic, n(%) ☐ Asian/Pacific Islander, n(%) ☐ American Indian/Alaska Native, n(%) ☐ Other (specify), n(%) ☐ Other (specify), n(%) ☐ Other (specify), n(%)	13. ☐ Not specified ☐ Income range (sepcify), n(%) ☐ Income range (sepcify), n(%) ☐ Income range (sepcify), n(%) ☐ Income range (sepcify), n(%)	14. ☐ Not specified ☐ <8 years, n(%) ☐ 8-12 years, n(%) ☐ 12-16 years, n(%) ☐ >16 years, n(%) ☐ mean years ☐ median years ☐ range years ☐ Other (specify) ☐ Other (specify) ☐ Other (specify)
15. Arm D Intervention-use direct quotes from article	16. ☐ mean ☐ median ☐ range ☐ Female, n (%)	17. ☐ Not stated ☐ WWhite, non-Hispanic, n(%) ☐ Black, non-Hispanic, n(%) ☐ Latino/Hispanic, n(%) ☐ Asian/Pacific Islander, n(%) ☐ American Indian/Alaska Native, n(%) ☐ Other (specify), n(%) ☐ Other (specify), n(%) ☐ Other (specify), n(%)	18. ☐ Not specified ☐ Income range (sepcify), n(%) ☐ Income range (sepcify), n(%) ☐ Income range (sepcify), n(%) ☐ Income range (sepcify), n(%)	19. ☐ Not specified ☐ <8 years, n(%) ☐ 8-12 years, n(%) ☐ 12-16 years, n(%) ☐ >16 years, n(%) ☐ mean years ☐ median years ☐ range years ☐ Other (specify) ☐ Other (specify) ☐ Other (specify)

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Appendix F. Excluded Articles

Adachi Y, Sato C, Yamatsu K et al. A randomized controlled trial on the long-term effects of a 1-month behavioral weight control program assisted by computer tailored advice. Behav Res Ther 2007;45(3):459-70
Does not address patient-centered care

Adams EJ. Physicians turn to net-based resources to improve patient care.. Medicine on the Net 2003;9(9):1
No original data

Agrawal A, Mayo-Smith M F. Adherence to computerized clinical reminders in a large healthcare delivery network. Stud Health Technol Inform 2004;107(Pt 1):111-4
Does not address patient-centered care
Study is NOT an RCT AND does not address barriers, facilitators or drivers

Aiello Bowles E J, Tuzzio L, Wiese C J et al. Understanding high-quality cancer care: a summary of expert perspectives. Cancer 2008;112(4):934-42
Study is NOT an RCT AND does not address barriers, facilitators or drivers

Alexander G L, Rantz M, Flesner M et al. Clinical information systems in nursing homes: an evaluation of initial implementation strategies. Comput Inform Nurs 2007;25(4):189-97
Methods discussion, of development article
Other*

Allaert F A, Le Teuff G, Quantin C et al. The legal acknowledgement of the electronic signature: a key for a secure direct access of patients to their computerised medical record. 2004-;73239-242
No original data

Allan J, Englebright J. Patient-centered documentation: an effective and efficient use of clinical information systems. J Nurs Adm 2000;30(2):90-5
No original data

Allwood I, Holt T A. The South Warwickshire NHS Care Records Service Demonstrator Project: lessons for the National Programme for IT. Inform Prim Care 2005;13(4):257-62
Does not address patient-centered care
Other*

Almond M, Gordon K, Kent Jones et al. The effect of the controlled entry of electronic prescribing and medicines administration on the quality of prescribing, safety and success of administration on an acute medical ward.. British Journal of Healthcare Computing & Information Management 2002;19(2):41
Other

Ammenwerth E, Iller C, Mahler C. IT-adoption and the interaction of task, technology and individuals: a fit framework and a case study. BMC Med Inform Decis Mak 2006;63
Does not address patient-centered care
Andersen S E. Implementing a new drug record system: a qualitative study of difficulties perceived by physicians and nurses. Qual Saf Health Care 2002;11(1):19-24
Does not address health IT
Does not address patient-centered care

Anderson A S, Klemm P. The Internet: friend or foe when providing patient education?. Clin J Oncol Nurs 2008;12(1):55-63
No original data

Anderson J G. Social, ethical and legal barriers to e-health. Int J Med Inform 2007;76(5-6):480-3
Does not address patient-centered care
No original data

Andriole K P, Avrin D E, Yin L et al. PACS databases and enrichment of the folder manager concept. J Digit Imaging 2000;13(1):3-12
Other*

Antiles S, Couris J, Schweitzer A et al. Project planning, training, measurement and sustainment: the successful implementation of voice recognition. Radiol Manage 2000;22(1):18-31; quiz 32-6
Does not address patient-centered care
No original data

Asonuma M. Issues facing system vendors as we approach the 21st century and expected roles--implementing a hospital information system providing greater patient satisfaction. Stud Health Technol Inform 98;52 Pt 1suppl 23-7
Methods discussion, of development article

Bachhuber T, Bugryn D. Programs that work! Heartworks at home.. Home Healthcare Nurse Manager 99;3(2):17-23
No original data

Bakken S, Chen E, Choi J et al. Mobile decision support for advanced practice nurses. Stud Health Technol Inform 2006;1221002
Does not address patient-centered care
Study is NOT an RCT AND does not address barriers, facilitators or drivers
Other*

Bal R, Mastboom F, Spiers H P et al. The product and process of referral: optimizing general practitioner-medical specialist interaction through information technology. Int J Med Inform 2007;76 Suppl 1S28-34
Methods discussion, of development article
Other*

Baldwin K B. Evaluating quality of primary care using the electronic medical record. J Healthc Qual 2006;28(6):40-7
Does not address patient-centered care
Study is NOT an RCT AND does not address barriers, facilitators or drivers

Baldwin L P, Clarke M, Eldabi T et al. Telemedicine and its role in improving communication in healthcare. Logistics Information Management 2002-;15(4):309-319
No original data
Methods discussion, of development article

Balka E, Whitehouse S. Whose work practice? Situating an electronic triage system within a complex system. Stud Health Technol Inform 2007;13059-74
No original data

Bani-Issa W. Teaching beliefs and practices and the use of electronic health records in nursing education: A collective case study.. 2005
Study is NOT an RCT AND does not address barriers, facilitators or drivers
Other*

Barahona P, Azevedo F, Veloso M et al. Computerising a guideline for the management of diabetes. 2001-;64275-284
Methods discussion, of development article
Other*

Barbell AS, Sublett P. Reducing medication errors with IT and process change.. Journal of AHIMA 2001;72(10):68-70
No original data
Other*

Barnes C S, Tsui C, Caudle J et al. Increasing patient empowerment and improving diabetes care by utilizing a computer-based patient "roadmap". AMIA Annu Symp Proc 2006;852
Other

Barnett Tracey E, Chumbler Neale R, Vogel W et al. The cost-utility of a care coordination/home telehealth programme for veterans with diabetes.. Journal of Telemedicine and Telecare 2007;13(6):318-321
Does not address patient-centered care
Study is NOT an RCT AND does not address barriers, facilitators or drivers

Barrett M J. The evolving computerized medical record. Healthc Inform 2000;17(5):85-8, 90, 92-3
No original data

Bassinder J, Bali R K, Naguib R. Knowledge management and electronic care records: Incorporating social, legal and ethical issues. Stud Health Technol Inform 2006;121221-7
No original data
Other*

Bates D W, Cohen M, Leape L L et al. Reducing the frequency of errors in medicine using information technology. J Am Med Inform Assoc 2001;8(4):299-308
Methods discussion, of development article

Bates D W, Leape L L, Cullen D J et al. Effect of computerized physician order entry and a team intervention on prevention of serious medication errors. JAMA 98;280(15):1311-6
Does not address patient-centered care
Study is NOT an RCT AND does not address barriers, facilitators or drivers
Bates D W. Physicians and ambulatory electronic health records. Health Aff (Millwood) 2005;24(5):1180-9
Methods discussion, of development article

Baxley Elizabeth, Campbell Thomas. Electronic health records in academic family medicine practices: A tale of progress and opportunity.. Annals of Family Medicine 2008;6(1):87-88
Study is NOT an RCT AND does not address barriers, facilitators or drivers
No original data

Beale IL, Marin-Bowling VM, Guthrie N et al. Young cancer patients' perceptions of a video game used to promote self care.. International Electronic Journal of Health Education 2006;9202-212
Study is NOT an RCT AND does not address barriers, facilitators or drivers

Beebe M, Juhl C. Implementing a computerised patient record system in a large medical centre using the Self-Care Model to guide informatics practice.: Implementing a computerised patient record system in a large medical centre using the Self-Care Model to guide informatics practice.. 2000;111-121
No original data
Other*

Beliakov G, Warren J. Fuzzy logic for decision support in chronic care. Artif Intell Med 2001;21(1-3):209-13
Does not address patient-centered care
No original data

Benazzo M, Lanza L, Mullace M et al. A computerized database for head and neck cancer registry. Tumori 99;85(6):449-53
Does not address patient-centered care
Methods discussion, of development article

Bendixen Roxanna M, Levy Charles E, Olive Emory S et al. Cost effectiveness of a telerehabilitation program to support chronically ill and disabled elders in their homes. Telemedicine and e-Health 2009;15(1):31-38
Study is NOT an RCT AND does not address barriers, facilitators or drivers

Benedetti R, Flock B, Pedersen S et al. Improved clinical outcomes for fee-for-service physician practices participating in a diabetes care collaborative. Jt Comm J Qual Saf 2004;30(4):187-94
Does not address patient-centered care
Study is NOT an RCT AND does not address barriers, facilitators or drivers

Benger J R, Noble S M, Coast J et al. The safety and effectiveness of minor injuries telemedicine. Emergency medicine journal : EMJ 2004;21(4):438-45
Does not address patient-centered care
Study is NOT an RCT AND does not address barriers, facilitators or drivers

Bennett N L, Casebeer L L, Zheng S et al. Information-seeking behaviors and reflective practice. J Contin Educ Health Prof 2006;26(2):120-7
Does not address health IT
Does not address patient-centered care

Bereznicki B J, Peterson G M, Jackson S L et al. Data-mining of medication records to improve asthma management. Med J Aust 2008;189(1):21-5
Other*

Bernhardt JM. Tailoring messages and design in a Web-based skin cancer prevention intervention.. International Electronic Journal of Health Education 2001;4290-297
Does not address patient-centered care
Other*

Bindels R, de Clercq P A, Winkens R A et al. A test ordering system with automated reminders for primary care based on practice guidelines. Int J Med Inform 2000;58-59219-33
Does not address patient-centered care
Methods discussion, of development article

Binioris S, Tsirintani M, Sapountzi-Krepia D et al. Health professionals' acceptance as a paragon for development and implementation of integrated Patient Care Information Systems.. ICUs & Nursing Web Journal 2001;(7):1-11
Study is NOT an RCT AND does not address barriers, facilitators or drivers
No original data

Blaya J A, Shin S S, Yagui M J et al. A web-based laboratory information system to improve quality of care of tuberculosis patients in Peru: functional requirements, implementation and usage statistics. BMC Med Inform Decis Mak 2007;733
Methods discussion, of development article
Other*

Bochicchio G V, Smit P A, Moore R et al. Pilot study of a web-based antibiotic decision management guide. J Am Coll Surg 2006;202(3):459-67
Does not address patient-centered care
Study is NOT an RCT AND does not address barriers, facilitators or drivers

Bochicchio G V, Smit P A, Moore R et al. Pilot study of a web-based antibiotic decision management guide. J Am Coll Surg 2006;202(3):459-67
Other*

Boisen E, Bygholm A, Cavan D et al. Copability, coping, and learning as focal concepts in the evaluation of computerised diabetes disease management. Int J Med Inform 2003;70(2-3):353-63
Does not address patient-centered care
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List of "other" reasons:

1. Abstract of interest
2. AMIA abstract
3. Case report
4. Case study, no data
5. CHI article - no physician
6. Combination of automated and manual methods to condense 891,770 problem statements
7. Commentary
8. Commentary/pop-press article
9. Computer Synoptic Operative Report
10. Conference abstract, no data
11. Describe the design and analysis issues within complex cluster RCT
12. Description of new call system implemented in 2 hospitals.
13. Descriptive article
14. Design/concept article
15. Discussion
16. Discussion
17. Dissertation
18. Editorial
19. Feature article
20. Features paper
21. Health information privacy laws
22. Historical review
23. Interview article
24. Interviews on perceived benefits--not actual--no real useful info here
25. Legal issues and telemedicine
26. No clinician involvement
27. No control group
28. No data
29. No extractable data
30. No physician
31. No physician involvement
32. No results, just description
33. Not a study
34. Not a study- software description
35. Not actually a study of use of an HIT app
36. Pilot study
37. Pilot study, one subject
38. Protocol
39. Protocol guideline
40. Purely a discussion piece
41. Refereed papers
42. Retrospective study
43. Software development
44. Software development report
45. Software implementation report
46. Software integration
47. Software development and integration
48. Study description; no final data
49. Study design
50. Study plan, no results are presented
51. Success story- no particular results
52. This is a discussion of what physicians think are good and bad points of emrs, it is not a BFD article
53. This is about an anonymous reporting system
54. Usability evaluation
55. Workshop

Appendix G. Evidence Tables

Evidence Table 1. Study characteristics of studies addressing health care process outcomes

Author, Year	Condition	Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
Apkon, 2005[1]	Quality of care via 24 health care process measures	RCT	2002	System	Outpatient clinic, Military practices	18 yrs or older, Had scheduled appointment, Speak and read English	Less than 18 yrs old, Participated in Coupler sessions, Scheduled for obstetric care, Had emergency medical condition	-1
Bailey, 2007[2]	Coronary heart disease	RCT	2000 (NS)	Clinician, Patient	Hospital		Death during study admission GD, Terminal co-morbidity or do-not-resuscitate status, Peri-operative or peri-procedural increase in troponin 1 levels, Transfer from outside hospital in which the infarct event occurred more than 24 hours before admission or transfer to outside hospital before intervention could be undertaken, Discharge against medical advice, Increase in troponin I levels that was not caused by coronary heart disease as documented by the patients' care team	-2
Baker, 1998[3]	Influenza immunization in high-risk adult patients	RCT	1995	Patient	Medical system (network of hospitals and/or clinics), multispecialty group practice	More than 65 yrs old or with high--risk condition for flu immunization. High-risk criteria included age 65 or older and/or a diagnosis of asthma, diabetes, end-stage renal disease, sickle cell disease, ischemic cardiomyopathy, or		-1

Evidence Table 1. Study characteristics of studies addressing health care process outcomes (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
						nephrotic syndrome, Patients aligned with a primary care physician who were aged 65 yrs or older as of January 1, 1995, and/or who were billed for any of the above diagnoses during 1994 or 1995		
Barnabei, 2008[4]	Menopause/HRT	RCT	NS	Clinician, Patient	Outpatient clinic	Female, Born between 1930 and 1960, Appointment scheduled between November 9, 2004, and December 2, 2005	Appointment related to current pregnancy or cancer	+1
Bentz, 2007[5]	Smoking tobacco cessation	RCT	NS	System, Clinician	Medical system (network of hospitals and/or clinics)			-1
Bindels, 2003[6]	Disease cluster A: Anemia, diabetes mellitus, glandular fever, hypercholesterolemia, hypertension, liver problems, urine complaints	RCT		Clinician	Simulation: computer laboratory setting	GPs in the Maastricht region		-2
Bindels, 2004[7]	General adherence to testing guidelines	RCT	2000 (12)	Clinician	Outpatient clinic			+2
Bowns, 2006[8]	Various dermatology	RCT Qualitativ	1998 (NS)	System	Hospital, Outpatient	16 yrs or older, SF study: requiring a		-1

Evidence Table 1. Study characteristics of studies addressing health care process outcomes (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
	issues	e			clinic	new (not seen by a hospital dermatologist within the past year) consultant opinion		
Cannon, 2000[9]	Mental health (other)	RCT	1998 (9 months)	Clinician, Patient	Outpatient clinic	Patients at a specialty PTSD mental health clinic, Minimum of two visits to clinic		-1
Chan, 2003[10]	Asthma	RCT	NS	Patient	Outpatient clinic, Internet	Pediatric patients 6–17 yrs old, With persistent asthma		0
Clark, 2007[11]	Congestive heart failure	RCT	2004 (12) (NS)	Patient	Medical system (network of hospitals and/or clinics)	More than 18 yrs old, Diagnosis of CHF, Telephone access	Current enrollment in a CHF disease management program, Planned cardiac surgery within 3 months, Hypertrophic cardiomyopathy/restrictive pericarditis, Eligible for heart transplant, Life expectancy < 12 months, Untreated thyroid disease, Pregnancy	+1
de Toledo, 2006[12]	COPD	RCT	2002 (12 months)	Patient	Hospital, Outpatient clinic	COPD patient (admitted to the hospital for an acute episode)		-2
Dobke, 2008[13]	Wound care	RCT	2003 (36)	Clinician, Patient	Hospital, Field wound care nurse	Problem wounds, Alert and intellectually interactive		-1
Dykes, 2007[14]		RCT	2006 (2)	Clinician	Hospital	Nurses employed more than16 hrs per week	Nurses in orientation period (first 3 months of employment)	-1
Eccles, 2002[15]	Asthma	RCT, A before-and-after pragmati	(24)	System, Patient	General practices	18 yrs or older, Registered patient with a participating practices, Had	Singlehanded practices	-2

Evidence Table 1. Study characteristics of studies addressing health care process outcomes (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
		c cluster				angina or asthma		
Feldman, 2005[16]	Heart failure: E-mail reminder to nurses	RCT	(45 days)	Clinician	Home health care			-2
Feldstein, 2006[17]	Osteoporosis	RCT	1999 (NS)	Clinician, Patient	Nonprofit, group-model HMO in the Pacific Northwest	50-89 yrs old, Female, HMO member for at least the 12 months before the start of the study, Sustained a study-defined fracture (any clinical fracture except skull, facial, finger, toe, ankle, or any open fracture suggestive of high force)	Male, Pharmacological treatment for osteoporosis, Exclusionary medical condition (n5193), including malignancies (except nonmelanoma skin cancers), chronic renal failure, dementia, organ transplant, and cirrhosis, in the 12 months before the start of the study, Without a primary care provider, In osteoporosis clinical trials, Nursing home resident, Without an address, Research center employee, Received a BMD measurement	+1
Filippi, 2003[18]	Diabetes	RCT	2001	System, Clinician	Data were extracted from the HSD, which is owned by the Italian College of General Practitioners. The HSD currently contains data from 550 Italian GPs, with a patient population of	31 to >64 yrs old, Male or female, High-risk diabetic patients, Patients received two or more prescriptions at baseline and during the follow-up	Total cholesterol>=5.2 mol/dl, Hypertension (diastolic BP>90 mm/Hg and systolic BP>140 mm/Hg), Cigarette smokers, Presence of previous CVD, Patients without any consultation at baseline and	0

Evidence Table 1. Study characteristics of studies addressing health care process outcomes (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
					800,000 individuals. After intensive training,			
Fretheim, 2006[19]	Diabetes	RCT		Clinician, Patient	146 general practices in two geographical areas in Norway	Hypertension (blood pressure,**[> or >=]** 140/90 mm Hg), Hypercholesterolemia (total cholesterol, >5 mmol/l [190 mg/dl] or LDL cholesterol, <3 mmol/l [115 mg/dl]), No prescription for the corresponding medication had been recorded for 24 months preceding the outreach visit, Patients started on medication for hypertension or hypercholesterolemia during the study period, All patients already on treatment who t consulted their physician during the trial	Patients with established cardiovascular disease were excluded, with the exception of the outcomes related to treatment goals for lipid-lowering therapy, Thyrotoxicosis and migraine, Prescription for nitroglycerin, Established cardiovascular disease	+2
Glasgow, 2000[20]	Diabetes	RCT	(6)	Patient	Outpatient clinic	More than 40 yrs old, Meeting the Welborn criteria 28 for type 2 DM on the basis of age at diagnosis, body mass index, and when insulin was begun, Living independently, Having a telephone, Not planning to		-1

Evidence Table 1. Study characteristics of studies addressing health care process outcomes (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
						move out of the area		
Gomez, 2002[21]	Diabetes	Pilot cross-over	(a 6-month cross-over)	Patient	Hospital	Inadequate metabolic control and DM duration of over 5 yrs		-2
Green, 2005[22]	Genetic counseling	RCT	2000	Patient	Medical system (network of hospitals and/or clinics)	18 yrs or older, Female, Could read, write, and speak English, Scheduled a genetic counseling appointment to evaluate personal and/or family histories of breast cancer, Able to give informed consent	Previously underwent genetic counseling or testing for inherited breast cancer susceptibility	0
Green, 2008[23]	Hypertension	RCT	2005 (18)	Patient	Medical system (network of hospitals and/or clinics), Large, nonprofit, integrated group practice (Group Health)	25-75 yrs old, With controlled HTN, Taking anti-HTN meds, Ability to use a computer, Regular access to the Web, An e-mail address, Willingness to attend screening visits, Obtained all antihypertensive medications at Group Health–owned pharmacies	No diagnoses of diabetes, Cardiovascular or renal disease, or other serious conditions	+1
Gurwitz, 2008[24]	Residential care	RCT	NS	System	Academic long-term care facility			0
Hetlevik, 1998[25]	Hypertension	RCT	1994 (18 months)	System	Outpatient clinic	Attending practice of participating physician	Dead before data collection, Moved out of practice, Checkup by specialist	-1
Hetlevik, 2000[26]	Diabetes	RCT	1994 (18 months)	Clinician	Outpatient clinic	In practice of selected Norwegian physicians	Died, Moved, Had checkup by specialist	+1

Evidence Table 1. Study characteristics of studies addressing health care process outcomes (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
Hicks, 2008[27]	Hypertension	RCT	July 1, 2003 (18 months)	System, Clinician	8 community-based and 6 hospital-based primary care practices	Patients with HTN		+2
Hogg, 1998[28]	All the preventive procedures for families enrolled in the study	RCT	1990 (6)			Registered with the practice for at least one year, Made at least one office visit in the last 2 yrs		0
Jerant, 2001[29]	Congestive heart failure	RCT	1999 (12)	System, Patient	NS	40 yrs or older, Active telephone line in the home, English-speaking, Had a PCP, Potential subject (or a designated caretaker) needed to have vision and hearing adequate to use a telephone or telecare equipment	Had a Charlson score of 6 or greater (equivalent to metastatic cancer, full-blown acquired immunodeficiency syndrome, or several chronic diseases with endogen manifestations), Scored 7 or higher on the GDS, 20 or lower on the MMSE, or more than 2 standard deviations below age- and education-adjusted mean SDMT scores	-1
Jones, 1999[30]	Cancer (other)	RCT	1996	System, Patient	Oncology center	With breast, cervical, prostate, or laryngeal cancer	Receiving palliative treatment, No knowledge of their diagnosis, Visual or mental handicap, Severe pain or symptoms	+1
Kaner, 2007[31]	Atrial fibrillation and anticoagulation	Quasi-experimental: Qualitative	2003	Clinician, Patient	Outpatient clinic	General practitioners		-1
Krall, 2004[32]	Ambulatory patients	RCT	1999 (NS)	Clinician	Outpatient clinic			-1

Evidence Table 1. Study characteristics of studies addressing health care process outcomes (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
Kucher, 2005[33]	At risk for deep-vein thrombosis	RCT	2000 (29)	System, Clinician	Hospital	At risk for deep-vein thrombosis		+2
Kuppermann, 2009[34]	Pregnancy	RCT	2001 (24 months)	Patient		Pregnant woman of any age, 20 weeks gestation or less, Having not yet undergone any prenatal testing, Ability to speak English or Spanish	Carrying more than one fetus, Had become pregnant using in vitro fertilization, Candidate for prenatal diagnosis because of family history	0
Lester, 2004[35]	Hyperlipidemia	RCT	(24)	Clinician, Patient	Outpatient clinic			0
Lieberman, 2006[36]	Alcohol abuse	RCT	(18 months)	Patient	Online	Alcohol-abusing subjects (criteria not stated)		0
Linder, 2009[37]	Smoking	RCT	2006	Clinician, Patient, Tobacco cessation specialist	Medical system (network of hospitals and/or clinics)	Documented smoker, Indication of active smoking at some point during the intervention period		-1
Lorig, 2006[38]	Chronic condition/health problem	RCT	(18 months recruiting)	Patient	Online/ research site	18 yrs or older, Physician's diagnosis of heart disease, chronic lung disease or type 2 DM, Access to computer, Internet and e-mail, Agreed to 1-2 hours per week of logon time spread over at least 3 sessions/wk for 6 weeks, Able to complete online questionnaire	Active treatment of cancer for 1 year, anticipated previously in the small-group Chronic Disease Self-Management Program	0
Matheny, 2008[39]	Preventive medicine (routine laboratory	RCT	NS	Clinician	Medical system (network of hospitals	Primary care physicians practicing at 20 outpatient clinics		-1

Evidence Table 1. Study characteristics of studies addressing health care process outcomes (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
	monitoring to reduce the risk of adverse medication events)				and/or clinics)			
McCrossan, 2007[40]	Congenital heart disease	RCT		Patient	Hospital	Less than 3 yrs old, New diagnosis of congenital heart disease	No fixed address, Unsuitable home environment	-1
McDonald, 2005[41]	Cancer (other) pain management	RCT	(45 days)	Clinician	Non-profit home care organization	18 yrs or older, Primary diagnosis of cancer (ICD9-CM140-239), Self-reported frequency of daily or constant pain at admission	Not cognitively able to give informed consent, Non-English/Spanish speaking	+1
McGregor, 2006[42]	Infection antibiotic management and prophylaxis	RCT	2004 (3)	Clinician, Patient	Hospital	Admitted to ward managed by the antimicrobial management team	Admitted to shock trauma, cancer, and pediatric ward	-3
McKinley, 2001[43]	Patients with trauma as the primary risk factor for ARDS	RCT		System, Clinician, Patient	Hospital	(1) PaO_2/FIO_2 <200, (2) Total static thoracic compliance 50 mL/cm H_2O measured at current and PEEP during a 1.5-second inspiratory pause, (3) No clinical evidence of heart failure or fluid overload, or pulmonary artery occlusion pressure < 18 mm Hg for patients with a pulmonary artery catheter,(4) Acute onset of respiratory failure (i.e., hypoxia,	Preexisting ARDS with duration >21 days, Irreversible central nervous system damage, Severe chronic obstructive pulmonary disease, Severe chronic obstructive pulmonary disease, Rapidly fatal malignancy, Chronic left ventricular failure, chronic renal failure (i.e., creatinine > 2 mg/dL or chronic dialysis), Chronic liver failure (i.e., bilirubin 2 mg/dL, biopsy-proven cirrhosis and documented portal hypertension, episodes of past upper	0

Evidence Table 1. Study characteristics of studies addressing health care process outcomes (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
						low compliance, need for ventilatory support developing within 48 hours accompanied by an ARDS risk factor), (5) Radiographic evidence of bilateral diffuse infiltrates	gastrointestinal bleeding attributed to portal hypertension, prior episodes of hepatic failure, encephalopathy, coma)	
Mitchell, 2004[44]	Hypertension	RCT	2001 (24)	Clinician	Outpatient clinic			0
Montgomery, 2000[45]	Hypertension	RCT	(12 months)	Clinician	Outpatient clinic	60-79 yrs old, Had HTN diagnosis, Been prescribed antihypertensive drugs in the previous yr		+1
Montgomery, 2007[46]	Pregnant women with a previous caesarian section	RCT	May 2004	Patient	Medical system (network of hospitals and/or clinics)	Pregnant woman with one previous lower segment Caesarean section, No current obstetric problems, Delivery expected at 37 weeks or more	Limited ability to speak or understand English, Most recent delivery was not a Caesarean section	-1
Morgan, 2005[47]	Cardiac diagnosis -- effect of videoconferencing service	RCT	(6 weeks)	Patient	Patient homes	Child, Had a severe and actually life-threatening cardiac diagnosis requiring significant support once discharged		-1
Murray, 1999[48]	Patients carrying one of four diagnoses: heart failure, ischemic heart disease, reactive airways disease, or	RCT	1995 (19)	Clinician, Patient	Hospital-based ambulatory care pharmacy	Patient receiving care from general medicine clinic, With diagnosis of CHF, CAD, reactive airways disorder, uncomplicated HTN		-1

Evidence Table 1. Study characteristics of studies addressing health care process outcomes (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
	uncomplicated hypertension							
Murtaugh, 2005[49]	Heart failure: E-mail reminder	RCT	(June 2000 - Nov 2001)	Clinician, Nurses	Nonprofit home care agency	Provide care to at least one patient meeting the criteria for inclusion in the study	Provide no more than an initial visit to their patients, Any nurse missing the practice measures since the records for his/her patients were not available at the time of chart review, Less than 18 yrs old, Non-English/Spanish speaking	0
Nguyen, 2000[50]	Cancer (breast) mammography	RCT	NS	Clinician	Outpatient clinic	18 yrs or older, Vietnamese physicians practicing in California		+2
Nguyen, 2008[51]	COPD	RCT	(6 months intended but study stopped)	Patient	Pilot study: one group in face-to-face self-management program, the other in online program	Diagnosis of COPD and being clinically stable for at least 1 month, Spirometry results showing at least mild obstructive disease defined as post-bronchodilator FEV1 to FVC ratio 80% predicted, ADL limited by dyspnea, Use of the Internet and/or checking e-mail at least once per week with a Windows operating system, Oxygen saturation > 85% on room air or, 6 L/min of nasal oxygen at the end of a 6-minute walk test	Any active symptomatic illness (i.e., cancer, heart failure, ischemic heart disease with known coronary artery or valvular heart disease, psychiatric illness, or neuromuscular disease), Participated in a pulmonary rehabilitation program in the last 12 months, Were currently participating in > 2 days of supervised maintenance exercise	+2

Evidence Table 1. Study characteristics of studies addressing health care process outcomes (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
Noel, 2004[52]	Heart failure, chronic lung disease, diabetes mellitus	RCT	(> 6) (NS)	Patient	Home	Elderly veteran in VA program, CHF, COPD and/or DM, With documented high use of healthcare resources and barriers to accessing healthcare services due to geographic, economic, physical, linguistic, technologic, and/or cultural factors		0
Overhage, 2002[53]	Emergency Department (ED) patients	RCT	1995 (12 months)	System	Hospital, Medical system (network of hospitals and/or clinics)			0
Parati, 2009[54]	Hypertension	RCT	NS	Clinician, Patient	Private practice	18-75 yrs old, Diagnosis of uncontrolled essential HTN	Diagnosis of secondary HTN, Major systemic disease, Atrial fibrillation, Frequent cardiac arrhythmias, Severe atrioventricular block, Obesity (BMI >30 kg/m2) or an arm circumference of more than 32 cm or both, Technical problems due to incompatible phone lines at home	-1
Persell, 2008[55]	Diabetes	RCT	2004 (6)	Clinician, Patient	Outpatient clinic	More than 40 yrs old, Diabetes mellitus on basis of ICD 9-CM codes, insulin or oral hypoglycemic drug use, or A1c > 7.0%, DM based on ICD9-	Aspirin, clopidogrel, or warfarin on their medication list, No allergy to aspirin or NSAID	+3

Evidence Table 1. Study characteristics of studies addressing health care process outcomes (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
						CM further defined as: presence of any two outpatient codes for diabetes mellitus 250.xx, diabetic neuropathy; diabetic retinopathy 362.0x, or diabetic cataract 366.41, Hg A1c > 7.0, two clinic visits in 18 months prior		
Poller, 2008[56]	Thrombotic or bleeding events	RCT	(66)	Clinician, Patient	Outpatient clinic, Multi-center trial	New patients initiating oral anticoagulation, In whom the incidence of such events was higher, Atrial fibrillation, DVT, Pulmonary embolism, Mechanical heart valves, Other indications		-1
Quinn, 2003[57]	Overactive bladder symptoms	RCT	NS	Patient	Medical system (network of hospitals and/or clinics)	More than 18 yrs old, Had OAB diagnosed, Able to read, write and speak English such that they were capable of independently completing both the paper and the electronic diary		0
Quinn, 2008[58]	Diabetes	RCT	(3)	Clinician, Patient	Outpatient clinic, cell phone	18-70 yrs old, Diagnosis of type 2 diabetes for at least 6 months, Had an A1c greater or equal to 7.5% and been on a stable diabetes		+1

Evidence Table 1. Study characteristics of studies addressing health care process outcomes (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
						therapeutic regimen for 3 months prior to study enrollment		
Raebel, 2007[59]	Depression and anxiety	RCT	2005 (12)	Clinician, Patient, Pharmacist	Outpatient clinic, Medical system (network of hospitals and/or clinics), Kaiser Permanente Pharmacies	More than 65 yrs old, Prescribed a potentially inappropriate medication (list of 11 medications)		-2
Raebel, 2007[60]	Medication safety for pregnant women	RCT	2003	Clinician, Pharmacy	Medical system (network of hospitals and/or clinics)	18-50 yrs old, Female, HMO member with diagnosis, visit, or laboratory codes potentially indicative of pregnancy		+3
Ralston, 2009[61]	Diabetes	RCT	2002 (12 months)	Patient	Medical system (network of hospitals and/or clinics)	18-75 yrs old, GHb (in last 12 months) >/+7%, 2 visits to GIMC w/in last year	Participated in pilot study of intervention, Major psych illness, Non-English-speaking, resident as PCP, Followed primarily in a specialty clinic	+1
Rhodes, 2006[62]	Domestic violence (DV) computer screening	RCT	2001 (19 months)	Patient	Hospital, emergency department	18 to 65 yrs old, Female, Triaged as medically non - emergent (in emergency department of hospital)	Absent/not available, visibly too sick, Access issue, Equipment/room unavailable, Already participated, Psych/cognitive ETOH, Not consenting	0
Rollman, 2002[63]	Mental health (depression)	RCT	1997	System	University school of medicine's primary care practice	18-64 yrs old, Male or female, White, Had depression score of more than 12, No alcohol or other substance disorder, No history of bipolar disorder,	Without major depression, dementia, psychotic illness or unstable medical condition, No responses on the CAGE alcohol screening questionnaire, Previous enrollment in	0

Evidence Table 1. Study characteristics of studies addressing health care process outcomes (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
						No active suicidal ideation, Medically stable, No plan to leave the study, Not presently taking depression treatment	the protocol, Language or communication barrier	
Ross, 2004[64]	Congestive heart failure	RCT	2001	System	Hospital	18 yrs or older; If they were followed in the practice: Spoke English; Had used a Web browser before	Physicians, nurses, physician assistants, and nurse practitioners	+1
Rothschild, 2007[65]	Blood transfusion	RCT	2003	Clinician	Hospital	All staff physicians		0
Roukema, 2008[66]	Fever without apparent source (FWS) in 1- to 36-month-olds	RCT	2003 (18 months)	System	Hospital	1-36 months old, Body temperature >38.0 degrees Celsius, No apparent source found after evaluation by the ED nurse, Attending the ED	Chronic co-morbidity, "Not registered," Fever from a clear source, Would not sign informed consent, Low risk score	0
Roumie, 2006[67]	Hypertension	RCT	2003 (6 months)	System, Clinician, Patient	Hospital, Outpatient clinic	21 - 90 yrs old, Filled prescriptions at a Veterans Administration pharmacy, At least 2 uncontrolled blood pressure measurements in the 6-month baseline period (systolic blood pressure >140 mm Hg or diastolic blood pressure >=90 mm Hg), Only taking 1 antihypertensive medication	At least 1 recorded blood pressure reading between July and December 2003 that was at goal (systolic blood pressure <= 90 mm Hg), Declined chart review, Taking more than 1 antihypertensive medication at the time of chart review	+2

Evidence Table 1. Study characteristics of studies addressing health care process outcomes (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
Ruland, 2003[68]	Cancer (other)	RCT Cluster randomization at level of clinician	(2 Months)	Clinician, Patient	Outpatient clinic	More than 21 yrs old, Able to read, write, and speak English, No cognitive impairment, Able to provide informed consent, Did not feel too fatigued, Participation approved by patients' physicians	New patients coming for first consultation	-1
Sequist, 2005[69]	Diabetes	RCT	2002	System, Clinician	Medical system (network of hospitals and/or clinics)			-1
Shiffman, 2000[70]	Asthma	RCT, Before-after trial with randomly selected physicians who served as their own controls	1996 (24)	Clinician, Patient	Outpatient clinic	Actively practicing primary care pediatrics within a 20-mile radius of New Haven, Connecticut, Anticipated seeing 20 patients older than 5 yrs of age with acute asthma exacerbations within the following year, Had equipment available in office for measurement of PEFR and for providing supplemental oxygen if needed	Not in active practice (retired, administration, part-time), Moved away, Did not anticipate seeing 20 patients, Did not have appropriate equipment, Partner in office already in study, Declined as a group practice decision	-2
Simon, 2006[71]	Patients over 65 who were prescribed certain medications	RCT	2000 (43 months)	System, Clinician, Practices consisting of patients	Outpatient clinic	Patient receiving medication was 65 or older at time of dispensing, All primary care		-2

Evidence Table 1. Study characteristics of studies addressing health care process outcomes (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
	(age-specific prescribing)			and clinicians		clinicians (physicians, nurse practitioners, and physician assistants) at the 15 enrolled clinics and the elderly patients receiving primary care at those sites		
Smith, 2008[72]	Diabetes	RCT	2003 (18)	Clinician	Medical system (network of hospitals and/or clinics)	Primary care physicians working in the 6 clinics, 120 internists and family medicine practitioners, and their panel of diabetes patients (N=5468)		+1
Subramanian, 2004[73]	CHF	RCT	(NS)	Clinician, Patient	Outpatient clinic	Both an active diagnosis of heart failure and evidence of left ventricular systolic dysfunction on echocardiogram, cardiac scan, or cardiac catheterization	Not expected by their physicians to survive 1 year, Psychosis, cognitive impairment, Hearing loss, No telephone access	-2
Tamblyn, 2003[74]	Evaluate the use of both medical services and drugs before and after the implementation of CDS	RCT, Cluster randomized	1997	Clinician, Patient,	Medical system (network of hospitals and/or clinics)	66 yrs or older, Male or female, Had been seen on 2 or more occasions by, Living in the community, General practitioners practicing in Montreal	Patients younger than 66 yrs, Working < 20 h/wk, Salaried practice, Planning to retire or move within, Refused to participate, Consented too late	0
Tamblyn, 2008[75]	NS	RCT	2004 (8)	Clinician	Outpatient clinic, Patients in FFS FP/GP clinics in Montreal	Patients in GP or FP practices in Montreal, Patients seeing FFS only physicians, Patients with >= 1 Rx written		-1

Evidence Table 1. Study characteristics of studies addressing health care process outcomes (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
						by a study MD in the study period, Patient consented to participation		
Taylor, 2006[76]	Sleep apnea	RCT	NS	Clinician	Medical system (network of hospitals and/or clinics)	Diagnosed with OSAS and prescribed CPAP as therapy	Currently or previously treated with nasal CPAP or other therapies such as an oral appliance or surgery for OSAS	+1
Taylor, 2008[77]	Asthma	RCT	2006	System, Clinician	Hospital, Medical system (network of hospitals and/or clinics)	NS		-1
Thomas, 2007[78]	Diabetes	RCT	(2003-2004)	System	Resident continuity clinic	Categorical IM residents with community-based continuity clinic	Residents anticipating early residency completion	+2
Tierney, 2003[79]	Heart failure	RCT	1994 (28)	Patient	Outpatient clinic	Patients with heart failure were eligible if they had objective evidence of left ventricular dysfunction on an echocardiogram (either the cardiologist impression of left ventricular systolic dysfunction or a fractional shortening of less than 25%)		0
Trautmann, 2008[80]	Recurrent headache	Quasi-experimental	NS	Patient	NS	10-18 yrs old, At least 2 headache attacks per month		+1
van Wijk, 2001[81]	Multiple conditions (study of appropriate test ordering)	RCT	1996 (11)	Clinician	Outpatient clinic	All 64 practices (94 general practitioners) in the region of Delft, the Netherlands, Only		0

Evidence Table 1. Study characteristics of studies addressing health care process outcomes (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
						practices that had replaced their paper-based patient records with electronic records and were using the computer during patient encounters were eligible		
Wakefield, 2008[82]	Congestive heart failure	RCT	2002 (39 months)	Patient	Home	After hospital admission, Possible heart failure exacerbation as the reason for admission, Telephone line in the home, No significant vision, hearing or other communication deficits, Enrolled in ICVAMC Primary care clinic, English speaker	Cognitively impaired, Reside in a long-term care facility, Discharged to a long-term care facility	+1
Walker, 2004[83]	Hemophilia	RCT		Patient	Home and outpatient	Severe hemophiliac (factor VIII or FIX <1%), Participation in home care infusion program	Treated infrequently with factor concentrates, Unable to attend the training session, A language barrier was present	0
Weber, 2008[84]	Polypharmacy and falls in ambulatory rural elderly	RCT	The EPIC care database was queried in October, 2002, intervention dates were in January or February, 2003; for the comparison group, the baseline data were defined as January 30, 2003	System, Clinician, Patient	Outpatient clinic, Medical system (network of hospitals and/or clinics)	70 yrs or older, 4 or more active prescription medications, 1 or more psychoactive medications prescribed within the past year, Had GHP Medicare Choice coverage		-1

Evidence Table 1. Study characteristics of studies addressing health care process outcomes (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
			(15 months)					
Whited, 2002-[85]	Skin lesions	RCT	NS	Clinician	Hospital	Referred to the Dermatology Consult Service from the Primary Care Clinics at the Durham, North Carolina Department of Veterans Affairs Medical Center	Only if the condition was considered emergent and required prompt attention	-1
Wolfenden, 2005[86]	Smoking cessation care to preoperative surgical patients	RCT	2002 (May - October 2002)	Patient	Hospital	More than 18 years old, Not too ill to complete the study procedure, Can read English, Had a booked date for surgery, Current smoker, Not pregnant	Too ill to complete the study procedures, Had not previously been approached to participate in the study, Non/past smoker, Pregnant	+1
Ziemer, 2006[87]	Diabetes	RCT	1999 (36 months)	Clinician	Outpatient clinic	Internal Medicine resident		-2

ADL: Activity of daily living, ARDS: Acute respiratory distress syndrome, BG: Blood glucose, BMI: Body mass index, BP: Blood pressure, CAD: Coronary artery disease, CHF: Congestive heart failure, COPD: Chronic obstructive pulmonary disease, CPAP: Continuous Positive Airway Pressure, CPRS: Computerized Patient Record System, CVD: Cardiovascular disease, DM: Diabetes mellitus, DSM: Diagnostic and statistical manual of mental disorders, DVT: Deep vein thrombosis, ED: Emergency department, FEV1: Forced expiratory volume in one second, FFS: Fee-for-service family physicians, FP: Family physician, FVC: Forced vital capacity, GD: General diabetes, GDS: Geriatric Depression Scale, GHP: Geisinger Health Plan, GHQ: General Health Questionnaire, GIMC: General Internal Medicine Clinic, GP: General physician, HMO: Health maintenance organization, HSD: Health Search Database, HTN: Hypertension, ICD9: International Statistical Classification of Diseases and Related Health Problems, ICVAMC: Iowa City Veterans Affairs Medical Center, IM: Internal Medicine, LDL: Low-density lipoprotein, MD: Doctor, MMSE: Mini Mental Status Examination, NS: Not Specified, NSAID: Non-steroidal anti-inflammatory drug, OAB: Overactive Bladder, OSAS: Obstructive sleep apnea syndrome, PAG: Principal investigator, PCP: Primary care provider, primary care physicians, PEEP: Positive end-expiratory pressure, PEFR: Peak expiratory flow rate, PHR: Patient health record, Pt: Patient, PTSD: Post traumatic stress disorder, RCT: Randomized controlled trial, Rx: Prescription, SDMT: Symbol Digit Modalities Test, UCD: University of California, Davis, URI: Upper respiratory infection, VA: Veteran's Affairs

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Evidence Table 2. Participant characteristics of studies addressing healthcare process outcomes

Author, Year	Control Intervention	Age (years)	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
Apkon, 2005[1]	Control	Mean: 35.3 SD: 11.0	587 (60.8)	NS	NS	NS	Military status – Active duty 425 (44.0), Beneficiary 490 (50.7), Reserve 0, Retired 51 (5.3); Visit type – Acute 416 (43.1), Established 27 (2.8), Routine 375 (38.8), Wellness 139 (14.4), Other 9 (0.9); Healthcare opportunities – Screening/Prevention 662 (68.5), Acute/chronic 239 (24.7)
	Coupler group	Mean: 34.4 SD: 10.4	593 (63.4)	NS	NS	NS	Military status – Active duty 361 (38.6), Beneficiary 527 (56.3), Reserve 1 (0.1), Retired 47 (5.0); Visit type – Acute 383 (40.9), Established 47 (5.0), Routine 365 (39.0), Wellness 126 (13.5), Other 15 (1.6); Healthcare opportunities – Screening/Prevention 687 (73.4), Acute/chronic 244 (26.1)
Bailey, 2007[2]	Control	Mean: 49 Range: 48-51	22 (17.5)	NS	NS	NS	General medicine 49 (39), Cardiology 27 (21), Other medical specialty 35 (28), Other 15 (12)
	Computerized alerts identifying hospitalized patients with elevated troponin I levels	Mean: 51 Range: 49-53	13 (14.4)	NS	NS	NS	General medicine 24 (27), Cardiology 19 (21), Other medical specialty 33 (37), Other 14 (16)
Baker, 1998[3]	Control	Mean: 67.1 SD: 14.6	(58.2)	White: (73.3), Black: (23.4), Other: (3)	NS	NS	
	A generic postcard	Mean: 67.3 SD: 14.7	(57.7)	White: (73.6), Black: (23.4), Other: (3)	NS	NS	

Evidence Table 2. Participant characteristics of studies addressing healthcare process outcomes (continued)

Author, Year	Control Intervention	Age (years)	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
	Patients received a personalized postcard from their physician	Mean: 67.4 SD: 14.6	(57.7)	White: (72.9), Black: (24), Other: (3.1)	NS	NS	
	Patients received a personalized letter from their physician	Mean: 66.8 SD: 15.1	(57.3)	White:(71.7), Black: (25.3), Other: (3)	NS	NS	
Barnabei, 2008[4]	Control	Mean: 52.5 SD: 5.6	147 (100)	White: 130 (90), Non-white 15 (10)	NS	HS grad or less: 18 (12), trade school / some college or more: 127 (88)	Current HT use – Yes 43 (29), No 104 (71)
	Talk To Your Doc (TTYD) tool	Mean: 52.5 SD: 5.3	141 (100)	White: 126 (92), Non-white 11 (8)	NS	HS grad or less: 19 (14), trade school some college or more: 119 (86)	Current HT use – Yes 39 (28), No 102 (72)
Bentz, 2007[5]	Control	Mean: 50.7 SD: 5.6	(66.5)	NS	NS	NS	
	EHR-generated practice feedback on rates of referral to a state-level tobacco quitline	Mean: 54.2 SD: 6.7	(66)	NS	NS	NS	
Bindels,	Control	Mean: 49	(25)	NS	NS	NS	

Evidence Table 2. Participant characteristics of studies addressing healthcare process outcomes (continued)

Author, Year	Control Intervention	Age (years)	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
2003[6]*	An automated feedback system that produces comments about the non-adherence of general practitioners (GPs) to accepted practice guidelines for ordering diagnostic tests	SD: 5.6					
Bindels, 2004[7]*	Control	Mean 44 SD: 4.7	(0)	NS	NS	NS	
	Automated test ordering and feedback system						
Bowns, 2006[8]	Control	Mean: 49.7 SD: 19.8	45 (62)	NS	NS	NS	
	SF (Store and Forward) teledermatology	Mean: 43.6 Median: SD: 17.8	58 (63)	NS	NS	NS	
Cannon, 2000[9]	Control	NS	NS	NS	NS	NS	
	Use of computer systems on the implementation of a clinical practice guideline	NS	NS	NS	NS	NS	
Chan, 2003[10]	Control	Mean: 8.7 SD: 2.5	(20)	NS	NS	NS	
	Internet-based education (the "virtual group")	Mean: 6.6 SD: 0.5	(80)	NS	NS	NS	
Clark, 2007[11]*	Control	Mean: 74.7	(35)	NS	NS	NS NS	Weight (kg) 83, SD: 24; Lived with spouse (74)
	Nurse-coordinated telephone-monitoring CHF management strategy						

Evidence Table 2. Participant characteristics of studies addressing healthcare process outcomes (continued)

Author, Year	Control Intervention	Age (years)	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
De Las Cuevas, 2006[12]	Control	Median in 25- to 45-year group: 33 (47) Range: 65 yrs, 3 (4)	45 (64)	NS	NS	Can read and write: 5 (7), Primary studies: 40 (57), College: 14 (20), University degree: 11 (16)	ICD-10 diagnosis, CGI Severity of illness
	VCTP videoconference telepsychiatry	Median in 25- to -45-year group: 37 (53) Range: 65 yrs, 5 (7)	48 (69)	NS	NS	Can read and write: 11 (16), Primary studies: 33 (47), College: 13 (19), University degree: 13 (19)	ICD-10 diagnosis, CGI-Severity of illness
de Toledo, 2006[13]	Control	Mean: 72 SD: 8	3 (3.2)	NS	NS	NS	Forced expiratory volume per second (FEV) 42, SD: 15 (%)
	Telemedicine experience for the home care of chronic patients suffering from chronic obstructive pulmonary disease (COPD)	Mean: 71 Range: SD: 8	2 (2.3)	NS	NS	NS	Forced expiratory volume per second (FEV) 42, SD: 20 (%)
Dobke, 2008[14]	Control	Mean: 53.9 SD: 10.4	8	NS	NS	NS	Nature of wound – Pressure sore 8, Venostasis ulcers 1, Arterial ulcers no diabetes 1, Diabetic foot 5
	Telemedicine consult on patients with chronic wounds	Mean: 54.9 SD: 10.8	8	NS	NS	NS	Nature of wound – Pressure sore 10, Venostasis ulcers 1, Arterial ulcers no diabetes 0, Diabetic foot 4
Dykes, 2007[15]	Nursing patient assessment using paper	Range: 21-30 (58.1%) of respondents	98.4 of respondents to survey after	NS	NS	NS	Only have data from respondents to survey, and not all participants; (79) of

Evidence Table 2. Participant characteristics of studies addressing healthcare process outcomes (continued)

Author, Year	Control Intervention	Age (years)	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
	nursing patient assessment using wireless devices	to survey after study	study				participants responded to survey; also, data includes both intervention and control groups
Eccles, 2002[16]	Control	NS	NS	NS	NS	NS	
	Intervention group received computerized guidelines for the management of asthma and provided intervention patients for the management of asthma and control patients for the management of angina. GD	NS	NS	NS	NS	NS	
Feldman, 2005[17]	Control	Mean: 71.2 SD: 12.2	(76.7)	White: (23.4), Black: (41.9), Latino: (30.0), Other (4.9)	<$10,000 (51.5)	<12 yrs: (54.2)	Usual care 227
	E-mail reminder	Mean: 72.4 SD: 12.1	(64.8)	White: (23.6), Black: (42.7), Latino: 31.2, Other (2.5)	<$10,000 (43.7)	<12 yrs: (56.8)	Basic 199
	E-mail reminder and a laminated card	Mean: 71.8 SD: 12.0	(65.4)	White: (28.2), Black: (35.6), Latino: (33.2), Other: (3.0)	<$10,000 (40.1)	<12 yrs: (54.0)	Augmented 202

Evidence Table 2. Participant characteristics of studies addressing healthcare process outcomes (continued)

Author, Year	Control Intervention	Age (years)	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
Feldstein, 2006[18]	Control	Range: 50-89	NS	NS	<=20,000: 20 (19.8), >20,000: 21(20.8), Unknown: 60 (59.4)	Unknown: 46 (45.5), <=High school: 32 (31.7), >=Some college: 23 (22.8)	Fracture Type – Hip 9 (8.9), Vertebra 9 (8.9), Wrist 15 (14.9), Other 68 (67.3); Current smoker – No 92 (91.1), Yes 9 (8.9); Weight – >3 12 (11.9); Adequate calcium intake – No 32 (31.7), Yes 16 (15.8), Unknown 53 (52.5); Regular activity – No 40 (39.6), Yes 14 (13.9), Unknown 47 (46.5)
	EMR reminder to primary care physician	Range: 50-89	NS	NS	<=$20,000: 27 (26.7), >$20,000: 13 (12.9), Unknown: 61 (60.4)	Unknown: 45 (44.6), <=High school: 31 (30.7), >=Some college: 25 (24.8)	Fracture Type – Hip 12 (11.9), Vertebra 10 (9.9), Wrist 17 (16.8), Other 62 (61.4); Current smoker – No 90 (89.1), Yes 11 (10.9); Weight – >3 18 (17.8); Adequate calcium intake – No 36 (35.6), Yes 14 (13.9), Unknown 51 (50.5); Regular activity – No 44 (43.6), Yes 13 (12.9) , Unknown 44 (43.6)
	EMR reminder to primary care physician plus mailed patient reminder letter	Range: 50-89	NS	NS	<=$20,000: 28 (25.7), >$20,000: 17 (15.6), Unknown: 64 (58.7)	Unknown: 42 (38.5), <=High school: 39 (35.8), >=Some college: 28 (25.7)	Fracture Type –-Hip 16 (14.7), Vertebra 2 (1.8), Wrist 17 (15.6), Other 74 (67.9); Current smoker – No 100 (91.7), Yes 9 (8.3); Weight – 312 (11.0); Adequate calcium intake – No 40 (36.7), Yes 17 (15.6), Unknown 52 (47.7); Regular activity – No 52 (47.7), Yes 13 (11.9), Unknown 44 (40.4)
Filippi, 2003[19]	Control	Range: 31–45 318 (3.3), Range: 45–64 (31.7), Range >64: (65.0)	5,013 (51.9)	NS	NS	NS	

Evidence Table 2. Participant characteristics of studies addressing healthcare process outcomes (continued)

Author, Year	Control Intervention	Age (years)	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
	Electronic reminder plus a letter	Range: 31–45 318 (3.8), Range: 45–64 (31.7), Range >64: (64.5)	5,886 (52.7)	NS	NS	NS	
Frank, 2004[20]	Control	Mean: 35.4	(57)	NS	NS	NS	Number (interquartile range) of services in 6 months before start of trial, median (Interquartile range) – 1 (0–2); Fees (interquartile range) charged per consultation in 6 months before trial, median – $21 ($0–59); Number (interquartile range) of long-term problems coded before trial, median – 0 (0–1)
	In-consultation reminders about 12 outstanding preventive activities	Mean: 36	(56)	NS	NS	NS	Number (interquartile range) of services in 6 months before start of trial, median – 1 (0–2); Fees (interquartile range) charged per consultation in 6 months before trial, median – $21 ($0–56); Number (interquartile range) of long-term problems coded before trial, median – 0 (0–1)
Fretheim, 2006[21]	Control	Mean: 60.5	(51.7)	NS	NS	NS	
	Educational outreach visit audit and feedback at outreach visit computerized reminders risk assessment tools (software and charts) patient information material	Mean: 61.2	(54.2)	NS	NS	NS	
Glasgow, 2000[22]	Control	Mean: 60.6 SD: 9.5	(66.3)	White: (90)	NS	Some college or more: (46.3)	Retired (45.0); Live alone (51.2)

Evidence Table 2. Participant characteristics of studies addressing healthcare process outcomes (continued)

Author, Year	Control Intervention	Age (years)	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
	Basic and community resource condition	Mean: 60.5 SD: 8.6	(47.4)	White: (90.9)	NS	Some college or more: (59.7)	Retired (28.6); Live alone (58.4)
	Basic & telephone follow-up conditions	Mean: 59.0 SD: 9.6	(57)	White: (88.6)	NS	Some college or more: (63.0)	Retired (31.6); Live alone (44.3)
	Combined condition	Mean: 57.4 SD: 9.4	(56.3)	White: (91.4)	NS	Some college or more: (58.0)	Retired (35.8); Live alone (64.2)
Glasgow, 2005[23]	Control	Mean: 64 SD: 1.3	(50.0)	White: (77.9), Black: (2.7), Latino: (14.1), Other (5.4)	<$10,000: (10.0), $10,000-$29,999: (33.9), $30,000-$49,999: (23.9), $50,000: (32.1)	<12 yrs: (14.4), High school: (25.4), College (1-3 yrs): (32.8), College/graduate school: (27.4)	
	Diabetes Priority Program	Mean: 62 SD: 1.4	(52.3)	White: (83.5), Black: (1.7), Latino: (11.3), Other (3.4)	<$10,000 (12.3), $10,000-$29,999: (26.4), $30,000-$49,999: (28.0), $50,000: (33.3)	<12 yrs: (13.0), High school: (27.1), College (1-3 yrs): (32.0), College/graduate school: (27.9)	
Glassman, 2007[24]	Control	Mean: 67.3 SD: 10.6	8 (2)	NS	NS	NS	
	Medication profiling to computerized provider order entry in an ambulatory care population	Mean: 67.2 SD: 11.0	12 (3)	NS	NS	NS	
Goldman, 2004[25]	Parents that received telephone	Mother – Mean: 37, Father – Mean: 39	NS	NS	NS	NS	

Evidence Table 2. Participant characteristics of studies addressing healthcare process outcomes (continued)

Author, Year	Control Intervention	Age (years)	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
	Parents assigned to receive an e-mail 24 to 96 hrs after their child's discharge from the ED	Mother – Mean: 38, Father – Mean: 40	NS	NS	NS	NS	
Gomez, 2002[26]	Group not using DIABTel system	NS	NS	NS	NS	NS	
	Group using DIABTel system	NS	NS	NS	NS	NS	
Green, 2005[27]	Control	Mean: 44 Range: 24-71	105 (100)	White: 95 (90)	NS	College or More: 53 (50)	
	Counseling supplemented by computer use	Mean: 45 Range: 23-77	106 (100)	White: 100 (95)	NS	College or More: 65 (62)	
Green, 2008[28]	Control	Mean: 58.6 SD: 8.5	141 (54.7)	White: 214 (82.9), Black: 22 (8.5), Asian: 8 (3.1), NS: 14 (5.4)	NS	8-12 yrs: 22 (8.5), Some college: 117 (45.3), College grad: 48 (18.6), >16 yrs: 71 (27.5)	Employed – FT 158 (61.2), retired 75 (29.1), PT 16 (16.2), other 9 (3.5); Anti-HTN medication class – None 13 (5), One 127 (49.2), Two 89 (34.5), Three or more 29 (11.2); Current smoker – 20 (8.1); BMI – Normal 16 (6.5), Overweight 72 (29.4), Obese 157 (64.1); Have home BP monitor – 137 (53.1); SBP, mean – 151.3, SD:10.6; DBP, 89.4, SD: 8
	BP monitoring and point web services training	Mean: 59.5 SD 8.3	119 (45.9)	White: 223 (86.1), Black: 18 (6.9), Asian: 9 (3.5), NS: 9 (3.5)	NS	8-12 yrs: 19 (7.3), Some college: 110 (42.5), College grad: 72 (27.8), >16 yrs: 58 (22.4)	Employed – FT 130 (50.2), Retired, 103 (39.8), PT 21 (8.1), Other 5 (1.9); Anti-HTN medication class – None 5 (1.9), One 120 (46.3), Two 86 (33.2), Three or more 48 (18.5); Current smoker – 14 (5.5); BMI – Normal, 14 (5.6), Overweight 84 (33.3), Obese 154 (61.1); Have home BP monitor 160 (61.8); SBP 152.2, SD:10; DBP 89, SD: 7.9

Evidence Table 2. Participant characteristics of studies addressing healthcare process outcomes (continued)

Author, Year	Control Intervention	Age (years)	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
	BP monitoring and point web services training plus pharmacist care	Mean: 59.3 SD 8.6	146 (55.6)	White: 207 (79.3), Black: 21 (8), Asian: 12 (4.6), NS: 21 (8)	NS	8-12 yrs: 130 (50.2), Some college: 97 (37.2), College grad: 75 (28.7), >16 yrs: 68 (26.1)	Employed – FT 147 (56.3), retired 92 (35.2), PT 14 (5.4); other, 8 (3.1); Anti-HTN medication class – None 10 (3.8), One 119 (45.6), Two 86 (33.2), Three or more 46 (17.6); Current smoker – 18 (6.9); BMI – Normal 24 (9.5), Overweight 81 (32.1), Obese 147 (58.3); Have home BP-monitor – 140 (53.6); SBP 152.2, SD: 10; DBP 88.9, SD: 8.1
Gurwitz, 2008[29]*	Control	Mean: 87.2	(71.3)	NS	NS	NS	
	CPOE: With clinical decision support					NS	
	Online survey (and focus group information)						
Hetlevik, 1998[30]	Control	NS	(59)	NS	NS	NS	Patients 1127
	Intervention group physicians had access to a CDSS to support guideline implementation for HTN (Norwegian guidelines)	NS	(57)	NS	NS	NS	Patients 887
Hetlevik, 2000[31]	Control	Mean: 68.1	(55)	NS	NS	NS	Patients 408
	Used a computer-based clinical decision support system (CDSS) for treatment of patients with HTN, DM, and hypercholesterolemia	Mean: 66.3	(53)	NS	NS	NS	Patients 368

Evidence Table 2. Participant characteristics of studies addressing healthcare process outcomes (continued)

Author, Year	Control Intervention	Age (years)	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
Hicks, 2008[32]	Control	Median: 61	(65)	White: 454 (43), Black: 280 (27), Latino: 284 (27), Other 30 (3)	NS	NS	Blood pressure led during first visit 452 (43)
	CDS (computerized decision support for all physicians within the practice)	Median: 64	(66)	White: 292 (37), Black: 286 (36), Latino: 192 (24), Other 16 (2)	NS	NS	Blood pressure led during first visit 343 (44)
	Nurse practitioner P and UC	Median: 61	(69)	White: 24 (20), Black: 66 (55), Latino: 23 (19), Other: 7 (6)	NS	NS	Blood pressure led during first visit (35)
	Nurse practitioner in and computerized decision support	Median: 62	(74)	White: 18 (24), Black: 39 (53), Latino: 12 (16), Other: 4 (6)	NS	NS	Blood pressure led during first visit (31)
Hogg, 1998[33]	Control	Mean: 41.6 SD: 18.9	(52.3)	NS	NS	NS	Mean family size – 2.6; Most family members speak English – (47.9); Mean number of chronic diseases in family unit – 2.33 (2.35); Mean baseline procedures overdue – 4.02 SD: 0.292; and others
	Mailed form letter	Mean: 41.9 SD; 19.8	(52.3)	NS	NS	NS	Mean family size – 2.7; Most family members speak English – (46.4); Mean number of chronic diseases in family unit – 2.08 (1.94); Mean baseline procedures overdue – 4.39 (0.268); and others

Evidence Table 2. Participant characteristics of studies addressing healthcare process outcomes (continued)

Author, Year	Control Intervention	Age (years)	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
	Mailed customized letter	Mean: 37.5 SD: 18.69	(49.9)	NS	NS	NS	Mean family size – 3.0; Most family members speak English – (52.0); Mean number of chronic diseases in family unit – 2.21 (1.95); Mean baseline procedures overdue – 4.13 (0.301); and others
Homko, 2007[34]	Women in the control group were asked to record their information in a logbook, which was reviewed by the medical team at prenatal visit	Mean: 47.5 SD: 9.1	15 (57.7)	NS	NS	NS	BMI, mean – 23.4 kg/m^2; Duration of diabetes, mean – 8.0 yrs; There were no significant differences in age, sex, BMI, duration of diabetes, diabetes medication, blood pressure, blood glucose, and serum lipids levels between the two groups; at the pre-test, no significant difference was found in HbA1c levels between the groups
	Internet group patients were provided with computer and Internet access to send blood glucose and other health data directly to their care providers	Mean: 46.8 SD: 8.8	14 (56)	NS	NS	NS	BMI, mean – 24.5 kg/m^2; Duration of diabetes, mean – 5.2 yrs; There were no significant differences in age, sex, BMI, duration of diabetes, diabetes medication, blood pressure, blood glucose, and serum lipids levels between the two groups; at the pre-test, no significant difference was found in HbA1c levels between the groups
Jerant, 2001[35]	Control	Mean: 72.7 SD: 11.4	50	White: (58), Black: (33), Latino: (1)	NS	NS	
	Home telecare	Mean: 66.6 SD: 10.9	54	White: (31), Black: (62), Latino: (1)	NS	NS	
	Telephone telecare	Mean: 71.3 SD: 14.1	58	White: (58), Black: (42), Latino: (0)	NS	NS	

Evidence Table 2. Participant characteristics of studies addressing healthcare process outcomes (continued)

Author, Year	Control Intervention	Age (years)	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
Jerant, 2003[36]		Mean: 72.7	6 (50)	White: 7 (58), Black: 4 (33), Latino: 1 (8)	NS	NS	Primary health insurer – Blue Cross 2 (17), Commercial capitated 5 (50), MediCal capitated 1(8), MediCal fee for service 4 (33), Medicare 0(0); Distance from hospital (miles) – Mean 12.3, SD: 8.4; CHF duration (months) – Mean 30.4, SD: 30; 5 other CHF-related measures
	Video-based telecare group	Mean: 66.6	7 (54)	White: 4 (31), Black: 8 (62), Latino: 1 (8)	NS	NS	Primary health insurer – Blue Cross 1 (8), Commercial capitated 3 (23), MediCal capitated 2 (15) MediCal fee for service 6 (46), Medicare 1(8); Distance from hospital (miles) – Mean 9.6, SD: 7.0; CHF duration (months) – mean 11.0 SD: 16.5; 5 other CHF-related measures
	Telephone care	Mean: 71.3	7 (58)	White: 7 (58), Black: 5 (42), Latino: 0 (0)	NS	NS	Primary health insurer – Blue Cross 1 (8), Commercial capitated 7 (58), MediCal capitated 0 (0), MediCal fee for service 3 (25), Medicare 1 (8); Distance from hospital (miles) – Mean 12.4, SD: 16.8; CHF duration (months) – mean 54.8, SD: 71.2; 5 other CHF-related measures
Jones, 1999[37]	Control	NS	NS	NS	NS	NS	Does not give overall age / demographic data. The only data given apply to participants who showed anxiety at a certain time point
	Personal computer information	NS	NS	NS	NS	NS	
	General computer information	NS	NS	NS	NS	NS	
Kaner, 2007[38]	Control	NS	NS	NS	NS	NS	
	Implicit (concise) patient decision aid	NS	NS	NS	NS	NS	
	explicit (extended) patient decision aid	Median: 72	13 (45)	NS	NS	NS	

Evidence Table 2. Participant characteristics of studies addressing healthcare process outcomes (continued)

Author, Year	Control Intervention	Age (years)	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
Kattan, 2006[39]	Control	Mean: 7.6	(37.1)	White: (6.4), Black: (38.8), Latino: (39.9), Asian: (1.3), American: (3.9), Mixed/Other: (9.7)	Household income < $15,000: 291 (62.5)	Caretaker completed high school: 327 (70.2)	>= Household member has a job (74.6); Type of insurance coverage – Medicaid (35.0), Managed care (25.5), Private (6.0), None (17.0), Could not determine (3.0); Baseline symptoms per week, mean –; Maximum symptom days – 5.9; Limited in activities for more than half day – 2.1; School days missed – 1.1; Baseline use (annualized mean) ED visits – 3.0; Unscheduled clinic visits – 5.5; Hospitalizations 0.8
	Timely patient feedback combined with guideline-based recommendations for changes in therapy	Mean: 7.7	186 (39.5)	White: (7.4), Black: (40.3), Latino: (40.3), Asian: (1.1), American: (2.3), Mixed/other: (8.5)	Household income <$15,000 291(58.1)	Caretaker completed high school 324(68.7)	>= Household member has a job (77.2); Type of insurance coverage – Medicaid (28.7), Managed care (25.3), Private (7.2), None (21.4), Could not determine (3.2); Baseline symptoms per week, mean – Maximum symptom days – 6.1; Limited in activities for more than half day – 2.0; School days missed – 0.9; Baseline use (annualized mean) ED visits – 3.0; Unscheduled clinic visits – 5.6; Hospitalizations – 1.1
Krall, 2004[40]	Control	NS	15 (30)	NS	NS	NS	Ambulatory patients
	Alerts of EMR	NS	18 (36)	NS	NS	NS	Ambulatory patients
Krishna, 2003[41]	Participants received asthma education as part of the usual care	NS	45 (37)	White: 102 (84.3), Black: 9 (7.4), American Indian: 7 Other/unknown: 3	NS	<8 yrs: 115 (95), 8-12 yrs: 6 (5)	

Evidence Table 2. Participant characteristics of studies addressing healthcare process outcomes (continued)

Author, Year	Control Intervention	Age (years)	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
	Intervention group used Interactive Multimedia Program for Asthma Control and Tracking (IMPACT) during routine office visits	NS	35 (32.7)	White: 93 (87), Black: 10 (9.3), American Indian: 2 Other/unknown: 2	NS	<8 yrs: 102 (95.3), 8-12 yrs: 5 (4.7)	
Kucher, 2005[42]	Control	Mean: 62 Range: 18-97	(52.3)	NS	NS	NS	
	Alert that the patient is at risk for deep-vein thrombosis	Mean: 63 Range: 18-99	(53.5)	NS	NS	NS	
Kuppermann, 2009[43]	Control	Mean: 32.5 SD: 6.0	252 (100)	White: 111 (44.8), Black: 42 (16.9), Latino: 40 (16.1), Asian: 39 (15.7), Other 16(6.5)	<$50,000: 80 (34.2), $50,000–100,000: 85 (36.3), >=$100,000: 69 (29.5)	8-12 yrs: 45 (18.1), 12-16 yrs: 56 (22.5), College graduate 148: (59.4)	Religion – Catholic 76 (30.5), Other Christian 64 (25.7), Other religion 27 (10.8), No religious affiliation 82 (32.9); Desire for shared decision making – Me alone/mostly me 104 (42.8), Shared equally 123 (50.6), Health care provider alone/mostly provider 16 (6.6)
	Prenatal testing decision-assisting tool	Mean: 32.2 Range: SD: 5.9	244 (100)	White: 120 (49.6), Black: 35 (14.5), Latino: 48 (19.8), Asian: 27 (11.2), Other: 12 (5.0)	<$50,000: 68 (30.0), $50,000–100,000: 73 (32.2), >=$100,000 or more: 86 (37.9)	8-12 yrs: 39 (16.0), 12-16 yrs: 57 (23.5), College graduate: 147 (60.5)	Religion – Catholic 75 (31.1), Other Christian 64 (26.6), Other religion 42 (17), No religious affiliation 60 (24.9); Desire for shared decision making – Me alone/mostly me 100 (43.3), Shared equally 108 (46.8), Health care provider alone/mostly provider 23 (10.0)
Laffel, 2007[44]	Control	Mean: 35.0	50 (54.3)	NS	NS	NS	Type 1 – 73 (79.4); Type 2 – 19 (20.6); Duration of diabetes – 14.0, SD: 10.0; Frequency of SMBG – 3.8 SD: 1.2; A1C (%) – 9.13, SD: 0.91
	Integrated meter with electronic logbook for glycemic control	Mean: 35.7	65 (55.6)	NS	NS	NS	Type 1 – 90 (79.6); Type 2 – 23 (20.4); Duration of diabetes – 13.3, SD:10.3; Frequency of SMBG – 3.9, SD:1.4; A1C (%) –9.06, SD:1.29

Evidence Table 2. Participant characteristics of studies addressing healthcare process outcomes (continued)

Author, Year	Control Intervention	Age (years)	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
Lester, 2004[45]	Control	Mean: 62.7 SD: 13.6	65 (49)	Non-white (18)	NS	NS	
	"Fast Track" E-mail to manage cholesterol	Mean: 64.8 SD: 14.7	63 (51)	Non-white (17)	NS	NS	
Lieberman, 2006[46]	Control	Mean: 37.2 Range: 11.8	(37.2)	Ethnicity – White, Not Hispanic or Latino: (83), Latino: (7.0), No Response: (10); Race – Black: (1.7), Asian: (2.3), American: (2.3), White: (87.2), No Response (6.5)	NS	NS	Age at first drink – 16.4, SD: 3.9; Drinks per week – 34.3, SD: 31.6; AUDIT score – 17, SD: 8.8
	Group received the results in a multimedia context	Mean: 36 Range: 12.1	(31)	Ethnicity – White, Not Hispanic or Latino: (83.5), Latino: (4.1), No Response: (12.4) Race – Black: (1.6), Asian: (4.1), American: (2.5), White: (86.8), No Response (5.0)	NS	NS	Age at first drink: 17.4, SD: 5.5; Drinks per week 32.4, SD: 50.8; AUDIT score – 15.7, SD: 8.4
Linder, 2009[47]	Control	Mean: 49	3179 (60)	White: (69), Black: (9), Latino: (9), Other: (14)	NS	NS	

Evidence Table 2. Participant characteristics of studies addressing healthcare process outcomes (continued)

Author, Year	Control Intervention	Age (years)	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
	Clinicians received three enhancements to the EHR: smoking status icons, tobacco treatment reminders, and a Tobacco Smart Form	Mean: 49	4273 (62)	White: (58) Black: (20), Latino: (8), Other: 688 (14)	NS	NS	
Lorig, 2006[48]	Control	Mean: 57.6 SD: 11.3	305 (71.6)	White: 377 (88.7)		Mean yrs – 15.8, SD: 3.16	Percent married – 63.6; Web use: Health-related Web site visits in last 6 months – 9.54, SD:16.8; Diseases – DM (63.9), HTN (46.7), Lung disease (44.1), Heart disease (25.4), Arthritis (24.9); Self-efficacy (scale of 1-10) – 6.01, SD: 2.17; Health care utilization: Physician visits in past 6 months – 5.09, SD: 5.78, Emergency visits in past 6 months – 0.354, SD: 0.950, Days in hospital in past 6 months – 0.98, SD: 5.53; also 7 health indicators; 4 health behaviors

Evidence Table 2. Participant characteristics of studies addressing healthcare process outcomes (continued)

Author, Year	Control Intervention	Age (years)	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
	Internet chronic disease self-management program	Mean: 57.4 SD: 10.5	252 (71.2)	White: 309 (87.3)	NS	Mean yrs: 15.4, SD: 3.00	Percent married – 68.0; Web use: Health-related Web site visits in last 6 months – 10.2, SD: 16.6; Diseases – DM (61.6), HTN (45.8), Lung disease (47.3), Heart disease (22.3), Arthritis (24.9); Self-efficacy (scale of 1-10) – 6.05, SD: 2.22; Health care utilization – Physician visits in past 6 months: 4.94, SD: 4.69, Emergency visits in past 6 months – 0.308, SD: 0.778, Days in hospital in past 6 months – 1.09, SD: 4.14; also 7 health indicators; 4 health behaviors
Marks, 2004[49]	Control	Mean: 37.9 SD: 12.2	28 (74)	White: 28 (76)	NS	Mean yrs: 11.3, SD: 1.7	Primary diagnosis – Agoraphobia 12 (32), Specific phobia 16 (42), Social phobia 10 (26); Source of referral – Self-referred 33 (87), GP 3(8), Mental health professional 2 (5); Medications – SSRI 3 (8), TCA, 6 (16), OA 1 (2), BZD 3 (8)
	Fear Fighter: Self-exposure therapy guided mainly by a stand-alone computer system	Mean: 38.2 SD: 11.7	24 (69)	White: 25 (86)	NS	Mean yrs: 11.3, SD: 1.5	Primary diagnosis – Agoraphobia 9 (26), Specific phobia 16 (46), Social phobia 10 (28); Source of referral – Self-referred 24 (68), GP 9 (26), Mental health professional 2 (6); Medications – SRI 2 (7), TCA 3 (10), OA 0, BZD 1 (3)
	Relaxation: mainly stand-alone computer and audiotape-guided self-relaxation without exposure	Mean: 38.5 SD: 14.9	10 (59)	White: 17 (100)	NS	Mean yrs: 11.0, SD:1.2	Primary diagnosis – Agoraphobia 6 (35), Specific phobia 7 (41), Social phobia 4 (24); Source of referral – Self-referred 13 (76), GP 3 (18), Mental health professional 1 (6); Medications – SSRI 0, TCA 0, OA 1 (6), BZD 0

Evidence Table 2. Participant characteristics of studies addressing healthcare process outcomes (continued)

Author, Year	Control Intervention	Age (years)	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
Maslin, 1998[50]	Control	Mean: 52.1 Range: 28-73	49 (100)	NS	NS	NS	
	Women offered use of the Interactive Video Disk system to aid them in decisionmaking if they wished	Mean: 52.1 Range: 28-73	51 (100)	NS	NS	NS	
Matheny, 2008[51]	Control	Mean: 40.6 SD: 11.2	93 (58.8)	NS	NS	NS	
	Longitudinal medical record (LMR) w/clinical decision support and electronic reminders	Mean: 40.5 SD: 11.1	90 (62.1)	NS	NS	NS	
McCrossan, 2007[52]	Control	Mean: 66	11	NS	NS	NS	
	Videoconferencing	Mean: 61	11	NS	NS	NS	
	Telephone	Mean: 65.4	13	NS	NS	NS	
McDonald, 2005[53]	Control	Mean: 62.9 SD: 13.3	(64.5)	White: (29.9), Black: 30.8), Latino: (33.3), Other: (6.0)	NS	NS	N 234
	E-mail reminders--one patient-specific message was sent to nurse about patient basic intervention	Mean: 63.2 SD: 13.0	(68.6)	White: (34.7), Black: (26.5), Latino: (34.3), Other: (4.6)	NS	NS	N 242
	E-mail reminders with provider prompts, patient education material, and clinical nurse specialist outreach - Augmented basic intervention	Mean: 63.4 SD: 12.4	(65.5)	White: (32.0), Black: (31.5), Latino: (31.0), Other: (5.6)	NS	NS	N 197
McGregor,	Control	Mean: 49.55	1216 (53.57)	NS	NS	NS	Admit service

Evidence Table 2. Participant characteristics of studies addressing healthcare process outcomes (continued)

Author, Year	Control Intervention	Age (years)	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
2006[54]	Computerized clinical decision support system for reducing inappropriate antimicrobial use	Mean: 50.36	1189 (53.15)	NS	NS	NS	Admit service
McKinley, 2001[55]	Control	Mean: 38 SD: 2	(29)	NS	NS	NS	Injury Severity Score (ISS) 25, SD: 2 (76), blunt
	"Protocol" assigned patients had ventilatory support directed by the bedside respiratory therapist using the computerized protocol	Mean: 40 SD: 3	(27)	NS	NS	NS	ISS – 26 SD: 3 (73), blunt
Mitchell, 2004[56]	Control	NS	NS	NS	NS	NS	Number of GPs – 3 (range 1-11); List size – 4538 (range 744-17647); Deprivation level – Low 4 (21), Medium 8 (42), High 7 (37)
	Audit only practices	NS	NS	NS	NS	NS	Number of GPs – 4 (range 1-6); List size – 5173 (range 916-11033); Deprivation level – Low 4 (25), Medium 8 (50), High 4 (25)
	Audit plus strategic practices	NS	NS	NS	NS	NS	Number of GPs – 3 (range 1-6); List size – 5034 (range 1851-8963); Deprivation Level – Low 4 (23), Medium 11 (65), High 2 (12)
Montgomery, 2000[57]	Control	Mean: 71 SD: 5	77 (49)	NS	NS	NS	N 157; 5-yr cardio risk – >=10 (%) 138 (88); Mean absolute 5-yr risk (%) – 19, SD: 9; Mean SBP – 158, SD: 21; Mean DBP – 86, SD: 11; Mean BMI – 27, SD: 4; Mean total cholesterol (mmol/l) – 6.0, SD: 1.1 (n: 81); more health status measures

Evidence Table 2. Participant characteristics of studies addressing healthcare process outcomes (continued)

Author, Year	Control Intervention	Age (years)	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
	Chart only	Mean: 70 SD: 6	130 (57)	NS	NS	NS	N: 228; 5-yr cardio risk – >=10(%) 198 (87); Absolute 5-yr risk, mean (%) – 19, SD: 8; SBP, mean – 156, SD:19; DBP, mean – 87, SD: 9; BMI, mean – 29, SD: 4; Total cholesterol (mmol/l), mean – 6.1, SD: 1.0 (n:167); more health status measures
	Chart plus CDSS	Mean: 71 SD: 6	123 (54)	NS	NS	NS	N: 229; 5-yr cardio risk – >=10(%) 189 (83); Absolute 5-yr risk, mean (%) – 18, SD: 8; SBP, mean – 153, SD:19; DBP, mean – 85, SD: 9; BMI, mean – 27, SD: 4; Total cholesterol (mmol/l), mean – 6.0, SD:1.0; (n:113); more health status measures
Montgomery, 2007[58]	Control	Mean: 32.4 Range: 4.6	247 (100)	NS	<Ł20: 42 (18), Ł20-30: 53 (23), Ł30-40: 51(22), >Ł40: 89(38)	Degree: 92 (38), GCSE/NVQ 1-3: 99 (40), A level/ HND: 42(17)	
	Information program:	Mean: 32.8 Range: 4.7	250 (100)	NS	Ł20: 44 (19), Ł20-30: 57 (24), Ł30-40: 46 (19), >Ł40: 89 (38)	Degree: 97 (39), A level/ HND:47 (19), GCSE/NVQ 1-3: 92 (37)	
	Decision analysis:	Mean: 32.5 Range: 4.8	245 (100)	NS	<Ł20: 48 (20), Ł20-30: 49 (21), Ł30-40: 44 (19), >Ł40: 96 (40)	Degree: 103 (42), A level/ HND: 36 (15), GCSE/NVQ 1-3: 97 (40)	
Morgan, 2005[59]	Control	NS	NS	NS	NS	NS	Received the same ad hoc telephone support that was available to all patients, N 9

Evidence Table 2. Participant characteristics of studies addressing healthcare process outcomes (continued)

Author, Year	Control Intervention	Age (years)	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
	Second control group	NS	NS	NS	NS	NS	Received regular telephone calls with the same protocol as those in the videoconferencing group, N 13
	Home videoconferencing with telephone contact	NS	NS	NS	NS	NS	N 14
Murray, 1999[60]	Control	NS	NS	NS	NS	NS	
	Intervention group had access to electronic treatment suggestions for heart failure, ischemic heart disease, reactive airways disease, and uncomplicated hypertension	NS	NS	NS	NS	NS	
Murtaugh, 2005[61]	Control	Mean: 42.6 SD: 9.2	(89.3)	White: (21.3), Black: (63.1), Latino: (7.4), Other: 8.2)	NS	Diploma: (10.7), Associate: (32.0), Bachelor: (52.5), Advanced degree: (2.5), Missing: (2.5)	N 122

Evidence Table 2. Participant characteristics of studies addressing healthcare process outcomes (continued)

Author, Year	Control Intervention	Age (years)	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
	Basic: E-mail reminder	Mean: 42.7 SD: 9.6	(93.0)	White: (18.4), Black: (62.3), Latino: (9.7), Other: (9.7)	NS	Diploma: (12.3), Associate: (22.8), Bachelor: (55.3), Advanced degree: (5.3), Missing: (4.4), Diploma: (17.0), Associate: (18.6)	N 114
	Augmented: E-mail reminder and provider prompts, patient education material, clinical nurse specialist outreach	Mean: 45.5 SD: 9.5	(95.8)	White: (29.7), Black: (55.9), Latino: (4.2), Other, (10.2)	NS	Bachelor: (48.3), Advanced degree: (5.1), Missing: (11.0)	N 118
Nguyen, 2000[62]	Control	NS	NS	NS	NS	NS	
	Cancer screening reminder system	NS	NS	NS	NS	NS	
Nguyen, 2008[63]	fDSMP	Mean: 70.9 SD: 8.6	9 (45)	White: 20 (100)	NS	12-16 yrs: 8 (40), >16 yrs: 12 (60)	Not currently employed or currently disabled or retired – 15 (75); Living situation, with spouse or other – 13 (65); Currently smoking – 1 (5); Distance to clinical site (km) – 13.1, SD: 15.7; BMI (kg/m^2) – 27.7, SD: 6.4; [several disease severity measures]; [several computer/Internet skills]

Evidence Table 2. Participant characteristics of studies addressing healthcare process outcomes (continued)

Author, Year	Control Intervention	Age (years)	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
	eDSMP	Mean: 68.0 SD: 8.3	8 (39)	White: 18(95)	NS	12-16 yrs: 10 (50), >16 yrs: 9 (50)	Not currently employed or currently disabled or retired – 13 (72); Living situation, with spouse or other – 12 (63); Currently smoking – 2 (11); Distance to clinical site in km – 20.4, SD:18; BMI kg/m^2 – 29.4, SD: 5.9; [several disease severity measures]; [several computer/Internet skills]
Noel, 2004[64]	Control	Mean: 70 Range: 54-90	0 (0)	NS	NS	NS	CHF, COPD, DM combinations
	Home telehealth plus nurse case management	Mean: 72 Range: 54-90	3 (3)	NS	NS	NS	CHF, COPD, DM combinations
	Usual home healthcare services plus nurse case management	Mean: 70	0 (0)	NS	NS	NS	
Overhage, 2002[65]	Control	Methodist Hospital – Mean: 32.7 SD: 21 Community Hospital— Mean: 34.2 SD: 22	Methodist Hospital – (57) Community Hospital – (57)	Black: Methodist Hospital – (56) Community Hospital – (40)	NS	NS	
	Use of computer-based patient record in Emergency Departments	Methodist Hospital – Mean: 32.7 SD: 21 Community Hospital— Mean: 34.2 SD: 22	Methodist Hospital – (56) Community Hospital – (57)	Black: Methodist Hospital – (56) Community Hospital – (38)	NS	NS	

Evidence Table 2. Participant characteristics of studies addressing healthcare process outcomes (continued)

Author, Year	Control Intervention	Age (years)	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
Parati, 2009[66]	Control	Mean: 58.1 SD: 10.8	52 (45.9)	NS	NS	NS	BMI, mean – 26.9, SD: 3.6; Treated HTN patient, n (%)– 85 (76.6); Clinic SBP, mean – 148.7, SD: 11.7; Clinic DBP, mean – 88.8, SD: 8.6; Daytime SBP, mean – 140.3, SD: 10.5, Daytime DBP, mean 84.3, SD: 8.2
	BP management based on HBPM combined with teletransmission of home self-measured BP values	Mean: 57.2 SD: 10.7	85 (45.5)	NS	NS	NS	BMI, mean 26.9, SD: 4.1; Treated HTN patient, n (%)– 148 (79.1); Clinic SBP, mean – 148.4, SD: 12.6; Clinic DBP, mean – 88.7, SD: 7.4; Daytime SBP, mean – 139.4, SD: 11.0; Daytime DBP, mean – 83.9, SD: 8.0
Persell, 2008[67]	Clinician reminders only	Mean: 56.8 SD: 10.4	60 (54)	White: 33 (29.5), Black: 51 (45.5), Latino: 7 (6.3), Asian: 1 (0.9), Other: 15 (13.4), Unknown: 5 (4.5)	NS	NS	Coronary artery disease – 10 (8.9); Contraindication to aspirin – 12 (11); GI bleeding or peptic ulcer disorder – 9; Liver disease – 3; Platelet disorder – 0; CNS hemorrhage or vascular anomaly – 0
	Patient intervention plus reminders	Mean: 58.8 SD: 11.2	92 (71)	White: 44 (33.9), Black: 45 (34.6), Latino: 7 (5.4), Asian: 5 (3.9), Other 21 (16.2), Unknown: 8 (6.2)	NS	NS	Coronary artery disease – 6 (5); Contraindication to aspirin – 19 (15); GI bleeding or peptic ulcer disease – 12; Liver disease – 5; Platelet disorder – 3; CNS hemorrhage or vascular anomaly – 2
Piette, 2000[68]	Control	Mean: 53.3	(56.5)	White (29), Hispanic (51.6), Other (19.4)	< $10,000 (56.3)	NS	

Evidence Table 2. Participant characteristics of studies addressing healthcare process outcomes (continued)

Author, Year	Control Intervention	Age (years)	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
	Patients received biweekly ATDM calls with telephone follow-up by a diabetes nurse educator	Mean: 55.7	(61.3)	White (29), Hispanic (47.6), Other (23.4)	< $10,000 (59.1)	NS	
Poller, 2008[69]	Control	Mean: 66.9	2953	NS	NS	NS	Patients 6447; New patients and patients already established on oral anticoagulation – New 4960, Established 1487; Number of patients by clinical indication – AF 2967, DVT/PE 1560, Mechanical heart valves 831, Other indications 1089; Number of patients by target INR range – 2–3 or lower 5560, 2.5–3.5 or higher 878, Not specified 9
	Computer-assisted dosage	Mean: 66.9	2940	NS	NS	NS	Patients 6605; New patients and patients already established on oral anticoagulation – New 4966, Established 1639; Number of patients by clinical indication – AF 2972, DVT/PE 1649, Mechanical heart valves 870, Other indications 1114; Number of patients by target INR range – 2–3 or lower 5671, 2.5–3.5 or higher 930, Not specified 4
Quinn, 2003[70]	Control	Mean: 58 Range: 36-77	NS	NS	NS	NS	
	Portable electronic diary as a data collection device	Mean: 58 Range: 30-88	NS	NS	NS	NS	

Evidence Table 2. Participant characteristics of studies addressing healthcare process outcomes (continued)

Author, Year	Control Intervention	Age (years)	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
Quinn, 2008[71]	Control	Range: 20-54 (6); 55-64 (7)	8	White: 7, Black: 6	NS	NS	Yrs with diabetes, mean – 11; Body mass index, mean – (kg/m^2): 34.58; Comorbid conditions – Hypertension 8, Hyperlipidemia 6, Coronary artery disease 0, Microvascular complications 4; Medication treatment regimen – Oral hypoglycemic alone 7, Insulin alone 4, Insulin and oral hypoglycemic 0, Injectible non-insulins 1; Physician specialty – Primary care 8, Endocrinology 5
	Cell phone-based diabetes management software system used with web-based data analytics and therapy optimization tools	Range: 20-54 (8); 55-64 (5)	9	White: 3, Black: 10	NS	NS	Yrs with diabetes, mean – 7.61; Body mass index, mean (kg/m^2) – 34.07; Comorbid conditions – Hypertension 8, Hyperlipidemia 8, Coronary artery disease 1, Microvascular complications 4; Medication treatment regimen – Oral hypoglycemic alone 3, Insulin alone 4, Insulin and oral hypoglycemic 6, Injectible non-insulins 6; Physician specialty – Primary care 12, Endocrinology 1
Raebel, 2006[72]	Control	Median: 60 Range: 34-82	2352 (51)	NS	NS	NS	
	Pharmacists were electronically alerted to missing laboratory results and then ordered tests, reminded patients to undergo tests, and reviewed and managed abnormal results	Median: 61 Range: 35-81	2313 (51)	NS	NS	NS	
Raebel, 2007[73]	Control	Median: 73	449 (70)	NS	NS	NS	Median number of drugs in last 6 months – 7

Evidence Table 2. Participant characteristics of studies addressing healthcare process outcomes (continued)

Author, Year	Control Intervention	Age (years)	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
	Pharmacist alert and physician consultation	Median: 72	362 (67)	NS	NS	NS	Median number of drugs in last 6 months – 7
Raebel, 2007[74]	Control	Median: 29	5025	NS	NS	NS	Pregnant patients with dispensings of FDA pregnancy category D or X medications – 276 (5.5)
	Computerized tool that alerted pharmacists when pregnant patients were prescribed U.S. Food and Drug Administration pregnancy risk category D or X medications	Median: 29	6075	NS	NS	NS	Pregnant patients with dispensings of FDA pregnancy category D or X medications – 177 (2.9)
Ralston, 2009[75]	Control	Mean: 57.6	(51.2)	White: (73)	NS	NS	Insulin use – (39); GHb – (7.9); SBP – 133; DBP – 76; Total cholesterol – 192.7; OP visits – 10.3; Primary care – 3.3; Specialty care – 7; Inpatient days – 0.7
	Web-based collaborative care	Mean: 57	(47.6)	White: (89.7)	NS	NS	Insulin use – (38.1); GHb – (8.2); SBP – 133.3; DBP – 76.3; Total cholesterol – 188.8; OP visits – 9.6; Primary care – 4.3; Specialty care – 5.3; Inpatient days – 0.3
Rhodes, 2006[76]*	Control Domestic Violence Promote Health Survey	Mean: 33.3 SD: 12.0	(100)	White: 368 (29), Black: 767 (60), Other: 91 (7), Unknown: 55 (4)	<$20,000: 362(40), $20,000-39,999: 220 (24), $40,000-79,999: 147 (16), =>$80,000: 68(8), Unknown: 106 (12)	<High school diploma: 132(10), High school diploma or equivalent: 231(18), >High School 616(48), Unknown: 302(24)	

Evidence Table 2. Participant characteristics of studies addressing healthcare process outcomes (continued)

Author, Year	Control Intervention	Age (years)	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
Rollman, 2002[77]	Control	Mean: 40.8	46 (74)	White: 47 (76)	NS	<8 yrs: 11 (18), 8-12 yrs: 29 (47), 12-16 yrs: 22 (36)	
	EMR feedback from guideline-based treatment: Active care	Mean: 44.2	38 (56)	White: 48 (71)	NS	<8 yrs: 10 (15), 8-12 yrs: 40 (59), 12-16 yrs: 18 (26)	
	EMR feedback from guideline-based treatment: Passive care	Mean: 46.4	57 (81)	White: 50 (71)	NS	<8 yrs: 15 (21), 8-12 yrs: 27 (39), 12-16 yars: 28 (39)	
Ross, 2004[78]	Control	Mean: 55		White: (88)	<$45,000/yr: (50)	8-12 yrs: (44)	
	System Providing Access to Records Online (SPARO)	Mean: 57		White: (92)	<45,000/year: (56)	8-12 yrs: (53)	
Rothschild, 2007[79]	Control	NS	NS	NS	NS	NS	
	Decision support (DS) intervention with computerized physician order entry (CPOE) for red blood cell, platelet, and fresh-frozen plasma orders	Mean: 63.3 SD: 16.1	936 (53.5)	White: 1388 (79.4), Black: 185 (10.6), Latino: 67 (3.8), Other: 109 (6.2)	NS	NS	
Roukema, 2008[80]	Control	Mean: 0.9 Range: 0.6 - 1.4	44 (49)	NS	NS	NS	Duration of fever, mean (days) – 3.0, range 1.8-6.0; History of vomiting – 46 (51); Temperature (Celsius) – 39.4, range: 38.9-40.0; Clinical risk score – 11, range 9-14; Final diagnosis of serious bacterial infection – 16 (18)

Evidence Table 2. Participant characteristics of studies addressing healthcare process outcomes (continued)

Author, Year	Control Intervention	Age (years)	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
	Clinical decision support system (CDSS) for the diagnostic management of children attending the ED with fever without apparent source (FWS)	Mean: 1.0 Range: 0.7 - 1.6	30 (41)	NS	NS	NS	Duration of fever, mean (days) – 2.5, range 1.0-4.0; History of vomiting – 34 (46); Temperature (Celsius) – 39.5, range 39.0 -40.0; Clinical risk score – 11, rage 9-14; Final diagnosis of serious bacterial infection – 10 (14)
Roumie, 2006[81]	Control	Mean: 65.1 SD: 11.9	11 (3.4)	NS	NS	NS	
	Alert one-time patient-specific electronic notification	Mean: 65.5 SD: 12.0	15 (2.7)	NS	NS	NS	
	Alert one-time patient-specific electronic notification and patient education	Mean: 64.6 SD: 12.6	19 (4.0)	NS	NS	NS	
Ruland, 2003[82]	Control						25 patients 5 MDs
	Assessment summaries were printed and given to the patient and clinician in the subsequent consultation	Mean: 56.3 SD: 11.3 Range: 23-77	(59)			Mean yrs of education: 12.8 SD: 2.38 Range: 4-20	27 patients 9 MDs
Sequist, 2005[83]	Control	Mean: 41.4 SD: 11	53 (52)	NS	NS	NS	Physicians
	Evidence-based electronic reminders within patients' EMR regarding diabetes and coronary artery disease	Mean: 39.2 SD: 10	60 (65)	NS	NS	NS	Physicians

Evidence Table 2. Participant characteristics of studies addressing healthcare process outcomes (continued)

Author, Year	Control Intervention	Age (years)	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
Shiffman, 2000[84]	Control	Mean: 43 Range: 31-53	3 (33)	NS	NS	NS	Interval since completion of residency, mean (yrs) – 11.6, range 2-19; Percentage of effort in practice setting – Urban, inner-city (11), Urban, not inner-city (28), Suburban (56), Rural (5); Self-assessed computer experience – Nonuser 2, Novice 4, Intermediate 3
	Computer-provided structured encounter documentation and recommendations based on the guideline of the American Academy of Pediatrics	Mean: 43 Range: 31-53	3 (33)	NS	NS	NS	Interval since completion of residency, mean (yrs) 11.6, range 2-19; Percentage of effort in practice setting – Urban, inner-city (11), Urban, not inner-city (28), Suburban (56), Rural (5); Self-assessed computer experience – Nonuser 2, Novice 4, Intermediate 3
Simon, 2006[85]	Age-specific computerized prescribing alerts	Mean: 73.6 SD: 7.0	(62.2)	NS	NS	NS	Primary care clinicians – Physicians (72)
	Group detailing plus age-specific computerized prescribing alerts	Mean: 74.3 SD: 6.6	(65.8)	NS	NS	NS	Primary care clinicians: – Physicians (77)
Smith, 2008[86]	Control	NS	13 (29)	NS	NS	NS	Specialty – Internal Medicine 25 (56), Family Medicine 32 (71); Years in practice 15, range 1-34
	Diabetes Electronic Management System (DEMS)--virtual consultation	NS	19 (39)	NS	NS	NS	Specialty – Internal Medicine 25 (51), Family Medicine 24 (49); Years in practice – 13, range 3-42
Soopramanien, 2005[87]	Control	NS	NS	NS	NS	NS	
	Individual weekly videoconference sessions with an expert in spinal injury	NS	NS	NS	NS	NS	
Subramanian, 2004[88]	Control	Mean: 69, SD: 9	(3)	NS	NS	NS	Given combined for both groups
	Computer-based care suggestions	Mean: 69, SD: 9	(2)	NS	NS	NS	

Evidence Table 2. Participant characteristics of studies addressing healthcare process outcomes (continued)

Author, Year	Control Intervention	Age (years)	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
Tamblyn, 2003[89]	Control	Mean: 75.3	4028 (64.2)	NS	NS	NS	Total physician visits –21.2, SD: 20.5; Visits to primary care physician – 8.3, SD: 5.5; Visits to primary care physician (%) – 51.4, SD 25.5; Total prescriptions – 53.3, SD: 40.7; Prescriptions from primary care physician – 32.4, SD:31.8; Prescribing physicians – 3.3, SD: 2.2; Pharmacies – 1.8, SD: 1.2; Prevalence of potentially inappropriate prescribing in the 2-month period before the study (14 items) – 53; MDs – MD characteristics: age, sex, first language, location of med school training (graduation), computer experience number eligible patients in practice
	Computerized decision-making support group	Mean: 75.4	3845 (61.2)	NS	NS	NS	Total physician visits – 20.7, SD: 19.5, Visits to primary care physician – 7.7, SD: 5.3; Visits to primary care physician (%) – 49.5, SD: 26.4; Total prescriptions – 51.0, SD: 43.1; Prescriptions from primary care physician – 30.3, SD: 32.4; Prescribing physicians – 3.3, SD: 2.3; Pharmacies – 3.3, SD: 2.3; Prevalence of potentially inappropriate prescribing in the 2-month period before the study (14 items) – 54 MDs
Tamblyn, 2008[90]	Control	Mean: 67.3	949 (61.2)	NS	NS	NS	Rx by study MD – 37.4 (74)
	Prescribing physicians received automated CDDS in the MOXXI drug management system	Mean: 66.9	1165 (61.3)	NS	NS	NS	Rx by study MD – 38.6 (78.9)

Evidence Table 2. Participant characteristics of studies addressing healthcare process outcomes (continued)

Author, Year	Control Intervention	Age (years)	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
Taylor, 2006[91]	Control	Mean: 44.6 SD: 8.5	18 (29)	White: 37 (60), Black: 25 (40), Latino: 0, Asian: 0	$0–24,999: 11 (20), $25,000–49,000: 12 (21), $50,000–74,999: 14 (25), $75,000–99,999: 11 (20)	8-12 yrs – High school: 11 (19), >16 yrs – Master's degree: 15 (25)	
	Telemedicine in CPAP compliance for patients with obstructive sleep apnea syndrome	Mean: 45.8 SD: 10	20 (34)	White: 29 (49), Black: 25 (42)	$0–24,999: 6 (11), $25,000–49,000: 10 (19), $50,000–74,999: 16 (30), $75,000–99,999: 14 (27)	8-12 yrs – High school: 11 (20), >16 years – Master's degree: 20 (37)	
Taylor, 2008[92]	Control	Median: 29 years	NS	NS	NS	NS	Male – (14), Seniority resident – (12), Senior resident – (5), Registrar – (7), Emergency physician – (3)
	EI, electronic interface	Median: 30 years	NS	NS	NS	NS	Male – (10), Resident – (5), Senior resident – (6), Registrar – (10), Emergency physician – (2)
Thomas, 2004[93]	Control	Mean: 42.4	(66)	NS	NS	NS	Married/cohabiting – (60), Home owners/ occupiers – (63), Car owners – (84), Living comfortably – (15), With long-standing disability/infirmity – (66)
	Participants completed a computerized psychosocial assessment	Mean: 43.5	(72)	NS	NS	NS	Married/cohabiting – (58), Home owners/ occupiers – (61), Car owners – (79), Living comfortably – (16), With long-standing disability/infirmity – (61)
Thomas, 2007[94]	Control	NS	NS	NS	NS	NS	
	Assigned to audit and feedback intervention	NS	NS	NS	NS	NS	

Evidence Table 2. Participant characteristics of studies addressing healthcare process outcomes (continued)

Author, Year	Control Intervention	Age (years)	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
Tierney, 2003[95]	Control	Mean: 60 SD: 13	(66)	Black: (59)	NS	NS	Primary care visits during the study, mean – 4.5, SD: 3.5; Enrolled patients completing the 12-month interview – 119 (66)
	Physician intervention	Mean: 61 SD: 12	(61)	Black: (54)	NS	NS	Primary care visits during the study – 5.3, SD: 4.1; Enrolled patients completing the 12-month interview – 142 (72)
	Pharmacist Intervention	Mean: 57 SD:12	(68)	Black: (55)	NS	NS	Primary care visits during the study – 4.8, SD: 3.7; Enrolled patients completing the 12-month interview – 107 (68)
Tjam, 2006[96]	Control	NS	11 (55.0)	NS	NS	<8 yrs: 8 (40.0), 8-12 yrs: 3 (15.0), 12-16 yrs: 9 (45.0)	Age (yrs) – >65, 6(30.0(%); Marital status – Married 14 (70.0), Not married 6(30.0); Living arrangement – Living with spouse or other 19(95.0), Live alone 1(5.0); Employment status – Working full- or part-time 8 (40.0), Not working outside of home 9 (45.0), Did not respond 3 (15.0); Drinking problem – Yes 1(5.0); Smoking – Yes 3 (15.0); Self-perceived poor health – Yes 1 (5.3); Trade-offs (daily living vs medical care) – Yes 2 (11.1); Informal support services (e.g., living with patient) – 19 (95)

Evidence Table 2. Participant characteristics of studies addressing healthcare process outcomes (continued)

Author, Year	Control Intervention	Age (years)	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
	Interactive-internet program	NS	19 (51.4)	NS	NS	<8 yrs: 8 (21.6), 8-12 yrs: 5 (13.5), 12-16 yrs: 24 (64.9)	Age (yrs) –>65 4 (10.8); Marital status – Married 30 (81.1), Not married 7(18.9); Living arrangement – Living with spouse or other 36 (97.3), Live alone 1(2.7); Employment status – Working full- or part-time 24 (64.9), Not working outside of home 9 (24), Did not respond 4 (10.8); Drinking problem – Yes 2(5.4); Smoking – Yes 7(18.9); Self-perceived poor health – Yes 4 (10.8); Trade-offs (daily living vs medical care) – Yes 4(10.8); Informal support services (e.g., living with patient) 36 (97.3)
Trautmann, 2008[97]	Computer-delivered CBT (6 sessions) + 6 chat sessions with the trainer	Mean: 13.4, SD: 2.6	NS	NS	NS	NS	
	Computer-delivered education and chat	Mean: 13.4, SD: 2.6	NS	NS	NS	NS	
Trief, 2006[98]	Control	Mean: 69.5	(38.71)	White: 58 (93.55), Black: 2 (3.23), Other: 2 (3.23)	$2,580.01 per month	Mean yrs: 12.33	
	Subjects received a home telemedicine unit (HTU)	Mean: 70.64	(45.83)	White: 68 (94.44), Black: 2 (2.78), Other 2 (2.78)	$2,306.47	Mean yrs: 12.69	
Tsang, 2001[99]	Control	Mean: 35	2	NS	NS	NS	Duration of illness, mean (yrs) – 11.8, SD: 3.5; Body mass index (kg/m^2), mean – 26.0, SD: 5.8; Basal HbA1c (%)– 8.81, SD: 1.79

Evidence Table 2. Participant characteristics of studies addressing healthcare process outcomes (continued)

Author, Year	Control Intervention	Age (years)	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
	Group 1 used the Diabetes Monitoring System (DMS) for 12 weeks and then had a control period of 12 weeks	Mean: 30	5 (50)	NS	NS	NS	Duration of illness (yrs), mean – 5.3, SD: 6.5; Body mass index (kg/m^2), mean – 22.2, SD: 3.1; Basal HbA1c (%)– 8.56, SD: 1.79
van Wijk, 2001[100]	BloodLink-Guideline, an indication-oriented test-ordering system	Mean: 43.2 Median: 43 Range: 39.0-47.0	NS	NS	NS	NS	Experience at start of study (yrs) – Mean 15.6, Median 16.0, Range 12.0-20.0
	BloodLink-Restricted group, a system which initially presented a limited list of tests	Mean: 43.7 Median: 42 Range: 38.7 - 48.2	NS	NS	NS	NS	Experience at start of study (yrs) – Mean 16.5, Median 15.0, Range 12.5-22.2
Wakefield, 2008[101]	Control	Mean: 67.2 SD: 8.5	1 (2)	White: 49 (100), Black: 0 (0), American: 0 (0)	NS	<8 yrs: 3 (6), 8-12 yrs: 25 (51), 12-16 yrs: 21 (43)	Marital status – Married 34 (69), Divorced 9 (18), Widowed 5 (10), Other 1 (2); Mini-Mental Status Examination, Mean – 27.5, SD: 2.4; Geriatric Depression Scale, Mean 6.5, SD: 5.3; Length of time diagnosed with HF by record review – 1.9 yrs; Length of time diagnosed with HF by self-report – 4.6 yrs
	Telephone	Mean: 71.8 SD: 10.2	0	White: 44 (94), Black: 3 (6), American: 0 (0)	NS	<8 yrs: 1 (2), 8-12 yrs: 30 (65), 12-16 yrs: 15 (33)	Marital status – Married 27 (57), Divorced 7 (15), Widowed 8 (17), Other 5 (11); Mini-Mental Status Examination, Mean 27.2, SD: 2.4; Geriatric Depression Scale, Mean: 7.3, SD: 4.9; Length of time diagnosed with HF by record review – 2.1 yrs; Length of time diagnosed with HF by self-report – 4.2 yrs

Evidence Table 2. Participant characteristics of studies addressing healthcare process outcomes (continued)

Author, Year	Control Intervention	Age (years)	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
	Videophone	Mean: 69.0 SD: 9.6	1 (2)	White: 46 (88), Black: 2 (4), American: 4 (8)	NS	<8 yrs: 1 (2), 8-12 yrs: 30 (58), 12-16 yrs: 20 (39)	Marital status – Married 30 (58), Divorced 12 (23), Widowed 8 (17), Other 6 (12); Mini-Mental Status Examination, Mean – 27.5, SD: 2.3; Geriatric Depression Scale, Mean – 8.4, SD: 5.6; Length of time diagnosed with HF by record review – 3.1 yrs; Length of time diagnosed with HF by self-report – 6.6 yrs
Walker, 2004[102]	Control	Mean: 26 Range: 13 - 44	NS	NS	NS	NS	Age group – Adult (>18 yrs) (63.2), Pediatric (36.85); Prior computer experience – Low (15.8), High (84.2); >Age 50 – (42.1); Unavailable – (21.1); Hemophilia type – A (94.7), B (5.3); HIV status – Positive (47.4), Negative (52.6); Prophylactic treatment – Yes (52.6), No (47.4); Factor VIII inhibitors – Yes (5.3), No (94.7)
	Patients recorded and transmitted infusion data electronically using hand-held computer	Mean: 22.5 Range: 15 - 36	NS	NS	NS	NS	Age group – Adult (>18 yrs) (63.6), Pediatric (36.4); Prior computer experience – Low (13.6), High (86.4); >Age 50 – (50.0); Unavailable – (13.6); Hemophilia type – A (90.9), B (9.1); HIV status – Positive (31.8), Negative (68.2); Prophylactic treatment – Yes (63.6), No (36.4); Factor VIII inhibitors – Yes (9.1), No (90.9)
Weber, 2008[103]	Control	Mean: 76.8	(80)	NS	NS	NS	Dementia – (2.0); Dizziness – (9.2); Lower extremity weakness – (2.0); Total medications – 7.46; Meds started – 1.46; Psychoactive meds – 1.82

Evidence Table 2. Participant characteristics of studies addressing healthcare process outcomes (continued)

Author, Year	Control Intervention	Age (years)	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
	EMR-based and patient-tailored message to physician and reference to guideline	Mean: 76.9	(79)	NS	NS	NS	Dementia – (1.6); Dizziness (10.1); Lower extremity weakness – (0.5); Total medications – 7.65; Meds started – 1.48; Psychoactive meds – 1.74
Whited, 2002[104]	Control	Mean: 61.6	(21)	White: (77.9)	NS	NS	
	Teledermatology	Mean: 60.9	NS	White: (80)	NS	NS	
Wolfenden, 2005[105]	Control	NS	NS	NS	NS	NS	N:86
	Multifaceted intervention to facilitate the provision of comprehensive smoking cessation	NS	NS	NS	NS	NS	N:124
Yoon, 2008[106]	Control	Mean: 47.5	(57.7)	NS	NS	NS	Duration of diabetes, Mean – 8.0 yrs
	Internet and a Short Messaging Service(SMS) by cellular phone	Mean: 46.8	(56.0)	NS	NS	NS	Duration of diabetes, Mean – 5.2 yrs
Ziemer, 2006[107]*	Control	Mean: 27 SD: 3	(35)	White: (58), Black (8),	NS	NS	
	Feedback sessions with endocrinologist and computerized reminders						
	Feedback session with endocrinologist only						
	Computerized reminders only						

*Data apply to all participants

BMI = body mass index; BP = blood pressure; BZD = benzodiazapene; CBT = cognitive behavioral therapy; CDDS = clinical decision support system; CGI = computer generated imagery; CHF = chronic heart failure; CNS = central nervous system; COPD = chronic obstructive pulmonary disease; CPAP = continuous positive airway pressure; DBP = diastolic blood pressure; DM = diabetes mellitus; ED = emergency department; EHR = electronic health record; EMR = electronic medical record; FT = full time; GP = general practitioner; HS = high school; HT = hormone therapy; HTN = hypertension; ICD-9 = international classification of diseases - 9; NS = not specified; OA = osteoarthritis; SBP = systolic blood pressure; SD= standard deviation; SSRI = selective serotonin reuptake inhibitor; TCA = tricyclic antidepressants; Yrs = years;

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Evidence Table 2. Participant characteristics of studies addressing healthcare process outcomes (continued)

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Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
Baker, 1998[1]	% of patients billed for and (95% CI) for entire cohort	Control group (no intervention)				6171		
		Generic postcard group				6169	43.5	
		Personalized postcard group				6252	44.7	
		Personalized tailored letter group				6151	45.2	
	% of patients billed for and (95% CI) – for >= age 65 only	Control group (no intervention)				6171		
		Generic postcard group				6169	4.9	
		Personalized postcard group				6252	50.3	
		Personalized tailored letter group				6151	50.5	
	% of patients billed for and (95% CI) –for < age 65 with chronic condition only	Control group (no intervention)				6171		
		Generic postcard group				6169	37.5	
		Personalized postcard group				6252	38.9	
		Personalized tailored letter group				6151	38.9	
	% of patients billed for and (95% CI)for >= age 65 with chronic condition only	Control group (no intervention)				6171		
		Generic postcard group				6169	54.1	
		Personalized postcard group				6252	56.4	
		Personalized tailored letter group				6151	52.8	
Bentz, 2007[2]	Asked rate	No feedback	EHR-documented rates of ask, advise, assess, and assist			54003	88.1	0.05
		EHR-generated practice feedback on rates of referral to a state-level tobacco quit line	EHR-documented rates of ask, advise, assess, and assist			48912	94.5	0.05
	Advised rate	No feedback	EHR-documented rates of ask, advise, assess, and assist			54003	52.7	<0.001
		EHR-generated practice feedback on rates of referral to a state-level	EHR-documented rates of ask, advise, assess, and assist			48912	71.6	<0.001

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
		tobacco quit line						
	Assessed rate	No feedback	EHR-documented rates of ask, advise, assess, and assist			54003	40.1	
		EHR-generated practice feedback on rates of referral to a state-level tobacco quit line	EHR-documented rates of ask, advise, assess, and assist			48912	65.5	<0 001
	Assisted rate	No feedback	EHR-documented rates of ask, advise, assess, and assist			54003	10.5	
		EHR-generated practice feedback on rates of referral to a state-level tobacco quit line	EHR-documented rates of ask, advise, assess, and assist			48912	20.1	<0.001
Bindels, 2004[3]	Physician accepted guideline recommendation of system	No reminder	% of recommendations accepted					
		Automatic recommendations for ordering tests based on guidelines				2780	4.3	
Bowns, 2006[4]	Diagnosis concurred with the second opinion	Conventional face-to-face consultation	Number of cases			92	78	
		SF teledermatology	Number of cases			73	55	
	Management plan concurred with the second opinion	Conventional face-to-face consultation	Number of cases			92	84	
		SF teledermatology	Number of cases			73	55	
Chan, 2003[5]	Unscheduled asthma clinical vists	Office-based asthma education	Total number of visits	5	1	5	3	NS
		Internet-based asthma education		5	1	5	0	
	B-agonist prescription refills	Office-based asthma education	Mean number of refills (SD)	5	0.3 (0.4)	5	0.4 (0.6)	NS
		Internet-based asthma education		5	0.5 (0.9)	5	0.3 (0.3)	
Clark, 2007[6]	Adherence	Usual care						
		CHF Patients received healthcare via telemonitoring		79	65.8	60	92.3	
de Toledo, 2006[7]	Patients not readmitted	Education and home visits, no ECPR	%			NR	33.3	
		ECPR with education and	%			NR	51.7	0.04

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
		home visits						
	Patients readmitted at least once	Education and home visits, no ECPR	%			NR	65.2	
		ECPR with education and home visits	%			NR	46.9	0.03
	Patients readmitted more than once	Education and home visits, no ECPR	%			NR	29.2	
		ECPR with education and home visits	%			NR	21.9	0.35
	Number of readmissions per patient	Education and home visits, no ECPR	N			NR	1.33	
		ECPR with education and home visits	N			NR	0.9	0.04
	Number of visits to the emergency room	Education and home visits, no ECPR	N			NR	0.54	
		ECPR with education and home visits	N			NR	0.36	0.15
	Mortality	Education and home visits, no ECPR	%			NR	16.9	
		ECPR with education and home visits	%			NR	20.3	0.67
Dobke, 2008[8]	Satisfaction scores	No telemedicine	Satisfaction and Decisional Conflict Scale scores	15		15	2.53	0.004
		Telemedicine	Satisfaction and Decisional Conflict Scale scores	15		15	1.13	0.004
	Decisional conflict score	No telemedicine	Satisfaction and Decisional Conflict Scale scores	15		15	35	<0.001
		Telemedicine	Satisfaction and Decisional Conflict Scale scores	15		15	14	<0.001
	Mean consultation duration	No telemedicine	Minutes	15		15	50	
		Telemedicine	Minutes	15		15	35	<0.01
Dykes, 2007[9]	Documentation of fall prevention	Standard patient assessment completed by nurses on paper				39	60	
		Standard patient				20	100	<0.001

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
		assessment completed by nurses on TPC						as compared to A
		Standard patient assessment completed by nurses on PDA				20	100	<0.001 as compared to Arm A
	Documentation of pressure ulcer prevention	Standard patient assessment completed by nurses on paper				39	51.9	
		Standard patient assessment completed by nurses on TPC				20	97.2	<0.001 as compared to A
		Standard patient assessment completed by nurses on PDA				20	100	<0.001 as compared to Arm A
	Documentation of pain management	Standard patient assessment completed by nurses on paper				39	93.1	
		Standard patient assessment completed by nurses on TPC				20	100	<0.001 as compared to A
		Standard patient assessment completed by nurses on PDA				20	100	<0.001 as compared to Arm A
	Documentation of aspiration prevention	Standard patient assessment completed by nurses on paper				39	55	
		Standard patient assessment completed by nurses on TPC				20	91.7	<0.001 as compared to A
		Standard patient				20	96.6	<0.001

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
		assessment completed by nurses on PDA						as compared to Arm A
	Documentation of malnutrition prevention	Standard patient assessment completed by nurses on paper				39	58.6	
		Standard patient assessment completed by nurses on TPC				20	91.7	<0.001 as compared to A
		Standard patient assessment completed by nurses on PDA				20	96.6	<0.001 as compared to Arm A
	Documentation of DVT/VTE prevention	Standard patient assessment completed by nurses on paper				39	76	
		Standard patient assessment completed by nurses on TPC				20	100	<0.001 as compared to A
		Standard patient assessment completed by nurses on PDA				20	100	<0.001 as compared to Arm A
	Documentation of suicide prevention	Standard patient assessment completed by nurses on paper				39	86.2	
		Standard patient assessment completed by nurses on TPC				20	97.2	<0.05 as compared to Arm A
		Standard patient assessment completed by nurses on PDA				20	100	<0.05 as compared to Arm A
	Documentation of	Standard patient				39	100	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	tobacco prevention	assessment completed by nurses on paper						
		Standard patient assessment completed by nurses on TPC				20	100	
		Standard patient assessment completed by nurses on PDA				20	100	
	Documentation of alcohol abuse	Standard patient assessment completed by nurses on paper				39	96.6	
		Standard patient assessment completed by nurses on TPC				20	100	
		Standard patient assessment completed by nurses on PDA				20	100	
	Documentation of violence prevention	Standard patient assessment completed by nurses on paper				39	96.6	
		Standard patient assessment completed by nurses on TPC				20	100	
		Standard patient assessment completed by nurses on PDA				20	96.6	
	User satisfaction by Kruskal-Wallis test	Standard patient assessment completed by nurses on paper				39		
		Standard patient assessment completed by nurses on TPC				20	33.08	
		Standard patient assessment completed by nurses on PDA				20	33.19	
Eccles, 2002[10]	Blood pressure recorded	No computerized clinical decision support	% adherence			1192	77	NS
		Computerized decision support for management of angina in adults				1084	77	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	Exercise recorded	No computerized clinical decision support	% adherence			1192	13	NS
		Computerized decision support for management of angina in adults				1084	9	
	Weight recorded	No computerized clinical decision support	% adherence			1192	24	NS
		Computerized decision support for management of angina in adults				1084	23	
	Smoking status known	No computerized clinical decision support	% adherence			1192	22	NS
		Computerized decision support for management of angina in adults				1084	20	
	Smoking education advice	No computerized clinical decision support	% adherence			1192	3	NS
		Computerized decision support for management of angina in adults				1084	3	
	12-lead electrocardiogram recorded	No computerized clinical decision support	% adherence			1192	16	NS
		Computerized decision support for management of angina in adults				1084	15	
	Excersize electrocardiogram recorded	No computerized clinical decision support	% adherence			1192	4	NS
		Computerized decision support for management of angina in adults				1084	4	
	Haemoglobin concentration recorded	No computerized clinical decision support	% adherence			1192	29	NS
		Computerized decision support for management of asthma and angina in adults				1084	29	
	Thyroid function recorded	No computerized clinical decision support	% adherence			1192	18	NS
		Computerized decision support for management of				1084	17	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
		angina in adults						
	Cholesterol or other lipid concentrations recorded	No computerized clinical decision support	% adherence			1192	35	NS
		Computerized decision support for management of angina in adults				1084	35	
	Blood glucose or HbA1c concentration recorded	No computerized clinical decision support	% adherence			1192	22	NS
		Computerized decision support for management of angina in adults				1084	20	
	Lung function assessed	No computerized clinical decision support	% adherence			1101	42	NS
		Computerized decision support for management of asthma in adults				1129	43	
	Compliance checked	No computerized clinical decision support	% adherence			1101	38	NS
		Computerized decision support for management of asthma in adults				1129	36	
	Inhaler technique assessed	No computerized clinical decision support	% adherence			1101	20	NS
		Computerized decision support for management of asthma in adults				1129	17	
	Asthma education	No computerized clinical decision support	% adherence			1101	9	NS
		Computerized decision support for management of asthma in adults				1129	7	
	Smoking status known	No computerized clinical decision support	% adherence			1101	26	NS
		Computerized decision support for management of asthma in adults				1129	24	
	Smoking cessation advice	No computerized clinical decision support	% adherence			1101	6	NS
		Computerized decision support for management of				1129	5	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
		asthma in adults						
Feldman, 2005[11]	Patient skips medicine	Heart failure patients receiving usual care	Adjusted probability	227		227	27.6	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted probability	199		199	27.7	0.99
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted probability	202		202	25.4	0.604
	Patient is sure about when to take HF medicine	Heart failure patients receiving usual care	Adjusted probability	227		227	67.4	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted probability	199		199	70.3	0.494
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted probability	202		202	69.6	0.613
	Patient recognition of own HF medicines	Heart failure patients receiving usual care	Adjusted probability	227		227		
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted probability	199		199	No Data	0.002
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted probability	202		202	No Data	0.023
	Patient does not recognize any of own HF medicines	Heart failure patients receiving usual care	Adjusted probability	227		227	43.9	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted probability	199		199	31.1	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted probability	202		202	34.3	
	Patient recognizes up to half of own HF medicines	Heart failure patients receiving usual care	Adjusted probability	227		227	29.8	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted probability	199		199	30.5	
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted probability	202		202	30.6	
	Patient recognizes more than half of own HF medicines	Heart failure patients receiving usual care	Adjusted probability	227		227	26.3	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted probability	199		199	38.4	
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted probability	202		202	35	
	Patient salts food	Heart failure patients receiving usual care	Adjusted probability	227		227	30.7	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted probability	199		199	27.6	0.49
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted probability	202		202	23.3	0.095
	Patient's weighing behavior	Heart failure patients receiving usual care	Adjusted probability	227		227	No Data	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted probability	199		199	No data	0.352
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted probability	202		202	No Data	0.082
	Patient has no scale	Heart failure patients receiving usual care	Adjusted probability	227		227	34.6	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted probability	199		199	38.3	
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted probability	202		202	27.9	
	Patient weighs self but not daily	Heart failure patients receiving usual care	Adjusted probability	227		227	44	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted probability	199		199	43	
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted probability	202		202	44.7	
	Patient weighs self daily	Heart failure patients receiving usual care	Adjusted probability	227		227	21.4	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted probability	199		199	18.7	
		Heart failure patients whose nurses received e-mail recommendations and	Adjusted probability	202		202	27.4	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
		additional resources (augmented intervention)						
	KCCQ: Summary score	Heart failure patients receiving usual care	Adjusted score (higher score = better outcome)	227		227	40.4	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted score (higher score = better outcome)	199		199	46.6	0.013
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted score (higher score = better outcome)	202		202	45.6	0.048
	KCCQ: Shysical limitation domain score	Heart failure patients receiving usual care	Adjusted score (higher score = better outcome)	227		227	37.8	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted score (higher score = better outcome)	199		199	42.5	0.333
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted score (higher score = better outcome)	202		202	43	0.231
	KCCQ: Symptom domain score	Heart failure patients receiving usual care	Adjusted score (higher score = better outcome)	227		227	48.6	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted score (higher score = better outcome)	199			55.6	0.091
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted score (higher score = better outcome)	202		202	53.6	0.277
	KCCQ: % w/quality of life domain score	Heart failure patients receiving usual care	%	227		227	44.6	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	>=50	Heart failure patients whose nurses received e-mail recommendations (basic intervention)	%	199		199	48	0.407
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	%	202		202	53.3	0.042
	KCCQ: % w/social limitation domain score >= 50	Heart failure patients receiving usual care	%	227		227	27.8	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	%	199		199	34.8	0.09
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	%	202		202	35.2	0.064
	KCCQ: % w/ self-efficacy domain score >=50	Heart failure patients receiving usual care	%	227		227	85.8	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	%	199		199	86.8	0.756
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	%	202		202	86.3	0.88
	Depression	Heart failure patients receiving usual care	Adjusted score (higher score = presence of depression)	227		227	36.3	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted score (higher score = presence of depression)	199		199	37.4	0.802
		Heart failure patients	Adjusted score	202		202	36.9	0.888

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
		whose nurses received e-mail recommendations and additional resources (augmented intervention)	(higher score = presence of depression)					
	Euroqol health-related quality of life	Heart failure patients receiving usual care	Adjusted score (higher score = better outcome)	227		227	39.3	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted score (higher score = better outcome)	199		199	48.9	0.003
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted score (higher score = better outcome)	202		202	40.2	0.777
	Home care-related costs/patient	Heart failure patients receiving usual care	US dollars	227		227	2814	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	US dollars	199		199	3371	0.062
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	US dollars	202		202	3425	0.058
	Overall costs/patient	Heart failure patients receiving usual care	US dollars	227		227	4996	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	US dollars	199		199	5869	0.084
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	US dollars	202		202	6330	0.02
	Home care-related costs in order to	Heart failure patients receiving usual care	US dollars	227		227	No data	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	produce a 5% improvement in KCCQ summary score	Heart failure patients whose nurses received e-mail recommendations (basic intervention)	US dollars	199		199	183	
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	US dollars	202		202	235	
	Overall costs in order to produce a 5% improvement in KCCQ summary score	Heart failure patients receiving usual care	US dollars	227		227	No data	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	US dollars	199		199	246	
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	US dollars	202		202	513	
Feldstein, 2006[12] Apkon, 2005[13]	Proportion of study population with BMD evaluation only	Usual care				101	0.9	
		Patient-specific clinical guideline advice to the primary care provider delivered through an EMR message (EMR reminder)				101	23.8	<0.01 compared to Arm A
		An EMR reminder to the primary care provider plus an advisory letter with educational materials mailed to the patient (patient reminder)				109	22.9	0.43 compared to Arm B
	Proportion of study population with osteoporosis medication only	Usual care				101	4	
		Patient-specific clinical guideline advice to the primary care provider delivered through an EMR message (EMR reminder)				101	11.9	<0.01 compared to Arm A
		An EMR reminder to the primary care provider plus				109	10.1	0.54 compare

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
		an advisory letter with educational materials mailed to the patient (patient reminder)						d to Arm B
	Proportion of study population with both BMD and osteoporosis medication	Usual care				101	1	
		Patient-specific clinical guideline advice to the primary care provider delivered through an EMR message (EMR reminder)				101	15.8	<0.01 compared to Arm A
		An EMR reminder to the primary care provider plus an advisory letter with educational materials mailed to the patient (patient reminder)				109	10.1	
	Proportion of study population with BMD or osteoporosis medication	Usual care				101	5.9	
		Patient-specific clinical guideline advice to the primary care provider delivered through an EMR message (EMR reminder)				101	51.5	<0.01 compared to Arm A
		An EMR reminder to the primary care provider plus an advisory letter with educational materials mailed to the patient (patient reminder)				109		0.88 compared to Arm B
	Total calcium intake (n=22)	Usual care	mg/day		1308.6	22	851.2	
	Total calcium intake (n=33)	Patient-specific clinical guideline advice to the primary care provider delivered through an EMR message (EMR reminder)	mg/day		1116.5	33	1311.4	0.02 compared to Arm A
	Total calcium intake (n=37)	An EMR reminder to the primary care provider plus an advisory letter with educational materials mailed to the patient	mg/day		1221.5	32	1224.7	0.05 compared to Arm A

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
		(patient reminder)						
	Regular activity (n=33)	Usual care			7	22	10	
	Regular activity (n=41)	Patient-specific clinical guideline advice to the primary care provider delivered through an EMR message (EMR reminder)			9	33	8	0.17 compared to Arm A
	Regular activity (n=42)	An EMR reminder to the primary care provider plus an advisory letter with educational materials mailed to the patient (patient reminder)			11	32	12	0.55 compared to Arm A
	Caloric expenditure per week (n=32)	Usual care			2325.7	22	1980.9	
	Caloric expenditure per week (n=38)	Patient-specific clinical guideline advice to the primary care provider delivered through an EMR message (EMR reminder)			3082.9	33	2312.7	0.96 compared to Arm A
	Caloric expenditure per week (n=38)	An EMR reminder to the primary care provider plus an advisory letter with educational materials mailed to the patient (patient reminder)			2614.4	32	2525.9	0.32 compared to Arm A
	Healthcare opportunities fulfilled	Usual care				704	30.7	
		Coupler				721	33.9	0.12 as compared to Arm A
	Screening/prevention opportunities fulfilled	Usual care				704	30.4	
		Coupler				721	34.8	0.02 as compared to Arm A
	Acute/chronic opportunities fulfilled	Usual care				704	32.6	
		Coupler				721	27.7	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	Total costs/resource consumption	Usual care	US dollars			704	698	
		Coupler	US dollars			721	789	0.05 as compared to Arm A
	Costs of ambulatory visits	Usual care	US dollars			704	292	
		Coupler	US dollars			721	307	0.17 as compared to Arm A
	Costs of laboratory testing	Usual care	US dollars			704	31	
		Coupler	US dollars			721	43	0.04 as compared to Arm A
	Costs of diagnostic imaging	Usual care	US dollars			704	29	
		Coupler	US dollars			721	31	0.26 as compared to Arm A
	Costs of pharmacy use	Usual care	US dollars			704	164	
		Coupler	US dollars			721	203	0.03 as compared to Arm A
	Speed, efficiency, courtesy during visit	Usual care	Score			792	4.19	
		Coupler	Score			781	4.17	0.23 as compared to Arm A
	Satisfaction with health care provider	Usual care				792	4.37	
		Coupler	Score			781	4.4	0.82 as compared to Arm A
	Overall visit assessment	Usual care				792		
		Coupler	Score			781	4.27	0.74 as compared to Arm

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
								A
Filippi, 2003[14]	Antiplatelet users with one risk factor without cvds	Receive a letter but no electronic reminder	% of anti-platelet users with one risk factor without CVDS	263	10.2	2578	17.1	
		Receive a letter and an electronic reminder	% of antiplatelet users with one risk factor without CVDS	358	13.5	2651	27.8	
	Antiplatelet users with two or more risk factor without cvds	Receive a letter but no electronic reminder	% of antiplatelet users with two or more risk factor without CVDS	180	12.5	1440	19.2	
		Receive a letter and an electronic reminder	% of antiplatelet users with two or more risk factor without CVDS	224	14.2	1577	32.2	
	Antiplatelet users with presence of at least one CVD	Receive a letter but no electronic reminder	% of antiplatelet users with presence of at least one CVD	1229	37.3	3295	46.3	
		Receive a letter and an electronic reminder	% of antiplatelet users with presence of at least one CVD	1304	34.3	3802	46.5	
Fretheim, 2006[15]	First-time prescriptions for hypertension where thiazides were prescribed	Passive dissemination of guidelines	Proportion of patients	2365	209	1968	218	
		Educational outreach visit with audit and feedback, and computerized reminders linked to the medical record system	Proportion of patients	2784	161	2184	378	
	Patients assessed for CVD risk before prescribing anti-HTN or cholesterol-lowering drugs	Passive dissemination of guidelines	Proportion of patients			786	112	
		Educational outreach visit with audit and feedback, and computerized reminders linked to the medical record system	Proportion of patients			854	147	
	Treatment goal	Passive dissemination of	Proportion of	15411	5174	16598	6056	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	achieved	guidelines	patients					
		Educational outreach visit with audit and feedback, and computerized reminders linked to the medical record system	Proportion of patients	15914	4669	17213	5502	
Glasgow, 2000[16]	Behavioral outcomes: Block Fat Screener, no TF, no CR	Brief intervention across multiple offices and interventionists (basic condition)			48.6	80	24.7	Not significant
	Behavioral outcomes: Kristal FFB fat composite	Brief intervention across multiple offices and interventionists (basic condition)			1.9	80	1.6	0.017
	Behavioral outcomes: Kristal FFB fruit and vegetable	Brief intervention across multiple offices and interventionists (basic condition)			1.9	80	1.7	
	Physiologic outcomes: HBA1c	Brief intervention across multiple offices and interventionists (basic condition)			7.6	80	7.4	
	Physiologic outcomes: total cholesterol	Brief intervention across multiple offices and interventionists (basic condition)			210	80	206	0.010
	Physiologic outcomes: weight	Brief intervention across multiple offices and interventionists (basic condition)			199	80	197	Not significant
	Physiologic outcomes: lipid ratio: total/HDL	Brief intervention across multiple offices and interventionists (basic condition)			5.1	80	4.9	Not significant
	Quality-of-life /satisfaction outcomes: diabetes intrusiveness	Brief intervention across multiple offices and interventionists (basic condition)			25.7	80	26	0.014
	Quality-of-life/satisfaction	Brief intervention across multiple offices and			36	80		Not significan

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	outcomes: satisfaction with program	interventionists (basic condition)						t
	Quality-of-life /satisfaction outcomes: process variable results self-efficacy	Brief intervention across multiple offices and interventionists (basic condition)			3.9	80	4	Not significant
	Quality-of-life /satisfaction outcomes: chronic illness resources survey	Brief intervention across multiple offices and interventionists (basic condition)				80		Not significant
Glassman, 2007[17]	Subsequent adverse drug event	Usual care	ADEs			445	37	0.06
		Computerized retrospective drug utilization software	ADEs			458	45	0.06
	ADEs not serious	Usual care	ADEs			445	51	
		Computerized retrospective drug utilization software	ADEs			458	58	
	ADE preventability	Usual care	Associated warnings			445	16	0.79
		Computerized retrospective drug utilization software	Associated warnings			458	17	0.79
Gomez, 2002[18]	Hba1c	Group not usingDIABTel system	%	10	8.1	10	8.15	
		Group using DIABTel system	%	10	8.4	10	7.9	0.053
Green, 2005[19] Krishna, 2003[20]	Effectiveness of counseling session by clients	Counselor group--standard genetic counseling				105	6.6	
		Computer group--used the interactive computer program before counseling				106	6.6	
	Effectiveness of counseling session by counselors	Counselor group--standard genetic counseling				105	5.8	
		Computer group--used the interactive computer program before counseling				106	5.9	
	Clients' perception--client's willingness to share worries and fears	Counselor group--standard genetic counseling				105	3.6	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
		Computer group--used the interactive computer program before counseling				106	3.6	
	Clients' perception--client's understanding of breast cancer	Counselor group--standard genetic counseling				105	3.4	
		Computer group--used the interactive computer program before counseling				106	3.4	
	Clients' perception--client's understanding of heredity	Counselor group--standard genetic counseling				105	3.4	
		Computer group--used the interactive computer program before counseling				106	3.3	
	Clients' perception--client's understanding of the pros and cons of genetic testing	Counselor group--standard genetic counseling				105	3.5	
		Computer group--used the interactive computer program before counseling				106	3.5	
	Clients' perception--client's preparedness for making a decision about genetic testing	Counselor group--standard genetic counseling				105	3.4	
		Computer group--used the interactive computer program before counseling				106	3.4	
	Clients' perception--quality of the questions that client asked	Counselor group--standard genetic counseling				105	3.1	
		Computer group--used the interactive computer program before counseling				106	3.2	
	Clients' perception--level of rapport established with the genetic counselor	Counselor group--standard genetic counseling				105	3.7	
		Computer group--used the interactive computer program before counseling				106	3.6	
	Clients' perception--able to meet client's need for factual information	Counselor group--standard genetic counseling				105	3.8	
		Computer group--used the interactive computer program before counseling				106	3.8	
	Clients' perception--extent to which	Counselor group--standard genetic counseling				105	3.6	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	client's emotional concerns were addressed	Computer group--used the interactive computer program before counseling				106	3.5	
	Clients' perception--ascertain what was most important to client	Counselor group--standard genetic counseling				105	3.6	
		Computer group--used the interactive computer program before counseling				106	3.7	
	Clients' perception--tailor the discussion to client's specific concerns	Counselor group--standard genetic counseling				105	3.8	
		Computer group--used the interactive computer program before counseling				106	3.7	
	Clients' perception--level of personal satisfaction with this session	Counselor group--standard genetic counseling				105	3.8	
		Computer group--used the interactive computer program before counseling				106	3.8	
	Counselors' perception--client's willingness to share worries and fears	Counselor group--standard genetic counseling				105	3.3	
		Computer group--used the interactive computer program before counseling				106	3.2	
	Counselors' perception--client's understanding of breast cancer	Counselor group--standard genetic counseling				105	3	
		Computer group--used the interactive computer program before counseling				106	3	
	Counselors' perception--client's understanding of heredity	Counselor group--standard genetic counseling				105	2.7	
		Computer group--used the interactive computer program before counseling				106	2.9	
	Counselors' perception--client's understanding of the pros and cons of genetic testing	Counselor group--standard genetic counseling				105	2.9	
		Computer group--used the interactive computer program before counseling				106	3.1	
	Counselors' perception--client's	Counselor group--standard genetic counseling				105	2.9	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	preparedness for making a decision about genetic testing	Computer group--used the interactive computer program before counseling				106	3	
	Counselors' perception--quality of the questions that client asked	Counselor group--standard genetic counseling				105	3.3	
		Computer group--used the interactive computer program before counseling				106	3.3	
	Counselors' perception--level of rapport established with the genetic counselor	Counselor group--standard genetic counseling				105	3.2	
		Computer group--used the interactive computer program before counseling				106	3.2	
	Counselors' perception--able to meet client's need for factual information	Counselor group--standard genetic counseling				105	3.3	
		Computer group--used the interactive computer program before counseling				106	3.3	
	Counselors' perception-extent to which client's emotional concerns were addressed	Counselor group--standard genetic counseling				105	3	
		Computer group--used the interactive computer program before counseling				106	3	
	Counselors' perception--able to ascertain what was most important to client	Counselor group--standard genetic counseling				105	3.3	
		Computer group--used the interactive computer program before counseling				106	3.3	
	Counselors' perception--able to tailor the discussion to client's specific concern	Counselor group--standard genetic counseling				105	3.3	
		Computer group--used the interactive computer program before counseling				106	3.3	
	Counselors' perception--level of personal satisfaction with this session	Counselor group--standard genetic counseling				105	3.2	
		Computer group--used the interactive computer program before counseling				106	3.2	
	Knowledge score among caregivers'	Control group received traditional patient education		69	48.41	23	52.3	0.0293

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	children 0-6 yrs old	based on the National Asthma Education and Prevention Program						
		Intervention group received traditional patient education based on the National Asthma Education and Prevention Program in addition self-management education through the Interactive Multimedia Program for Asthma Control and Tracking		62	47.94	24	55.68	<0.0001
	Knowledge score among caregivers' children 7-17 yrs old	Control group received traditional patient education based on the National Asthma Education and Prevention Program		52	49.57	28	51.7	0.0079
		Intervention group received traditional patient education based on the National Asthma Education and Prevention Program in addition self-management education through the Interactive Multimedia Program for Asthma Control and Tracking		45	49.95	26	55.38	<0.0001
	Knowledge score among caregivers' children 7-17 yrs old	Control group received traditional patient education based on the National Asthma Education and Prevention Program		52	43.44	28	47.51	
		Intervention group received traditional patient education based on the National Asthma Education and Prevention Program in addition self-management education through the		45	43.11	25	53.12	<0.0001

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
		Interactive Multimedia Program for Asthma Control and Tracking						
	Change in knowledge, health outcome, resource utilization-- children: days of asthma symptoms	Control group received traditional patient education based on the National Asthma Education and Prevention Program		119	97.8	44	48.2	
		Intervention group received traditional patient education based on the National Asthma Education and Prevention Program in addition self-management education through the Interactive Multimedia Program for Asthma Control and Tracking			104.5	42	23.9	<0.0001
	Change in knowledge, Health outcome, resource utilization--children: days of quick relief medicine	Control group received traditional patient education based on the National Asthma Education and Prevention Program			90.7	45	41	0.0004
		Intervention group received traditional patient education based on the National Asthma Education and Prevention Program in addition self-management education through the Interactive Multimedia Program for Asthma Control and Tracking			90	41	26.3	0.0002
	Change in knowledge, health outcome, resource utilization—children: days of activity limitation	Control group received traditional patient education based on the National Asthma Education and Prevention Program			35.5	45	13.5	0.951
		Intervention group received traditional patient education			46.2	40	6.7	<0.0001

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
		based on the National Asthma Education and Prevention Program in addition self-management education through the Interactive Multimedia Program for Asthma Control and Tracking						
	Change in knowledge, Health outcome, resource utilization—children: nights of sleep disturbance	Control group received traditional patient education based on the National Asthma Education and Prevention Program			62	45	17.1	<0.0001
		Intervention group received traditional patient education based on the National Asthma Education and Prevention Program in addition self-management education through the Interactive Multimedia Program for Asthma Control and Tracking			64.7	42	15.2	<0.0001
	Change in knowledge, health outcome, resource utilization—children: urgent visit to physician	Control group received traditional patient education based on the National Asthma Education and Prevention Program			6.4	45	1.3	<0.0001
		Intervention group received traditional patient education based on the National Asthma Education and Prevention Program in addition self-management education through the Interactive Multimedia Program for Asthma Control and Tracking			6.6	40	0.8	<0.0001
	Change in knowledge, health	Control group received traditional patient education			1.2	45	0.6	0.0219

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	outcome, resource utilization—children: ER visits	based on the National Asthma Education and Prevention Program						
		Intervention group received traditional patient education based on the National Asthma Education and Prevention Program in addition self-management education through the Interactive Multimedia Program for Asthma Control and Tracking			2	42	0.1	0.0024
	Change in knowledge, health outcome, resource utilization—children: hospitalizations	Control group received traditional patient education based on the National Asthma Education and Prevention Program			0.6	45	0.1	0.0313
		Intervention group received traditional patient education based on the National Asthma Education and Prevention Program in addition self-management education through the Interactive Multimedia Program for Asthma Control and Tracking			0.1	42	0.1	00625
	Change in knowledge, health outcome, resource utilization—children: Days of stay in hospital	Control group received traditional patient education based on the National Asthma Education and Prevention Program			6.4	45	5.4	0.0781
		Intervention group received traditional patient education based on the National Asthma Education and Prevention Program in addition self-management education through the			2.7	42	0.6	0.1563

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
		Interactive Multimedia Program for Asthma Control and Tracking						
	Change in knowledge, health outcome, resource utilization—children: school days missed	Control group received traditional patient education based on the National Asthma Education and Prevention Program			6.4	43	5.4	0.1479
		Intervention group received traditional patient education based on the National Asthma Education and Prevention Program in addition self-management education through the Interactive Multimedia Program for Asthma Control and Tracking			7.9	40	1.4	0.0001
	Daily dose of inhaled corticosteroid	Control group received traditional patient education based on the National Asthma Education and Prevention Program			350.53	119	753.88	0.0364
		Intervention group received traditional patient education based on the National Asthma Education and Prevention Program in addition self-management education through the Interactive Multimedia Program for Asthma Control and Tracking		105	353.09	42	433.51	0.8327
Green, 2008[21]	% With controlled BP at 12 months	Usual care		258		247	31	
		BP monitoring and patient Web services		258		247	36	0.21
		BP monitoring, patient Web services and pharmacist care		258		247	56	<0.001
	Adjusted change in	Usual care	mm Hg	258		247	- 5.3	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	SBP at 12 months	BP monitoring and patient Web services		258		247	-8.2	<0.001
		BP monitoring, patient Web services and pharmacist care		258		247	-13.2	<0.001
	Adjusted change in DBP at 12 months	Usual care	mm Hg	258		247	-3.5	
		BP monitoring and patient Web services		258		247	-4.4	<0.001
		BP monitoring, patient Web services and pharmacist care		258		247	- 4.6	p<0.001
Gurwitz, 2008[22]	ADE	Usual care	Rate/100rate/100 resident-years	340		126	30.7	
		Computerized provider order entry with clinical decision support	Rate/100rate/100 resident-years	411		152	37	
	More severe ADE	Usual care	Rate/100rate/100 resident-years	340		97	28.5	
		Computerized provider order entry with clinical decision support	Rate/100rate/100 resident-years	411		123	30	
	Preventable more severe ADE	Usual care	Rate/100rate/100 resident-years	340		58	17.1	
		Computerized provider order entry with clinical decision support	Rate/100rate/100 resident-years	411		79	19.2	
	Less severe ADE	Usual care	Rate/100rate/100 resident-years	340		243	71.5	
		Computerized provider order entry with clinical decision support	Rate/100rate/100 resident-years	411		288	70	
	Preventable less severe	Usual care	Rate/100 resident-years	340		68	20	
		Computerized provider order entry with clinical decision support	Rate/100rate/100 resident-years	411		73	17.8	
Hassol, 2004[23]								
Hetlevik, 1998[24]	Registration of blood	No intervention				1127	14.2	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	pressure	Clinical decision support system				887	14.3	
	Serum cholesterol	No intervention				1127	56.8	
		Clinical decision support system				887	62.3	
	Registration of cigarette smoking	No intervention				1127	87.1	
		Clinical decision support system				887	82.9	
	Cardiovascular inheritance	No intervention				1127	73.4	
		Clinical decision support system				887	79.5	
	BMI	No intervention				1127	89.2	
		Clinical decision support system				887	81.5	
Hetlevik, 2000[25]	Fraction of patients without baseline registration of Hba1c	Diabetes mellitus patients whose physicians used pre-existing routines for treatment	%	535		535	22.4	
		Diabetes mellitus patients whose physicians used a CDSS	%	499		499	27.5	
	Fraction of patients without a baseline registration of blood pressure	Diabetes mellitus patients whose physicians used pre-existing routines for treatment	%	535		535	22.6	
		Diabetes mellitus patients whose physicians used a CDSS	%	499		499	21.8	
	Fraction of patients without a baseline registration of serum cholesterol	Diabetes mellitus patients whose physicians used pre-existing routines for treatment	%	535		535	71	
		Diabetes mellitus patients whose physicians used a CDSS	%	499		499	80	
	Fraction of patients without a registered number of cigarettes	Diabetes mellitus patients whose physicians used pre-existing routines for treatment	%	535		416	94.5	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
		Diabetes mellitus patients whose physicians used a CDSS	%	499		368	82.6	
	Fraction of patients without registered cardiovascular inheritance	Diabetes mellitus patients whose physicians used pre-existing routines for treatment	%	535		416	83.4	
		Diabetes mellitus patients whose physicians used a CDSS	%	499		368	78.7	
	Fraction of patients without registered height/weight of BMI	Diabetes mellitus patients whose physicians used pre-existing routines for treatment	%	535		416	93	
		Diabetes mellitus patients whose physicians used a CDSS	%	499		368	78.2	
	Fraction of patients without at least one variable making risk score calculation possible	Diabetes mellitus patients whose physicians used pre-existing routines for treatment	%	535		416	98.3	
		Diabetes mellitus patients whose physicians used a CDSS	%	499		368	91.1	
	Average Hba1c in registered patients	Diabetes mellitus patients whose physicians used pre-existing routines for treatment	%	535		368	7.9	
		Diabetes mellitus patients whose physicians used a CDSS	%	499		321	7.8	
	Systolic BP in registered patients	Diabetes mellitus patients whose physicians used pre-existing routines for treatment	mm Hg	535		369	152.7	
		Diabetes mellitus patients whose physicians used a CDSS	mm Hg	499		328	151.5	
	Diastolic BP in registered patients	Diabetes mellitus patients whose physicians used	mm Hg	535		369	85.1	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
		pre-existing routines for treatment						
		Diabetes mellitus patients whose physicians used a CDSS	mm Hg	499		328	82.8	
	Serum cholesterol in registered patients	Diabetes mellitus patients whose physicians used pre-existing routines for treatment	mmol/L	535		289		
		Diabetes mellitus patients whose physicians used a CDSS	mmol/L	499		246	6.2	
	Registered patients who are smokers	Diabetes mellitus patients whose physicians used pre-existing routines for treatment	% of patients	535		204	16	
		Diabetes mellitus patients whose physicians used a CDSS	% of patients	499		256	19	
	Registered patients with CV inheritance	Diabetes mellitus patients whose physicians used pre-existing routines for treatment	% of patients	535		225	63	
		Diabetes mellitus patients whose physicians used a CDSS	% of patients	499		227	66	
	BMI in registered patients	Diabetes mellitus patients whose physicians used pre-existing routines for treatment	kg/m^2	535		201	28.3	
		Diabetes mellitus patients whose physicians used a CDSS	kg/m^2	499		226	28.6	
	Coronary heart disease risk score (female)	Diabetes mellitus patients whose physicians used pre-existing routines for treatment	Risk score units (40-year-old female has score = 1)	535		95	14.2	
		Diabetes mellitus patients whose physicians used a CDSS	Risk score unit	499		89	14.3	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	Coronary heart disease risk score (male)	Diabetes mellitus patients whose physicians used pre-existing routines for treatment	Risk score units (40-year-old female has score = 1; weight for male = 5)	535		58	48.7	
		Diabetes mellitus patients whose physicians used a CDSS	Risk score units	499		84	51.4	
Hicks, 2008[26]	Outcome BP control	Usual care	%			1048	45	
		Computerized support	%			786	48	
	Mean systolic BP at outcome visit	Usual care	mm Hg			1048	137	
		Computerized support	mm Hg			786	138	0.67
	Mean diastolic BP at outcome visit	Usual care	mm Hg			1048	78	
		Computerized support	mm Hg			786	77	0.05
	Prescribing jncrease in adherent drug class	Usual care	% MDs likely to prescribe			1048		
		Computerized support	% MDs likely to prescribe			786		
Hogg, 1998[27]	Mean received family index	No letter	Proportion 0-1			249	0.035	
		Form letter	Proportion 0-1			245	0.0411	0.0139
		Customized letter	Proportion 0-1			192	0.0718	0.0139
	Mean end-of-study up-to-date family index	No letter	Proportion 0-1			249	0.36	
		Customized letter	Proportion 0-1			192	0.4	0.0054
Jerant, 2001[28]	Mean CHF-related readmission	Usual care	Mean			12	0.3	0.1559
		Home telecare delivered via a 2-way video-conference device with an integrated electronic stethoscope	Number of events			12	0.1	0.1559
Jerant, 2003[29]	CHF-related readmission costs	Usual care (home visit)				12		
		Telephone care				12		
		Telenursing care				12		
	CHF-related ED visits	Usual care (home visit)				12		
		Telephone care				12		
		Telenursing care				12		
	Mean direct patient care time per visit	Usual care (home visit)	Minutes			12	79	
		Telephone care				12	12	<0.0001
		Telenursing care				12	27	<0.0001

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	Patient self-adherence	Usual care (home visit)				12		
		Telephone care				12		
		Telenursing care				12		
	Medication regimen	Usual care (home visit)				12		
		Telephone care				12		
		Telenursing care				12		
	Health status	Usual care (home visit)				12		
		Telephone care				12		
		Telenursing care				12		
	Satisfaction	Usual care (home visit)				12		
		Telenursing care				12		
Jones, 1999[30]	Satisfaction score	Booklet information	Number (%) of patients	180		154	40	
		Personal computer information:	Number (%) of patients	193		156	46	
		General computer information	Number (%) of patients	167		128	34	
	Prefer computer to 10-minute consultation with professional	Booklet information		180		154	10	
		Personal computer information:		193		156	29	
		General computer information		167		128	20	
	Doctors' assessment--patients above average in knowledge	Booklet information	%	180		154	20	
		Personal computer information:	%	193		156	25	
		General computer information		167		128	35	
	Use of printed material at home	Booklet information	% of patients	180		154	83	
		Personal computer information:	% of patients	193		156	70	
		General computer information	% of patients	167		128	57	
Kaner, 2007[31]	Total consultation times	Paper-based guidelines for clinician-patient treatment decision	Minutes			10	21	
		Implicit computer-based decision aid, DARTS II used for clinician-patient	Minutes			11	31	0.001

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
		treatment decision						
		Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision	Minutes			8	44	0.001
	Clinician verbal dominance in 10 minutes preceding decision	Paper-based guidelines for clinician-patient treatment decision	% of 10 minutes			10	60	
		Implicit computer-based decision aid, DARTS II used for clinician-patient treatment decision	% of 10 minutes			11	65	0.09
		Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision	% of 10 minutes			8	64	0.09
	Doctor's information-seeking	Paper-based guidelines for clinician-patient treatment decision	Minutes			10	6	
		Implicit computer-based decision aid, DARTS II used for clinician-patient treatment decision	Minutes			11	3	0.004
		Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision	Minutes			8	7	0.004
	Doctor's pause	Paper-based guidelines for clinician-patient treatment decision	Minutes			10	6	
		Implicit computer-based decision aid, DARTS II used for clinician-patient treatment decision	Minutes			11	4	0.04
		Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision	Minutes			8	1	0.04
	Patient's negative talk	Paper-based guidelines for clinician-patient treatment	Minutes			10	2	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
		decision						
		Implicit computer-based decision aid, DARTS II used for clinician-patient treatment decision	Minutes			11	0	0.01
		Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision	Minutes			8	1	0.01
	Doctor's nodding	Paper-based guidelines for clinician-patient treatment decision	Minutes			10	17	
		Implicit computer-based decision aid, DARTS II used for clinician-patient treatment decision	Minutes			11	36	0.005
		Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision	Minutes			8	21	0.005
	Doctor's head shake	Paper-based guidelines for clinician-patient treatment decision	Minutes			10	4	
		Implicit computer-based decision aid, DARTS II used for clinician-patient treatment decision	Minutes			11	2	0.006
		Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision	Minutes			8	0	0.006
	Doctor's smiling	Paper-based guidelines for clinician-patient treatment decision	Minutes			10	0	
		Implicit computer-based decision aid, DARTS II used for clinician-patient treatment decision	Minutes			11	1	0.04
		Explicit computer-based decision aid, DARTS II,	Minutes			8	2	0.04

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
		used for clinician-patient treatment decision						
	Doctor's pointing at patients	Paper-based guidelines for clinician-patient treatment decision	Minutes			10	1	
		Implicit computer-based decision aid, DARTS II used for clinician-patient treatment decision	Minutes			11	0	0.01
		Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision	Minutes			8	0	0.01
	Doctor's touching/pointing at tool	Paper-based guidelines for clinician-patient treatment decision	Minutes			10	6	
		Implicit computer-based decision aid, DARTS II used for clinician-patient treatment decision	Minutes			11	1	0.007
		Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision	Minutes			8	6	0.007
	Doctor's eye-gaze toward tool	Paper-based guidelines for clinician-patient treatment decision	Minutes			10	5	
		Implicit computer-based decision aid, DARTS II used for clinician-patient treatment decision	Minutes			11	15	0.001
		Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision	Minutes			8	16	0.001
	Patient's eye-gaze toward tool	Paper-based guidelines for clinician-patient treatment decision	Minutes			10	5	
		Implicit computer-based decision aid, DARTS II	Minutes			11	16	0.0001

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
		used for clinician-patient treatment decision						
		Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision	Minutes			8	16	p=0.0001
Kattan, 2006[32]	Maximum symptom days per 2 weeks	Control group (not specified)	Days	463		463	3.52	
		Physician feedback group	Number of days	466		466	3.43	0.54
	Days limited in activity for more than 1/2 day per 2 weeks	Control group (not specified)	Days	463		463	1.6	
		Physician feedback group	Number of days	466		466	1.42	0.09
	School days missed per 2 weeks	Control group (not specified)	Days	463		463	0.72	
		Physician feedback group	Number of days	466		466	0.67	0.38
	Number of ED visits per year	Control group (not specified)	Number of visits	463		463	1.14	
		Physician feedback group	Number of visits	466		466	0.87	0.013
	Number of unscheduled clinic visits per year	Control group (not specified)	Number of visits	463		463	1.31	
		Physician feedback group	Number of visits	466		466	1.14	0.14
	Number of hospitalizations per year	Control group (not specified)	Number	463		463	0.24	
		Physician feedback group	Number of hospitalizations	466		466	0.22	0.56
Krall, 2004[33]	Documentation of aspirin use	No Alert				128	25.8	<0.001
		Electronic medical record clinical quality alert				315		<0.001
Kucher, 2005[34]	Prophylactic measures: mechanical--total	No computerized alert	Number of patients (%)			1255	1.5	
		Computerized alert to physician about patient's risk of deep-vein thrombosis	Number of patients (%)			1251	10	
	Prophylactic measures: mechanical--compression stockings	No computerized alert	Number of patients (%)			1255	0.6	
		Computerized alert to physician about patient's risk of deep-vein thrombosis	Number of patients (%)			1251	4.1	
	Prophylactic	No computerized alert	Number of patients (%)			1255	1	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	measures: mechanical--pneumatic boots	Computerized alert to physician about patient's risk of deep-vein thrombosis	Number of patients (%)			1251	5.8	
	Prophylactic measures: pharmacologic--total	No computerized alert	Number of patients (%)			1255	13	
		Computerized alert to physician about patient's risk of deep-vein thrombosis	Number of patients (%)			1251	23.6	
	Prophylactic measures: pharmacologic--unfractionated heparin	No computerized alert	Number of patients (%)			1255	6.5	
		Computerized alert to physician about patient's risk of deep-vein thrombosis	Number of patients (%)			1251	17	
	Prophylactic measures: pharmacologic--warfarin	No computerized alert	Number of patients (%)			1255	3.3	
		Computerized alert to physician about patient's risk of deep-vein thrombosis	Number of patients (%)			1251	2.2	
	Prophylactic measures: pharmacologic--enoxaparin	No computerized alert	Number of patients (%)			1255	3.3	
		Computerized alert to physician about patient's risk of deep-vein thrombosis	Number of patients (%)			1251	4.4	
	Venous thromboembolism at 30 days	No computerized alert	Number of patients (%)			71	5.7	
		Computerized alert to physician about patient's risk of deep-vein thrombosis	Number of patients (%)			41	3.3	
	Venous thromboembolism at 90 days	No computerized alert	Number of patients (%)			103	8.2	
		Computerized alert to physician about patient's risk of deep-vein thrombosis	Number of patients (%)			61	4.9	
	Pulmonary embolism at 30 days	No computerized alert	Number of patients (%)			21	1.7	
		Computerized alert to	Number of			10	0.8	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
		physician about patient's risk of deep-vein thrombosis	patients (%)					
	Pulmonary embolism at 90 days	No computerized alert	Number of patients (%)			35	2.8	
		Computerized alert to physician about patient's risk of deep-vein thrombosis	Number of patients (%)			14	1.1	
	Proximal-leg deep-vein thrombosis at 30 days	No computerized alert	Number of patients (%)			17	1.4	
		Computerized alert to physician about patient's risk of deep-vein thrombosis	Number of patients (%)			8	0.6	
	Proximal-leg deep-vein thrombosis at 90 days	No computerized alert	Number of patients (%)			23	1.8	
		Computerized alert to physician about patient's risk of deep-vein thrombosis	Number of patients (%)			10	0.8	
	Distal-leg deep-vein thrombosis at 30 days	No computerized alert	Number of patients (%)			8	0.6	
		Computerized alert to physician about patient's risk of deep-vein thrombosis	Number of patients (%)			3	0.2	
	Distal-leg deep-vein thrombosis at 90 days	No computerized alert	Number of patients (%)			12	1	
		Computerized alert to physician about patient's risk of deep-vein thrombosis	Number of patients (%)			5	0.4	
	Deep-vein thrombosis of the arms at 30 days	No computerized alert	Number of patients (%)			25	2	
		Computerized alert to physician about patient's risk of deep-vein thrombosis	Number of patients (%)			20	1.6	
	Deep-vein thrombosis	No computerized alert	Number of			33	2.6	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	of the arms at 90 days		patients (%)					
		Computerized alert to physician about patient's risk of deep-vein thrombosis	Number of patients (%)			32	2.5	
	Death at 30 days	No computerized alert	Number of patients (%)			157	12.5	
		Computerized alert to physician about patient's risk of deep-vein thrombosis	Number of patients (%)			174	13.9	
	Death at 90 days	No computerized alert	Number of patients (%)			279	22.3	
		Computerized alert to physician about patient's risk of deep-vein thrombosis	Number of patients (%)			282	22.5	
	Major hemorrhage at 30 days	No computerized alert	Number of patients (%)			19	1.5	
		Computerized alert to physician about patient's risk of deep-vein thrombosis	Number of patients (%)			19	1.5	
	Minor hemorrhage at 30 days	No computerized alert	Number of patients (%)			88	7	
		Computerized alert to physician about patient's risk of deep-vein thrombosis	Number of patients (%)			81	6.5	
Kuppermann, 2009[35]	Knowledge score (%) post viewing	Control group did not received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	64.9	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	79.5	<0.001
	Knowledge score (%)	Control group did not		252		218	65.5	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	1-2 wk later	received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking						
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	77.6	<0.001
	Correct procedure-related miscarriage risk estimate (%) post- viewing	Control group did not received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	48.1	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	64.9	0.002
	Correct procedure-related miscarriage risk estimate (%) 1- 2 wk later	Control group did not received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	51	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	55.7	0.39
	Correct DS-affected fetus estimate (%) post-viewing	Control group did not received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	51.1	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	63.5	0.001
	Correct DS-affected	Control group did not		252		218	15.7	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	fetus estimate (%) 1-2 week later	received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking						
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	42.8	<0.001
	Intervention satisfaction post-reviewing	Control group did not received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	7.5	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	8.1	<0.001
	Intervention satisfaction 1-2 wk later	Control group did not received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	7.5	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	8.2	<0.001
	Intervention satisfaction at 26-30 wk gestation	Control group did not received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	7.5	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking				202	8.2	<0.001
	Decisional conflict--	Control group did not		252		218	40.2	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	factors contributing to uncertainty post-viewing	received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking						
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	32.1	<0.001
	Decisional conflict--factors contributing to uncertainty 1-2 wk later	Control group did not received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	38.8	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	32.3	0.005
	Decisional conflict--factors contributing to uncertainty at 26-30 wk of gestation	Control group did not received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	26.2	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	21.9	0.01
	Factors contributing to uncertainty 1-2 wk later	Control group did not received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	26.2	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	19.2	0.001
	Factors contributing	Control group did not		252		218	19.4	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	to uncertainty at 26-30 wk of gestation	received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking						
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	15.2	<0.001
	Ineffective decision 1-2 wk later	Control group did not received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	17.7	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	15.4	0.11
	Ineffective decision at 26-30 wk of gestation	Control group did not received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	32	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	31.4	0.47
	Overall decisional conflict 1-2 wk later	Control group did not received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	20.9	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	19.1	0.21
	Overall decisional	Control group did not		252		218	23.9	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	conflict at 26-30 wk of gestation	received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking						
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	20.6	0.001
	Decision regret (%) at 26-30 wk of gestation	Control group did not received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	12.8	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	9.6	0.28
	Intervention affected prenatal testing plan (%) 1-2 wk later	Control group did not received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	27.5	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testingdecision making		244		202	47.8	<0.001
	Intervention affected prenatal testing plan (%) at 26-30 wk of gestation	Control group did not received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	36	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	38.2	0.85
	Satisfaction in	Control group did not		252		218	49.2	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	decisionmaking (%)--Information given by the provider at 26-30 wk of gestation	received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking						
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	44.8	0.40
	Satisfaction in decisionmaking (%)--way of decision given by the provider at 26-30 wk of gestation	Control group did not received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252			48.1	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	44.3	0.45
	Satisfaction in decisionmaking (%)--degree of involvement of the provider at 26-30 wk of gestation	Control group did not received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	79.9	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testingdecision making					72.6	0.10
Lester, 2004[36]	Statin change	Usual care	%			124	2.3	<0.001
		Facilitated lipid management using interactive e-mail	%			132	15.3	<0.001
	Repeat fasting lipid profile	Usual care	%			124	7.6	0.16
		Facilitated lipid management using interactive e-mail	%			132	12.9	0.16
Lieberman, 2006[37]	One module of feedback completed	Text feedback on results of a questionnaire to evaluate problem drinking	% completed				5.2	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
		Multimedia feedback on results of a questionnaire to evaluate problem drinking					0	
	Two modules of feedback completed	Text feedback on results of a questionnaire to evaluate problem drinking	% completed				3.5	
		Multimedia feedback on results of a questionnaire to evaluate problem drinking					0	
	Three modules of feedback completed	Text feedback on results of a questionnaire to evaluate problem drinking	% completed				8.7	
		Multimedia feedback on results of a questionnaire to evaluate problem drinking					10.3	
	Four modules of feedback completed	Text feedback on results of a questionnaire to evaluate problem drinking	% completed				82.6	
		Multimedia feedback on results of a questionnaire to evaluate problem drinking					89.7	
Linder, 2009[38]	Proportion of smokers making contact with smoking cessation counselor	Usual care				14	0.3	
		Practices introducing electronic record enhancements, e.g. smoking status icons, reminders, tobacco smart form				12	3.9	<0.001
	Increase in coded smoking status documentation over study period	Usual care				14		
	Increase in % of patients with coded smoking status documentation over study period of 9 months	Practices introducing electronic record enhancements, e.g. smoking status icons, reminders, tobacco smart form				12		
	Medication prescribing	Usual care				14	2	
		Practices introducing				12	2	0.4

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
		electronic record enhancements, e.g. smoking status icons, reminders, tobacco smart form						
Lorig, 2006[39]	Health distress	Usual care	One-yr changes	501		426	-0.193	
		Internet-based CDSMP	One-yr changes	457		354	-0.377	
	Self-reported global health	Usual care	One-yr changes	501		426	-0.068	
		Internet-based CDSMP	One-yr changes	457		354	-0.102	
	Illness intrusiveness	Usual care	One-yr changes	501		426	-0.064	
		Internet-based CDSMP	One-yr changes	457		354	-0.150	
	Disability	Usual care	One-yr changes	501		426	-0.142	
		Internet-based CDSMP	One-yr changes	457		354	-0.166	
	Fatigue	Usual care	One-yr changes	501		426	-0.358	
		Internet-based CDSMP	One-yr changes	457		354	-0.720	
	Pain	Usual care	One-yr changes	501		426	-0.047	
		Internet-based CDSMP	One-yr changes	457		354	-0.367	
	Shortness of breath	Usual care	One-yr changes	501		426	-0.216	
		Internet-based CDSMP	One-yr changes	457		354	-0.537	
	Aerobic exercise	Usual care	One-yr changes	501		426	7.99	
		Internet-based CDSMP	(min/wk) one-yr changes	457		354	12.1	
	Stretch/strength exercise	Usual care	(min/wk) one-yr hanges	501		426	1.16	
		Internet-based CDSMP	(min/wk) one-yr changes	457		354	11.9	
	Communication with physician	Usual care	One-yr changes	501		426	0.221	
		Internet-based CDSMP	One-yr changes	457		354	0.268	
	Practice stress management (times/wk)	Usual care	(times/wk) one-yr changes	501		426	0.200	
		Internet-based CDSMP	(times/wk) one-yr changes	457		354	0.647	
	Self-efficacy	Usual care	One-yr changes	501		426	0.200	
		Internet-based CDSMP	One-yr changes	457		354	0.406	
	Physician visits (past 6 mo)	Usual care	One-yr changes	501		426	-0.866	
		Internet-based CDSMP	One-yr changes	457		354	-0.680	
	Emergency visits	Usual care	One-yr changes	501		426	-0.144	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	(past 6 mo)	Internet-based CDSMP	One-yr changes	457		354	-0	
	Days in hospital (past 6 mo)	Usual care	One-yr changes	501		426	-0.243	
		Internet-based CDSMP	One-yr changes	457		354	-0.003	
Lowensteyn, 1998[40]	Likelihood of return for followup assessment	The control group physician received their profile only if the patient was clinically reevaluated during a 3-month followup visit	Ratio of high-risk/low risk patients returning for follow-up	782			0.77	<0.05
		The profile group physician received coronary risk profiles for their patients within 10 working days after the baseline patient assessment providing early feedback		176			1.23	
Madaras-Kelly, 2006[41]	Returned calls from primary care provider	No clinical decision support	Number of returned calls from physicians	133				
		Clinical decision support to determine if broad spectrum antibiotic therapy is appropriate		59		4	3	
Marks, 2004[42]	Pretreatment--self-rated main problem and goals	2F mainly stand-alone computer-guided self-exposure		20		19	7.4	
		2C entirely clinician-guided self-exposure given face-to- face		29		27	7.3	
		1 R mainly stand-alone computer-and audio-tape-guided self-relaxation without exposure		16		14	7.1	
	Pretreatment--self-rated goals	2F mainly stand-alone computer-guided self-exposure		20		19	7.1	
		2C entirely clinician-guided self-exposure given face-to- face		29		27	7	
		1 R mainly stand-alone computer-and audio-tape-guided self-relaxation without exposure		16		14	7.1	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	Pretreatment--self-rated FQ global phobia	2F mainly stand-alone computer-guided self-exposure		20		19	6.1	
		2C entirely clinician-guided self-exposure given face-to- face		29		27	6.7	
		1 R mainly stand-alone computer-and audio-tape-guided self-relaxation without exposure		16		14	6.6	
	Pretreatment--self-rated WAS total	2F mainly stand-alone computer-guided self-exposure		20		19	15.5	
		2C entirely clinician-guided self-exposure given face-to- face		29		27	17.6	
		1 R mainly stand-alone computer-and audio-tape-guided self-relaxation without exposure		16		14	15.4	
	Pretreatment--blind assessors: main problem	2F mainly stand alone computer-guided self-exposure		20		19	NS	
		2C entirely clinician-guided self-exposure given face-to- face		29		27	NS	
		1 R mainly stand-alone computer-and audio-tape-guided self-relaxation without exposure		16		14	NS	
	Pretreatment--blind assessors: goal	2F mainly stand-alone computer-guided self-exposure		20		19	NS	
		2C entirely clinician-guided self-exposure given face-to- face		29		27	NS	
		1 R mainly stand-alone computer-and audio-tape-guided self-relaxation without exposure		16		14	NS	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	Pretreatment--blind assessors: FQ global phobia	2F mainly stand-alone computer-guided self-exposure		20		19	5.4	
		2C entirely clinician-guided self exposure given face-to-face		29		27	5.7	
		1 R mainly stand-alone computer-and audio-tape-guided self-relaxation without exposure		16		14	5.6	
	Pretreatment--blind assessors: WAS total	2F mainly stand-alone computer-guided self-exposure		20		19	14.6	
		2C entirely clinician-guided self-exposure given face-to- face		29		27	17.5	
		1 R mainly stand-alone computer-and audio-tape-guided self-relaxation without exposure		16		14	15.9	
	Post-treatment--self-rated: main problem and goals	2F mainly stand-alone computer-guided self-exposure					3.9	
		2C entirely clinician-guided self-exposure given face-to- face		29		27	3.6	
		1 R mainly stand-alone computer-and audio-tape-guided self-relaxation without exposure		16		14	6.4	
	Post-treatment--self-rated: goals	2F mainly stand-alone computer-guided self-exposure					2.9	
		2C entirely clinician-guided self-exposure given face-to- face		29		27	3.1	
		1 R mainly stand-alone computer-and audio-tape-guided self-relaxation without exposure		16		14	6.7	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	Post-treatment--self-rated: FQ global phobia	2F mainly stand-alone computer-guided self-exposure					3.8	
		2C entirely clinician-guided self-exposure given face-to- face		29		27	3.3	
		1 R mainly stand-alone computer-and audio-tape-guided self-relaxation without exposure		16		14	5.7	
	Post-treatment--self-rated: WAS total	2F mainly stand-alone computer-guided self-exposure					10	
		2C entirely clinician-guided self-exposure given face--to- face		29		27	11.8	
		1 R mainly stand-alone computer-and audio-tape-guided self-relaxation without exposure		16		14	11.9	
	Post-treatment--blind assessor: main problem	2F mainly stand-alone computer-guided self-exposure					3.1	
		2C entirely clinician-guided self-exposure given face-to- face		29		27	3.6	
		1 R mainly stand-alone computer-and audio-tape-guided self-relaxation without exposure		16		14	5.8	
	Post-treatment--blind assessors: goal	2F mainly stand-alone computer-guided self-exposure					2.9	
		2C entirely clinician-guided self-exposure given face-to- face		29		27	3.1	
		1 R mainly stand-alone computer-and audio-tape-guided self-relaxation without exposure		16		14	6.8	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	Post-treatment--blind assessors: FQ global phobia	2F mainly stand-alone computer-guided self-exposure					3.1	
		2C entirely clinician-guided self-exposure given face-to- face		29		27	3.2	
		1 R mainly stand-alone computer-and audio-tape-guided self-relaxation without exposure		16		14	5.3	
	Post-treatment--blind assessors: WAS total	2F mainly stand-alone computer-guided self-exposure					7.2	
		2C entirely clinician-guided self-exposure given face--to- face		29		27	10	
		1 R mainly stand-alone computer-and audio-tape-guided self--relaxation without exposure		16		14	15.3	
Matheny, 2008[43]	Receipt of therapeutic drug levels within 14 days of outpatient visit	Usual care				998	15.4	
		Electronic reminders				924	12.5	0.677
	Receipt of K level test when on thiazide diuretic	Usual care				998	51.7	
		Electronic reminders				924	64.5	0.473
	Receipt of TSH if on thyroxin	Usual care				998	56.8	
		Electronic reminders				924	57.9	0.747
	Receipt of ALT if on statin	Usual care				998	53.1	
		Electronic reminders				924	47.5	0.74
	Receipt of CR if on metformin	Usual care				998	37.5	
		Electronic reminders				924	35	0.594
McCrossan, 2007[44]	Specific concern raised by parent	Videoconference	%			22	62	
		Telephone	%			25	58	
	No medical attention needed	Videoconference	%			22	76	
		Telephone	%			25	64	
	Nurse informs	Videoconference	%			22	20	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	medical consultant	Telephone	%			25	14	
	Nurse advises to take NHS action	Videoconference	%			22	4	
		Telephone	%			25	22	
McDonald, 2005[45]	Presence of pain assessed by nurse	Usual care	Adjusted probability			234	86.9	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	Adjusted probability			242	89.3	
		Email reminder + provider prompts + patient education + clinical nurse specialist outreach	Adjusted probability			197	88	
	Medication assessment	Usual care	Adjusted probability			234	44.5	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	Adjusted probability			242	45.6	
		Email reminder + provider prompts + patient education + clinical nurse specialist outreach	Adjusted probability			197	50.4	
	Mood assessment by nurse	Usual care	Adjusted probability			234	85.5	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	Adjusted probability			242	92.7	
		Email reminder + provider prompts + patient education + clinical nurse specialist outreach	Adjusted probability			197	88.9	
	Educational materials delivered by nurse	Usual care	Adjusted probability			234	1.3	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	Adjusted probability			242	2.4	
		Email reminder + provider prompts + patient education + clinical nurse specialist outreach	Adjusted probability			197	7.3	
	Pain at its worst (range: 0–10)	Usual care	Adjusted probability/score			234	4.5	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	Adjusted probability/score			242	3.6	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
		Email reminder + provider prompts + patient education + clinical nurse specialist outreach	Adjusted probability/score			197	3.3	
	Pain on average (range: 0–10)	Usual care	Adjusted probability/score			234	3.7	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	Adjusted probability/score			242	2.2	
		Email reminder + provider prompts + patient education + clinical nurse specialist outreach	Adjusted probability/score			197	3.1	
	Pain interference scale (range: 0–10)	Usual care	Adjusted probability/score			234	5.3	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	Adjusted probability/score			242	5.8	
		Email reminder + provider prompts + patient education + clinical nurse specialist outreach	Adjusted probability/score			197	5.2	
	Best quality of life	Usual care	Adjusted probability/score			234	16.1	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	Adjusted probability/score			242	16.9	
		Email reminder + provider prompts + patient education + clinical nurse specialist outreach	Adjusted probability/score			197	15.2	
	Severe pain	Usual care	Adjusted probability/score			234	28.4	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	Adjusted probability/score			242	32	
		Email reminder + provider prompts + patient education + clinical nurse specialist outreach	Adjusted probability/score			197	25.8	
	Severe insomnia	Usual care	Adjusted probability/score			234	40.9	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	Adjusted probability/score			242	39.5	
		Email reminder + provider prompts + patient education + clinical nurse specialist outreach	Adjusted probability/score			197	32.8	
	Severe constipation	Usual care	Adjusted probability/score			234	18.9	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	Adjusted probability/score			242	14.8	
		Email reminder + provider prompts + patient education + clinical nurse specialist outreach	Adjusted probability/score			197	12	
	Inadequate pain management	Usual care	Adjusted probability/score			234	68.5	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	Adjusted probability/score			242	69.9	
		Email reminder + provider prompts + patient education + clinical nurse specialist outreach	Adjusted probability/score			197	64	
	Barriers summary score	Usual care	Score			234	37.7	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	Score			242	37.6	
		Email reminder + provider prompts + patient education + clinical nurse specialist outreach	Score			197		
	Use of alternative treatments	Usual care	Adjusted probability/score			234	26.9	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	Adjusted probability/score			242	22.6	
		Email reminder + provider prompts + patient	Adjusted probability/score			197	15.9	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
		education + clinical nurse specialist outreach						
	Probability of hospitalization	Usual care	Adjusted probability			234	22.2	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	Adjusted probability			242	22.1	
		Email reminder + provider prompts + patient education + clinical nurse specialist outreach	Adjusted probability			197	16.6	
	Probability of ED use	Usual care	Adjusted probability			234	36.6	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	Adjusted probability			242	37.8	
		Email reminder + provider prompts + patient education + clinical nurse specialist outreach	Adjusted probability			197	33.5	
	Home care-related costs	Usual care	US dollars			234	2642	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	US dollars			242	2789	
		Email reminder + provider prompts + patient education + clinical nurse specialist outreach	US dollars			197	2903	
	Overall costs	Usual care	US dollars			234	5687	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	US dollars			242	5966	
		Email reminder + provider prompts + patient education + clinical nurse specialist outreach	US dollars			197	5611	
McGregor, 2006[46]	In-hospital mortality	Patients without computerized clinical decision support system	Number of patients who died in the hospital			180	8.19	
		Patients with computerized	Number of patients who died in the hospital			359	7.84	0.52

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
		clinical decision support system						
	Length of hospitalization	Patients without computerized clinical decision support system	Days			180	5	
		Patients with computerized clinical decision support system	Days			359	4	0.64
	Hospital antimicrobial expenditure savings	Patients without computerized clinical decision support system	US dollar expenditures per patient			180	0	
		Patients with computerized clinical decision support system	US dollar expenditures per patient			359	37.64	
	Time spent managing antimicrobial utilization	Patients without computerized clinical decision support system	Person-hours per day			180	4.1	
		Patients with computerized clinical decision support system	Person-hours per day			359	3.2	
McKinley, 2001[47]	Survival	Usual care non-protocol managed by physician orders				33	79	
		Ventilation computerized protocol				34	70	Not significant
	ICU length of stay	Usual care non-protocol managed by physician orders	Days			33	31.4	
		Ventilation computerized protocol				34	34.5	Not significant
	Morbidity	Usual care non-protocol managed by physician orders	Morbidity score			33	9.3	
		Ventilation computerized protocol				34	9.8	Not significant
	Barotrauma	Usual care non-protocol managed by physician	Score			33	0.83	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
		orders						
		Ventilation computerized protocol				34	1.01	Not significant
	FiO_2 exposure >0.6	Usual care non-protocol managed by physician orders				33	3.1	
		Ventilation computerized protocol				34	1.8	<0.05
	P plateau exposure > 35 cm H_2O	Usual care non-protocol managed by physician orders				33	669	
		Ventilation computerized protocol				34	360	<0.05
Mitchell, 2004[48]	Final systolic blood pressure (SBP)	Control--no feedback practices		507		518	148	0.555
		Audit only practices		603		641	152.3	0.707 as compared to Arm A, 0.026 as compared to Arm C
		Audit plus strategic practices		645		646	146.5	0.555
	Final proportion with controlled blood pressure in hypertensive patients	Control--no feedback practices		507		518	45.7	
		Audit only practices		603		641	33.5	0.77
		Audit plus strategic practices		645		646	45.5	0.028
	All patients with BP<160/90	Control--no feedback practices		507		518		
		Audit only practices		603	39	641	47	
		Audit plus strategic practices		645	54.3	646	63	
	All patients with BP>=160/90	Control--no feedback practices		507		518		
		Audit only practices		603		641		

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
		Audit plus strategic practices		645	26.9	646	22.8	
	All patients with no recorded BP	Control--no feedback practices		507		518		
		Audit only practices		603		641		
		Audit plus strategic practices		645	18.8	646	14.2	
	Hypertensive patients with BP recorded	Control--no feedback practices		507		518		
		Audit only practices		603		641		
		Audit plus strategic practices		645	96.1	646	96.6	
	Hypertensive patients with no recorded BP	Control--no feedback practices		507	10.4	518	7.7	
		Audit only practices		603	19.6	641	14	
		Audit plus strategic practices		645	3.9	646	3.4	
	Hypertensive patients with BP<160/90	Control -- no feedback practices		507	40.5	518	56.5	
		Audit only practices		603	33.6	641	45.1	
		Audit plus strategic practices		645	53.9	646	62.1	
	Hypertensive patients with BP >=160/90	Control--no feedback practices		507	49.1	518	35.8	
		Audit only practices		603	46.8	641	40.9	
		Audit plus strategic practices		645	42.1	646	34.5	
	Hypertensive patients treated for hypertension	Control--no feedback practices		507	84.3	518	91.4	
		Audit only practices		603	87.5	641	92.3	
		Audit plus strategic practices		645	84.3	646	93.7	
	Hypertensive patients who are treated with no record of BP	Control--no feedback practices		507	9.2	518	6.6	
		Audit only practices		603	15.9	641	12.9	
		Audit plus strategic practices		645	3	646	3.2	
	Hypertensive patients who are treated with	Control--no feedback practices		507	41.5	518	32.3	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	BP>=160/90	Audit only practices		603	41.3	641	38.3	
		Audit plus strategic practices		645	36.1	646	32.6	
	Hypertensive patients who have controlled BP	Control--no feedback practices		507	33.6	518	52.5	
		Audit only practices		603	30.3	641	41.1	
		Audit plus strategic practices		645	45.2	646	57.9	
Montgomery, 2000[49]	5-yr CV risk <10%	Usual care	%	130		130		
		CDSS plus risk chart	%	202		202		
		Risk chart alone	%	199	13	199	15	
	5-yr CV risk 10-19.9%	Usual care	%	130		130		
		CDSS plus risk chart	%	202		202		
		Risk chart alone	%	199	47	199	46	
	5-yr CV risk >20%	Usual care	%	130		130		
		CDSS plus risk chart	%	202	34	202	32	
		Risk chart alone	%	199	40	199	39	
	Mean 5-yr CV risk	Usual care	CV risk	130	17.3	130	17.8	
		CDSS plus risk chart	Mean CV risk	202	16	202	16.7	
		Risk chart alone	Mean CV risk	199	17.9	199	17.5	
	Mean systolic BP	Usual care	mm Hg	130	158	130	159	
		CDSS plus risk chart	mm Hg	202	153	202	153	
		Risk chart alone	mm Hg	199	156	199	153	
	Mean diastolic BP	Usual care	mm Hg	130	86	130	84	
		CDSS plus risk chart	mm Hg	202	85	202	85	
		Risk chart alone	mm Hg	199	87	199	86	
	0-1 class(es) of drugs	Usual care	%	137		137		
		CDSS plus risk chart	%	207		207		
		Risk chart alone	%	208	47	208	33	
	2 classes of drugs	Usual care	%	137	33	137	34	
		CDSS plus risk chart	%	207	36	207	36	
		Risk chart alone	%	208	28	208	32	
	>=3 class of drugs	Usual care	%	137	25	137	29	
		CDSS plus risk chart	%	207	21	207	25	
		Risk chart alone	%	199	25	199	35	
	Mean difference in 5-	Usual care	CV risk	130		130	0.77	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	yr CV risk	CDSS plus risk chart	CV risk	202		202	0.65	
		Risk chart alone	CV risk	199		199	-0.48	
	Mean difference in systolic pressure	Usual care	mm Hg	130		130	-1.64	
		CDSS plus risk chart	mm Hg				-0.04	
		Risk chart alone	mm Hg	199		199	-2.66	
	Mean difference in diastolic pressure	Usual care	mm Hg	130		130	-1.64	
		CDSS plus risk chart	mm Hg				0.36	
		Risk chart alone	mm Hg	199		199	-1.1	
Montgomery, 2007[50]	Decisional conflict scale (total)	Standard care	Score				27.8	
		Information program	Score				22.5	
		Decision analysis	Score				23.6	
	Mode of delivery-elective Caesarean	Standard care	N				50	
		Information program	N			117	49	
		Decision analysis	N				41	
	Mode of delivery--emergency Caesarean	Standard care	N				20	
		Information program	N			53	22	
		Decision analysis	N			50	21	
	Mode of delivery--vaginal birth	Standard care	N				30	
		Information program	N				29	
		Decision analysis	N			88	37	
	Anxiety	Standard care					42.1	
		Information program					38.5	
		Decision analysis					38.7	
	Knowledge	Standard care					57.5	
		Information program					69.7	
		Decision analysis					68.0	
	Satisfaction with decision	Standard care					4.2	
		Information program					4.3	
		Decision analysis					4.4	
Morgan, 2005[51]		Ad hoc telephone support						
		Videoconferencing for critically ill children at home						
Murray, 1999[52]	Activity--discussing information	No access (control)	Time spent (% of work shift)			NR	21.5	
		Access to electronic treatment suggestions	Time spent (% of work shift)			NR	30.5	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	Activity--checking prescription	No access (control)	Time spent (% of work shift)			NR	22.5	
		Access to electronic treatment suggestions	Time spent (% of work shift)			NR	20.8	
	Activity--preparing prescription	No access (control)	Time spent (% of work shift)			NR	21	
		Access to electronic treatment suggestions	Time spent (% of work shift)			NR	13.9	
	Activity--idling	No access (control)	Time spent (% of work shift)			NR	5.5	
		Access to electronic treatment suggestions	Time spent (% of work shift)			NR	5.8	
	Activity--entering data in computer	No access (control)	Time spent (% of work shift)			NR	13.7	
		Access to electronic treatment suggestions	Time spent (% of work shift)			NR	13.4	
	Activity--other	No access (control)	Time spent (% of work shift)			NR	12.8	
		Access to electronic treatment suggestions	Time spent (% of work shift)			NR	15.5	
	Function--filling prescription	No access (control)	Time spent (% of work shift)			NR	58.9	
		Access to electronic treatment suggestions	Time Spent (% of Work Shift)			NR	47.9	
	Function--advising or informing	No access (control)	Time spent (% of work shift)			NR	17.7	
		Access to electronic treatment suggestions	Time spent (% of work shift)			NR	23.2	
	Function—problem-solving	No access (control)	Time spent (% of work shift)			NR	3.7	
		Access to electronic treatment suggestions	Time spent (% of work shift)			NR	7.3	
	Function--other	No access (control)	Time spent (% of work shift)			NR	19.7	
		Access to electronic treatment suggestions	Time spent (% of work shift)			NR	21.6	
	Contact--self	No access (control)	Time spent (% of work shift)			NR	78.5	
		Access to electronic treatment suggestions	Time spent (% of work shift)			NR	65.7	
	Contact--patient	No access (control)	Time spent (% of work shift)			NR	14	
		Access to electronic treatment suggestions	Time spent (% of work shift)			NR	22	
	Contact--pharmacy	No access (control)	Time spent (% of			NR	3.1	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	personnel		work shift)					
		Access to electronic treatment suggestions	Time spent (% of work shift)			NR	4.2	
	Contact--physician or nurse	No access (control)	Time spent (% of work shift)			NR	3.1	
		Access to electronic treatment suggestions	Time spent (% of work shift)			NR	6.4	
	Contact--other	No access (control)	Time spent (% of work shift)			NR	1.3	
		Access to electronic treatment suggestions	Time spent (% of work shift)			NR	1.7	
Murtaugh, 2005[53]	Estimate of % of nurses who recorded a comprehensive HF assessment	Nurses treating HF patients who provided usual care	Adjusted probability			122	3.7	
		Nurses who received e-mail recommendations to treat heart failure patients (basic intervention)	Adjusted probability			114	13.8	0.006
		Nurses who received e-mail recommendations and additional resources to treat heart failure heart failure (augmented intervention)	Adjusted probability			118	23.9	<0.001
	Estimate of % of nurses who recorded a diet assessment	Nurses treating HF patients who provided usual care	Adjusted probability			122	27.6	
		Nurses who received e-mail recommendations to treat heart failure patients (basic intervention)	Adjusted probability			114	38.2	0.76
		Nurses who received e-mail recommendations and additional resources to treat heart failure heart failure (augmented intervention)	Adjusted probability			118	48.7	0.001
	Estimate of % of nurses who recorded a medication knowledge assessment	Nurses treating HF patients that provide usual care	Adjusted probability			122	24.8	
		Nurses whom received e-mail recommendations to treat heart failure patients	Adjusted probability			114	31.1	0.285

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
		(basic intervention)						
		Nurses who received e-mail recommendations and additional resources to treat heart failure heart failure (augmented intervention)	Adjusted probability			118	34.4	0.109
	Estimate of % of nurses who recorded a medication adherence assessment	Nurses treating HF patients who provided usual care	Adjusted probability			122	48.2	
		Nurses who received e-mail recommendations to treat heart failure patients (basic intervention)	Adjusted probability			114	62.7	0.024
		Nurses whom received e-mail recommendations and additional resources to treat heart failure heart failure (augmented intervention)	Adjusted probability			118	59.6	0.077
	Estimate of % of nurses who recorded a medication side-effects assessment	Nurses treating HF patients who provided usual care	Adjusted probability			122	12.7	
		Nurses who received e-mail recommendations to treat heart failure patients (basic intervention)	Adjusted probability			114	15.3	0.558
		Nurses whom received e-mail recommendations and additional resources to treat heart failure heart failure (augmented intervention)	Adjusted probability			118	23.6	0.03
	Estimate of % of nurses who instructed patients about HF symptoms, shortness of breath	Nurses treating HF patients who provided usual care	Adjusted probability			122	18.1	
		Nurses who received e-mail recommendations to treat heart failure patients (basic intervention)	Adjusted probability			114	31.1	0.021
		Nurses who received e-mail recommendations and additional resources to	Adjusted probability			118	28.9	0.053

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
		treat heart failure heart failure (augmented intervention)						
	Estimate of % of nurses who instructed patients about HF symptoms, fluid weight gain	Nurses treating HF patients who provided usual care	Adjusted probability			122	20.6	
		Nurses who received e-mail recommendations to treat heart failure patients (basic intervention)	Adjusted probability			114	29.9	0.097
		Nurses who received e-mail recommendations and additional resources to treat heart failure heart failure (augmented intervention)	Adjusted probability			118	39.7	0.001
	Estimate of % of nurses who instructed patients about HF symptoms, fatigue	Nurses treating HF patients who provided usual care	Adjusted probability			122	11.8	
		Nurses who received e-mail recommendations to treat heart failure patients (basic intervention)	Adjusted probability			114	10.5	0.752
		Nurses who received e-mail recommendations and additional resources to treat heart failure heart failure (augmented intervention)	Adjusted probability			118	15.9	0.353
	Estimate of % of nurses who instructed patients about global HF symptoms	Nurses treating HF patients who provided usual care	Adjusted probability			122	42.1	
		Nurses who received e-mail recommendations to treat heart failure patients (basic intervention)	Adjusted probability			114	53.9	0.07
		Nurses who received e-mail recommendations and additional resources to treat heart failure heart failure (augmented intervention)	Adjusted probability			118	59.5	0.007
	Estimate of % of	Nurses treating HF patients	Adjusted			122	16	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	nurses who recorded instructions to patients about self-weighing	that provide usual care	probability					
		Nurses who received e-mail recommendations to treat heart failure patients (basic intervention)	Adjusted probability			114	37.2	<0.001
		Nurses who received e-mail recommendations and additional resources to treat heart failure heart failure (augmented intervention)	Adjusted probability			118	48.7	<0.001
	Estimate of % of nurses who recorded instructions to patients about managing fluid weight gain	Nurses treating HF patients who provided usual care	Adjusted probability			122	5.7	
		Nurses who received e-mail recommendations to treat heart failure patients (basic intervention)	Adjusted probability			114	8	0.505
		Nurses who received e-mail recommendations and additional resources to treat heart failure heart failure (augmented intervention)	Adjusted probability			118	11.9	0.116
	Estimate of % of nurses who recorded instructions to patients about low-salt diet	Nurses treating HF patients who provided usual care	Adjusted probability			122	22.7	
		Nurses whom received e-mail recommendations to treat heart failure patients (basic intervention)	Adjusted probability			114	40.4	0.003
		Nurses who received e-mail recommendations and additional resources to treat heart failure heart failure (augmented intervention)	Adjusted probability			118	49.6	<0.001
	Estimate of % of nurses who recorded instructions to patients about medication	Nurses treating HF patients who provided usual care	Adjusted probability			122	51.2	
		Nurses whom received e-mail recommendations to treat heart failure patients	Adjusted probability			114	57	0.385

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	management	(basic intervention)						
		Nurses who received e-mail recommendations and additional resources to treat heart failure heart failure (augmented intervention)	Adjusted probability			118	59.7	0.195
	Estimate of % of nurses who recorded instructions about methods to improve adherence	Nurses treating HF patients who provided usual care	Adjusted probability			122	15	
		Nurses who received e-mail recommendations to treat heart failure patients (basic intervention)	Adjusted probability			114	26.5	0.03
		Nurses who received e-mail recommendations and additional resources to treat heart failure heart failure (augmented intervention)	Adjusted probability			118	18	0.532
	Estimate of % of nurses who recorded instructions to patients about self-contacting an MD	Nurses treating HF patients who provide usual care	Adjusted probability			122	27.3	
		Nurses who received e-mail recommendations to treat heart failure patients (basic intervention)	Adjusted probability			114	36.2	0.147
		Nurses who received e-mail recommendations and additional resources to treat heart failure heart failure (augmented intervention)	Adjusted probability			118	42.8	0.014
	Estimate of % of nurses who recorded instructions to patients about educational material	Nurses treating HF patients who provided usual care	Adjusted probability			122	10.5	
		Nurses who received e-mail recommendations to treat heart failure patients (basic intervention)	Adjusted probability			114	17.6	0.113
		Nurses who received e-mail recommendations and additional resources to	Adjusted probability			118	46.2	<0.001

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
		treat heart failure heart failure (augmented intervention)						
Nguyen, 2000[54]	Effects of intervention on performance rates for checkups	Group of Vietnamese physicians without intervention	Beta-coefficient	11		11	NA	
		Group of Vietnamese physicians with intervention	Beta-coefficient	9		8		0.88
	Effects of intervention on performance rates for smoking cessation counseling	Group of Vietnamese physicians without intervention	Beta-coefficient	11		11	NA	
		Group of Vietnamese physicians with intervention	Beta-coefficient					0.02
	Effects of intervention on performance rates for Pap testing	Group of Vietnamese physicians without intervention	Beta-coefficient	11		11	NA	
		Group of Vietnamese physicians with intervention	Beta-coefficient					0.004
	Effects of intervention on performance rates for pelvic examination	Group of Vietnamese physicians without intervention	Beta-coefficient	11		11	NA	
		Group of Vietnamese physicians with intervention	Beta-coefficient					0.01
	Effects of intervention on performance rates for clinical breast examinations	Group of Vietnamese hysicians without intervention	Beta-coefficient	11		11	NA	
		Group of Vietnamese physicians with intervention	Beta-coefficient					0.73
	Effects of intervention on performance rates for mammography	Group of Vietnamese hysicians without intervention	Beta-coefficient	11		11	NA	
		Group of Vietnamese physicians with intervention	Beta-coefficient					0.8
	Effects of intervention on performance rates for serologies	Group of Vietnamese physicians without intervention	Beta-coefficient	11		11	NA	
		Group of Vietnamese physicians with intervention	Beta-coefficient					0.22
	Effects of intervention on performance rates	Group of Vietnamese physicians without	Beta-coefficient	11		11	NA	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	for Hepatitis B immunizations	intervention						
		Group of Vietnamese physicians with intervention	Beta-coefficient					0.75
Nguyen, 2008[55]	CRQ--dyspnea with ADL	FDSMP (face-to-face)	Score 5-35	20	15.9	20	19.9	
		EDSMP Internet-based	Range 5-35	19	18.8	19	21.3	0.14
	Exercise stage of change: action or maintenance	FDSMP (face-to-face)	%	20		20		
		EDSMP Internet-based	%	19		19		NA
	Endurance exercise	FDSMP (face-to-face)	Total min/week	20	77	20	121	
		EDSMP Internet-based	Total min/wk	19	89	19	128	0.22
	Strength exercise	FDSMP (face-to-face)	Total min/week	20	21	20	53	
		EDSMP Internet-based	Total min/wk	19	11	19	34	0.54
	6-minute walk test	FDSMP (face-to-face)	M	20	406	20	394	
		EDSMP Internet-based	M	19	436	19	456	0.22
	CRQ--fatigue	FDSMP (face-to-face)	Range 4-28	20	16.1	20	17.7	
		EDSMP Internet-based	Range 4-28	19	17.1	19	18.3	0.29
	CRQ--mastery	FDSMP (face-to-face)	Range 4-28	20	20.4	20	22.4	
		EDSMP Internet-based	Range4-28	19	21.7	19	23.6	0.35
	CRQ--emotional functioning	FDSMP (face-to-face)	Range 7-49	20	33.4	20	34.5	
		EDSMP Internet-based	Range 7-49	19	35.9	19	36.8	0.33
	CRQ--total score	FDSMP (face-to-face)	Range 2--140	20	85.8	20	94.5	
		EDSMP Internet-based	Range 20-140	19	93.5	19	99.9	0.19
	SF-36 Physical composite	FDSMP (face-to-face)	Range 0-100	20	32	20	8	
		EDSMP Internet-based	Range 0-100	19	37.3	19	39.9	0.07
	SF-36 Mental composite	FDSMP (face-to-face)	Range 0-100	20	12.5	20	13.8	
		EDSMP (Internet-based	Range 0-100	19	49.7	19	51.3	0.7
	Dyspnea knowledge	FDSMP (face-to-face)	Range 0-15	20	12.5	20	13.8	
		EDSMP Internet-based	Range 0-15	19	12.6	19	14.1	0.49
	Self-efficacy	FDSMP (face-to-face)	Range 0-10	20	4.6	20	5	
		EDSMP Internet-based	Range 0-10	19	4.7	19	6.7	0.18
	Perception of support	FDSMP (face-to-face)	Range 0-100	20	68.9	20	70.9	
		EDSMP Internet-based	Range 0-100	19	62.2	19	66.4	0.64
	Perception of exercise support/strongly agree	FDSMP (face-to-face)	%	20		20	80	
		EDSMP Internet-based	%	19		19	68	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	Perception of exercise support/agree	FDSMP (face-to-face)	%	20		20	10	
		EDSMP Internet-based	%				32	
	Satisfaction with program	FDSMP (face-to-face)	Scale 1-5	20		20	2.7	
		EDSMP Internet-based	Scale 1-5				2.6	
Noel, 2004[56]	Bed-days of care per patient over 6-month period	Received usual home healthcare services plus nurse care management	Days		13.82	57	5.11	0.001
		Received home telehealth plus nurse care management	Days		12.19	47	1.88	0.0001/0.085 (Baseline to final/ between groups)
	Total clinic visits per patient over 6-month period	Received usual home healthcare services plus nurse care management	Number of visits		16.33	57	14.96	0.26
		Received home telehealth plus nurse care management	Number of visits		14.51	47	14.83	1.000/0.958 (Baseline to final/ between groups)
	Urgent visits per patient over 6-month period	Received usual home healthcare services plus nurse care management	Number of visits		5.59	57	5.69	0.902
		Received home telehealth plus nurse care management	Number of visits		7.27	47	5.39	0.023/0.798 (Baseline to final/ between groups)
	RN home visits per patient over 6-month period	Received usual home healthcare services plus nurse care management	Number of visits		1.82	57	1.81	0.979
		Received home telehealth plus nurse care management	Number of visits		2.53	47	2	0.512/0.848 (Baseline to final/ between

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
								groups)
	Diabetic A1c levels at 6 months	Received usual home healthcare services plus nurse care management	Diabetic A1C test units		7.03	28	7.83	0.002
		Received home telehealth plus nurse care management	Diabetic A1C test units		8.3	23	7.3	0.0001/0.225 (Baseline to final/ between groups)
	Quality-of-life measure: cognitive status at 12 months	Received usual home healthcare services plus nurse care management	Test units		19.42	14	19.43	0.635
		Received home telehealth plus nurse care management	Test units		19.31	8	20	0.095/0.006 (Baseline to final/ between groups)
	Quality-of-life measure: functional level at 12 months	Received usual home healthcare services plus nurse care management	Test units		40.19	14	38.29	0.417
		Received home telehealth plus nurse care management	Test units		37.02	8	37.63	0.107/0.799 (Baseline to final/ between groups)
	Quality-of-life: patient satisfaction at 12 months	Received usual home healthcare services plus nurse care management	Test units		98.7	14	95.57	0.004
		Received home telehealth plus nurse care management	Test units		103.55	8	109.75	0.427/0.0125 (Baseline to final/ between groups)
	Quality-of-life: self-rated health status at 12 months	Received usual home healthcare services plus nurse care management	Test units		84.86	14	82.21	0.15

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
		Received home telehealth plus nurse care management	Test units		81.32	8	88	0.110/0.506 (Baseline to final/ between groups)
	Average/participant healthcare cost	Received usual home healthcare services plus nurse care management	US dollars			57		
		Received home telehealth plus nurse care management	US dollars			47		
Overhage, 2002[57]	Mean ED charge <=$8000	Control--Methodist Hospital, no intervention	US dollars			16094	427.99	
		Intervention--Methodist hospital	US dollars			16374	431.41	0.7609
		Control--Community Hospital, no intervention	US dollars			16094	420.06	
		Intervention--Community Hospital	US dollars			16374	393.54	0.0326
	Mean all charges	Control--Methodist Hospital, no intervention	US dollars			16094	440.71	
		Intervention--Methodist hospital	US dollars			16374	448.52	0.58
		Control--Community Hospital, no intervention	US dollars			16094	425.45	
		Intervention--Community Hospital	US dollars			16374	400.09	0.0736
	Mean charge--discharged patients	Control--Methodist Hospital, no intervention	US dollars			16094	243.27	
		Intervention--Methodist hospital	US dollars			16374	250.1	0.1711
		Control--Community Hospital, no intervention	US dollars			16094	274.73	
		Intervention--Community Hospital				16374	261.45	0.0695
	Mean charge--admitted patients	Control--Methodist Hospital, no intervention	US dollars			16094	1943.77	
		Intervention--Methodist hospital	US dollars			16374	1940.03	0.9696

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
		Control--Community Hospital, no intervention	US dollars			16094	1573.08	
		Intervention--Community Hospital				16374	1449.43	0.1721
Parati, 2009[58]	% with daytime BP normalization	Usual care		111		111	50	
		Teletransmitted home BP		187		187	62	
	Frequency of treatment changes	Usual care		111		111	14	
		Teletransmitted home BP		187		187	9	
	Quality of life at end of study per QOL assessment in HTN patients' questionnaire	Usual care		111		111		
		Teletransmitted home BP		187		187	33.8-43.0	
	Healthcare costs	Usual care	US dollars	111		111		
		Teletransmitted home BP	US dollars	187		187	96.92-159.90	
Persell, 2008[59]	All patients--regular aspirin use	Patient intervention plus reminders	%			130	46	0.2
		Clinician reminders				112	39	0.2
	Selected patients--regular aspirin use	Patient intervention plus reminders	%			76	43	0.013
		Clinician reminders				74	30	0.013
Poller, 2008[60]	Time in target INR	Medical staff dosage		6503		6447	64.7	0.001
		Computer-assisted oral anticoagulant dosage		6716		6605	65.9	0.001
Quinn, 2003[61]	Effectiveness of a portable electronic diary	Patient using paper diaries		35		33	8.2	
		Patient using electronic diaries		33		32	7	
	Ease-of-use rating	Patient using paper diaries		35		33	8.1	
		Patient using electronic diaries		33		32	7.3	
Quinn, 2008[62]	A1c mean	Control group		13	9.05	13	8.37	
		Well-Doc intervention		13	9.51	13	7.48	0.04
	Medication intensified	Control group	%	13		13	23.08	
		Well-Doc intervention	%	13		13	84.62	0.002
	Medication errors identified	Control group	%	13		13	0	
		Well-Doc intervention	%	13		13	53.38	0.002

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	Physician received logbook	Control group	%	13		13	7.69	
		Well-Doc intervention	%	13		13	100	<0.001
	New diagnosis depression	Control group	%	13		13	20	
		Well-Doc intervention	%	13		13	9.09	0.37
	Diet diabetes self-care	Control group	Mean days per week	13	3.15	13	3.86	
		Well-Doc intervention	Mean days per week	13	3.15	13	5.5	0.036
	Medications diabetes self-care	Control group	Mean days per week	13	6.3	13	6.75	
		Well-Doc intervention	Mean days per week	13	5.92	13	6.64	0.495
	Exercise diabetes self-care	Control group	Mean days per week	13	1.23	13	1.57	
		Well-Doc intervention	Mean days per week	13	2.08	13	2.92	0.657
	Improved knowledge of food (self-reported)	Control group	%	13		13	50	
		Well-Doc intervention	%	13		13	90.91	0.062
	Provider management improved	Control group	%	13		13	37.5	
		Well-Doc intervention	%	13		13	100	0.004
	Patient confidence	Control group	%	13		13	75	
		Well-Doc intervention	%	13		13	100	0.167
	Prior to study, patient remembers logbook or glucometers for physician visit	Control group	% Yes			13	0	
		Well-Doc intervention	% Yes			13	7.69	0.5
	Patient self-management skills improved	Control group	% Yes			13	15.38	
		Well-Doc intervention	% Yes			13	100	<0.001
	Physician received data to manage patient's diabetes	Control group	% Yes			13	7.69	
		Well-Doc intervention	% Yes			13	100	<0.001
	Physician received more patient data	Control group	% Yes			13	23.08	
		Well-Doc intervention	% Yes			13	100	0.001
Raebel, 2007[63]	Proportion of pregnant women dispensed a Category D or X medication	No intervention	Dispensing of category D or X medications			5025	5.5	<0. 001
		Computerized tool that alerted pharmacists when pregnant patients were	Dispensing of category D or X medications			6075	2.9	<0.001

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
		prescribed U.S. Food and Drug Administration pregnancy risk category D or X medications						
Ralston, 2009[64]	Mean GHb (%)	Usual care	GHb level	41	7.9	35	8.1	
		Web-based care management	GHb level	42	8.2	39	7.3	0.12/0.01/<0.01
	GHb<7%	Usual care	GHb level	41	0	35	11	
		Web-based care management	GHb level	42	0	39	33	NR/0.03/0.03
	Outpatient visits	Usual care	Number of times visited	41	10.3	35	8.2	
		Web-based care management	Number of visits	42	9.6	39	10.2	0.71/0.36/0.18
	Primary care provider visits	Usual care	Number of times visited	41	3.3	35	3.1	
		Web-based care management	Number of visits	42	4.3	39	4.3	0.15/0.16/0.76
	Specialty physician visits	Usual care	Number of times visited	41	7	35	5.1	
		Web-based care management	Number of visits	42	5.3	39	5.9	0.3/0.66/0.14
	Inpatient days	Usual care	Number of inpatient days	41	0.7	35	0.4	
		Web-based care management	Number of visits	42	0.3	39	0.5	0.31/0.77/0.32
Rhodes, 2006[65]	Urban ED--DV discussion	Control	%			275	45	
		Promote health survey	%			262	56	0.004
	Urban ED--any DV disclosure	Control	%			275	8	
		Promote health survey	%			262	14	0.07
	Urban ED--any DV services	Control	%			275	4	
		Promote health survey	%			262	8	0.04
	Urban ED and DV pos on Exit Q--DV discussion	Control	%			90	44	
		Promote health survey	%			98	64	0.003
	Urban ED and DV pos on Exit Q--any DV disclosure	Control	%			90	14	
		Promote health survey	%			98	29	0.02

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	Suburban ED--DV discussion	Control	%			171	9	
		Promote health survey	%			159	11	0.78
	Suburban ED--any DV disclosure	Control	%			171	3	
		Promote health survey	%			159	3	0.95
	Suburban ED--any DV services	Control	%			171	0	
		Promote health survey	%			159	2.5	
	Suburban ED and DV pos on Exit Q--DV discussion	Control	%			49	8	
		Promote health survey	%			44	20	0.12
	Suburban ED and DV pos on Exit Q--any DV disclosure	Control	%			49	2	
		Promote health survey	%			44	11	0.1
Rollman, 2002[66]	Asymptomatic (HRS-D 0-7)	Usual care	% with score on Hamilton Rating Scale for Depression	62		59	22	
		Passive care	% with score on Hamilton Rating Scale for Depression	70		69	23	
		Active care	% with score on Hamilton Rating Scale for Depression	68		65	22	
	Partially symptomatic (HRS-D 8-11)	Usual care	% with score on Hamilton Rating Scale for Depression	62		59	17	
		Passive care	% with score on Hamilton Rating Scale for Depression	70		69	23	
		Active care	% with score on Hamilton Rating Scale for Depression	68		65	22	
	Symptomatic (HRS-D >=12)	Usual care	% with score on Hamilton Rating Scale for	62		59	61	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
			Depression					
		Passive care	% with score on Hamilton Rating Scale for Depression	70		69	54	
		Active care	% with score on Hamilton Rating Scale for Depression	68		65	57	
	Mean office visits with usual PCP	Usual care	Mean office visits with usual PCP			62	2.4	
		Passive care	Mean office visits with usual PCP			70	3.09	0.02
		Active care	Mean office visits with usual PCP			68	3.31	0.02
	Mean contacts with usual PCP	Usual care	Mean contacts with usual PCP			62	3.61	
		Passive care	Mean contacts with usual PCP			70	3.7	0.6
		Active care	Mean contacts with usual PCP			68	4.01	0.6
	Mean contacts with any PCP	Usual care	Mean contacts with any PCP			62	4.18	
		Passive care	Mean contacts with any PCP			70	4.1	0.4
		Active care	Mean contacts with any PCP			68	4.68	0.4
	>= 3 Contacts with usual PCP	Usual care	%			62	42	
		Passive care	%			70	63	0.03
		Active care	%			68	66	0.03
	Depression mentioned in any contact with usual PCP	Usual care	%			62	46	
		Passive care	%			70	87	0.3
		Active care	%			68	79	0.3
	Depression mentioned in >=3 contacts with usual PCP	Usual care	%			62	18	
		Passive care	%			70	31	0.09
		Active care	%			68	31	0.09
	Depression treatment mentioned in >= 3 contacts with usual PCP	Usual care	%			62	18	
		Passive care	%			70	23	0.9
		Active care	%			68	24	0.9
	PCP counsels patient for depression	Usual care	%			62	21	
		Passive care	%			70	20	0.9

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
		Active care	%			68	25	0.9
	Antidepressant medication suggested/prescribed or baseline regimen modified	Usual care	%			62	52	
		Passive care	%			70	57	0.3
		Active care	%			68	59	0.3
	Antidepressant medication baseline regiment continued without modification	Usual care	%			62	5	
		Passive care	%			70	13	
		Active care	%			68	12	
	Antidepression medication not offered	Usual care	%			62	44	
		Passive care	%			70	30	
		Active care	%			68	29	
	Mental health referral suggested	Usual care	%			62	35	
		Passive care	%			70	36	0.3
		Active care	%			68	26	0.3
Ross, 2004[67]	Patient self-efficacy (KCCQ self-efficacy score)	Patients in the control group continued to receive standard care in the practice		53		43	85	
		Participants in the intervention group were given a user identification and password to SPPARO and received a written user guide to the system		54		38	91	0.08
	General adherence (MOS compliance score)	Patients in the control group continued to receive standard care in the practice		53		43	3.4	
		Participants in the intervention group were given a user identification and password to SPPARO and received a written user guide to the system		54		38	3.6	0.01
	Better satisfaction with doctor–patient communication	Patients in the control group continued to receive standard care in the		53		43	4.4	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
		practice						
		Participants in the intervention group were given a user identification and password to SPPARO and received a written user guide to the system		54		38	4.6	0.03
Rothschild, 2007[68]	Inappropriate non-emergent	No intervention	% of appropriate and inappropriate transfusion orders			227	63.8	<0.0001
		Computerized decision support interventions for improving transfusion practice	% of appropriate and inappropriate transfusion orders			226	63.8	<0.0.0001
	Continued to improve	Computerized decision support interventions for improving transfusion practice	% in intervention group			226	59.6	
Roukema, 2008[69]	Intention to treat	Usual care	Median time spent in the ED	76		76	100	
		CDSS for diagnostic management of children with fever without apparent source	Median time spent in the ED	58		58	100	
	Per protocol	Usual care	Median time spent in the ED	76		76	100	
		CDSS for diagnostic management of children with fever without apparent source	Median time spent in ED	52		52	100	
	Lab tests ordered	Usual care	Median time spent in the ED	33		33	100	
		CDSS for diagnostic management of children with fever without apparent source	Median time spent in the ED	52		52	100	
Roumie, 2006[70]	Systolic BP	Provider education providers	mm Hg			54	145	
		Provider education and alert	mm Hg			62	146	
		Provider education, alert,	mm Hg			66	138	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
		and patient education						
	Change in systolic BP from baseline	Provider education providers	mm Hg			54	-12	
		Provider education and alert	mm Hg			62	-11	
		Provider education, alert, and patient education	mm Hg			66	-16	
	Systolic BP <=140	Provider education providers	%			54	42	
		Provider education and alert	%			62	40.9	0.003
		Provider education, alert, and patient education	%			66	59.5	0.003
	Systolic BP <=140 assuming missing BP not controlled	Provider education providers	%			54	33	
		Provider education and alert	%			62	27.1	0.013
		Provider education, alert, and patient education	%			66	45.3	0.013
	Diastolic BP <90 mm Hg (assume missing BP is not controlled)	Provider education providers	%			54	67.9	
		Provider education and alert	%			62	58.7	0.81
		Provider education, alert, and patient education	%			66	68.3	0.81
	Any changes in antihypertensive drugs	Provider education providers	%			54	32.4	
		Provider education and alert	%			62	28.7	0.33
		Provider education, alert, and patient education	%			66	29.1	0.33
	Dose increased	Provider education providers	%			54	13	
		Provider education and alert	%			62	9.1	0.07
		Provider education, alert, and patient education	%			66	8.7	0.07
	Drug added	Provider education providers	%			54	15.7	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
		Provider education and alert	%			62	15.4	0.49
		Provider education, alert, and patient education	%			66	17.5	0.49
	Diuretic	Provider education providers	%			54	9.3	
		Provider education and alert	%			62	9	0.41
		Provider education, alert, and patient education	%			66	11.3	0.41
	ACE/ARB	Provider education providers	%			54	6.5	
		Provider education and alert	%			62	6.2	0.77
		Provider education, alert, and patient education	%			66	7	0.77
	Calcium-channel blocker	Provider education providers	%			54	2.2	
		Provider education and alert	%			62	2.9	0.48
		Provider education, alert, and patient education	%			66	3	0.48
	Beta-blocker	Provider education providers	%			54	4.9	
		Provider education and alert	%			62	3.7	NA
		Provider education, alert, and patient education	%			66	3.8	NA
	Alpha-adrenergic antagonist	Provider education providers	%			54	2.5	
		Provider education and alert	%			62	2.6	0.5
		Provider education, alert, and patient education	%			66	1.7	0.5
	Both increased dose and drug added	Provider education providers	%			54	3.7	
		Provider education and alert	%			62	4	0.57
		Provider education, alert, and patient education	%			66	3	0.57

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	Mean medication adherence	Provider education providers	Not specified			54		
		Provider education and alert	Not specified			62		
		Provider education, alert, and patient education	Not specified			66		
	Hospitalizations	Provider education providers	%			54	3.7	
		Provider education and alert	%			62	2.9	
		Provider education, alert, and patient education	%			66	5.3	
	Deaths	Provider education providers	%			54	2.5	
		Provider education and alert	%			62	0.6	
		Provider education, alert, and patient education	%			66	0.9	
Ruland, 2003[71]	Congruence between patient-reported symptoms and those addressed in consult visit	Usual care				NR	2.84	
		Used computerized system for SDM for cancer symptoms care				NR	7.63	<0.01
	Ease of use	Used computerized system for SDM for cancer symptoms care	Composite score (range -16 to +16)			NR	5.06	
Santamore, 2008[72]	% error for similarity between telemedicine recorded systolic BP and recorded systolic BP	% error	BP measurements transmitted through an Internet-based telemedicine system vs. not through a telemedicine system	160				0
				161			<1.0%	
	% error for similarity between telemedicine recorded diastolic BP and recorded diastolic BP	% error	BP measurements transmitted through an Internet-based telemedicine	160				0
				161			<1.0%	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
			system vs. not through a telemedicine system					
	BP monitoring	% of patients	BP measurements transmitted through an Internet-based telemedicine system vs. not through a telemedicine system	160			49	<0.0001
				161			92	
Scherr, 2009[73]	Rehospitalization	Usual care	Number of hospitalizations	54			17	0.06
		CHF patients in the intervention group received home-based telemonitoring		54			11	
	Length of stay	Usual care	Median days	54	11		10	0.04
		CHF patients in the intervention group received home-based telemonitoring		54	12		6.5	
Sequist, 2005[74]	Number of diabetes reminders generated	Usual care				2924	6.7	
		Physicians received either evidence-based electronic reminders within their patients' electronic medical record				3319	6.1	0.004
	Performance of recommended action for diabetes	Usual care				2924	14	
		Physicians received evidence-based electronic reminders within their patients' electronic medical record				3319	19	
	Annual screening for cholesterol	Physicians received evidence-based electronic reminders within their patients' electronic medical record				3319		<0.001
	ACE inhibitor use for hypertension in	Physicians received evidence-based electronic				3319		0.1

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	diabetics	reminders within their patients' electronic medical record						
	Number of coronary artery disease (CAD) reminders	Usual care				2924		
		Physicians received evidence-based electronic reminders within their patients' electronic medical record				3319		<0.001
	Performance of recommended action for CAD	Usual care				2924	17	
		Physicians received evidence-based electronic reminders within their patients' electronic medical record				3319	22	
	Use of statins in presence of hypercholesterolemia in CAD patients	Physicians received evidence-based electronic reminders within their patients' electronic medical record				3319		0.03
	Use of aspirin therapy in CAD patients	Physicians received evidence-based electronic reminders within their patients' electronic medical record				3319		0.002
	Biennial hemoglobin A1C exam in diabetics	Physicians received evidence-based electronic reminders within their patients' electronic medical record				3319		0.29
	Annual dilated eye exam for diabetics	Physicians received evidence-based electronic reminders within their patients' electronic medical record				3319		0.23
	Statin use for hypercholesterolemia in diabetics	Physicians received evidence-based electronic reminders within their patients' electronic medical record				3319		0.73

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	Annual cholesterol exam in CAD patients	Physicians received evidence-based electronic reminders within their patients' electronic medical record				3319		0.92
	Beta-blocker use in CAD patients	Physicians received evidence-based electronic reminders within their patients' electronic medical record				3319		0.69
Shiffman, 2000[75]	PEFR measurements	Control phase	Rate			NR	1.6	
		Intervention phase (guideline recommendations)				NR	2.2	
	Oxygen saturation measurements	Control phase				NR	0.48	
		Intervention phase (guideline recommendations)				NR	1.1	
	Nebulization treatments	Control phase				NR	0.77	
		Intervention phase (guideline recommendations)				NR	1.2	
	Presentation to discharge--improved	Control phase	% (N)			39		
		Intervention phase (guideline recommendations)				41	43	
	Presentation to discharge--no change	Control phase	% (N)			51		
		Intervention phase (guideline recommendations)				30		
	Presentation to discharge--immediate disposition home	Control phase	% (N)			88		
		Intervention phase (guideline recommendations)				73		
	Presentation to discharge--ED/direct hospitalization	Control phase				2		
		Intervention phase (guideline recommendations)				1		
	1-wk follow-up--	Control phase				37	44	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	missed school	Intervention phase (guideline recommendations)				33	48	
	1-wk follow-up--missed school, average days missed	Control phase					1.29	
		Intervention phase (guideline recommendations)					1.04	
	1-wk follow-up--missed work	Control phase				20	24	
		Intervention phase (guideline recommendations)				16	23	
	1-wk follow-up--missed work, average days missed	Control phase						
		Intervention phase (guideline recommendations)					0.46	
	1-wk follow-up--office revisit	Control phase				25	30	
		Intervention phase (guideline recommendations)				18	26	
	1-wk follow-up--ED visits	Control phase				5	6	
		Intervention phase (guideline recommendations)				0		
	1-wk follow-up--hospitalization	Control phase				4		
		Intervention phase (guideline recommendations)				0		
Simon, 2006[76]	Medication dispensing	Age-specific prescribing alerts plus the academic detailing intervention	Number of times one or more of the target medications was dispensed per 10,000 patients per quarter			NR	146.3	
		Computerized age-specific alerts	Number of times one or more of the target medications was dispensed per 10,000 patients per quarter			NR	155.2	
Smith, 2008[77]	ADA-NCQA provider score median	Usual care	Score unit	277			58	0
		Intervention group received a virtual consultation		358			56	
	Minnesota community aggregate optimal diabetes score	Usual care	% with outcome	277			18	0
		Intervention group received a virtual consultation		358			30	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	Mean total cost	Usual care	US dollars	277			8564	0.02
		Intervention group received a virtual consultation		358			6252	
	Mean outpatient cost	Usual care	US dollars	277			2129	0.04
		Intervention group received a virtual consultation		358			1842	
Soopramanien, 2005[78]								
Subramanian, 2004[79]	Number of all clinical decisions	Physicians in the control group received care suggestions generated with electronic medical record data	Number of clinical decisions			365	528	0
		Physicians in the intervention group received care suggestions generated with electronic medical record data and symptom data obtained from questionnaires mailed to patients within 2 weeks of scheduled outpatient visits				355	738	
	Mean all-cause hospitalizations	Physicians in the control group received care suggestions generated with electronic medical record data	Number of hospitalizations			365	1.7	0.05
		Physicians in the intervention group received care suggestions generated with electronic medical record data and symptom data obtained from questionnaires mailed to patients within 2 weeks of scheduled outpatient visits				355	2.3	
	Mean admissions for heart failure	Physicians in the control group received care suggestions generated with	Number of admissions			365	0.4	0

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
		electronic medical record data						
		Physicians in the intervention group received care suggestions generated with electronic medical record data and symptom data obtained from questionnaires mailed to patients within 2 weeks of scheduled outpatient visits				355	0.3	
Tamblyn, 2003[80]	New potentially inappropriate prescriptions per 1000 visits	Usual care				53		
		CDS provides information on all medications prescribed and potential problems				54		
	Rate of discontinuation of inappropriate prescriptions	Usual care				53		
		CDS provides information on all medications prescribed and potential problems				54		
	Therapeutic duplication by study physician and another	Usual care				53		
		CDS provides information on all medications prescribed and potential problems				54		
	Drug interaction caused by study physician	Usual care				53		
		CDS provides information on all medications prescribed and potential problems				54		
Tamblyn, 2008[81]	Any prescribing problem	On-physician-demand	Number of patients with any prescribing problem			416	30.1	
		Computer-triggered	Number of patients with any prescribing problem			389	38.8	0.17
	Drug-disease contraindications	On-physician-demand	Number of patients with drug-disease contraindications			416	16.1	
		Computer-triggered	Number of patients with drug-disease contraindications			389	21.3	0.51

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	Therapeutic duplication	On-physician-demand	Number of patients with therapeutic duplication			416	5.4	
		Computer-triggered	Number of patients with therapeutic duplication			389	4.3	0.001
	Cumulative toxicity	On-physician-demand	Number of patients with cumulative toxicity			416	1.8	
		Computer-triggered	Number of patients with cumulative toxicity			389	4.2	0.19
	Drug interaction	On-physician-demand	Number of patients with drug interaction			416	10.4	
		Computer-triggered	Number of patients with drug interaction			389	12.5	0.75
	Drug-age contraindication	On-physician-demand	Number of patients with drug-age contraindication			416	2.1	
		Computer-triggered	Number of patients with drug-age contraindication			389	4.6	0.24
	Dosing error	On-physician-demand	Number of patients with dosing error			416	5.4	
		Computer-triggered	Number of patients with dosing error			389	5.3	0.78
	By severity: absolutely contraindicated	On-physician-demand	Number of patients absolutely contraindicated			416	5.7	
		Computer-triggered	Number of patients absolutely contraindicated			389	5.7	0.96
	By severity: avoid if possible	On-physician-demand	Number of patients that "avoid if possible"			416	9.6	
		Computer-triggered	Number of patients that "avoid if possible"			389	12	0.79
	By severity: use with caution	On-physician-demand	% of patients that were "use with caution"			416	54.6	
		Computer-triggered	% of patients that were "use with caution"			389	55.6	0.18
Taylor, 2006[82]	CPAP use	Traditional care	Mean			NR	4.22	0.87
		Telemedicine support	Mean			NR	4.29	0.87
	Proportion of nights with CPAP	Traditional care	Mean proportion			NR	50	0.61
		Telemedicine support	Mean proportion			NR	47	0.61
	Functional status	Traditional care	Mean			NR	2.27	0.76
		Telemedicine support	Mean			NR	2.03	0.76

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	Client satisfaction	Traditional care	Mean			NR	28.0	0.43
		Telemedicine support	Mean			NR	28.5	0.43
Taylor, 2008[83]	Quality of asthma documentation -- chest auscultation	PD	Measures were scored yes or no			26	96	
		Electronic interface	Measures were scored yes or no			23	100	0.35
	Quality of asthma documentation --peak expiratory flow	PD	Measures were scored yes or no			14	52	
		Electronic interface	Measures were scored yes or no			19	82	0.02
	Quality of asthma documentation--ability to verbalize	PD	Measures were scored yes or no			16	59	
		Electronic interface	Measures were scored yes or no			22	95	0.03
	Quality of asthma documentation -- asthma severity	PD	Measures were scored yes or no			17	63	
		Electronic interface	Measures were scored yes or no			23	100	<0.01
	Quality of asthma documentation-- smoking cessation advice	PD	Measures were scored yes or no			8	29	
		Electronic interface	Measures were scored yes or no			22	95	<0.01
	Quality of asthma documentation - asthma management plan	PD				15	55	
		Electronic interface	Measures were scored yes or no			23	100	<0.01
	Quality of asthma documentation--oral corticosteroid prescription	PD				16	59	
		Electronic interface	Measures were scored yes or no			20	87	0.03
	Quality of asthma documentation-- precipitating factors	PD				26	96	
		Electronic interface	Measures were scored yes or no			23	100	0.35
	Quality of asthma documentation-- previous intensive care admissions	PD				16	59	
		Electronic interface	Measures were scored yes or no			23	100	0.01
	Quality of asthma documentation-- oxygen saturations	PD				22	81	
		Electronic interface	Measures were scored yes or no			21	91	0.32
	Consultation times	PD						
		Electronic interface	Median times in minutes					0.04

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
Thomas, 2007[84]	No. of patients who had HgbA1c monitoring within 6 mo	Diabetes care outcomes in the control group				111	48.1	
		Diabetes care outcomes in the intervention group (computerized diabetes registry)				155	61.5	0.01
	No. of patients who had LDL cholesterol monitoring within 1 year	Diabetes care outcomes in the control group				148	64.1	
		Diabetes care outcomes in the intervention group (computerized diabetes registry)				191	75.8	0.02
	Mean HgbA1c	Diabetes care outcomes in the control group	HgbA1c <7.0%		7.4	135	7.4	
		Diabetes care outcomes in the intervention group (computerized diabetes registry)	HgbA1c <7.0%		7.3	156	7.3	0.13/0.38 /0.83
	Mean LDL cholesterol	Diabetes care outcomes in the control group	LDL <100 mg/dl		101.6	141	97.5	
		Diabetes care outcomes in the intervention group (computerized diabetes registry)	LDL <100 mg/dl		103.6	152	98.4	0.14/0.60 /0.61
	Mean systolic blood pressure	Diabetes care outcomes in the control group	BP <130/85 mm Hg		129.1	116	130.8	
		Diabetes care outcomes in the intervention group (computerized diabetes registry)	BP <130/85 mm Hg		131.5	126	131	0.20/0.93
	Mean diastolic blood pressure	Diabetes care outcomes in the control group			72.01	116	71.7	
		Diabetes care outcomes in the intervention group (computerized diabetes registry)	BP <130/85 mm Hg		72.6	126	72.4	0.79/0.64
Tierney, 2003[85]	Patients with any cardiac care suggestion	No intervention	% of suggestions that were complied with			163	22	
		Physician intervention	% of suggestions that were complied with			174	23	
	Patients with	No intervention	% of suggestions that were complied with			107	36	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	suggestions regarding starting or increasing an ACE inhibitor	Physician intervention	% of suggestions that were complied with			109	38	
	Patients with suggestions regarding a pneumococcal vaccination	No intervention	% of suggestions that were complied with			82	1	
		Physician intervention	% of suggestions that were complied with			104	10	
	Patients with suggestions regarding starting or increasing a beta-blocker	No intervention	% of suggestions that were complied with			83	12	
		Physician intervention	% of suggestions that were complied with			96	16	
	Patients with suggestions regarding starting low-dose aspirin	No intervention	% of suggestions that were complied with			81	28	
		Physician intervention	% of suggestions that were complied with			74	24	
	Patients with suggestions regarding starting or increasing a diuretic	No intervention	% of suggestions that were complied with			73	27	
		Physician intervention	% of suggestions that were complied with			71	24	
	Patients with suggestions regarding starting or increasing a long-acting nitrate	No intervention	% of suggestions that were complied with			25	12	
		Physician intervention	% of suggestions that were complied with			30	20	
	Patients with suggestions regarding starting an antihyperlipidemic drug	No intervention	% of suggestions that were complied with			22	36	
		Physician intervention	% of suggestions that were complied with			22	32	
	Patients with suggestions regarding starting or increasing a calcium blocker	No intervention	% of suggestions that were complied with			17	59	
		Physician intervention	% of suggestions that were complied with			21	33	
	Physical function	No intervention	Short-form 36 subscale score			119	42	
		Physician intervention	Short-form 36 subscale score			142	36	
	Role physical	No intervention	Short-form 36			119	53	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
			subscale score					
		Physician intervention	Short-form 36 subscale score			142	35	
	Pain	No intervention	Short-form 36 subscale score			119	53	
		Physician intervention	Short-form 36 subscale score			142	47	
	General health	No intervention	Short-form 36 subscale score			119	42	
		Physician intervention	Short-form 36 subscale score			142	38	
	Vitality	No intervention	Short-form 36 subscale score			119	44	
		Physician intervention	Short-form 36 subscale score			142	40	
	Social function	No intervention	Short-form 36 subscale score			119	69	
		Physician intervention	Short-form 36 subscale score			142	65	
	Role emotional	No intervention	Short-form 36 subscale score			119	61	
		Physician intervention	Short-form 36 subscale score			142	61	
	Mental health	No intervention	Short-form 36 subscale score			119	63	
		Physician intervention	Short-form 36 subscale score			142	64	
	Overall health status	No intervention	Chronic heart disease questionnaire score			119	4.6	
		Physician intervention	Chronic heart disease questionnaire score			142	4.5	
	Dyspnea	No intervention	Chronic heart disease questionnaire score			119	5.2	
		Physician intervention	Chronic heart			142	5	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
			disease questionnaire score					
	Fatigue	No intervention	Chronic heart disease questionnaire score			119	4	
		Physician intervention	Chronic heart disease questionnaire score			142	3.8	
	Emotion	No intervention	Chronic heart disease questionnaire score			119	4.6	
		Physician intervention	Chronic heart disease questionnaire score			142	4.5	
	Number of all ED visits	No intervention	Number of all ED visits			181	1	
		Physician intervention	Number of all ED visits			197	1.1	
	Number of heart disease specific ED visits	No intervention	Number of heart disease-specific ED visits			181	0.2	
		Physician intervention	Number of heart disease-specific ED visits			197	0.2	
	Number of all hospitalizations	No intervention	Number of all hospitalizations			181	0.5	
		Physician intervention	Number of all hospitalizations			197	0.4	
	Number of heart disease specific hospitalizations	No intervention	Number of heart disease specific hospitalizations			181	0.2	
		Physician intervention	Number of heart disease specific hospitalizations			197	0.2	
Trautmann, 2008[86]	Frequency of	Internet-based psycho		17	13.8	17	12.3	>0.05/>0.

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	headache	education intervention (EDU)						05
		Internet-based self-help treatment for headache including chat communication.		17	15.2	10	8	>0.05/<0.05
	Duration of headache	Internet-based psycho education intervention (EDU)		17	6	17	5.1	>0.05/>0.05
		Internet-based self-help treatment for headache including chat communication.		17	3.8	10	3.3	>0.05/>0.05
	Intensity of headache	Internet-based psycho education intervention (EDU)		17	5.8	17	5	
		Internet-based self-help treatment for headache including chat communication.		17	4.7	10	4.2	>0.05/>0.05
	Pain-catastrophizing effect	Internet-based psycho education intervention (EDU)		17	36.4	17	37.3	
		Internet-based self-help treatment for headache including chat communication.		17	33	10	30	>0.05/<0.05
	Satisfaction	Internet-based psycho education intervention (EDU)		17		17		>0.05
		Internet-based self-help treatment for headache including chat communication		17		10		>0.05
Van Wijk, 2001[87]	Average number of tests per order form per practice	Bloodlink-restricted clinical decisionmaking support system for blood test ordering				21	7.7	
		Bloodlink guideline clinical decisionmaking support				23	7.2	0.003

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
		system for blood test ordering						
Wakefield, 2008[88]	MLHF	Usual care	MLHF (higher is worse)	49	60.6	42	60.2	
		Telephone	MLHF (higher is worse)	47	58.4	34	41.5	
		Videophone	MLHF (higher is worse)	52	60.2	33	54	
	Cox proportional hazards model: first admission model fit	Combined intervention	Hazard ratio					
	90days/MLHF	Usual care	MLHF (higher is worse)			44	58.4	
		Telephone	MLHF (higher is worse)			40	44.4	
		Videophone	MLHF (higher is worse)			42	48.7	
	Cox proportional hazards model: death model fit	Combined intervention	Hazard ratio					
Walker, 2004[89]	Product usage over 6 months	Handheld computer diaries	Units of factor concentrate per patient			19	62 122	
		Paper diaries	Units of factor concentrate per patient			22	64 306	
	Product usage over 6 months	Handheld computer diaries	Median number of vials per patient			19	60	
		Paper diaries	Median number of vials per patient			22	57	
	Product usage over 6 months	Handheld computer diaries	Median number of infusions per patient			19	36	
		Paper diaries	Median number of infusions per patient			22	39	
	Number of data submissions per patient	Handheld computer diaries				19	23	
		Paper diaries				22	4	
	Elapsed time between infusions and receipt of data	Handheld computer diaries	Days			19	0.25	
		Paper diaries	Days			22	25	
	Number of reminder phone calls for data	Handheld computer diaries				19	1	
		Paper diaries				22	5	
	Total number of vials not accounted per patient	Handheld computer diaries				19	3	
		Paper diaries				22	5	
	Number (%) of patients with an error	Handheld computer diaries	Number of patients (%)			15	68.2	

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	in the number of vials not accounted	Paper diaries	Number (%)			13	68.4	
		Computer generated patient-specific guidelines group		358	4.8	243	6.4	0.52
Weber, 2008[90]	Average number of total medications	Usual care	Average number of total medications	207	7.46		7.62	
		Electronic medical record-based intervention	Average number of total medications	413	7.65		7.88	
	Patients on 8 or more medications	Usual care	%	207			44	
		Electronic medical record-based intervention	%	413			40	
Whited, 2002-[91]	Time to initial definitive intervention	Text-based electronic consult form	Days			140	127	
		Telederm consult with digital images and standardized history	Time to setting consult appointment or providing consult answer if visit unneeded			135	41	<0.001
Wolfenden, 2005[92]	Computerized cessation counseling	Patient received cessation advice, preoperative NRT, and a postoperative NRT prescription at the discretion of clinic staff		NR		NR		
		Patient received behavioral counseling and tailored self-help material		124		119		
	Nurse brief advice—sellf-report	Patient received cessation advice, preoperative NRT, and a postoperative NRT prescription at the discretion of clinic staff		75		35		
		Patient received behavioral counseling and tailored self-help material		105		83	4.3	<0.01
	Nurse brief advice--medical audit	Patient received cessation advice, preoperative NRT, and a postoperative NRT prescription at the discretion of clinic staff		85		57		
		Patient received behavioral		123		114	6.2	<0.01

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
		counseling and tailored self-help material						
	Anesthetist brief advice--self-report	Patient received cessation advice, preoperative NRT, and a postoperative NRT prescription at the discretion of clinic staff		69		27		
		Patient received behavioral counseling and tailored self-help material		102		61	2.3	<0.01
	Preoperative NRT offer--self-report	Patient received cessation advice, preoperative NRT, and a postoperative NRT prescription at the discretion of clinic staff		50		4		
		Patient received behavioral counseling and tailored self-help material		73		60	53.1	<0.01
	Preoperative NRT offer--medical audit	Patient received cessation advice, preoperative NRT, and a postoperative NRT prescription at the discretion of clinic staf.		56		0		
		Patient received behavioral counseling and tailored self-help material		89		79	855.6	<0.01
	Postoperative NRT prescribed--medical audit	Patient received cessation advice, preoperative NRT, and a postoperative NRT prescription at the discretion of clinic staff		37		0		
		Patient received behavioral counseling and tailored self-help material		71		61	439.2	<0.01
	Tailored self-help material	Patient received cessation advice, preoperative NRT, and a postoperative NRT prescription at the discretion of clinic staff		NR		NR		
		Patient received behavioral		124		119		

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
		counseling and tailored self-help material						
Ziemer, 2006[93]	Effect of the interventions on therapy intensification	Usual care	Beta-coefficient	Total of 345 health care providers in study				**SNR
		In the intervention group, health care providers received clinical reminders		Total of 345 health care providers in study	−0.0718		0.0908	
	Effect of the interventions on therapy intensification	Usual care	Beta-coefficient	Total of 345 health care providers in study				**SNR
		In the intervention group, health care providers received clinical reminders		Total of 345 health care providers in study	−0.0160		0.4812	
	Effect of the interventions on therapy intensification	Usual care	Beta-coefficient	Total of 345 health care providers in study				**SNR
		In the intervention group, health care providers received clinical reminders		Total of 345 health care providers in study	0.0204		0.0125	
	Effect of therapy intensification on change in HbA1c level	Usual care	Beta-coefficient	Total of 345 health care providers in study				**SNR
		In the intervention group, health care providers received clinical reminders		Total of 345 health care providers in study			−0.0667	
	Effect of therapy intensification on	Usual care	Beta-coefficient	Total of 345 health care				**SNR

Evidence Table 3. All outcomes of studies addressing healthcare process outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
	change in HbA1c level			providers in study				
		In the intervention group, health care providers received clinical reminders		Total of 345 health care providers in study			−0.2357	
	Effect of therapy intensification on change in HbA1c level	Usual care	Beta-coefficient	Total of 345 health care providers in study				**SNR
		In the intervention group, health care providers received clinical reminders		Total of 345 health care providers in study			0.0808	

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Evidence Table 4. Outcomes related to diabetes mellitus in studies addressing healthcare process outcomes

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-value
Filippi, 2003[1]	Number of high-risk diabetic patients with anti-platelet drug prescriptions	Number of patients	Electronic reminder integrated into a routine computer system in order to increase the use of anti-platelet drugs for diabetic patients vs. patients receiving a letter but no electronic reminder	7313 8030 379	1672 1886 3.92	2242 3012 4.29	570 1126 0.37	556 770 0.28	<0.01
Glasgow, 2000[2]	Proportion Received touch-screen goal-setting	% with outcome	Telephone followup vs. the basic intervention condition received by all participants, which involved a meeting with a health counselor at a central location and having specific dietary goals set with the aid of a multimedia touch-screen computer	67 75	100 98.8	90 92.5	10 6.3	-3.7 2.50	**SNR
	Proportion	% with	Community	67	100	90	10	-5	**SNR

Evidence Table 4. Outcomes related to diabetes mellitus in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-value
	Received touch-screen goal-setting	outcome	resources vs. the basic intervention condition received by all participants, which involved a meeting with a health counselor at a central location and having specific dietary goals set with the aid of a multimedia touch-screen computer	67	100	95	5	5.00	
	Proportion Received TS goal-setting	% with outcome	Telephone followup support and community resources vs. the basic intervention condition received by all participants, which involved a meeting with a health counselor at a central location and having specific dietary goals set with the aid of a multimedia touch-screen computer	67 68	100 100	90 88	10 12	2 -2.00	**SNR
Gomez, 2002[3]	Mean therapeutic medication prescriptions increased	Number of medication prescriptions	Group using DIABTel telemedicine system vs. usual care	10 10		0.2 2.9		2.7	**SNR
Hetlevik,	Fraction of	% with	Diabetes mellitus	408	22.4	18.8	-3.6	-3.4	0

Evidence Table 4. Outcomes related to diabetes mellitus in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-value
2000[4]	patients without baseline registration of HbA1c	outcome	patients whose physicians used a computer-based clinical decision support system (CDSS) vs. diabetes mellitus patients whose physicians used pre-existing routines for treatment	368	27.5	20.5	-7	1.7	
	Fractions of patients without a baseline registration of blood pressure	% with outcome	Diabetes mellitus patients whose physicians used a computer-based clinical decision support system (CDSS) vs. diabetes mellitus patients whose physicians used pre-existing routines for treatment	408 368	22.6 21.8	18.5 18.7	-4.1 -3.1	1 0.2	0
	Fractions of patients without a baseline registration of serum cholesterol	% with outcome	Diabetes mellitus patients whose physicians used a computer-based clinical decision support system (CDSS) vs. diabetes mellitus patients whose physicians used pre-existing routines for treatment	408 368	56.3 80	62.7 71	6.4 -9	-15.4 8.3	0
	Fractions of	% with	Diabetes mellitus	408		94.5			0.006

Evidence Table 4. Outcomes related to diabetes mellitus in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-value
	patients without a registered number of cigarettes	outcome	patients whose physicians used a computer-based clinical decision support system (CDSS) vs. diabetes mellitus patients whose physicians used pre-existing routines for treatment	368		82.6		-11.9	
	Fractions of patients without registered cardiovascular inheritance	% with outcome	Diabetes mellitus patients whose physicians used a computer-based clinical decision support system (CDSS) vs. diabetes mellitus patients whose physicians used pre-existing routines for treatment	408		83.4			**SNR
				368		78.7		-4.7	
	Fractions of patients without registered height/weight of BMI	% with outcome	Diabetes mellitus patients whose physicians used a computer-based clinical decision support system (CDSS) vs. diabetes mellitus patients whose physicians used pre-existing routines for treatment	408		93			**SNR
				368		78.2		-14.8	
	Fractions of	% with	Diabetes mellitus	408		98.3			**SNR

Evidence Table 4. Outcomes related to diabetes mellitus in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-value
	patients without at least one variable making risk score calculation possible	outcome	patients whose physicians used a computer-based clinical decision support system (CDSS) vs. diabetes mellitus patients whose physicians used pre-existing routines for treatment	368		91.1		-7.2	
	% of registered patients who are smokers	% with outcome	Diabetes mellitus patients whose physicians used a computer-based clinical decision support system (CDSS) vs. diabetes mellitus patients whose physicians used pre-existing routines for treatment	408 368		16 19		 3	0.05
	% of registered patients with cardiovascular inheritance	% with outcome	Diabetes mellitus patients whose physicians used a computer-based clinical decision support system (CDSS) vs. diabetes mellitus patients whose physicians used pre-existing routines for treatment	408 368		63 66		 3	<0.001

Evidence Table 4. Outcomes related to diabetes mellitus in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-value
Persell, 2008[5]	All patients - regular aspirin use	% with outcome	Eliciting physicians' input and directly contacting patients by mail and phone vs. reminder to physician only	112 130		39 46		 7	0
	Regular aspirin use excluding long-term aspirin users and patients reporting medical contraindication	% with outcome	Eliciting physicians' input and directly contacting patients by mail and phone vs. reminder to physician only	74 76		30 43		 13	0.013
Quinn, 2008[6]	Medication intensified	% with outcome	Well-doc intervention vs. control group	13 13		23.08 84.62		 61.54	0.02
	Medication errors identified	% with outcome	Well-doc intervention vs. control group	13 13		0 53.38		 53.38	0.02
	Physician received logbook	% with outcome	Well-doc intervention vs. control group	13 13		7.69 100		 92.31	<0.001
	New diagnosis depression	% with outcome	Well-doc intervention vs. control group	13 13		20 9		 -11	0
	Provider management improved	% with outcome	Well-doc intervention vs. control group	13 13		37.5 100		 62.5	0.004
	Physician received data	% with outcome	Well-doc intervention vs. control group	13 13		7.69 100		 92.31	<0.001
	Physician	% with	Well-doc	13		23.08			<0.001

Evidence Table 4. Outcomes related to diabetes mellitus in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-value
	received more patient data	outcome	intervention vs. control group	13		100		76.92	
Ralston, 2009[7]	Mean inpatient days	Number of days	Web based care management vs. usual care	35 39	0.7 0.3	0.4 0.5	-0.3 0.2	0.5 0.1	0
	Mean outpatient visits	Number of times visited	Web-based care management vs. usual care	35 39	10.3 9.6	8.2 10.2	-2.1 0.6	2.7 2	0
	Mean primary care provider visits	Number of visits	Web-based care management vs. usual care	35 39	3.3 4.3	3.1 4.3	-0.2 0	0.2 1.2	0
	Mean specialty physician visits	Number of visits	Web-based care management vs. usual care	35 39	7 5.3	5.1 5.9	-1.9 0.6	2.5 0.8	0
Sequist, 2005[8]	Number of diabetes reminders per patient	Reminders per patient	Physicians received either evidence-based electronic reminders within their patients electronic medical record vs. usual care	3319 2924		6.7 6.1		 -0.6	<0.004
	Mean coronary artery disease reminders per patient	Reminders per patient	Physicians received either evidence-based electronic reminders within their patients electronic medical record vs. usual care	3319 2924		5.4 4.3		 -1.1	<0.001
Smith, 2008[9]	ADA-NCQA provider score median	Score unit	Virtual consultation vs. no virtual consultation	277 358		58 56		 -2	0
	Minnesota	% with	Virtual consultation	277		18			0

Evidence Table 4. Outcomes related to diabetes mellitus in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-value
	community aggregate optimal diabetes score	outcome	vs. no virtual consultation	358		30		12	
	Mean total cost	US dollars	Virtual consultation vs. no virtual consultation	277		8564			0.02
				358		6252		-2312	
	Mean outpatient cost	US dollars	Virtual consultation vs. no virtual consultation	277		2129			0.04
				358		1842		-287	
Thomas, 2007[10]	Number of patients who had HbA1c monitoring within 6 months	% with outcome	Computerized diabetes registry vs. control group (usual clinic education)	231		48.1			0.01
				252		61.5		13.4	
	Number of patients who had LDL cholesterol monitoring within 1 yr	% with outcome	Computerized diabetes registry vs. control group (usual clinic education)	231		64.1			0.02
				252		75.8		11.7	
Ziemer, 2006[11]	Effect of the interventions on therapy intensification	Beta-coefficient	Health care providers received clinical reminders vs. usual care	Total of 345 health care providers in study	Not Reported	Not Reported		*Insufficient data	**SNR
				Total of 345 health care providers in study	−0.0718	0.0908		*Insufficient data	
	Effect of the interventions on therapy intensification	Beta-coefficient	Health care providers received feedback vs. usual care	Total of 345 health care providers in study	Not Reported	Not Reported		*Insufficient data	**SNR

Evidence Table 4. Outcomes related to diabetes mellitus in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-value
				Total of 345 health care providers in study	−0.0160	0.4812		*Insufficient data	
	Effect of the interventions on therapy intensification	Beta-coefficient	Health care providers received clinical reminders and feedback vs. usual care	Total of 345 health care providers in study				*Insufficient data	**SNR
				Total of 345 health care providers in study	0.0204	0.0125		*Insufficient data	
	Effect of therapy intensification on change in HbA1c level	Beta-coefficient	Health care providers received clinical reminders vs. usual care	Total of 345 health care providers in study					**SNR
				Total of 345 health care providers in study		−0.0667		*Insufficient data	
	Effect of therapy intensification on change in HbA1c level	Beta-coefficient	Health care providers received feedback vs. Usual care	Total of 345 health care providers in study					**SNR
				Total of 345 health care providers in study		−0.2357		*Insufficient data	
	Effect of therapy intensification on change in HbA1c level	Beta-coefficient	Health care providers received clinical reminders and feedback vs.	Total of 345 health care providers in study					**SNR

Evidence Table 4. Outcomes related to diabetes mellitus in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-value
			usual care	Total of 345 health care providers in study		0.0808		*Insufficient data	

**SNR: Significance not reported

P-value of "0" denotes p-value > 0.10

ADA-NCQA: American Diabetes Association- National Committee for Quality Assurance, BMI: body mass index CDSS: clinical decision support system, HbA1c: glycated hemoglobin, LDL: Low-density lipoprotein.

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Evidence Table 5. Outcomes related to heart disease in studies addressing healthcare process outcomes.

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-value
Bailey, 2007[1]	Proportion of eligible patients discharged on an ACE inhibitor	% of patients	Computerized alerts identifying hospitalized patients with elevated troponin I levels routed to clinical pharmacists vs. usual care group	488 365		83.8 89.9		 6.1	0.01
	Proportion of eligible patients discharged on aspirin	% of patients	Computerized alerts identifying hospitalized patients with elevated troponin I levels routed to clinical pharmacists vs. usual care group	488 365		96.5 96.4		 -0.1	0
	Proportion of eligible patients discharged on a beta-blocker	% of patients	Computerized alerts identifying hospitalized patients with elevated troponin I levels routed to clinical pharmacists vs. usual care group	488 365		91.8 95.9		 4.1	0.08
	Proportion of eligible patients discharged on a statin	% of patients	Computerized alerts identifying hospitalized patients with elevated troponin I levels routed to clinical pharmacists vs. usual care group	488 365		89.3 94.2		 4.9	0.01

Evidence Table 5. Outcomes related to heart disease in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-value
	Proportion of eligible patients discharged on all 4 classes	% of patients	Computerized alerts identifying hospitalized patients with elevated troponin I levels routed to clinical pharmacists vs. usual care group	488 365		70.3 83.6		 13.3	<0.001
Feldman, 2005[2]	Home care-related costs / patient	US dollars	Heart failure patients whose nurses received e-mail recommendations (basic intervention) vs. heart failure patients receiving usual care	227 199		2814 3371		 557	0.062
	Overall costs / patient	US dollars	Heart failure patients whose nurses received e-mail recommendations (basic intervention) vs. heart failure patients receiving usual care	227 199		4996 5869		 873	0.084
	Home care-related costs in order to produce a 5% improvement in KCCQ summary score	US dollars	Heart failure patients whose nurses received e-mail recommendations (basic intervention) vs. heart failure patients receiving usual care	227 199		2814 183		 -2631	**SNR

Evidence Table 5. Outcomes related to heart disease in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-value
	Overall costs in order to produce a 5% improvement in KCCQ summary score	US dollars	Heart failure patients whose nurses received e-mail recommendations (basic intervention) vs. heart failure patients receiving usual care	227 199		4996 246		 -4750	**SNR
	Home care-related costs / patient	US dollars	Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention) vs. heart failure patients receiving usual care	227 202		2814 3425		 611	0
	Overall costs / patient	US dollars	Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention) vs. heart failure patients receiving usual care	227 202		4996 6330		 1334	0.02
	Home care-	US dollars	Heart failure	227		2814			**SNR

Evidence Table 5. Outcomes related to heart disease in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-value
	related costs in order to produce a 5% improvement in KCCQ summary score		patients whose nurses received e-mail recommendations and additional resources (augmented intervention) vs. heart failure patients receiving usual care	202		235		-2579	
	Overall costs in order to produce a 5% improvement in KCCQ summary score	US dollars	Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention) vs. heart failure patients receiving usual care	227 202		4996 513		 -4483	**SNR
Jerant, 2001[3]	Median health care utilization	US dollars	Home telecare videoconferencing vs. usual care	12 13		21,595 7487		 -14108	<0.001
	Mean health care utilization	US dollars	Home telecare videoconferencing vs. usual care	12 13		93686 29701		 -63985	<0.05
	Median health care utilization	US dollars	Nurse phone calls w/nurse vs. usual care	12 12		21,595 4117		 -17478	0
	Mean health care utilization	US dollars	Nurse phone calls w/nurse vs. usual care	12 12		93686 28,888		 -64798	<0.05
Kaner,	Median	Minutes	Implicit computer-	10		21			0.001

Evidence Table 5. Outcomes related to heart disease in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-value
2007[4]	consultation times		based decision aid, DARTS II used for clinician-patient treatment decision vs. paper-based guidelines for clinician-patient treatment decision	11		31		10	
	Median clinician verbal dominance in 10 minutes preceding decision	%	Implicit computer-based decision aid, DARTS II used for clinician-patient treatment decision vs. paper-based guidelines for clinician-patient treatment decision	10 11		60 65		 5	0.09
	Median doctor's information-seeking	Minutes	Implicit computer-based decision aid, DARTS II used for clinician-patient treatment decision vs. paper-based guidelines for clinician-patient treatment decision	10 11		6 3		 -3	<0.004
	Median doctor's pause	Minutes	Implicit computer-based decision aid, DARTS II used for clinician-patient treatment decision vs. paper-based guidelines for clinician-patient treatment decision	10 11		6 4		 -2	<0.04
	Median patient's	Minutes	Implicit computer-	10		2			<0.01

Evidence Table 5. Outcomes related to heart disease in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-value
	negative talk		based decision aid, DARTS II used for clinician-patient treatment decision vs. paper-based guidelines for clinician-patient treatment decision	11		0		-2	
	Median doctor's nodding	Minutes	Implicit computer-based decision aid, DARTS II used for clinician-patient treatment decision vs. paper-based guidelines for clinician-patient treatment decision	10 11		17 36		 19	0.005
	Median doctor's head shake	Minutes	Implicit computer-based decision aid, DARTS II used for clinician-patient treatment decision vs. paper-based guidelines for clinician-patient treatment decision	10 11		4 2		 -2	0.006
	Median doctor's smiling	Minutes	Implicit computer-based decision aid, DARTS II used for clinician-patient treatment decision vs. paper-based guidelines for clinician-patient treatment decision	10 11		0 1		 1	0.04
	Median doctor's	Minutes	Implicit computer-	10		1			0.01

Evidence Table 5. Outcomes related to heart disease in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-value
	pointing at the patient		based decision aid, DARTS II used for clinician-patient treatment decision vs. paper-based guidelines for clinician-patient treatment decision	11		0		-1	
	Median doctor's touching/pointing at tool	Minutes	Implicit computer-based decision aid, DARTS II used for clinician-patient treatment decision vs. paper-based guidelines for clinician-patient treatment decision	10 11		6 1		 -5	0.007
	Median doctor's eye-gaze toward tool	Minutes	Implicit computer-based decision aid, DARTS II used for clinician-patient treatment decision vs. paper-based guidelines for clinician-patient treatment decision	10 11		5 15		 10	0.001
	Median patient's eye-gaze toward tool	Minutes	Implicit computer-based decision aid, DARTS II used for clinician-patient treatment decision vs. paper-based guidelines for clinician-patient treatment decision	10 11		5 16		 11	0.0001
	Median	Minutes	Explicit computer-	10		21			0.001

Evidence Table 5. Outcomes related to heart disease in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-value
	consultation times		based decision aid, DARTS II, used for clinician-patient treatment decision vs. paper-based guidelines for clinician-patient treatment decision	8		44		23	
	Median clinician's verbal dominance in 10 minutes preceding decision (%)	%	Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision vs. paper-based guidelines for clinician-patient treatment decision	10 8		60 64		 4	0.09
	Median doctor's information-seeking	Minutes	Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision vs. paper-based guidelines for clinician-patient treatment decision	10 8		6 7		 1	0.004
	Median doctor's pause	Minutes	Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision vs. paper-based guidelines for clinician-patient treatment decision	10 8		6 1		 -5	0.04
	Median patient's	Minutes	Explicit computer-	10		2			0.01

Evidence Table 5. Outcomes related to heart disease in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-value
	negative talk		based decision aid, DARTS II, used for clinician-patient treatment decision vs. paper-based guidelines for clinician-patient treatment decision	8		1		-1	
	Median doctor's nodding	Minutes	Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision vs. paper-based guidelines for clinician-patient treatment decision	10 8		17 21		 4	<0.005
	Median doctor's head shake	Minutes	Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision vs. paper-based guidelines for clinician-patient treatment decision	10 8		4 0		 -4	<0.006
	Median doctor's smiling	Minutes	Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision vs. paper-based guidelines for clinician-patient treatment decision	10 8		0 2		 2	0.04
	Median doctor's	Minutes	Explicit computer-	10		1			0.01

Evidence Table 5. Outcomes related to heart disease in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-value
	pointing at the patient		based decision aid, DARTS II, used for clinician-patient treatment decision vs. paper-based guidelines for clinician-patient treatment decision	8		0		-1	
	Median doctor's touching/pointing at tool	Minutes	Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision vs. paper-based guidelines for clinician-patient treatment decision	10 8		6 6		 0	0.007
	Median doctor's eye-gaze toward tool	Minutes	Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision vs. paper-based guidelines for clinician-patient treatment decision	10 8		5 16		 11	<0.001
	Median patient's eye-gaze toward tool	Minutes	Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision vs. paper-based guidelines for clinician-patient treatment decision	10		5			<0.0001

Evidence Table 5. Outcomes related to heart disease in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-value
Kucher, 2005[5]	Prophylactic measures were ordered	% patients with outcome	Computerized alert to physician about patient's risk of deep-vein thrombosis vs. no computerized alert	1251 1255		14.5 33.5		 19	<0.001
	Mechanical prophylaxis	% patients with outcome	Computerized alert to physician about patient's risk of deep-vein thrombosis vs. no computerized alert	1251 1255		1.5 10		 8.5	<0.001
	Pharmacologic prophylaxis	% patients with outcome	Computerized alert to physician about patient's risk of deep-vein thrombosis vs. no computerized alert	1251 1255		13 23.6		 10.6	<0.001
Lowenstein, 1998[6]	Ratio of high-risk/low risk patients returning for follow-up	% of patients	Coronary risk profile to physician vs. no profile risk to physician	782 176		0.77 1.23		 0.46	<0.05
McCrossan, 2007[7]	Proportion with concern by parents	% of patients	Videoconferencing for children with congenital heart disease vs. teleconferencing	22 25		58 62		 4	**SNR
	Proportion with no action needed	% of patients	Videoconferencing for children with congenital heart disease vs. teleconferencing	22 22		64 76		 12	**SNR
	Proportion who	% of	Videoconferencing	22		14			**SNR

Evidence Table 5. Outcomes related to heart disease in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-value
	informed consultant	patients	for children with congenital heart disease vs. teleconferencing	25		20		6	
	Proportion advised NHS action	% of patients	Videoconferencing for children with congenital heart disease vs. teleconferencing	22 25		22 4		 -18	**SNR
Murray, 1999[8]	Time spent filling prescription	% of time	Pharmacist with access to treatment suggestions vs. usual care	18 10		58.9 47.9		 -11	<0.001
	Time spent advising or informing	% of time	Pharmacist with access to treatment suggestions vs. usual care	18 10		17.7 23.2		 5.5	<0.001
	Time spent problem solving	% of time	Pharmacist with access to treatment suggestions vs. usual care	18 10		3.7 7.3		 3.6	<0.001
Murtaugh, 2005[9]	Estimate of % of nurses who recorded a comprehensive heart failure assessment	% of nurses	Nurses who received e-mail recommendations to treat heart failure patients (basic intervention) vs. nurses treating heart failure patients who provided usual care	118 114		3.7 13.8		 10.1	0.006
	Estimate of % of	% of nurses	Nurses who	118		27.6			0.076

Evidence Table 5. Outcomes related to heart disease in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-value
	nurses who recorded a diet assessment		received e-mail recommendations to treat heart failure patients (basic intervention) vs. nurses treating heart failure patients who provided usual care	114		38.2		10.6	
	Estimate of % of nurses who recorded a medication knowledge assessment	% of nurses	Nurses who received e-mail recommendations to treat heart failure patients (basic intervention) vs. nurses treating heart failure patients who provided usual care	118 114		24.8 31.1		6.3	0
	Estimate of % of nurses who recorded a medication adherence assessment	% of nurses	Nurses who received e-mail recommendations to treat heart failure patients (basic intervention) vs. nurses treating heart failure patients who provided usual care	118 114		48.2 62.7		14.5	0.024
	Estimate of % of	% of	Nurses who	118		12.7			0

Evidence Table 5. Outcomes related to heart disease in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-value
	nurses who recorded a medication side-effects assessment	nurses	received e-mail recommendations to treat heart failure patients (basic intervention) vs. nurses treating heart failure patients who provided usual care	114		15.3		2.6	
	Estimate of % of nurses who instructed patients about heart failure symptoms, shortness of breath	% of nurses	Nurses who received e-mail recommendations to treat heart failure patients (basic intervention) vs. nurses treating heart failure patients who provided usual care	118 114		18.1 31.1		 13	0
	Estimate of % of nurses who instructed patients about heart failure symptoms, fluid weight gain	% of nurses	Nurses who received e-mail recommendations to treat heart failure patients (basic intervention) vs. nurses treating heart failure patients who provided usual care	118 114		20.6 29.9		 9.3	0.021
	Estimate of % of	% of	Nurses who	118		11.8			0

Evidence Table 5. Outcomes related to heart disease in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-value
	nurses who instructed patients about heart failure symptoms, fatigue	nurses	received e-mail recommendations to treat heart failure patients (basic intervention) vs. nurses treating heart failure patients who provided usual care	114		10.5		-1.3	
	Estimate of % of nurses who instructed patients about global HF symptoms	% of nurses	Nurses who received e-mail recommendations to treat heart failure patients (basic intervention) vs. nurses treating heart failure patients who provided usual care	118 114		42.1 53.9		 11.8	0.07
	Estimates of % of nurses who recorded instructions to patients about self-weighing	% of nurses	Nurses who received e-mail recommendations to treat heart failure patients (basic intervention) vs. nurses treating heart failure patients who provided usual care	118 114		16 37.2		 21.2	<0.007
	Estimates of %	% of	Nurses who	118		5.7			0

Evidence Table 5. Outcomes related to heart disease in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-value
	of nurses who recorded instructions to patients about managing fluid weigh gain	nurses	received e-mail recommendations to treat heart failure patients (basic intervention) vs. nurses treating heart failure patients who provided usual care	114		8		2.3	
	Estimates of % of nurses who recorded instructions to patients about low-salt diet	% of nurses	Nurses who received e-mail recommendations to treat heart failure patients (basic intervention) vs. nurses treating heart failure patients who provided usual care	118 114		22.7 40.4		 17.7	0.003
	Estimates of % of nurses who recorded instructions to patients about medication management	% of nurses	Nurses who received e-mail recommendations to treat heart failure patients (basic intervention) vs. nurses treating heart failure patients who provided usual care	118 114		51.2 57		 5.8	0
	Estimates of %	% of	Nurses who	118		15			0.03

Evidence Table 5. Outcomes related to heart disease in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-value
	of nurses who recorded instructions about methods to improve adherence	nurses	received e-mail recommendations to treat heart failure patients (basic intervention) vs. nurses treating heart failure patients who hat provided usual care	114		26.5		11.5	
	Estimates of % of nurses who recorded instructions to patients about self-contacting a physician	% of nurses	Nurses who received e-mail recommendations to treat heart failure patients (basic intervention) vs. nurses treating heart failure patients who provided usual care	118 114		27.3 36.2		 8.9	0
	Estimates of % of nurses who recorded instructions to patients about educational material	% of nurses	Nurses who received e-mail recommendations to treat heart failure patients (basic intervention) vs. nurses treating heart failure patients who provided usual care	118 114		10.5 17.6		 7.1	0
	Estimate of % of	% of	Nurses who	118		3.7			<0.001

Evidence Table 5. Outcomes related to heart disease in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-value
	nurses who recorded a comprehensive heart failure assessment	nurses	received e-mail recommendations and additional resources to treat heart failure heart failure (augmented intervention) vs. nurses treating heart failure patients who provided usual care	122		23.9		20.2	
	Estimate of % of nurses who recorded a diet assessment	% of nurses	Nurses who received e-mail recommendations and additional resources to treat heart failure heart failure (augmented intervention) vs. nurses treating heart failure patients who provided usual care	118 122		27.6 48.7		 21.1	0.001
	Estimate of % of nurses who recorded a medication knowledge assessment	% of nurses	Nurses who received e-mail recommendations and additional resources to treat heart failure heart failure (augmented intervention) vs. nurses treating heart failure patients who provided usual care	118 122		24.8 34.4		 9.6	0
	Estimate of % of	% of	Nurses who	118		48.2			0.077

Evidence Table 5. Outcomes related to heart disease in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-value
	nurses who recorded a medication adherence assessment	nurses	received e-mail recommendations and additional resources to treat heart failure heart failure (augmented intervention) vs. nurses treating heart failure patients who provided usual care	122		59.6		11.4	
	Estimate of % of nurses who recorded a medication side-effects assessment	% of nurses	Nurses who received e-mail recommendations and additional resources to treat heart failure heart failure (augmented intervention) vs. nurses treating heart failure patients who provided usual care	118 122		12.7 23.6		 10.9	0.03
	Estimate of % of nurses who instructed patients about heart failure symptoms, shortness of breath	% of nurses	Nurses who received e-mail recommendations and additional resources to treat heart failure heart failure (augmented intervention) vs. nurses treating heart failure patients who provided usual care	118 122		18.1 28.9		 10.8	0.053
	Estimate of % of	% of	Nurses who	118		20.6			0.001

Evidence Table 5. Outcomes related to heart disease in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-value
	nurses who instructed patients about heart failure symptoms, fluid weight gain	nurses	received e-mail recommendations and additional resources to treat heart failure heart failure (augmented intervention) vs. nurses treating heart failure patients who provided usual care	122		39.7		19.1	
	Estimate of % of nurses who instructed patients about heart failure symptoms, fatigue	% of nurses	Nurses who received e-mail recommendations and additional resources to treat heart failure heart failure (augmented intervention) vs. nurses treating heart failure patients who provided usual care	118 122		11.8 15.9		 4.1	0
	Estimate of % of nurses who instructed patients about global heart failure symptoms	% of Nurses	Nurses who received e-mail recommendations and additional resources to treat heart failure heart failure (augmented intervention) vs. nurses treating heart failure patients who provide usual care	118 122		42.1 59.5		 17.4	0.007
	Estimates of %	% of	Nurses who	118		16			<0.001

Evidence Table 5. Outcomes related to heart disease in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-value
	of nurses who recorded instructions to patients about self-weighing	nurses	received e-mail recommendations and additional resources to treat heart failure heart failure (augmented intervention) vs. nurses treating heart failure patients who provided usual care	122		48.7		32.7	
	Estimates of % of nurses who recorded instructions to patients about managing fluid weigh gain	% of nurses	Nurses who received e-mail recommendations and additional resources to treat heart failure heart failure (augmented intervention) vs. nurses treating heart failure patients who provided usual care	118 122		5.7 11.9		 6.2	0
	Estimates of % of nurses who recorded instructions to patients about low-salt diet	% of nurses	Nurses who received e-mail recommendations and additional resources to treat heart failure heart failure (augmented intervention) vs. nurses treating heart failure patients who provided usual care	118 122		22.7 49.6		 26.9	<0.001
	Estimates of %	% of	Nurses who	118		51.2			0

Evidence Table 5. Outcomes related to heart disease in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-value
	of nurses who recorded instructions to patients about medication management	nurses	received e-mail recommendations and additional resources to treat heart failure heart failure (augmented intervention) vs. nurses treating heart failure patients who provided usual care	122		59.7		8.5	
	Estimates of % of nurses who recorded instructions about methods to improve adherence	% of nurses	Nurses who received e-mail recommendations and additional resources to treat heart failure heart failure (augmented intervention) vs. nurses treating heart failure patients who provided usual care	118 122		15 18		 3	0
	Estimates of % of nurses who recorded instructions to patients about self-contacting a physician	% of nurses	Nurses who received e-mail recommendations and additional resources to treat heart failure heart failure (augmented intervention) vs. nurses treating heart failure patients who provided usual care	118 122		27.3 42.8		 15.5	0.014
	Estimates of %	% of	Nurses who	118		10.5			0.001

Evidence Table 5. Outcomes related to heart disease in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-value
	of nurses who recorded instructions to patients about educational material	nurses	received e-mail recommendations and additional resources to treat heart failure heart failure (augmented intervention) vs. nurses treating heart failure patients who provided usual care	122		46.2		35.7	
Noel, 2004[10]	Bed-days-of-care	Days	Intervention patients received home telehealth units that used standard phone lines to communicate with the hospital and integrated into hospital electronic health records vs. usual home health care services plus nurse case management	57 47	525 317	194 49	-331 -268	63 -145	<0.0001
Ross,	General	Compliance	Participants in the	43	82	78	-4	7	0.01

Evidence Table 5. Outcomes related to heart disease in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-value
2004[11]	adherence MOS compliance score	score	intervention group were given a user identification and password to SPPARO in order to access electronic hospital records vs. patients in the control group, who continued to receive standard care in the practice	38	82	85	3	7	
Scherr, 2009[12]	Rehospitalization	Number of hospitalizations	Home-based telemonitoring of CHF patients vs. usual care	54		17			0.06
				54		11		6	
	Length of stay	Median days		54	11	10	1	4.5	0.04
				54	12	6.5	5.5	3.5	
Subrama	Number of all	Number of	Physicians were	365		528			0

Evidence Table 5. Outcomes related to heart disease in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-value
nian, 2004[13]	clinical decisions	clinical decisions	randomly assigned to receive either care suggestions generated with electronic medical record data and symptom data obtained from questionnaires mailed to patients within 2 weeks of scheduled outpatient visits (intervention group) vs. physicians whose suggestions were generated with electronic medical record data alone (control group)	355		738		210	
	Mean all-cause	Number of	Physicians were	365		1.7			0.05

Evidence Table 5. Outcomes related to heart disease in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-value
	hospitalizations	hospitalizations	randomly assigned to receive either care suggestions generated with electronic medical record data and symptom data obtained from questionnaires mailed to patients within 2 weeks of scheduled outpatient visits (intervention group) vs. physicians whose suggestions were generated with electronic medical record data alone (control group)	355		2.3		0.6	
	Mean	Number of	Physicians were	365		0.4			0

Evidence Table 5. Outcomes related to heart disease in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-value
	admissions for heart failure	admissions	randomly assigned to receive either care suggestions generated with electronic medical record data and symptom data obtained from questionnaires mailed to patients within 2 weeks of scheduled outpatient visits (intervention group) vs. physicians whose suggestions were generated with electronic medical record data alone (control group).	355		0.3		-0.1	
Tierney, 2003[14]	Mean number of all hospitalizations	Number of admissions	Evidence-based cardiac care suggestions, approved by a panel of local cardiologists and general internists, were displayed to physicians and pharmacists as they cared for enrolled patients vs. control group where suggestions were withheld	119 142		0.5 0.4		 -0.1	**SNR

Evidence Table 5. Outcomes related to heart disease in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-value
	Mean number of heart disease specific hospitalizations	Number of admissions	Evidence-based cardiac care suggestions, approved by a panel of local cardiologists and general internists, were displayed to physicians and pharmacists as they cared for enrolled patients vs. control group where suggestions were withheld	119 142		0.2 0.2		 0	**SNR
	Mean number of all hospitalizations	Number of hospitalizations	Printed note (rather than bottle labels) instructing the pharmacist to view the care suggestions in Pharmacist Intervention Recording System vs. control group where suggestions were withheld	119 106		0.5 0.5		 0	**SNR
	Mean number of	Number of	Printed note (rather	119		0.2			**SNR

Evidence Table 5. Outcomes related to heart disease in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-value
	heart disease specific hospitalizations	hospitalizations	than bottle labels) instructing the pharmacist to view the care suggestions in Pharmacist Intervention Recording System vs. control group where suggestions were withheld	106		0.2		0	
	Mean number of all hospitalizations	Number of hospitalizations	Evidence-based cardiac care suggestions, approved by a panel of local cardiologists and general internists, were displayed to physicians and pharmacists as they cared for enrolled patients, with a printed note (rather than bottle labels) instructing the pharmacist to view the care suggestions in Pharmacist Intervention Recording System vs. control group where suggestions were withheld	119 113		0.5 0.5		0	**SNR
	Mean number of	Number of	Evidence-based	119		0.2			**SNR

Evidence Table 5. Outcomes related to heart disease in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-value
	heart disease specific hospitalizations	hospitalizations	cardiac care suggestions approved by a panel of local cardiologists and general internists, were displayed to physicians and pharmacists as they cared for enrolled patients, with a printed note (rather than bottle labels) instructing the pharmacist to view the care suggestions in Pharmacist Intervention Recording System vs. control group where suggestions were withheld	113		0.2		0	
Wakefiel	Patients	% of	Videophone	42		59			0.04

Evidence Table 5. Outcomes related to heart disease in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-value
d, 2008[15]	readmitted to hospital	patients	followup vs. usual care. Usual care subjects contacted their primary care nurse case manager by telephone if needed. Intervention subjects contacted their assigned study nurse via videophone if needed after discharge. The intervention nurses reinforced discharge plans, had full access to patient records, and employed strategies to improve subjects' compliance with prescribed treatment plans.	33		41		-18	

**SNR: Significance not reported

P-value of "0" denotes p-value > 0.10

ACE: Angiotensin-converting enzyme , BP: Blood pressure, BMI: JNC: Joint National, Committee, HF: Heart failure, JNC7: The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure, KCCQ: Kansas City Cardiomyopathy *Questionnaire,* MOS: Medical Outcomes Study, SPPARO: System Providing Patients Access to Records Online

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Evidence Table 6. Outcomes related to cancer in studies addressing healthcare process outcomes

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-value
Jones, 1999[1]	Doctors assessment--patients above average in knowledge	% with outcome	Personal computer-based information vs. booklet information	154		20			**SNR
				156		25		5	
	Doctors assessment--patients above average in knowledge	% with outcome	General computer information vs. booklet information	154		20			**SNR
				128		25		5	
McDonald, 2005[2]	Presence of pain assessed by nurse	%age of patients with outcome	Patient-specific, one-time e-mail reminder with pain-specific recommendations vs. usual care	234		86.9			0

Evidence Table 6. Outcomes related to cancer in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-value
				242		88		1.1	
	Medication assessment by nurse	% of patients with outcome	Patient-specific, one-time e-mail reminder with pain-specific recommendations vs. usual care	234		44.5			0
				242		50.4		5.9	
	Mood assessment by nurse	% of patients with outcome	Patient-specific, one-time e-mail reminder with pain-specific recommendations vs. usual care	234		85.5			0.08
				242		88.9		3.4	

Evidence Table 6. Outcomes related to cancer in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-value
	Educational materials delivered by nurse	% of patients with outcome	Patient-specific, one-time e-mail reminder with pain-specific recommendations vs. usual care	234		1.3			0
				242		7.3		6	
	Probability of hospitalization	% of patients with outcome	Patient-specific, one-time e-mail reminder with pain-specific recommendations vs. usual care	234		22.2			0
				242		16.6		-5.6	
	Probability of emergency department use	%age of patients with outcome	Patient-specific, one-time e-mail reminder with pain-specific recommendations vs. usual care	234		36.6			0

Evidence Table 6. Outcomes related to cancer in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-value
				242		33.5		-3.1	
	Home care-related costs	US dollars	Patient-specific, one-time e-mail reminder with pain-specific recommendations vs. usual care	234		2642			0
				242		2903		261	
	Overall costs	US dollars	Patient-specific, one-time e-mail reminder with pain-specific recommendations vs. usual care	234		5687			0
				242		5611		-76	
	Inadequate pain management	% of patients with outcome	Patient-specific, one-time e-mail reminder with pain-specific recommendations vs. usual care	234		68.5			0

Evidence Table 6. Outcomes related to cancer in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-value
				242		64		-4.5	
	Presence of pain assessed by nurse	% of patients with outcome	E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach vs. usual care	234		86.9			0
				197		88		1.1	
	Medication assessment by nurse	% of patients with outcome	E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach vs. usual care	234		44.5			0
				197		50.4		5.9	

Evidence Table 6. Outcomes related to cancer in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-value
	Mood assessment by nurse	% of patients with outcome	E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach vs. usual care	234		85.5			0.08
				197		88.9		3.4	
	Educational materials delivered by nurse	% of patients with outcome	E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach vs. usual care	234		1.3			0
				197		7.3		6	
	Inadequate pain management	% of patients with outcome	E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach vs. usual care	234		68.5			0
				197		64		-4.5	

Evidence Table 6. Outcomes related to cancer in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-value
	Probability of hospitalization	% of patients with outcome	E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach vs. usual care	234		22.2			0
				197		16.6		-5.6	
	Probability of emergency department use	% of patients with outcome	E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach vs. usual care	234		36.6			0
				197		33.5		-3.1	
	Home care-related costs	US dollars	E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach vs. usual care	234		2642			0
				197		2903		261	

Evidence Table 6. Outcomes related to cancer in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-value
	Overall costs	US dollars	E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach vs. usual care	234		5687			0
				197		5611		-76	
Nguyen, 2000[3]	Checkups	Beta-coefficient	Cancer screening reminder system, including both manual and computerized reminders vs. usual care	11		N/A			0
				9		1.3		*insufficient data	
	Smoking-cessation counseling	Beta-coefficient	Cancer screening reminder system, including both manual and computerized reminders vs. usual care	11		N/A			0.02
				9		4.4		*Insufficient data	

Evidence Table 6. Outcomes related to cancer in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-value
	Pap testing	Beta-coefficient	Cancer screening reminder system, including both manual and computerized reminders vs. usual care	11		N/A			0.004
				9		26.6		*Insufficient data	
	Pelvic exams	Beta-coefficient	Cancer screening reminder system, including both manual and computerized reminders vs. usual care	11		N/A			0.01
				9		24.2		*Insufficient data	
	Clinical breast exams	Beta-coefficient	Cancer screening reminder system, including both manual and computerized	11		N/A			0

Evidence Table 6. Outcomes related to cancer in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-value
			reminders vs. usual care	9		-4.4		*Insufficient data	
	Mammography	Beta-coefficient	Cancer screening reminder system, including both manual and computerized reminders vs. usual care	11		N/A			0
				9		1.7		*Insufficient data	
	Hepatitis B serologies	Beta-coefficient	Cancer screening reminder system, including both manual and computerized reminders vs. usual care	11		N/A			0
				9		9.2		*Insufficient data	

Evidence Table 6. Outcomes related to cancer in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-value
	Hepatitis B immunizations	Beta-coefficient	Cancer screening reminder system, including both manual and computerized reminders vs. usual care	11		N/A			0
				9		2.4		*Insufficient data	
Ruland, 2003[4]	Congruence between patient reported symptoms and those addressed in consult visit	% congruence	Used computerized system for shared decisionmaking for cancer symptoms care vs. usual care	25		2.84			<0.01
				27		7.63		4.79	
	Importance-	%	Used	25		12.8			<0.01

Evidence Table 6. Outcomes related to cancer in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-value
	weighted congruence between patient reported symptoms and those addressed in consult visit	congruence	computerized system for shared decisionmaking for cancer symptoms care vs. usual care	27		33		20.2	
	Number of reported symptoms (0-10)	Number of symptoms	Used computerized system for shared decisionmaking for cancer symptoms care vs. usual care	25 27		2.25 2.73		 0.48	0
	Number of reported symptoms (0-15)	Number of symptoms	Used computerized system for shared decisionmaking for cancer symptoms care vs. usual care	25 27		2.25 3.77		 1.52	0.032
	Number of reported symptoms (0-20)	Number of symptoms	Used computerized system for shared decisionmaking for cancer symptoms care vs. usual care	25 27		2.18 4.5		 2.32	0.016

Evidence Table 6. Outcomes related to cancer in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-value
	Number of reported symptoms (0-25)	Number of symptoms	Used computerized system for shared decisionmaking for cancer symptoms care vs. usual care	25 27		2.17 5.28		 3.11	0.004
	Number of reported symptoms (0-30)	Number of symptoms	Used computerized system for shared decisionmaking for cancer symptoms care vs. usual care	25 27		2.17 5.25		 3.08	0.017
	Number of reported symptoms (0-40)	Number of symptoms	Used computerized system for shared decisionmaking for cancer symptoms care vs. usual care	25 27		2.63 6.56		 3.93	0
	Number of reported symptoms (0-50)	Number of symptoms	Used computerized system for shared decisionmaking for cancer symptoms care vs. usual care	25 27		2.84 7.63		 4.79	0.042

**SNR: Significance not reported

P-value of "0" denotes p-value > 0.10

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Evidence Table 7. Outcomes related to hypertension in studies addressing healthcare process outcomes.

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-value
Fretheim, 2006[1]	Thiazides prescription	% of patients	Educational outreach visit with audit and feedback, and computerized reminders linked to the medical record system vs. passive dissemination of guidelines	446 516	8.8 5.8	11.1 17.3	2.3 11.5	9.2 6.2	<0.001
	Cardiovascular risk assessment done	% of patients	Educational outreach visit with audit and feedback, and computerized reminders linked to the medical record system vs. passive dissemination of guidelines	446 516		14.6 17.2		 2.6	0
	Treatment goal achieved	% of patients	Educational outreach visit with audit and feedback, and computerized reminders linked to the medical record system vs. passive dissemination of guidelines	446 516	33.6 29.3	36.5 32	2.9 2.7	-0.2 -4.5	0
Green, 2008[2]	Mean secure message and subsequent responses	Message threads	BP monitoring and patient Web services vs. usual care	247 246		2.4 3.3		 0.9	**SNR
	Mean secure	Message	BP monitoring and	247		2.4			**SNR

Evidence Table 7. Outcomes related to hypertension in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-value
	message and subsequent responses	threads	patient Web services and pharmacist care vs. usual care	237		22.3		19.9	
	Mean telephone encounters	Telephone encounters	BP monitoring and patient Web services vs. usual care	247 246		4 7.5		 3.5	<0.001
	Mean telephone encounters	Telephone encounters	BP monitoring and patient Web services and pharmacist care vs. usual care	247 237		4 3.8		 -0.20	**SNR
	Primary care visits	Number of visits	BP monitoring and patient Web services vs. usual care	247 246		3.2 3		 -0.2	0
	Primary care visits	Number of visits	BP monitoring and patient Web services and pharmacist care vs. usual care	247 237		3.2 3.2		 0	0
Hetlevik, 1998[3]	Fraction of patients without registration of BP	% of patients	Clinical decision support system vs. usual care	1127 887		14.2 14.3		 0.1	0
	Fraction of patients without registration of serum cholesterol	% of patients	Clinical decision support system vs. usual care	1127 887		56.8 62.3		 5.5	0
	Fraction of	% of	Clinical decision	1127		87.1			0

Evidence Table 7. Outcomes related to hypertension in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-value
	patients without registration of cigarettes	patients	support system vs. usual care	887		82.9		-4.2	
	Fraction of patients without registration of cardiovascular inheritance	% of patients	Clinical decision support system vs. usual care	1127 887		73.4 79.5		 6.1	0.014
	Fraction of patients without registration of BMI	% of patients	Clinical decision support system vs. usual care	1127 887		89.2 81.5		 -7.7	0.001
	Fraction of patients without registration of risk score	% of patients	Clinical decision support system vs. usual care	1127 887		91.9 91.7		 -0.2	<0.001
Hicks, 2008[4]	Prescribing JNC7 adherent drug class (% physicians likely to prescribe)`	% of doctors	Computerized support vs. usual care	1048 786		No Data No Data		 *Insufficient Data	<0.05
Mitchell, 2004[5]	All patients with no recorded BP	%age of patients	Audit only practices vs. patients who received no feedback	1813 1339	22.4 34.2	17.9 26.3	-4.5 -7.9	-3.4 8.4	0
	All patients with no recorded BP	% of patients	Audit plus strategic practices vs. patients who received no feedback	1813 1951	22.4 18.8	17.9 14.2	-4.5 -4.6	-0.1 -3.7	0
	Final proportion	% of	Patients receiving	1813		45.7			0.028

Evidence Table 7. Outcomes related to hypertension in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-value
	with controlled BP in hypertensive patients	patients	audit plus strategic practices vs. patients receiving no feedback	1951		45.5		-0.2	
	All patients with no recorded BP	% of patients	Patients receiving audit plus strategic practices vs. patients receiving no feedback	1813 1951	22.4 18.8	17.9 14.2	-4.5 -4.6	-0.1 -3.7	0
Montgomery, 2000[6]	Prescribed 0-1 class(es) of cardiovascular drugs	% of patients	Clinical decision support with cardiovascular risk chart vs. Usual care	137 207	42 43	37 39	-5 -4	1 2	NR
	Prescribed 2 classes of cardiovascular drugs			137 207	33 36	34 36	1 0	1 2	NR
	Prescribed >=3 classes of cardiovascular drugs			137 207	25 21	29 25	4 4	0 4	NR
	Prescribed 0-1 class(es) of cardiovascular drugs	% of patients	Cardiovascular risk chart only vs. Usual care	137 208	42 47	37 33	-5 -14	9 4	NR
	Prescribed 2 classes of cardiovascular drugs			137 208	33 28	34 32	1 4	3 2	NR
	Prescribed >=3 classes of			137	25	29	4	6	NR

Evidence Table 7. Outcomes related to hypertension in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-value
	cardiovascular drugs			208	25	35	10	6	
	Prescribed 0-1 class(es) of cardiovascular drugs	% of patients	Clinical decision support with cardiovascular risk chart vs. Cardiovascular risk chart only	208	47	33	-14		
				207	43	39	-4		
	Prescribed 2 classes of cardiovascular drugs			208	28	32	4		
				207	36	36	0		
	Prescribed >=3 classes of cardiovascular drugs			208	25	35	10		
				207	21	25	4		
Parati, 2009[7]	Frequency of treatment changes	Number of changes	Patients with teletransmitted home BP readings vs, usual care	111		14			<0.05
				187		9		-5	
Roumie, 2006[8]	Drug added	% of patients	Provider who received e-mail message and alert vs. provider who received only the e-mail message.	255		15.7			0
				362		15.4		-0.3	
	Both increased dose and drug added	% age of patients	Provider who received e-mail message and alert vs. provider who received only the e-mail message	255		3.7			0
				362		4		0.3	
	Drug added	% of	Provider who	255		15.7			0

Evidence Table 7. Outcomes related to hypertension in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-value
		patients	received e-mail message, alert, and patient education vs. provider who received only the e-mail message	358		17.5		1.8	
	Both increased dose and drug added	% of patients	Provider who received e-mail message, alert, and patient education vs. provider who received only the e-mail message	255 358		3.7 3		 -0.7	0
Santamore, 2008[9]	% error for similarity between telemedicine recorded systolic BP and recorded systolic BP	% error	BP measurements transmitted through an Internet-based telemedicine system vs. not through a telemedicine system	160 161		 <1.0%		 *Insufficient Data	0
	% error for similarity between telemedicine recorded diastolic BP and recorded diastolic BP	% error	BP measurements transmitted through an Internet-based telemedicine system vs. not through a telemedicine system	160 161		 <1.0%		 Insufficient	0
	BP monitoring	% of	BP measurements	160		49			<0.0001

Evidence Table 7. Outcomes related to hypertension in studies addressing healthcare process outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-value
		patients	transmitted through an Internet-based telemedicine system vs. not through a telemedicine system	161		92		43	

**SNR: Significance not reported

P-value of "0" denotes p-value > 0.10

ACE: Angiotensin-converting enzyme, BP: Blood pressure, BMI: JNC: Joint National, Committee, HF: Heart failure, JNC7: The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure, KCCQ: Kansas City Cardiomyopathy *Questionnaire,* MOS: Medical Outcomes Study, SPPARO: System Providing Patients Access to Records Online

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Evidence Table 8. Study characteristics of studies addressing clinical outcomes.

Author, year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
Adachi, 2007[1]	Obesity	RCT	NS	Patient	Research site	20–65 yrs old, Female, BMI>=24 or BMI>=23 with mild hypertension, hyperlipidemia, or DM and reducing weight	BMI = 30 or more, History of major medical or psychiatric problems or orthopedic problems that prohibited exercise, Received a diet and/or exercise program within 6 months, Currently, previously, or planning to be pregnant within 6 months	-1
Benhamou, 2007[2]	Diabetes	RCT	(12)	Patient	Hospital	18 yrs or older, Type 1 DM, Treated with CSII with an external pump for a minimum duration of 3 months, Insufficient control as based upon HbA1c level between 7.5% and 10%	With threatening retinopathy, Ongoing or planned pregnancy, Unable to use the Gluconet hardware, Living out of reach of the cellular phone network, or unwilling to comply with a minimum of four self-measured blood glucose tests per day	-1
Berner, 2006[3]	Patient safety	RCT	(8)	Clinician	Outpatient clinic			1
Bosworth, 2009[4]	Hypertension	RCT	(24)	Clinician, Patient	Medical system (network of hospitals and/or clinics)	Patient must be followed by one of the 32 randomized providers, Diagnosis of HTN, HTN Rx filled in the last year	Chronic kidney disease	0

Evidence Table 8. Study characteristics of studies addressing clinical outcomes (continued)

Author, year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
Buhrman, 2004[5]	Chronic back pain	RCT	2001 (2)	Patient	Research site	18-65 yrs old, With access to the Internet, Had been in contact with a physician, Had back pain (i.e. lumbar, thoracic and/or cervical area), Had chronic pain (i.e., pain that lasted longer than 3 months)	Suffering from pain that could increase as a consequence of activity (e.g., spinal stenosis), Wheelchair-bound, Had planned any surgical treatment, Suffered from heart or vascular disease	2
Cadario, 2007[6]	Diabetes	RCT	2002 (23)	System	Outpatient clinic	Male, With TIDM on intensive insulin therapy with multiple daily injections, Hb1Ac% >7 and >2 yrs' duration of the disease		1
Chan, 2003[7]	Asthma	RCT	NS	Patient	Outpatient clinic, Internet	6–17 yrs old, With persistent asthma		0
Clark, 2007[8]	CHF	RCT	2004 (12)	Patient	Medical system (network of hospitals and/or clinics)	>18 yrs, Diagnosis of CHF, Telephone access	Current enrollment in a CHF disease management program, Planned cardiac surgery within 3 months, Hypertrophic Cardiomyopathy/restrictive pericarditis Dx, Eligible for heart transplant, Life expectancy <12 months	1
de Toledo, 2006[9]	COPD	RCT, questionnaire	2002 (12)	Patient	Hospital, Outpatient clinic	COPD patient (admitted to the hospital for an acute episode)		-2
East, 1999[10]	Mechanical ventilation management in ARDS	RCT	NS	Patient	Hospital, Medical system (network of hospitals and/or clinics)	Dx of ARDS	ARDS for > 21 days' duration, 2 Severe chronic systemic diseases	0

Evidence Table 8. Study characteristics of studies addressing clinical outcomes (continued)

Author, year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
Eccles, 2002[11]	Asthma	RCT, A before-and-after pragmatic cluster	(24)	System, Patient	General practices	18 yrs or older, Registered patient with a participating practice, Had angina or asthma	Singlehanded practices	-2
Farmer, 2005[12]	Diabetes	RCT	(9 months)	Patient	Patient homes	18-30 yrs old, Diagnosis of type 1 DM, Twice daily, three times daily, or basal bolus insulin therapy, Suboptimal or poor glycemic control with a lower A1c limit of >=8.0% and an upper limit A1c limit of <=11.0%		-1
Feldman, 2005[13]	Heart Failure	RCT	(1.5)	Clinician	Home health care			-2
Feldstein, 2006[14]	Osteoporosis	RCT	1999	Clinician, Patient	Nonprofit, group-model HMO in the Pacific Northwest	50-89 yrs old, Female, HMO member for at least the 12 months before the start of the study, sustained a study-defined fracture (any clinical fracture except skull, facial, finger, toe, ankle, or any open fracture suggestive of high force)	Male, pharmacological treatment for osteoporosis, exclusionary medical condition (n5193), including malignancies (except non-melanoma skin cancers), chronic renal failure, dementia, organ transplant, or cirrhosis, in the 12 months before the start of the study, Without a primary care provider, In osteoporosis clinical trials, Nursing home residents, Without an address,	1

Evidence Table 8. Study characteristics of studies addressing clinical outcomes (continued)

Author, year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
							Research center employees, Received a BMD measurement	
Fretheim, 2006[15]	Diabetes	RCT	NS	Clinician, Patient	146 General practices in two geographical areas in Norway	Hypertension (BP > 140/90 mm Hg), Hypercholesterolemia (total cholesterol, >5 mmol/l [190 mg/ dl] or LDL cholesterol, <3 mmol/l [115 mg/dl]), No prescription for the corresponding medication had been recorded for 24 months preceding the outreach visit, Patients started on medication for hypertension or hypercholesterolemia during the study period, All patients already on treatment that consulted their physician during the trial	Patients with established cardiovascular disease were excluded, with the exception of the outcomes related to treatment goals for lipid-lowering therapy, Thyrotoxicosis and migraine, Prescription for nitroglycerin, Established cardiovascular disease	2
Gaertner, 2004[16]	Cancer and non-cancer chronic pain	RCT	NS	Patient	NS			1
Glasgow, 2000[17]	Diabetes	RCT	(6)	Patient	Outpatient clinic	More than 40 yrs old, Meeting the Wellborn criteria 28 for type 2 DM on the basis of age at diagnosis, BMI, and when insulin was begun Living independently, Having a telephone, Not planning to move out of the area		-1
Glasgow, 2005[18]	Diabetes	RCT	(12)	Clinician, Patient	Outpatient clinic	25 yrs or older, Able to read English, Had type 2		1

Evidence Table 8. Study characteristics of studies addressing clinical outcomes (continued)

Author, year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
						DM confirmed using the Welborn criteria, Under care of primary care physician participating in the Diabetes Priority Program		
Glasgow, 2006[19]	Diabetes	RCT		Patient	Outpatient clinic	25 yrs or older, Diagnosed with type 2 DM for at least 6 months, Able to read and write English		1
Glassman, 2007[20]	Medication safety	RCT	2001 (7)	Clinician	Medical system (network of hospitals and/or clinics)	One or more possible prescribing errors	Possible prescribing errors ("conflicts") were excluded as follows: (1) a medication was not listed as "active" (an active prescription referring to a prescription entered in CPRS, with or without refills, that had not expired or been discontinued), and/or (2) based on a limited number of predetermined rules for exclusion (e.g., an HMG co-reductase inhibitor ("statin")-peptic disorder interaction or an insulin-aspirin interaction)	3
Gomez,	Diabetes	Pilot cross-	(a 6-month	Patient	Hospital	Inadequate metabolic		-2

Evidence Table 8. Study characteristics of studies addressing clinical outcomes (continued)

Author, year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
2002[21]		over	cross-over)			control and duration of over 5 yrs		
Grant, 2008[22]	Diabetes	RCT	NS	System, Patient, Practice-level	Hospital, Community	Had DM, HbA1c >7% in prior year, Actively medicated for a DM-specific condition, 1 visit with PCP in past 12 months, Active account with practices' patient portal		1
Green, 2008[23]	Hypertension	RCT	2005 (18)	Patient	Medical system (network of hospitals and/or clinics), large, nonprofit, integrated group practice (Group Health)	25-75 yrs old, With controlled HTN, Taking anti-HTN meds, Ability to use a computer, Regular access to the Web, An e-mail address, Willingness to attend screening visits, Obtained all antihypertensive medications at Group Health–owned pharmacies	No diagnoses of diabetes, cardiovascular or renal disease, or other serious conditions	1
Hansson, 2008[24]	Mental health	RCT	2002 (36)	Patient	Medical system (network of hospitals and/or clinics)	18-65 yrs old, Community dweller, Receiving psychiatric care at a community facility, Able to give consent, Dx of schizophrenia or related psychosis	Current substance abuse, Organic psychiatric illness	0
Harno, 2006[25]	Diabetes	RCT	2001 (12-24)	System, Clinician, Patient	Hospital, Outpatient clinic	Patient with type 1 or type 2 DM	Technical reasons, Other diseases or lifestyle problems, Refused or reason unknown	1
Hetlevik, 2000[26]	Diabetes	RCT	1994 (18)	Clinician	Outpatient clinic	In practice of selected Norwegian physicians	Died, Moved, Had checkup by specialist	1
Hicks,	Hypertension	RCT	July 1, 2003	System,	8 Community-	Patients with HTN		2

Evidence Table 8. Study characteristics of studies addressing clinical outcomes (continued)

Author, year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
2008[27]			(18 months)	Clinician	based and 6 hospital-based primary care practices			
Homko, 2007[28]	Diabetes	RCT, Other: Control group, pre-test/post-test, design	January 2003 (43)	Patient	Outpatient clinic, endocrinology outpatient department of a tertiary care hospital	Able to access the Internet in the home, Able to perform blood glucose self-testing, Had own cellular phone	Clinical history of a severe illness, Renal insufficiency with a creatinine level >1.5mg/dl, Using insulin pump	0
Hunter, 2008[29]	Obesity	RCT	2003	Patient	USAF personnel	Between 18 and 65 yrs old, USAF personnel, weight within 5 pounds or above their maximum allowable weight for the USAF, Availability of a personal computer with Internet access, Plans to remain in the local area for 1 year, At Lackland or Randolph Air Force Base or Brooks City Base	Lost more than 10 pounds in the previous 3 months, Used prescription or over-the-counter weight-loss medications in the previous 6 months, Had any physical activity restrictions, Had a history of myocardial infarction, stroke, or cancer in the last 5 years, Reported diabetes, angina, or thyroid difficulties, or had orthopedic or joint problems that would prohibit exercise, Women were excluded if they were currently pregnant or breast-feeding, or had plans to become pregnant in the next year	1

Evidence Table 8. Study characteristics of studies addressing clinical outcomes (continued)

Author, year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
Jan, 2007[30]	Asthma	RCT	2004 (12)	Patient	Outpatient clinic, pediatric allergy and asthma clinic at National Cheng Kung University Medical Center	6-12 yrs old, Had access to the Internet via their caregiver, Diagnosed as having persistent asthma following the GINA clinical practice guidelines	Diagnosis of bronchopulmonary dysplasia, Other chronic comorbid condition that could affect quality of life	-1
Jerant, 2001[31]	Congestive heart failure	RCT	1999 (12)	System, Patient	NS	40 yrs or older, Active telephone line in the home, English-speaking, Had a primary care provider (PCP), Potential subject (or a designated caretaker) needed to have vision and hearing adequate to use a telephone or telecare equipment	Had a Charlson score of 6 or greater (equivalent to metastatic cancer, full-blown acquired immunodeficiency syndrome, or several chronic diseases with endogen manifestations), Scored 7 or higher on the GDS, 20 or lower on the MMSE, or more than 2 standard deviations below age- and education-adjusted mean SDMT scores	-1
Jerant, 2003[32]	Alcohol abuse	RCT	1999 (12)	Patient	Home	40 yrs or older, Black, White or Hispanic, Male or female, Had an active telephone line in their home, English-speaking, Had a family physician or primary care physician in the UCD health system, Adequate vision and hearing	Charlson co-morbidity score of 6 or greater, 15-item Geriatric Depression Scale score of 7 or greater, Mini-Mental State Exam score of 20 or lower, Symbol	-1

Evidence Table 8. Study characteristics of studies addressing clinical outcomes (continued)

Author, year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
							Digits Modalities Test greater than 2 SDs below age-/education-adjusted mean score	
Jones, 1999[33]	Cancer (other)	RCT	1996	System, Patient	Oncology center	Patient with breast, cervical, prostate, or laryngeal cancer	Receiving palliative treatment, No knowledge of their diagnosis, Visual or mental handicap, Severe pain or symptoms	1
Kattan, 2006[34]	Asthma	RCT	1998 (23)	Patient	Outpatient clinic	5-11 yrs old, Moderate-to-severe asthma, Receiving health care in hospital- or community-based clinic and/or private practice, Living in one of 7 inner-city urban areas, Resident of census tracts in which **h**istory of positive allergy skin test to >=1 of 11 indoor allergens	Any other serious chronic illness	2
Kenwright, 2005[35]	Mental health (other)obsessive-compulsive disorder	RCT	(17 weeks)	Patient	Patient homes			2
Kerr, 2008[36]	Mental health (depression)	RCT	(12)	Patient	Outpatient clinic	18-55 yrs old, Female, BMI = 25-39		-1
Krishna, 2003[37]	Asthma	RCT	NS	Patient	Outpatient clinic, Pediatric Pulmonary and Allergy Clinic of the University of Missouri-Columbia Health Care	Less than 18 yrs old, Confirmed diagnosis of asthma	Diagnosis of cystic fibrosis, bronchopulmonary dysplasia, or other chronic lung disease	3

Evidence Table 8. Study characteristics of studies addressing clinical outcomes (continued)

Author, year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
Kucher, 2005[38]	At risk for deep-vein thrombosis	RCT	2000 (29)	System, Clinician	Hospital	At risk for deep-vein thrombosis		2
Laffel, 2007[39]	Diabetes	RCT, Continued observation	2008 (16.5)	Patient	Outpatient clinic, Home	Adult and pediatric (<21 yrs old), Receiving a regimen of two or more daily injections or continuous subcutaneous insulin infusion, Suboptimal (A1c 8%) but stable glycemic control, Defined as A1c at week 4 within 1% of that at enrollment (week 0)	Previous use of One Touch Ultra Smart, Risk of hypoglycemia as a contraindication to improving glycemic control, A regimen of premixed, fixed-ratio combination insulin with an unwillingness to use self-mixed insulin, Active use of meter downloading and computer-based data management software	3
Lester, 2004[40]	Hyperlipidemia	RCT	(24)	Clinician, Patient	Outpatient clinic			0
Liaw, 1998[41]	Alcohol abuse	RCT	(18)	Patient	Outpatient clinic	One or more chronic health problems		1
Lorig, 2006[42]	Chronic condition/health problem	RCT	(18)	Patient	Online/ research site	18 yrs or older, Physician's diagnosis of heart disease, chronic lung disease or type 2 DM, Access to computer, Internet, and e-mail, Agreed to 1-2 hours per week of logon time spread over at least 3 sessions/wk for 6 weeks, Able to complete online questionnaire	Active treatment of cancer for 1 year, Participated previously in the small-group Chronic Disease Self-Management Program	0
Lowensteyn, 1998[43]	Coronary health assessment (primary	RCT	(3)	Clinician, Patient	Outpatient clinic	30-74 yrs old, No diagnosis of CVD, Physicians were invited		0

Evidence Table 8. Study characteristics of studies addressing clinical outcomes (continued)

Author, year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
	prevention of CHD)					to select patients from their practice to participate in the study. They were told to enroll patients for whom they thought a risk profile would be clinically useful		
Madsen, 2008[44]	Hypertension	RCT	(6)	Patient	Hospital	20-80 yrs old, Male or female, Newly diagnosed or treated but not controlled hypertension with elevated office BP (> 150/95 mm Hg or systolic BP>150 mm Hg and diastolic BP<90 mm Hg)	24-h ambulatory BP monitoring (ABPM) <=125/80 mmHg, Atrial fibrillation (ECG at randomization) and lack of mental or physical capacity to perform HBPM	1
McCowan, 2001[45]	Asthma	RCT	NS	Clinician, Patient	Outpatient clinic			-2
McDonald, 2005[46]	Cancer, Pain management	RCT	(1.5)	Clinician	Non-profit home care organization	18 yrs or older, Primary diagnosis of cancer (ICD9-CM140-239), Self-reported frequency of daily or constant pain at admission	Not cognitively able to give informed consent, Non-English/Spanish speaking	1
McGregor, 2006[47]	Infection antibiotic management and prophylaxis	RCT	2004 (3)	Clinician, Patient	Hospital	Admitted to wards managed by the antimicrobial management team	Admitted to shock trauma, cancer, or pediatric ward	-3
McKinley, 2001[48]	Patients with trauma as the primary risk factor for ARDS	RCT		System, Clinician, Patient	Hospital	(1) PaO_2/FIO_2 <200, (2) Total static thoracic compliance <50 ml/cm H_2O measured at current vt and PEEP during a 1.5-second inspiratory pause, (3) No clinical evidence of heart failure or fluid overload, or pulmonary artery occlusion pressure < 18	Preexisting ARDS with duration >21 days, Irreversible central nervous system damage, Severe chronic obstructive pulmonary disease, Rapidly fatal malignancy, Chronic left	0

Evidence Table 8. Study characteristics of studies addressing clinical outcomes (continued)

Author, year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
						mm Hg for patients with a pulmonary artery catheter, (4) Acute onset of respiratory failure (i.e., hypoxia, low compliance, need for ventilatory support developing within 48 hrs accompanied by an ARDS risk factor), (5) Radiographic evidence of bilateral diffuse infiltrates	ventricular failure, Chronic renal failure (i.e., creatinine >2 mg/dL or chronic dialysis), Chronic liver failure (i.e., bilirubin >2 mg/dL, biopsy-proven cirrhosis and documented portal hypertension, episodes of past upper gastrointestinal bleeding attributed to portal hypertension, prior episodes of hepatic failure, encephalopathy, coma).	
Mitchell, 2004[49]	Hypertension	RCT	2001 (24)	Clinician	Outpatient clinic			0
Montgomery, 2007[50]	Pregnant women with a previous Caesarian section	RCT	May 2004 (20)	Patient	Medical system (network of hospitals and/or clinics)	Pregnant woman with one previous lower segment Caesarean section, No current obstetric problems, Delivery expected at 37 weeks or more	Limited ability to speak or understand English, Most recent delivery was not a Caesarean section	-1
Montori, 2004[51]	Diabetes	RCT	NS	System, Clinician, Patient	NS	Receiving usual diabetes care in a diabetes clinic, Patient with type 1 DM of >1 yrs' duration, Inadequate glycemic control (HbA1c $\geq$7.8%), Glucometer data transmission and feedback by health	Mixed patient population (i.e., type 1 and type 2 DM), Pregnant or planning pregnancy, Glucometer transmission (i.e., video link and	2

Evidence Table 8. Study characteristics of studies addressing clinical outcomes (continued)

Author, year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
						professional	telephone consultation) unavailable	
Morgan, 2005[52]	Cardiac diagnosis--effect of videoconferencing service	RCT	(6 weeks)	Patient	Patient homes	Child, A severe and actually life-threatening cardiac diagnosis, Required significant support once discharged		-1
Napolitano, 2003[53]	Obesity	RCT	(3)		Medical system (network of hospitals and/or clinics), Employees, not necessarily patients	Physical Activity Readiness Questionnaire negative, Overweight, Smokers	Physical Activity Readiness Questionnaire (PAR-Q) if signs of cardiac or other health problem and physician forbid participation, Too active, Participating in (another) Internet weight loss study, Medical problems that could make compliance difficult or dangerous (e.g., CAD, CVA, alcoholism/substance abuse), Hospitalization for psychiatric disorder in last 3 years or currently suicidal or psychotic, Orthopedic problems limiting exercise participation, Current or planned pregnancy	1
Nguyen,	COPD	RCT	(6 mo	Patient	Pilot study: one	Diagnosis of COPD and	Any active	2

Evidence Table 8. Study characteristics of studies addressing clinical outcomes (continued)

Author, year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
2008[54]			intended but study stopped)		group in face-to-face self-management program; the other in online program	clinically stable for at least 1 month, Spirometry results showing at least mild obstructive disease, defined as post-bronchodilator forced expiratory volume in 1s to forced vital capacity ratio of 80	symptomatic illness (i.e., cancer, heart failure, ischemic heart disease with known coronary artery or valvular heart disease, psychiatric illness, or neuromuscular disease), Participated in a pulmonary rehabilitation program in the last 12 months, Was currently participating in > 2 days of supervised maintenance exercise	
Noel, 2004[55]	Heart failure, chronic lung disease, DM	RCT	(> 6)	Patient	Home	Elderly veterans in VA program with CHF, COPD and/or DM, Documented high use of healthcare resources and barriers to accessing healthcare services due to geographic, economic, physical, linguistic, technologic, and/or cultural factors		0
Ojima, 2003[56]	Periodontal disease management	RCT, Usability: Development of Web-based intervention system	NS	System	Work place	Workers		-1
Parati,	Hypertension	RCT	NS	Clinician,	Private practice	18-75 yrs old, Diagnosis	Diagnosis of	-1

Evidence Table 8. Study characteristics of studies addressing clinical outcomes (continued)

Author, year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
2009[57]				Patient		of uncontrolled essential HTN	secondary HTN, Major systemic disease, Atrial fibrillation, Frequent cardiac arrhythmia, Severe atrioventricular block, Obesity (BMI >30 kg/m^2) or an arm circumference of more than 32 cm or both, Technical problems due to incompatible phone lines at home	
Phillips, 2001[58]	Spinal cord injury	RCT	1997 (36)	Patient	Home or Day hospital	18 to 60 yrs old, Newly acquired spinal cord injury, Had a telephone, Discharged to the community or to a day hospital (considered community but not home)	Known active substance abuse, Level of mobility impairment was mild (e.g., gaiting), Concomitant diagnosis of a brain injury	
Piette, 2000[59]	Diabetes	RCT	NS	Patient	Outpatient clinic, Home	More than 75 yrs old, Diabetes, On oral hypoglycemic drug	Psychotic, Life expectancy < 12 months, Non-English/Spanish-speaking, Diabetic without medication, Leaving the clinic, No pushbutton telephone	3
Poller, 2008[60]	Arial fibrillation	RCT	2002 (55)	Clinician	Medical system (network of hospitals and/or clinics)	New patients initiating oral anticoagulation, Patients were classified as: (i) AF, (ii) deep vein thrombosis and/or	Patients with no INR results reported	0

Evidence Table 8. Study characteristics of studies addressing clinical outcomes (continued)

Author, year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
						pulmonary embolism, (iii) mechanical heart valves, or (4) other indications		
Poller, 2008[61]	Thrombotic or bleeding events	RCT	(66)	Clinician, Patient	Outpatient clinic, multicenter trial	New patients initiating oral anticoagulation in whom the incidence of such events was higher, Atrial fibrillation, Deep vein thrombosis, Pulmonary embolism, Mechanical heart valves, Other indications		-1
Priebe, 2007[62]	Mental health, schizophrenia and psychotic disorders	RCT	2002 (29)	Clinician, Patient	Community mental healthcare	18-65 yrs old; Eligibility criteria for participating clinicians were a professional qualification in mental health or a minimum of 1 year's professional experience in an outpatient setting, and an active case-load as keywork		1
Proudfoot, 2004[63]	Mental health (depression)--depression and anxiety	RCT	(10)	Patient	Outpatient clinic	18–75 yrs old, suffering from depression, mixed anxiety and depression, or anxiety disorder (including phobias or panic), Not currently receiving any form of psychological treatment or counseling, Scored 4 or more on the 12-items	Had active suicidal ideas, current or lifetime diagnosis of psychosis or organic mental disorder, or alcohol and/or drug dependence, Taking medication for anxiety and/or depression continuously for 6 months or more immediately before study start	2
Quinn, 2008[64]	Diabetes	RCT	(3)	Clinician, Patient	Outpatient clinic, cell phone	18–70 yrs old, Diagnosis of type 2 DM for at least		1

Evidence Table 8. Study characteristics of studies addressing clinical outcomes (continued)

Author, year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
						6 months, A1c >= 7.5% and been on a stable diabetes therapeutic regimen for 3 months prior to study enrollment		
Raebel, 2007[65]	Medication safety for pregnant women	RCT	2003 (12)	Clinician, Pharmacy	Medical system (network of hospitals and/or clinics)	18-50 yrs old, Female HMO member with diagnosis, visit, or laboratory codes potentially indicative of pregnancy		3
Ralston, 2009[66]	Diabetes	RCT	2002 (12)	Patient	Medical system (network of hospitals and/or clinics)	18-75 yrs old, GHB (in last 12 months) >/+7%, 2 visits to GIMC within last year	Participated in pilot study of intervention, Major psychiatric illness, Non-English-speaking, Resident as PCP, Followed primarily in a specialty clinic	1
Rothert, 2006[67]	Obesity	RCT	2002 (6)	Patient	Outpatient clinic, Home	More than 18 yrs old, Patient of Kaiser Permanente, Web access, e-mail address, BMI 27-40 kg/m, Willing to complete follow-up questionnaires	Surgical management of obesity, Pregnant, Considering pregnancy	1
Ruland, 2003[68]	Cancer (other)	RCT, Usability: Cluster randomization at level of clinician	(2)	Clinician, Patient	Outpatient clinic	More than 21 yrs old, Able to read, write, and speak English, No cognitive impairment, Able to provide informed consent, Did not feel too fatigued, Participation approved by patients' physicians	New patient coming for first consultation	-1
Schnipper, 2009[69]	Potential adverse drug events	RCT	May1, 2006 (2)	System, Patient	Hospital	Study pharmacists (generally 1 pharmacist per weekday per hospital) had time to	Lack of time of the study pharmacist to obtain a medication history	1

Evidence Table 8. Study characteristics of studies addressing clinical outcomes (continued)

Author, year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
						obtain a medication history prior to discharge	before discharge	
Shiffman, 2000[70]	Asthma	RCT, Before-after trial with randomly selected physicians who served as their own controls	1996 (24)	Clinician, Patient	Outpatient clinic	Actively practicing primary care pediatrics within a 20-mile radius of New Haven, Connecticut, Anticipated seeing 20 patients older than 5 yrs of age with acute asthma exacerbations within the following year, Had equipment available in office for measurement of PEFR and for providing supplemental oxygen if needed	Not in active practice (retired, administration, part-time), Moved away, Did not anticipate seeing 20 patients, Did not have appropriate equipment, Partner in office already in study, Declined as a group practice decision	-2
Smith, 2008[71]	Diabetes	RCT	2003 (18)	Clinician	Medical system (network of hospitals and/or clinics)	Primary care physicians working in 6 clinics, 120 internists and family medicine practitioners, and their panel of diabetes patients (N=5468)		1
Soopramanien, 2005[72]	Spinal cord injuries	RCT	2004	System	Patient's own Home	Adult with acute spinal cord injury between C4 and L2 whose discharge was imminent, Non-ventilated and wheelchair user who had return of function in the legs		-1
Subramanian, 2004[73]	CHF	RCT	NS	Clinician, Patient	Outpatient clinic	Both an active diagnosis of heart failure and evidence of left ventricular systolic dysfunction on echocardiogram, cardiac scan, or cardiac catheterization	Not expected by their physician to survive 1 year, Psychosis, Cognitive impairment, Hearing loss, No telephone access	-2

Evidence Table 8. Study characteristics of studies addressing clinical outcomes (continued)

Author, year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
Tamblyn, 2003[74]	Evaluate the use of both medical services and drugs before and after the implementation of CDS	RCT, Usability: Cluster randomized	1997 (13)	Clinician, Patient	Medical system (network of hospitals and/or clinics)	66 yrs of age or older, Male or female, Had been seen on 2 or more occasions, Living in the community, General practitioners practicing in Montreal	Patient younger than 66 yrs, Working < 20 h/wk, Salaried practice, Planning to retire or move within, Refused to participate, Consented too late	0
Tate, 2001[75]	Obesity	RCT	1999 (9 months)	Patient	Hospital employees	18 to 60 yrs old, Hospital employee, BMI of 25 to 36 kg/m, Agreed to not seek additional weight loss treatment for 1 year, Physician consent if scored 1 or more items on PAR-Q	Health issues: history of myocardial infarction, stroke, or cancer in the last 5 yrs, diabetes, angina, or orthopedic or joint problems that would prohibit exercise, Major psychiatric disease, Current, planned, or previous pregnancy within 6 months	1
Tate, 2006[76]	Obesity	RCT	NS	Patient	Research site	20 to 65 yrs old, BMI= 27 to 40, Willingness to use meal replacements as part of the dietary regimen, Availability of a computer with Internet access	History of heart attack, stroke, or cancer in the past 5 yrs, Diabetes, angina, or orthopedic or joint problems that would prohibit exercise, Major psychiatric disorder involving hospitalization during the past year	0

Evidence Table 8. Study characteristics of studies addressing clinical outcomes (continued)

Author, year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
Taylor, 2006[77]	Sleep apnea	RCT	NS	Clinician	Medical system (network of hospitals and/or clinics)	Diagnosed with OSAS and prescribed CPAP as therapy	Currently or previously treated with nasal CPAP or other therapies such as an oral appliance or surgery for OSAS	1
Taylor, 2008[78]	Asthma	RCT	2006	System, Clinician	Hospital, Medical system (network of hospitals and/or clinics)			-1
Thomas, 2004[79]	Mental health (other): Common mental disorders	RCT	(6)	Patient	Outpatient clinic	16 yrs or older, Completed the GHQ-124 and scored 3 or more	Previous diagnosis of psychotic illness, Mental handicap or cognitive impairment, Language or literacy difficulties, Severe or terminal physical illness	0
Thomas, 2007[80]	Diabetes	RCT	2003	System	Resident Continuity clinic during	Categorical IM residents with community-based continuity clinic	Residents anticipating early residency completion	2
Tierney, 2003[81]	Heart failure	RCT	1994 (28)	Patient	Outpatient clinic	Patients with heart failure with objective evidence of left ventricular dysfunction on an echocardiogram (either the cardiologist impression of left ventricular systolic dysfunction or a fractional shortening of less than 25%)		0
Tierney, 2005[82]	Asthma, COPD	RCT	1994 (12)	Clinician	Research hospital network	18 yrs or older, Had either previously visited the study practices, a diagnosis of asthma or		-1

Evidence Table 8. Study characteristics of studies addressing clinical outcomes (continued)

Author, year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
						COPD had been recorded during any inpatient visit, emphysema recorded as a reading on any prior chest radiograph, or two or more prescriptions for inhaled âlpha-agonists, corticosteroids, ipratropium		
Trief, 2006[83]	Diabetes	RCT, Qualitative	(12)	Patient	Outpatient clinic, Home	Diabetes, Married or cohabitating	Refused, Too sick, Changed mind	2
Verheijden, 2004[84]	Nutrition counseling and social support for patients at increased cardiovascular risk in general practice	RCT	2002 (8)	Patient	Outpatient clinic	40 yrs and older, Hypertension or type 2 DM or Dyslipidemia, Used the Internet		2
Weber, 2008[85]	Polypharmacy and falls in ambulatory rural elderly	RCT	The EPIC care database was queried in October; 2002; intervention dates were in January or February, 2003; for the comparison group, the baseline data were defined as January 30, 2003 (15 months)	System, Clinician, Patient	Outpatient clinic, Medical system (network of hospitals and/or clinics)	70 yrs or older, 4 or more active prescription medications, 1 or more psychoactive medications prescribed within the past year, Had Geisinger Health Plan Medicare Choice coverage		-1
Williamson,	Obesity	RCT	NS	Patient	Outpatient clinic	11-15 yrs old, African		1

Evidence Table 8. Study characteristics of studies addressing clinical outcomes (continued)

Author, year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
2006[86]						American, Female, BMI above the 85th percentile for age and gender based on 1999 National Health and Nutrition Examination Study normative data, At least one obese biological parent,		
Womble, 2004[87]	Obesity	RCT	2001 (19)	Patient	Online/ research site	18–65 yrs old, Female, BMI of 27–40 kg/m, Free of physical conditions including type 1 or 2DM, hypertension, kidney problems, Daily access to the Internet	Use of medications known to affect body weight, Pregnancy or lactation, Use of anorectic agents in the previous 6 months, Bulimia nervosa, Major depression, or other psychiatric illness that significantly disrupted daily fun	1
Yoon, 2008	Diabetes	RCT	2003 (44)	Patient	Hospital	Male or female, Home Internet access, Able to perform blood glucose self-testing, Had own cellular phone	Clinical history of a severe illness, Renal insufficiency with a creatinine level>1.5mg/dl, Using insulin pump	1

ARDS: Acute respiratory distress syndrome, BMD: Bone mineral density, BMI : Basal body mass index, CAD: Coronary artery disease, CHF: Congestive heart disease, CM140-239 :Cancer diagnosis code, COPD: Chronic obstructive pulmonary disease, CPRS: Computerized patient record system, CSII: Continuous subcutaneous insulin infusion, CVA: Cerebrovascular accident, DM: Diabetes mellitus, DV: Deep vein, Dx: Diagnosis, GHb: Glycated hemoglobin, GHQ: General Health Questionnaires, GIMC: General internal medicine clinic, HbA1c: Hemoglobin A1C, HMG: HMG CoA reductase inhibitor ("statin"), HTN: Hypertension, ICD9: International Classification of Disease-9, INR: International normalized ratio, kg/m^2: Unit of BMI, PCP: Primary care provider, PEFR: Peak expiratory flow rate, RCT: Randomized controlled trial, TIDM: Type 1 diabetes mellitus, USAF: The US Air Force, OSAS: Obstructive sleep apnea syndrome.

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Evidence Table 9. Participant characteristics of studies addressing clinical outcomes.

Author, Year	Control Intervention	Age	Females, n (%)	Race, n (%)	Income, n (%)	Education, n (%)	Other Categories, n (%)
Adachi, 2007[1]	Control	Mean: 46.3, SD: 8.6	54 (100)	NS	NS	NS	Height (cm) 157.6, SD: 5.9; Body weight (kg) 65.1, SD: 6.4; BMI (kg/m^2) 26.1, SD: 1.6; Daily habits –10 eating measures, 6 activity measures
	KM group: Full KT program with 6-month weight and targeted behavior's self-monitoring	Mean: 46.6, SD: 10.1	46 (100)	NS	NS	NS	Height (cm) 157.5, SD: 6.1; Body weight (kg) 65.3, SD: 6.4; BMI (kg/m^2) 26.2, SD: 1.4; Daily habits –10 eating measures, 6 activity measures
	Group K: Full KT program only	Mean: 45.3, SD: 10.4	47 (100)	NS	NS	NS	Height (cm) 157.0, SD: 5.5; Body weight (kg) 64.8, SD: 6.5; BMI (kg/m^2) 26.2, SD: 1.5; Daily habits – 10 eating measures, 6 activity measures
	Group BM: an untailored self-help booklet with 7-month self-monitoring of weight and walking	Mean: 46.6, SD: 9	58 (100)	NS	NS	NS	Height (cm) 155.7, SD: 5.2; Body weight (kg) 63.4, SD: 5.5; BMI (kg/m^2) 26.1, SD: 1.5; Daily habits – 10 eating measures, 6 activity measures
Benhamou, 2007[2]	Control	NS	NS	NS	NS	NS	
	Weekly medical support of glucose monitoring using SMS messaging	NS	NS	NS	NS	NS	
Berner, 2006[3]	Control	Mean: 28.57	8 (29)	White: (75), Other 1: (25	NS	Postgraduate yr – 1: 4 (14), 2: 13 (47), 3: 11 (39)	

Evidence Table 9. Participant characteristics of studies addressing clinical outcomes (continued)

Author, Year	Control Intervention	Age	Females, n (%)	Race, n (%)	Income, n (%)	Education, n (%)	Other Categories, n (%)
	Decision support rules on a handheld computer	Mean: 27.35	8 (26)	White: (77), Other 1: (23)	NS	Postgraduate yr: 1: 14 (45), 2: 9 (29), 3: 8 (26)	
Bosworth, 2009[4]	Control	Mean: 64, SD 12	(1)	White: (58), Black: (38), Other 1: NS (2)	Employed: (34), inadequate income: (20)	High school or less: (51)	Married (73); Taking BP meds for >5yrs (57); No exercise (42); Current smoker (24); Diabetic (41); Baseline BP control (34); SBP, mean 142, SD: 19; DBP, mean 76, SD: 12
	Provider decision support intervention	Mean: 63, SD 11	(3)	White: (58), Black: (39), Other 1: NS: (2)	Employed: (32), Inadequate income: (21)	High school or less: (52)	Married: (66); Taking BP meds for >5 yrs (56); No exercise (41), Current smoker (21); Diabetic (39); Baseline BP control (46); SBP, mean 138, SD: 17; DBP: mean: 76, SD: 10
	Patient behavioral intervention	Mean: 65, SD 11	(1)	White: (57), Black: (38), Other 1: NS: (5)	Employed: (26), Inadequate income: (22)	High school or less: (50)	Married: (72); Taking BP meds for >5yrs (58); No exercise (49); Current smoker (30); Diabetic (31); Baseline BP control (45); SBP, mean 139, SD: 17; DBP, mean: 74, SD: 12
	Combined	Mean: 62, SD 11	(3)	White: (55), Black: (43), Other 1: NS (2)	Employed: (23), Inadequate income: (23)	High school or less: (51)	Married (62); Taking BP meds for >5yrs (55); No exercise (44); Current smoker (26); Diabetic (38); Baseline BP control (36); SBP, mean 140, SD: 18; DBP: mean: 78, SD: 11

Evidence Table 9. Participant characteristics of studies addressing clinical outcomes (continued)

Author, Year	Control Intervention	Age	Females, n (%)	Race, n (%)	Income, n (%)	Education, n (%)	Other Categories, n (%)
Buhrman, 2004[5]	Control	Mean: 45, Range: 10.7	18 (62.1)	NS	NS	9-year compulsory school: 7 (24.1), Upper secondary school: 6 (21), University education: <2 yrs: 2 (6.9), University education >2 yrs: 14 (48.3)	
	Internet-based cognitive behavioral self-help treatment .	Mean: 43.5, Range: 10.3	14 (63.6)	NS	NS	9-yr compulsory school: 2 (9.1), Upper secondary school: 6 (27), University education <2 yrs: 3 (13.6), University education >2 yrs: 11 (50)	
Cadario, 2007[6]	Control	Median: 14.7, Range: 10-19.8	NS	NS	NS	NS	Diabetes duration (yrs): 9.2, Range: 3-14
	Telecare (glucometer transmission with feedback)	Median: 14.8, Range: 10.5-20	NS	NS	NS	NS	Diabetes duration (yrs) 9.1, Range: 2-15
Clark, 2007[7]	Control	NS	NS	NS	NS	NS	

Evidence Table 9. Participant characteristics of studies addressing clinical outcomes (continued)

Author, Year	Control Intervention	Age	Females, n (%)	Race, n (%)	Income, n (%)	Education, n (%)	Other Categories, n (%)
	Nurse-coordinated telephone-monitoring CHF management	Mean: 74.7, SD: 9.3	28(35)	NS	NS	NS	Living status – Lives alone 21 (26.0),Spouse partner 52 (65.8), Supportive relative 6 (7.6); Weight (kg) 83.24, SD: 23; NYHA – Class II 33 (41.8), Class III 32 (40.5), Class IV 14 (17.7); Capital city/metropolitan 25 (31.6); Rural and remote 54 (68.4)
Chan, 2003[8]	Control	Mean: 8.7, SD: 2.5	(20)	NS	NS	NS	
	Virtual group: Internet-based education	Mean: 6.6, SD:0.5	(80)	NS	NS	NS	
de Toledo, 2006[9]	Control	Mean: 72, SD: 8	3 (3.2)	NS	NS	NS	Forced expiratory volume per second (FEV) 42, SD: 15%
	Home telemedicine with electronic chronic patient record (ECPR)	Mean: 71, SD: 8	2 (2.3)	NS	NS	NS	Forced expiratory volume per second (FEV) 42, SD: 20%
East, 1999[10]	Control	NS	NS	NS	NS	NS	
	Computerized decision support	NS	NS	NS	Ns	NS	
Eccles, 2002[11]	Control	NS	NS	NS	NS	NS	
	Computerized guidelines for the management of asthma	NS	NS	NS	NS	NS	
Farmer, 2005[12]	Control	Mean: 23.2, SD: 4.2, Range: 18-30	19 (41.3)	NS	NS	NS	N 46; Duration of disease 11.6 yr

Evidence Table 9. Participant characteristics of studies addressing clinical outcomes (continued)

Author, Year	Control Intervention	Age	Females, n (%)	Race, n (%)	Income, n (%)	Education, n (%)	Other Categories, n (%)
Feldstein, 2006[13]	Control	Range: 50-89	101(100)	NS	<=$20,000: 20 (19.8), >$20,000: 21 (20.8), Unknown: 60 (59.4)	Unknown: 46 (45.5), <=High school: 32 (31.7), >=Some college: 23 (22.8)	Fracture type – Hip 9 (8.9), Vertebra 9 (8.9), Wrist 15 (14.9), Other 68 (67.3); Current smoker – No 92 (91.1), Yes 9 (8.9); Weight 3 12 (11.9); Adequate calcium intake – No 32 (31.7), Yes 16 (15.8), Unknown 53 (52.5); Regular activity – No 40 (39.6), Yes 14 (13.9, Unknown 47 (46.5)
	EMR reminder to primary care physician	Range: 50-89	101(100)	NS	<=$20,000: 27 (26.7), >$20,000: 13 (12.9), Unknown: 61 (60.4)	Unknown: 45 (44.6), <=High school: 31 (30.7), >=Some college: 25 (24.8)	Fracture type – Hip 12 (11.9), Vertebra 10 (9.9), Wrist 17 (16.8), Other 62 (61.4); Current smoker – No 90 (89.1), Yes 11 (10.9); Weight: 3 18 (17.8); Adequate calcium intake – No 36 (35.6), Yes 14 (13.9), Unknown 51 (50.5); Regular activity – No 44 (43.6), Yes 13 (12.9), Unknown 44 (43.6)

Evidence Table 9. Participant characteristics of studies addressing clinical outcomes (continued)

Author, Year	Control Intervention	Age	Females, n (%)	Race, n (%)	Income, n (%)	Education, n (%)	Other Categories, n (%)
	EMR reminder to primary care physician plus mailed patient reminder letter	Range: 50-89	109(100)	NS	<=$20,000: 28 (25.7), >$20,000: 17 (15.6), Unknown: 64 (58.7)	Unknown: 42 (38.5), <=High school: 39 (35.8), >=Some college: 28 (25.7)	Fracture type – Hip16 (14.7), Vertebra 2 (1.8), Wrist 17 (15.6), Other 74 (67.9); Current smoker – No 100 (91.7), Yes 9 (8.3,); Weight: 3 12 (11.0); Adequate calcium intake – No 40 (36.7), Yes 17 (15.6), Unknown 52 (47.7); Regular activity – No 52 (47.7), Yes 13 (11.9), Unknown 44 (40.4)
Feldman, 2005[14]	Control	Mean: 71.2, SD: 12.2	(76.7)	White: (23.4), Black: (41.9), Latino: (30.0), Other 1: (4.9)	<$10,000: (51.5)	<12 yrs: (54.2)	N 227
	Basic: e-mail reminder	Mean: 72.4, SD: 12.1	(64.8)	White: (23.6), Black: (42.7), Latino: (31.2), Other 1: (2.5)	<$10,000: (43.7)	<12 yrs: (56.8)	N 199
	Augmented: e-mail reminder and a laminated card	Mean: 71.8, SD: 12.0	(65.4)	White: (28.2), Black: (35.6), Latino: (33.2, Other 1: (3.0)	<$10,000: (40.1	<12 yrs: (54.0)	N 202
Fretheim, 2006[15]	Control	Mean: 60.5	51.7	NS	NS	NS	

Evidence Table 9. Participant characteristics of studies addressing clinical outcomes (continued)

Author, Year	Control Intervention	Age	Females, n (%)	Race, n (%)	Income, n (%)	Education, n (%)	Other Categories, n (%)
	Educational outreach visit udit and feedback at outreach visit, computerized reminders, risk assessment tools (software and charts), patient information material	Mean: 61.2	54.2	NS	NS	NS	
Gaertner, 2004[16]	Control	NS	NS	NS	NS	NS	
	Electronic palm-top pain diary	NS	NS	NS	NS	NS	
	Paper-based pain diary	NS	NS	NS	NS	NS	
Glasgow, 2000[17]	Control	Mean: 60.6 (9.5)	(66.3)	White: (90)	NS	Some college or more: (46.3)	Retired (45.0), Live alone (51.2)
	Basic and community resource condition	Mean: 60.5 (8.6)	(47.4)	White: (90.9)	NS	Some college or more: (59.7)	Retired (28.6), Live alone (58.4)
	Basic and telephone follow-up condition	Mean: 59.0 (9.6)	(57)	White: (88.6)	NS	Some college or more: (63.0)	Retired (31.6), Live alone (44.3)
	Combined Condition	Mean: 57.4 (9.4)	(56.3)	White: (91.4)	NS	Some college or more: (58.0)	
Glasgow, 2005[18]	Control	Mean: 64, SD: 1.3	(50.0)	White: (77.9), Black: (2.7), Latino: (14.1) Other 1: (5.4)	<$10,000: (10.0), $10,000-29,999: (33.9), $30,000-49,999: (23.9), $50,000: (32.1)	Range, yrs: <12: (14.4), 12 (High school): (25.4), College (1-3 yrs): (32.8), College/graduate school: (27.4)	

Evidence Table 9. Participant characteristics of studies addressing clinical outcomes (continued)

Author, Year	Control Intervention	Age	Females, n (%)	Race, n (%)	Income, n (%)	Education, n (%)	Other Categories, n (%)
	Diabetes Priority Program	Mean: 62, SD: 1.4	(52.3)	White: (83.5), Black: 1.7, Latino: (11.3), Other 1: (3.4)	<$10,000: (12.3), $10,000-29,999: (26.4), $30,000-49,999: (28.0), $50,000: (33.3)	Range, yrs: <12: (13.0), 12 (High school): (27.1), College (1-3 yrs): (32.0), College/graduate school: (27.9)	
Grant, 2008[19]	Control	Mean: 53.3, SD 12.3	(56)	Other 1: Non-white: (16)	Neighborhood average income: $52,529	NS	Insurance status – Private (77), Medicare (17), Medicaid or free care (7); HbA1c, mean 7.4, SD: 1.6, At goal (55); LDL-C, mean (mg/dl) 86.7, SD: 31, At goal (68); BP, mean (mmHg) 126/76, SD: 13/9, At goal (47); PCP visits in previous 12 months, mean 2.7, SD: 3.1
	Patient submits electronic "Diabetes Care Plan" to physician	Mean: 58.8, SD 10.1	(43)	Other1: non-white: (7)	Neighborhood average income: $54,950	NS	Insurance status – Private (67), Medicare (33), Medicaid or free care (0); HbA1c, mean 7.3, SD: 1.5, At goal (51); LDL-C, mean (mg/dl) 81.4, SD: 27, At goal (73); BP mean (mmHg) 127/74, SD: 14/9, At goal (51); PCP visits in previous 12 months, mean 2.6, SD: 2.1

Evidence Table 9. Participant characteristics of studies addressing clinical outcomes (continued)

Author, Year	Control Intervention	Age	Females, n (%)	Race, n (%)	Income, n (%)	Education, n (%)	Other Categories, n (%)
Green, 2008[20]	Control	Mean: 58.6, SD 8.5	141 (54.7)	White: 214 (82.9), Black: 22 (8.5), Asian: 8 (3.1), Other 1: NS: 14 (5.4)	NS	<=12 yrs or GED: 22 (8.5), Some post-high school: 117 (45.3), 4-yr College degree: 48 (18.6), Graduate school: 71 (27.5)	Employed – Full-time 158 (61.2), Retired 75 (29.1), Part-time 16 (16.2), Other 9 (3.5); Anti-HTN medication class: None 13 (5),One 127 (49.2), Two 89 (34.5), Three or more 29 (11.2); Current smoker 20 (8.1); BMI – Normal 16 (6.5), Overweight 72 (29.4), Obese 157 (64.1); Have home BP monitor 137 (53.1); BP – Systolic, mean 151.3, SD: 10.6; Diastolic, mean 89, SD: 4.8
Glasgow, 2006[21]	Control	Mean: 61.0, SD: 11.0	80(50.0)	White: 128(79.6), Latino: 29(18.3)	<$30,000: 40(24.9), $30,000-49,999: 57(35.6), $50,0000-69,999: 30(18.8), $70,000 or more: 33(20.8)	8-12 yrs: 44 (27.6), 12-16 yrs: 97 (60.3), >16 yr: 20 (12.2)	Co-morbidities (range=0-10) 3.1 (2.1); BMI (kg) 31.9 (7.2); Taking insulin (19.2); Married (63.5); Smokers (11.9)
	TSM: social cognitive theory-based tailored self-management	Mean: 62.0, SD: 11.7	90 (50.3)	White: 129 (74) Latino: 30 (17)	<$30,000: 52 (29.9) $30,000-49,999: 49 (28) $50,000-69,999: 35 (20.1), $70,000 or more: 38(21.9)	8-12yrs: 54 (30.8), 12-16yrs: 89 (51.1), >16yrs: 31 (18.0)	Co-morbidities (range=0-10) 2.9 (1.9); BMI (kg) 31.3 (7.0) Taking insulin (24.2); Married (67.6); Smokers (8.1)
Gomez, 2002[22]	Control	NS	NS	NS	NS	NS	
	Diabetes telemonitoring	NS	NS	NS	NS	NS	

Evidence Table 9. Participant characteristics of studies addressing clinical outcomes (continued)

Author, Year	Control Intervention	Age	Females, n (%)	Race, n (%)	Income, n (%)	Education, n (%)	Other Categories, n (%)
	system						
Hansson, 2008[23]	Control	Mean: 41.8	(35.2)	NS	NS	NS	Unemployed (36.9)
	Computer-mediated procedure (DIALOG) to augment provider-patient communication (community psychiatry)	Mean: 42.5	(32.5)	NS	NS	NS	Unemployed (35.2)
Harno, 2006[24]	Control	NS	NS	NS	NS	NS	BMI 27.8, SE: 0.60; Systolic BP: 136, SE: 1.8; Diastolic BP 84, SE: 1.1; Hb1Ac 8.21, SE: (0.18)
	E-health application with a DMS (Diabetes Management System) and a home care link	NS	NS	NS	NS	NS	BMI 28.5, SE: 0.60; Systolic BP 134, SE: 1.8; Diastolic BP 81, SE: 1.0; Hb1Ac 7.82, SE: 0.13
Hetlevik, 2000[25]	Control	Mean: 68.1	(55)	NS	NS	NS	N 408
	Computer-based clinical decision support system (CDSS)	Mean: 66.3	(53)	NS	NS	NS	N 368
Hicks, 2008[26]	Control	Mean: 58,1, SD 10.8	52 (45.9)	NS	NS	NS	BMI, mean 26.9, SD: 3.6; Treated HTN patient 85 (76.6); Clinic SBP, mean 148.7, SD: 11.7; Clinic DBP, mean 88.8, SD: 8.6; Daytime SBP, mean 140.3, SD: 10.5; Daytime DBP, mean: 84.3, SD: 8.2

Evidence Table 9. Participant characteristics of studies addressing clinical outcomes (continued)

Author, Year	Control Intervention	Age	Females, n (%)	Race, n (%)	Income, n (%)	Education, n (%)	Other Categories, n (%)
	BP management based on HBPM combined with teletransmission to doctor of home self-measured BP values	Mean: 57.2, SD 10.7	85 (45.5)	NS	NS	NS	BMI, mean 26.9, SD: 4.1; Treated HTN patient 148 (79.1); Clinic SBP, mean 148.4, SD: 12.6; Clinic DBP, mean 88.7, SD: 7.4; Daytime SBP, mean 139, SD: 11.0; Daytime DBP, mean 83.9, SD: 8.0
Homko, 2007[27]	Control	Mean: 47.5, SD: 9.1	15 (57.7)	NS	NS	NS	BMI, mean (kg/m^2) 23.4; Duration of diabetes, mean (yrs) 8.0
	Web-based glucose monitoring	Mean: 46.8, SD: 8.8	14 (56)	NS	NS	NS	BMI, mean (kg/m^2) 24.5; Duration of diabetes, mean (yrs) 5.2
Hunter, 2008[28]	Control	Mean: 34.4, SD: 7.2	(50.5)	White: (53.2)	NS	% High school or some college: (61.7)	Married or partnered (73.0); Enlisted (75.2); Yrs in service 13.0, SD: 6.6; Plan to retire from Air Force – Yes 81.4
	Behavioral Internet treatment (BIT)	Mean: 33.5, SD: 7.4	(50.0)	White: (58)	NS	% High school or some college: (63.9)	Married or partnered (73.0); Enlisted (81.7); Yrs in service 12.4, SD: 6.6; Plan to retire from Air Force – Yes 78.9

Evidence Table 9. Participant characteristics of studies addressing clinical outcomes (continued)

Author, Year	Control Intervention	Age	Females, n (%)	Race, n (%)	Income, n (%)	Education, n (%)	Other Categories, n (%)
Jan, 2007[29]	Control	Mean: 9.9, SD: 3.2	48 (63.2)	NS	NS	Primary caregiver high school or below: 43 (56.6), Primary caregiver college or above: 33 (43.4)	History of asthma (yrs) 2.1, SD: 1.2; Asthma severity (persistent) – Mild 33 (43.4), Moderate 35 (46.1), Severe 8(10.5); Uses of quick relief medication per month 2.1, SD: 0.3; Emergency Department visits per year 2.8, SD: 1.2; Passive smoking in household 18 (23.7)
	Blue Angel for Asthma Kids, an Internet-based interactive asthma educational and monitoring program	Mean: 10.9, SD: 2.5	53 (60.3)	NS	NS	Primary caregiver high school or below: 58 (66.0), Primary caregiver college or above: 30 (34.0)	History of asthma (yrs) 2.4, SD: 1.9; Asthma severity (persistent) – Mild 33 (47.5), Moderate 43 (48.9), Severe 12(13.6); Uses of quick relief medication per month 2.4, SD: 0.9; Emergency Department visits per year 3.1, SD: 1.3; Passive smoking in household 21(23.9)
Jerant, 2001[30]	Control	Mean: 72.7, SD: 11.4	50	White: 58, Black: 33, Latino: 1	NS	NS	
	Home telecare	Mean: 66.6, SD: 10.9	54	White: 31, Black: 62, Latino: 1	NS	NS	
	Telephone telecare	Mean: 71.3, SD: 14.1	58	White: 58,Black: 42 Latino: 0	NS	NS	

Evidence Table 9. Participant characteristics of studies addressing clinical outcomes (continued)

Author, Year	Control Intervention	Age	Females, n (%)	Race, n (%)	Income, n (%)	Education, n (%)	Other Categories, n (%)
Jerant, 2003[31]	Control	Mean: 72.7	6(50)	White: 7(58), Black: 4(33), Latino: 1(8)	NS	NS	Primary health insurer – Blue Cross 2 (17), Commercial capitated 5 (50), MediCal capitated 1 (8), MediCal fee-for-service 4 (33), Medicare 0 (0); Distance from hospital, mean (miles) 12.3, SD: 8.4; CHF duration, mean (months) 30.4, SD: 30; + 5 other CHF-related measures
	Patients assigned to video-based telecare group received scheduled home telecare visits using the telecare equipment as well as video and electronic stethoscope	Mean: 66.6	7(54)	White: 4(31), Black: 8(62), Latino: 1(8)	NS	NS	Primary health insurer – Blue Cross 1 (8), Commercial capitated 3 (23), MediCal capitated 2 (15), MediCal fee-for-service: 6 (46), Medicare: 1(8); Distance from hospital, mean (miles) 9.6, SD: 7.0; CHF Duration, mean (months) 11.0, SD: 16.5; + 5 other CHF-related measures

Evidence Table 9. Participant characteristics of studies addressing clinical outcomes (continued)

Author, Year	Control Intervention	Age	Females, n (%)	Race, n (%)	Income, n (%)	Education, n (%)	Other Categories, n (%)
	Patients assigned to telephone care received scheduled phone calls from the study nurse	Mean: 71.3	7(58)	White: 7(58), Black: 5(42), Latino: 0(0)	NS	NS	Primary health insurer – Blue Cross 1 (8), Commercial capitated 7 (58), MediCal capitated 0 (0), MediCal fee-for-service 3 (25), Medicare 1 (8); Distance from hospital, mean (miles)12.4, SD: 16.8; CHF duration, mean (months) 54.8, SD: 71.2; + 5 other CHF-related measures
Jones, 1999[32]	Control	NS	NS	NS	NS	NS	
	Personal computer information	NS	NS	NS	NS	NS	
	General computer information	NS	NS	NS	NS	NS	

Evidence Table 9. Participant characteristics of studies addressing clinical outcomes (continued)

Author, Year	Control Intervention	Age	Females, n (%)	Race, n (%)	Income, n (%)	Education, n (%)	Other Categories, n (%)
Kattan, 2006[33]	Control	Mean: 7.6	37.1	White: (6.4), Black: (38.8), Latino: (39.9), Asian: (1.3), American: (3.9), Other 1: Mixed/other (9.7)	Household income <$15,000: 291(62.5)	Caretaker completed high school: 327(70.2)	>= Household member has a job (74.6); Type of insurance coverage – Medicaid (35.0), Managed care (25.5), Private (6.0), None (17.0), Could not determine (3.0); Baseline symptoms per week, mean – Maximum symptom days: 5.9, Days limited in activities for more than half day 2.1, School days missed 1.1; Baseline use (annualized mean) – ED visits 3.0, Unscheduled clinic visits 5.5, Hospitalizations 0.8

Evidence Table 9. Participant characteristics of studies addressing clinical outcomes (continued)

Author, Year	Control Intervention	Age	Females, n (%)	Race, n (%)	Income, n (%)	Education, n (%)	Other Categories, n (%)
	Timely patient feedback combined with guideline-based recommendations for changes in therapy	Mean: 7.7	186 (39.5)	White: (7.4), Black: (40.3), Latino: (40.3), Asian: (1.1), American: (2.3), Other 1: Mixed/other (8.5)	Household income <$15,000: 291(58.1)	Caretaker completed high school: 324(68.7)	>= Household member has a job (77.2); Type of insurance coverage – Medicaid (28.7), Managed care (25.3), Private (7.2), None (21.4), Could not determine (3.2); Baseline symptoms per week, mean – Maximum symptom days 6.1, Days limited in activities for more than half day 2.0, School days missed 0.9; Baseline use (annualized mean) – ED visits 3.0, Unscheduled clinic visits 5.6, Hospitalizations 1.1
Kenwright, 2005[34]	Control	NS	NS	NS	NS	NS	N 22
	9 Scheduled clinician-initiated calls to augment (BT steps) for OCD	NS	NS	NS	NS	NS	
Kerr, 2008[35]	Control	Mean: 41.6, Range: 8.9	196 (100)	NS	NS	8-12 yrs: 81 (41.3)	
	Internet-based behavioral intervention for overweight women	Mean: 40.8, Range: 8.4	205 (100)	NS	Ns	8-12 yrs: 105 (51.2)	

Evidence Table 9. Participant characteristics of studies addressing clinical outcomes (continued)

Author, Year	Control Intervention	Age	Females, n (%)	Race, n (%)	Income, n (%)	Education, n (%)	Other Categories, n (%)
Krishna, 2003[36]	Control	NS	45 (37)	White: 102 (84.3), Black: 9 (7.4), American: 7, Other 1: Other/unknown: 3	NS	<8 yrs: 115 (95), 8-12 yrs: 6 (5)	
	Interactive Multimedia Program for Asthma Control and Tracking (IMPACT)	NS	35 (32.7)	White: 93 (87), Black: 10 (9.3), American: 2, Other1: Other/unknown: 2	NS	<8 yrs: 102 (95.3), 8-12 yrs: 5 (4.7)	
Kucher, 2005[37]	Control	Mean: 62, Range: 18-97	52	NS	NS	NS	
	Alert that the patient was at risk for deep-vein thrombosis	Mean: 63, Range: 18-99	54	NS	NS	NS	
Laffel, 2007[38]	Control	Mean: 35.0	50 (54.3)	NS	NS	NS	Type 1 73 (79.4); Type 2 19 (20.6); Duration of diabetes (yrs) 14.0 SD: 10.0; Frequency of SMBG3.8, SD: 1.2; A1c (%) 9.13, SD: 0.91
	Integrated meter with electronic logbook for glycemic control	Mean: 35.7	65 (55.6)	NS	NS	NS	Type 1 90 (79.6); Type 2 23 (20.4); Duration of diabetes (yrs) 13.3, SD: 10.3; Frequency of SMBG 3.9, SD: 1.4; A1c (%) 9.06, SD: 1.29
Lester, 2004[39]	Control	Mean: 62.7, SD: 13.6	49	Other 1: Non-white: (18)	NS	NS	

Evidence Table 9. Participant characteristics of studies addressing clinical outcomes (continued)

Author, Year	Control Intervention	Age	Females, n (%)	Race, n (%)	Income, n (%)	Education, n (%)	Other Categories, n (%)
	Clinical decision support system for hyperlipidemia management by e-mail	Mean: 64.8, SD: 13.6	51	Other 1: Non-white: (17)	NS	NS	
Lorig, 2006[40]	Control	Mean: 57.6, SD: 11.3	305 (71.6)	White: 377 (88.7)	NS	Mean yrs: 15.8 (3.16)	Married (63.6); Web use – Health-related Web site visits in last 6 months 9.54 (16.8); Diseases – Diabetes (63.9), Hypertension (46.7), Lung disease (44.1), Heart disease (25.4), Arthritis (24.9); Self-efficacy (1-10 scale) 6.01, SD: 2.17); Health care utilization – Physician visits in past 6 months 5.09 (5.78), Emergency visits in past 6 months 0.354 (0.950), Days in hospital in past 6 months 0.98 (5.53)

Evidence Table 9. Participant characteristics of studies addressing clinical outcomes (continued)

Author, Year	Control Intervention	Age	Females, n (%)	Race, n (%)	Income, n (%)	Education, n (%)	Other Categories, n (%)
	The Internet Chronic Disease Self-Management Program	Mean: 57.4, SD:10.5	252 (71.2)	White: 309 (87.3)	Ns	Mean yrs: 15.4(3.00)	Married (68.0); Web use – Health-related Web site visits in last 6 months 10.2 (16.6); Diseases –Diabetes (61.6), Hypertension (45.8), Lung disease (47.3), Heart disease (22.3), Arthritis (24.9); Self-efficacy(1-10 scale): 6.05, SD: 2.22; Health care utilization – Physician visits in past 6 months 4.94 (4.69), Emergency visits in past 6 months 0.308 (0.778), Days in hospital in past 6 months 1.09 (4.14)
Liaw, 1998[41]	Control	Range: 5-24: (5), 25-64: (27), 65-74: (18), >75: (50)	20 (68)	NS	NS	NS	
	Computer-generated patient handheld record	Range: 5-24: (10), 25-64: (28), 65-74: (17), >75: (45)	15 (69)	NS	Ns	NS	
	Posttest only	5-24: (0), 25-64 : (43), 65-74: (14), >75: (43)	8 (60)	NS	NS	NS	
Lowensteyn, 1998[42]	Control	Mean: 50.7, SD: 11.3	(35.2)	NS	NS	NS	

Evidence Table 9. Participant characteristics of studies addressing clinical outcomes (continued)

Author, Year	Control Intervention	Age	Females, n (%)	Race, n (%)	Income, n (%)	Education, n (%)	Other Categories, n (%)
	The profile group of physicians received computer-generated coronary risk profiles	Mean: 50.5, SD: 10.8	(35.2)	NS	NS	NS	
Madsen, 2008[43]	Control	Mean: 56.7	59 (48)	NS	NS	NS	
	Telemonitoring of home BP using PDA with mobile phone	Mean: 55	58 (51.3)	NS	NS	NS	
McCowan, 2001[44]	Control	Mean: 37.4, SD: 22.6	53	NS	NS	NS	
	Computer decision support software	Mean: 32.6, SD: 24.2	51	NS	NS	NS	
McDonald, 2005[45]	Control	Mean: 62.9, SD: 13.3	(64.5)	White: (29.9), Black: (30.8), Latino: (33.3), Other 1: (6.0)	NS	NS	N 234
	Basic intervention: e-mail reminders--one patient-specific message was sent to nurse about patient	Mean: 63.2, SD: 13.0	(68.6)	White: (34.7), Black: (26.5), Latino: (34.3), Other 1: (4.6)	NS	NS	N 242
	Augmented basic intervention: e-mail reminders with provider prompts, patient education material, and clinical nurse specialist outreach	Mean: 63.4, SD: 12.4	(65.5)	White: (32.0), Black: (31.5), Latino: (31.0), other1: (5.6)	NS	NS	N 197

Evidence Table 9. Participant characteristics of studies addressing clinical outcomes (continued)

Author, Year	Control Intervention	Age	Females, n (%)	Race, n (%)	Income, n (%)	Education, n (%)	Other Categories, n (%)
McKinley, 2001[46]	Control	Mean: 38, SD: 2	29	NS	NS	NS	Injury Severity Score [ISS] 25 6, blunt (2.76)
	"Protocol-assigned patients had ventilator support directed by the bedside respiratory therapist using the computerized protocol	Mean: 40, SD: 3	27	NS	NS	NS	Injury Severity Score [ISS] 26 6, blunt (3.73)
Mitchell, 2004[47]	Control	Range: 65-79	Initial: (54.7), Final: (54.4	NS	NS	NS	GPs 3, Range: 1-11; List size 4538, Range, 744-17647; Deprivation level – Low 4 (21), Medium 8 (42), High 7 (37)
	Audit only practices	Range: 65-79	Initial: (59.4), Final: (58.0)	NS	NS	NS	GPs 4, Range, 1-6; List size 5173, Range, 916-11033; Deprivation level – Low 4 (25), Medium 8 (50), High 4 (25)
	Audit plus strategic practices	Range: 65-79	Initial: (55.3), Final: (54.4)	NS	NS	NS	GPs 3, Range, 1-6; List size 5034, Range, 1851-8963; Deprivation level – Low 4 (23), Medium 11 (65), High 2 (12)
Montgomery, 2007[48]	Control	Mean: 32.4, Range: 4.6	247 (100)	NS	<Ł20: 42 (18), Ł20-30: 53 (23), Ł30-40: 51 (22), >Ł40: 89 (38), <Ł20: 44 (19)	Degree: 92 (38), GCSE/NVQ1-3: 99 (40) A level/HND: 42(17)	

Evidence Table 9. Participant characteristics of studies addressing clinical outcomes (continued)

Author, Year	Control Intervention	Age	Females, n (%)	Race, n (%)	Income, n (%)	Education, n (%)	Other Categories, n (%)
	Information program with descriptions and probabilities re vaginal or Caesarean birth	Mean: 32.8, Range: 4.7	250 (100)	NS	Ł20-30: 57 (24), Ł30-40: 46 (19), >Ł40: 89 (38)	Degree: 97 (39), A level/ HND:47 (19), GCSE/NVQ1-3: 92 (37)	
	Decision analysis in which mode of delivery recommended based on concealed decision tree	Mean: 32.5, Range: 4.8	245 (100)	NS	<Ł20: 48 (20), Ł20-30: 49 (21), Ł30-40: 44 (19), >Ł40: 96 (40)	Degree: 103 (42), A level/ HND:36 (15), GCSE/NVQ1-3: 97 (40)	
Montori, 2004[49]	Control	Mean: 44, Range: 32.3–46.8	11 (68.8)	NS	NS	NS	
	Telecare (glucometer transmission with feedback)	Mean: 41.8, Range: 24.4–52.7	10 (66.7)	NS	NS	NS	
Morgan, 2005[50]	Control	NS	NS	NS	NS	NS	N 9
	Receipt of regular telephone calls with the same protocol as those in the videoconferencing group			NS	NS	NS	N 13
	Home videoconferencing with telephone contact	NS	NS	NS	NS	NS	N 14
Napolitano,	Control	NS	NS	NS	NS	NS	

Evidence Table 9. Participant characteristics of studies addressing clinical outcomes (continued)

Author, Year	Control Intervention	Age	Females, n (%)	Race, n (%)	Income, n (%)	Education, n (%)	Other Categories, n (%)
2003[51]	Internet physical activity intervention based on social cognitive theory and targeted toward the stages of motivational readiness	NS	NS	NS	NS	NS	Married White , 41(63) Earning ~$50,000, 59(9 1) Skill using the Internet, 36 (55) Confidence using the Internet, 59 (92.2) Skill using e-mail, 61 (95.3) Confidence using e-mail, 63 (98.4) Body mass index (M/SD), 26.6/4.29 Completed college or postgraduate work, 51 (78) Stage distribution, 20(3 1) Contemplation, 45 (69) Preparation Minutes of activity (MISD), 75.4/69.3 Moderate activity, 73.81 Walking fl, 136.6
	Intensive feedback real-time relemedicine support: a blood glucose monitor (One Touch Ultra) and a general packet radio system mobile phone (Motorola T720i)	Mean: 24.5, SD: 4.2, Range: 18-30	19 (40.4)	NS	NS	NS	N 47; Duration of disease 13.3 years

Evidence Table 9. Participant characteristics of studies addressing clinical outcomes (continued)

Author, Year	Control Intervention	Age	Females, n (%)	Race, n (%)	Income, n (%)	Education, n (%)	Other Categories, n (%)
Noel, 2004{#4787	Control	Mean: 70, Range: 54-90	0 (0)	NS	NS	NS	CHF, COPD, DM combinations – CHF 28 (27), COPD 18 (17), DM 33 (32), CHF+COPD 10 (10), CHF+DM 11 (11), COPD+DM 7(7), CHF+COPD+DM 5 (5)
	Home telehealth plus nurse case management	Mean: 72, Range: 54-90	3 (3)	NS	NS	NS	CHF, COPD, DM combinations – CHF 31(30), COPD 17 (16), DM 25 (24), CHF+COPD 12 (12), CHF+DM 14 (14), COPD+DM 6 (6), CHF+COPD+DM 6 (6)
Nguyen, 2008[52]	fDSMP	Mean: 70.9, SD: 8.6	9 (45)	White: 20 (100)	NS	12-16 yrs: 8 (40), ,>16 yrs: 12 (60)	Not currently employed, or currently disabled or retired 15 (75); Living situation with spouse or other 13 (65); Currently smoking 1 (5); Distance to clinical site (km) 13.1, SD: 15.7; BMI (kg/m^2) 27.7, SD: 6.4
	eDSMP	Mean: 68.0, SD: 8.3	8 (39)	White: 18 (95)	NS	12-16 yrs: 10 (50), 16 yrs: 9 (50)	Not currently employed, or currently disabled or retired 13 (72); Living situation with spouse or other 12 (63); Currently smoking 2 (11); Distance to clinical site (km) 20.4, SD: 18; BMI (kg/m^2) 29.4, SD: 5.9,
Ojima, 2003[53]	Control	NS	NS	NS	NS	NS	

Evidence Table 9. Participant characteristics of studies addressing clinical outcomes (continued)

Author, Year	Control Intervention	Age	Females, n (%)	Race, n (%)	Income, n (%)	Education, n (%)	Other Categories, n (%)
	Web-based personally tailored toothbrushing instruction	NS	NS	NS	NS	NS	
Phillips, 2001[54]	Control	Mean: 33, SD: 11.2	7 (18)	Black: 6 (16)	NS	NS	Married 23 (59); FIM score 82, SD: 34.3; Mean months in study: 12, SD: 8.9
	Video	Mean: 35, SD: 10.8	9 (25)	Black: 6 (17)	NS	NS	Married: 19 (53); FIM score 91, SD: 27.5; Months in study, mean 15, SD: 10.0
	Phone	Mean: 37, SD=13.1	10 (28)	Black: 6 (17)	NS	NS	Married 20 (55); FIM score 91, SD: 26.5; Months in study, mean 14, SD: 68.8
Piette, 2000[55]	Control	Mean: 53.3	(56.5)	White: (29), Other 2: Hispanic: (51.6), Other 3: Other: (19.4)	< $10,000 (56.3)		
	Biweekly ATDM calls with telephone followup by a diabetes nurse educator	Mean: 55.7	(61.3)	Other 1: White (29), Other 2 – Hispanic: (47.6) Other3: Other: (23.4)	< $10,000 (59.1)	NS	

Evidence Table 9. Participant characteristics of studies addressing clinical outcomes (continued)

Author, Year	Control Intervention	Age	Females, n (%)	Race, n (%)	Income, n (%)	Education, n (%)	Other Categories, n (%)
Poller, 2008[56]	Control	Mean: 66.9	2953	NS	NS	NS	Total patients 6447; New patients and patients already established on oral anticoagulation – New 4960, Established 1487; Clinical indication – AF 2967, DVT/PE 1560, Mechanical heart valves 831, Other indications 1089; Target INR range – 2-3 or lower 5560, 2.5-3.5 or higher 878, NS: 9
	Computer-assisted dosage	Mean: 66.9	2940	NS	NSA	NS	Total patients 6605; New patients and patients already established on oral anticoagulation – New 4966, Established1639; Clinical indication – AF 2972, DVT/PE 1649, Mechanical heart valves 870, Other indications 1114; Target INR range – 2-3 or lower 5671, 2.5-3.5 or higher 930, NS: 4
Poller, 2008[57]	Control	Mean: 67.3, SD: 13.9	81,016	NS	NS	NS	N 5131; Clinical indication – AF 2339, DVT/PE 1220, Mechanical heart valves 731, Other 841

Evidence Table 9. Participant characteristics of studies addressing clinical outcomes (continued)

Author, Year	Control Intervention	Age	Females, n (%)	Race, n (%)	Income, n (%)	Education, n (%)	Other Categories, n (%)
	Parma 5 program (a computerized program for oral anticoagulation dosage)	Mean: 67.0, SD: 14.0	73,233	NS	NS	NS	N 5290; Clinical indication – AF 2346, DVT/PE 1322, Mechanical heart valves 759, Other 863
Priebe, 2007[58]	Control	Mean: 41.8	83 (35.2)	NS	NS	NS	Undifferentiated schizophrenia 89 (37.7), Paranoid schizophrenia 63 (26.7), Catatonic schizophrenia 4 (1.7), Hebephrenic schizophrenia 10 (4.2), Schizoaffectivemanic 7 (3.0), Schizoaffective depression (moderate) 9 (3.8), Schizoaffective depression (severe) 2 (0.8), Schizoaffective bipolar disorder 9 (3.8), Delusional disorder 2 (0.8), Other non-organic psychotic disorders 41 (17.4)

Evidence Table 9. Participant characteristics of studies addressing clinical outcomes (continued)

Author, Year	Control Intervention	Age	Females, n (%)	Race, n (%)	Income, n (%)	Education, n (%)	Other Categories, n (%)
	DIALOG, a computer-mediated procedure to discuss 11 domains	Mean: 42.5	88 (32.5)	NS	NS	NS	Undifferentiated schizophrenia 91 (33.6), Paranoid schizophrenia 89 (32.8), Catatonic schizophrenia 1 (0.4), Hebephrenic schizophrenia 7 (2.6), Schizoaffectivemanic 19 (7.0), Schizoaffective depression (moderate) 9 (3.3), Schizoaffective depression (severe) 3 (1.1), Schizoaffective bipolar disorder 15 (5.5), Delusional disorder 1 (0.4), Other non-organic psychotic disorders 36 (13.3)
Proudfoot, 2004[59]	Control	Mean: 43.4, Range: 13.7	96 (75)	White: 120 Black: 5 (5)	NS	<5 yrs: 1 (1), 5-10 yrs: 16(11) 11-12 yrs: 34(24), 13-15 yrs: 31(22) >15 yrs: 58	
	Beating the Blues	Mean: 43.4, Range: 13.7	96	White: 120 (90), Black: 5 (5)	NS	<5 yrs: 1 (1), 5-10 yrs: 16(13) 11-12 yrs: 28(23), 13-15 yrs: 30(25) >15 yrs: 46 (38)	

Evidence Table 9. Participant characteristics of studies addressing clinical outcomes (continued)

Author, Year	Control Intervention	Age	Females, n (%)	Race, n (%)	Income, n (%)	Education, n (%)	Other Categories, n (%)
Quinn, 2008[60]	Control	Range: 20–54 (6), 55–64 (7)	8	White: 7, Black: 6	NS	NS	Yrs with diabetes, mean 11; BMI, mean (kg/m^2) 34.58; Comorbid conditions – Hypertension 8, Hyperlipidemia 6, Coronary artery disease 0, Microvascular complications 4; Medication treatment regimen – Oral hypoglycemic alone 7, Insulin alone 4, Insulin and oral hypoglycemic 0, Injectible non-insulins 1; Physician specialty – Primary care 8, Endocrinology 5
	Cell phone-based diabetes management software system used with Web-based data analytics and therapy optimization tools	Range: 20–54 (8), 55–64 (5)	9	White: 3, Black: 10	NS	NS	Yrs with diabetes, mean 7.61; BMI, mean (kg/m^2) 34.07, Comorbid conditions – Hypertension 8, Hyperlipidemia 8, Coronary artery disease 1, Microvascular complication 4; Medication treatment regimen – Oral hypoglycemic alone 3, Insulin alone 4, Insulin and oral hypoglycemic 6, Injectible non-insulins 6; Physician specialty – Primary care 12, Endocrinology 1

Evidence Table 9. Participant characteristics of studies addressing clinical outcomes (continued)

Author, Year	Control Intervention	Age	Females, n (%)	Race, n (%)	Income, n (%)	Education, n (%)	Other Categories, n (%)
Ralston, 2009[61]	Control	Mean: 57.6	(51.2)	White: (73)	NS	NS	Insulin use (39); GHb (7.9); SBP 133; DBP 76; Total cholesterol 192.7; Outpatient visits 10.3; Primary care 3.3; Specialist care 7; Inpatient days 0.7
	Web-based collaborative care	Mean: 57	(47.6)	White: (89.7)	NS	NS	Insulin use (38.1); GHb (8.2); SBP 133.3; DBP 76.3; Total cholesterol 188.8; Outpatient visits 9.6; Primary care 4.3; Specialist care 5.3; Inpatient days 0.3
Rothert, 2006{#11006	Internet-based tailored expert system for weight management	Mean: 45.6, SD: 12.1	(82.9) of 1475	White: (56.8), Black: (35.4), Latino: (3.4), Other 1: (4.4)	NS	NS	BMI (kg/m^2) 33.0 (3.8); Motivation (0-10 scale) 7.2 (2.0); Self-efficacy (1–5 scale) 2.5 (0.8); Weight (kg) 92.2 (14.4)
	Information only condition	Mean: 45.2, SD: 12.0	(82.7) of 1387	White: (56.3), Black: (35.8), Latino: (3.1), Other 1: (4.8)	NS	NS	BMI (kg/m^2) 31.0 (3.9); Motivation (0-10 scale) 7.3 (2.1); Self-efficacy (1–5 scale) 2.5 (0.8); Weight (kg) 92.5 (14.3)
Ruland, 2003[62]	Control	NS	NS	NS	NS	NS	Patients 25; MDs 5

Evidence Table 9. Participant characteristics of studies addressing clinical outcomes (continued)

Author, Year	Control Intervention	Age	Females, n (%)	Race, n (%)	Income, n (%)	Education, n (%)	Other Categories, n (%)
	After collecting the demographic data, assessment summaries were printed and given to the patient and clinician in the subsequent consultation	NS	NS	NS	NS	NS	Patients 27; MDs 9
Shiffman, 2000[63]	Control	Mean: 43, Range: 31-53	3 (33)	NS	Ns	NS	Interval since completion of residency, mean (yrs) 11.6, Range: 2-19; Percentage of effort in practice setting – Urban, inner-city (11), Urban, not inner-city (28), Suburban (56), Rural (5); Self-assessed computer experience – Nonuser 2, Novice 4, Intermediate 3
	Computer-generated recommendations for acute asthma exacerbations	Mean: 43, Range: 31-53	3 (33)	NS	NS	NS	Interval since completion of residency, mean (yrs) 11.6, Range 2-19; Percentage of effort in practice setting – Urban, inner-city (11), Urban, not inner-city (28), Suburban (56), Rural (5); Self-assessed computer experience – Nonuser 2, Novice 4, Intermediate 3

Evidence Table 9. Participant characteristics of studies addressing clinical outcomes (continued)

Author, Year	Control Intervention	Age	Females, n (%)	Race, n (%)	Income, n (%)	Education, n (%)	Other Categories, n (%)
Schnipper, 2009[64]	Control	NS	92 (57)	NS	Median income by zip code – $<-39,000: 31 (19), $39,001-47,000: 43 (27), $47,001-63,000: 36 (23), >$63,000: 50 (31)	NS	Age >= 85 yrs 17 (11); Preadmission source – Emergency department 96 (60), Transfer from other service 15 (9), Transfer from outside institution 23 (14), Scheduled from home11 (7), Day procedure 14 (9)
	Computerized medication reconciliation tool and process redesign		84 (52)	NS	Median income by zip code: <- $39,000: 37 (23), $39,001-47,000: 40 (25), $47,001-63,000: 48 (29), >$63,000: 37 (23)	NS	Age >= 85 yrs 17 (10); Preadmission source – Emergency department 106 (65), Transfer from other service 17 (10), Transfer from outside institution 16 (10), Scheduled from home 9 (6), Day procedure 14 (9)
Soopramanien, 2005[65]	Control	NS	NS	NS	NS	NS	
	Individual weekly videoconference sessions with an expert in spinal injury to supplement usual posthospitalization support	NS	NS	NS	NS	NS	
Smith, 2008[66]	Control	NS	13 (29)	NS	NS	NS	Specialty – Internal medicine 25 (56), Family medicine 32 (71); Yrs in practice 15, Range: 1-34

Evidence Table 9. Participant characteristics of studies addressing clinical outcomes (continued)

Author, Year	Control Intervention	Age	Females, n (%)	Race, n (%)	Income, n (%)	Education, n (%)	Other Categories, n (%)
	Diabetes Electronic Management System (DEMS)---virtual consultation	NS	19 (39)	NS	NS	NS	Specialty – Internal medicine 25 (51), Family medicine 24 (49); Yrs in practice 13, Range: 3-42
	BP monitoring and patient Web services training	Mean: 59.5, SD 8.3	119 (45.9)	White: 223 (86.1), Black: 18 (6.9), Asian: 9 (3.5), Other1: NS: 9 (3.5)	NS	<=12 yrs or GED: 19 (7.3), Some post-high school: 110 (42.5), 4-yr College degree: 72 (27.8), Graduate school: 58 (22.4)	Employed – Full-time 130 (50.2), Retired: 103 (39.8), Part-time 21 (8.1), Other 5 (1.9); Anti-HTN medication class – None 5 (1.9), One 120 (46.3), Two 86 (33.2), Three or more 48 (18.5); Current smoker 14 (5.5); BMI – Normal 14 (5.6), Overweight 84 (33.3), Obese 154 (61.1); Have home BP monitor 160 (61.8); BP – Systolic, mean 152.2, SD: 10, Diastolic, mean 89, SD: 7.9

Evidence Table 9. Participant characteristics of studies addressing clinical outcomes (continued)

Author, Year	Control Intervention	Age	Females, n (%)	Race, n (%)	Income, n (%)	Education, n (%)	Other Categories, n (%)
	BP monitoring and patient Web services training + pharmacist care	Mean: 59.3, SD 8.6	146 (55.6)	White: 207 (79.3), Black: 21 (8), Asian: 12 (4.6), Oother 1: NS: 21 (8)	NS	<= 12 yrs or GED: 21(8.0), Some post-high school: 97(37.2), 4-yr College degree: 75(28.7), Graduate school: 58 (26.1)	Employed: Full-time 147 (56.3), Retired 92 (35.2), Part-time 14 (5.4), Other 8 (3.1); Anti-HTN medication class – None 10 (3.8), One 119 (45.6), Two 86 (33.2), Three or more 46 (17.6); Current smoker 18 (6.9); BMI – Normal 24 (9.5), Overweight 81 (32.1), Obese 147 (58.3); Have home BP monitor 140 (53.6); BP – Systolic, mean 152.2, SD: 10, Diastolic, mean 88.9, SD: 8.1
Subramanian, 2004[67]	Control	Mean: 69, SD: 9	(3)	White: 327 (85)	NS	NS	
	Computer-based care suggestions generated with electronic medical record data and symptom data from patient questionnaire	Mean: 69, SD: 9	(2)	White: 304 (84)	NS	NS	

Evidence Table 9. Participant characteristics of studies addressing clinical outcomes (continued)

Author, Year	Control Intervention	Age	Females, n (%)	Race, n (%)	Income, n (%)	Education, n (%)	Other Categories, n (%)
Tamblyn, 2003[68]	Control	Mean: 75.3	4028 (64.2)	NS	NS	NS	Total physician visits 21.2 (20.5); Visits to primary care physician 8.3 (5.5 % of visits to primary care physician 51.4 (25.5); Total prescriptions 53.3 (40.7); Prescriptions from primary care physician 32.4 (31.8); Prescribing physicians 3.3 (2.2); Pharmacies 1.8 (1.2); Prevalence of potentially inappropriate prescribing in the 2-month period before the study – Items 14, MDs 53; MD characteristics

Evidence Table 9. Participant characteristics of studies addressing clinical outcomes (continued)

Author, Year	Control Intervention	Age	Females, n (%)	Race, n (%)	Income, n (%)	Education, n (%)	Other Categories, n (%)
	Computerized decision-making support group	Mean: 75.4	3845 (61.2)	NS	NS	NS	Total physician visits 20.7 (19.5); Visits to primary care physician 7.7 (5.3); % of visits to primary care physician: 49.5 (26.4); Total prescriptions 51.0 (43.1), Prescriptions from primary care physician 30.3 (32.4); Prescribing physicians: 3.3 (2.3), No. of pharmacies 3.3 (2.3); Prevalence of potentially inappropriate prescribing in the 2-month period before the study – Items 14, MDs 54
Tate, 2001[69]	Internet education	Mean: 40.6, SD=9.7	40 (89)	White: 35 (77.8)	NS	8-12 yrs: 3 (7), 12-16 yrs: 31 (69), >16 yrs: 11 (24)	Married 29 (64.5), Separated/divorced 6 (13.3), Never married 10 (22.2); Weight, mean (kg) 78.8, SD: 11.6; BMI, mean (kg/m) 28.9, SD: 3.1; waist circumference, mean (cm) 98.4, SD: 10.2; Web or e-mail experience, mMean (months) 60.8, SD: 43.7

Evidence Table 9. Participant characteristics of studies addressing clinical outcomes (continued)

Author, Year	Control Intervention	Age	Females, n (%)	Race, n (%)	Income, n (%)	Education, n (%)	Other Categories, n (%)
	Internet behavior therapy	Mean: 41.1, SD=11.6	41(89)	White: 41(89)	NS	8-12 yrs: 5 (11), 12-16 yrs: 27 (59), >16 yrs: 14 (30)	Married 36 (78.3), Separated/divorced 2 (4.3), Never married 8(17.4); Weight, mean (kg) 77.4, SD: 9.4; BMI, mean (kg/m) 29.1, SD: 3.0; Waist circumference, mean (cm) 98.5, SD: 9.4; Web or e-mail experience, mean (months) 60.9, SD: 47.4
Tate, 2006[70]	Website and NC: No counseling Internet group	Mean: 49.9, Range: 8.3	55 (82)	Other 1: Minority ethnicity: 6 (9)	NS	College graduate: (49)	Married 49 (73); Weight (kg) 88.3 (13.9); BMI 32.3 (3.7); Waist circumference (cm) 106.4 (11.3); Internet experience – Yes 4.7 (2.9); Weekly Internet use (hrs) 4.5 (4.9)
	Computer-automated e-mail feedback (AF) tailored computer automated feedback	Mean: 49.7, Range: 11.4	53 (87)	Other 1: Minority ethnicity: 6 (10)	NS	College graduate: (59)	Married: 46 (75); Weight (kg) 89.0 (13.2); BMI 32.7 (3.5): Waist circumference (cm) 107.6 (11.2); Internet experience – Yes 4.4 (2.2); Weekly Internet use (hrs) 5.0 (4.2)
	Website and HC human e-mail counseling	Mean: 47.9, Range: 9.8	54(84)	Other 1: Minority ethnicity: 8 (13)	NS	College graduate: (56)	
Taylor, 2008[71]	Control	Median: 29	(86)	NS	NS	NS	Resident (12); Senior resident (5); Registrar (7); Emergency physician (3)

Evidence Table 9. Participant characteristics of studies addressing clinical outcomes (continued)

Author, Year	Control Intervention	Age	Females, n (%)	Race, n (%)	Income, n (%)	Education, n (%)	Other Categories, n (%)
	EI (electronic interface)	Median: 30	(90)	NS	NS	NS	Resident (5); Senior resident (6); Registrar (10); Emergency physician (2)
Tierney, 2003[72]	Control	Mean: 60, SD: 13	(66)	Black: (59)	NS	NS	Primary care visits during the study, mean 4.5, SD: 3.5; Enrolled patients completing the 12-month interview 119 (66)
	Physician-intervention EMR system provided evidence-based cardiac care patient-specific suggestions to physician	Mean: 61, SD: 12	(61)	Black: (54)	NS	NS	Primary care visits during the study 5.3, SD: 4.1; Enrolled patients completing the 12-month interview 142 (72)
	Pharmacist Intervention Recording System (PIRS) provided evidence-based cardiac care patient-specific suggestions to pharmacist	Mean: 57, SD: 12	(68)	Black: (55)	NS	NS	Primary care visits during the study 4.8, SD: 3.7; Enrolled patients completing the 12-month interview 107 (68)
Tierney, 2005[73]	Control	Mean: 52, SD: 13	71	White: 61		Mean yrs: 9.9, SD: 3.0	COPD (74)
	Physician Intervention	Mean: 50, SD: 14	77	White: 55	NS	Mean yrs: 10.1, SD: 2.9	COPD (70)
	Pharmacist Intervention	Mean: 51, SD: 14	68	White: 56	NS	Mean yrs: 10.8, SD: 2.7	COPD (63)

Evidence Table 9. Participant characteristics of studies addressing clinical outcomes (continued)

Author, Year	Control Intervention	Age	Females, n (%)	Race, n (%)	Income, n (%)	Education, n (%)	Other Categories, n (%)
	Both Interventions	Mean: 51, SD:14	71	White: 59	NS	Mean yrs: 10.4, SD: 2.9	
Thomas, 2007[74]	Control	NS	NS	NS	NS	NS	
	Audit, Feedback and Patient Reminder Intervention	NS	NS	NS	NS	NS	
Thomas, 2004[75]	Control	Mean: 42.4	66	NS	NS	NS	Married/cohabiting ☹60); Home owners/occupiers (63); Car owners (84); Living comfortably (15); With long-standing disability/infirmity (66)
	Computerized psychosocial assessment, computer-generated report for GP with patient-specific treatment recommendations	Mean: 43.5	72	NS	NS	NS	Married/cohabiting (58); Home owners/occupiers (61); Car owners (79); Living comfortably (16); With long-standing disability/infirmity (61)
Trief, 2006[76]	Control	Mean: 69.5	(38.71)	White: 58 (93.55), Black: 2 (3.23), Other 1: 2 (3.23)	$2,580.01 per month	Mean yrs: 12.33	
	Web-enabled home telemedicine unit	Mean: 70.64	(45.83)	White: 68 (94.44), Black: 2 (2.78), Other 1: 2 (2.78)	$2,306.47 per month	Mean yrs: 12.69	

Evidence Table 9. Participant characteristics of studies addressing clinical outcomes (continued)

Author, Year	Control Intervention	Age	Females, n (%)	Race, n (%)	Income, n (%)	Education, n (%)	Other Categories, n (%)
Weber, 2008[77]	Control	Mean: 76.8	(80)	NS	NS	NS	Dementia (2.0); Dizziness (9.2); Lower extremity weakness (2.0); Total medications 7.46; Medications started 1.46; Psychoactive medications 1.82
	EMR-based and patient-tailored message to physician and reference to guideline	Mean: 76.9	(79)	NS	NS	NS	Dementia (1.6); Dizziness (10.1); Lower extremity weakness (0.5); Total medications 7.65; Medications started 1.48; Psychoactive medications 1.74

Evidence Table 9. Participant characteristics of studies addressing clinical outcomes (continued)

	Timely patient feedback combined with guideline-based recommendations for changes in therapy	Mean: 7.7	186 (39.5)	White: (7.4), Black: (40.3), Latino: (40.3), Asian: (1.1), American: (2.3), Other 1: Mixed/other (8.5)	Household income <$15,000: 291(58.1)	Caretaker completed high school: 324(68.7)	>= Household member has a job (77.2); Type of insurance coverage – Medicaid (28.7), Managed care (25.3), Private (7.2), None (21.4), Could not determine (3.2); Baseline symptoms per week, mean – Maximum symptom days 6.1, Days limited in activities for more than half day 2.0, School days missed 0.9; Baseline use (annualized mean) – ED visits 3.0, Unscheduled clinic visits 5.6, Hospitalizations 1.1
Glassman, 2007[78]	Control	Mean: 67.3	8 (2)	NS	NS	NS	
	Medication profiling to computerized provider order entry in an ambulatory care population	Mean: 67.2	12 (3)	NS	NS	NS	
Raebel, 2007[79]	Control	Median: 29	5025	NS	NS	NS	Pregnant patients with dispensings of FDA pregnancy category D or X medication(s) 276 (5.5)

Evidence Table 9. Participant characteristics of studies addressing clinical outcomes (continued)

	Computerized tool that alerted pharmacists when pregnant patients were prescribed U.S. Food and Drug Administration pregnancy risk category D or X medications	Median: 29	6075	NS	NS	NS	Pregnant patients with dispensings of FDA pregnancy category D or X medication(s) 177 (2.9)
McGregor, 2006[80]	Control	Mean: 49.55	1216 (53.57)	NS	NS	NS	
	Computerized clinical decision support system on reducing inappropriate antimicrobial use	Mean: 50.36	1189 (53.15)	NS	NS	NS	
Taylor, 2006[81]	Control	Mean: 44.6 ,SD: 8.5	18 (29)	White: 37 (60), Black: 25 (40), Latino: 0, Asian: 0	$0–24,999: 11 (20), $25,000-49,000: 12 (21), $50,000-74,999: 14 (25), $75,000-99,999: 11 (20)	8-12 yrs, High school: 11 (19), >16 yrs, Master's degree: 15 (25)	
	Telemedicine in CPAP compliance for patients with obstructive sleep apnea syndrome	Mean: 45.8, SD: 10	20 (34)	White: 29 (49) Black: 25 (42)	$0-24,999: 6 (11), $25,000-49,000: 10 (19), $50,000-74,999: 16 (30), $75,000-99,999 14 (27)	8-12 yrs, High school: 11 (20), >16 yrs, Master's degree: 20 (37)	
Verheijden, 2004[82]	Control	Mean: 64, Range: 10	21 (28)	NS	NS	Low (<=high school level): 18, Intermediate: 30, High (>BSc level): 52	
	Web-based intervention: Heartweb	Mean: 62, Range: 11	14 (19)	NS	NS	Low (<=high school level): 21, Intermediate: 42, High (>BSc level): 37	

Evidence Table 9. Participant characteristics of studies addressing clinical outcomes (continued)

Williamson, 2006[83]	Control	Range: 11-15	NS	NS	NS	NS	Only information on age was provided, and was for the entire sample
	Interactive Behavior Therapy						
	Internet health education program (control condition) Intervention based on the family treatment methods developed: the Web site provided nutrition education and behavior modification for adults and adolescents using a family-oriented format, i.e., a program that invited the pa						
Womble, 2004[84]	Control	NS	NS	NS	NS	NS	
	eDiets.com, a commercial Internet weight loss program	Mean: 44.2, Range: 9.3	23 (100)	NS	NS	NS	
	Received a weight loss manual and assessment visits	Mean: 43.3, Range: 11.1	24 (100)	NS	NS	NS	
Yoon, 2008[85]	Control	Mean: 47.5	(57.7)	NS	NS	NS	Duration of diabetes, mean (yrs) 8.0
	Internet and a short messaging service (SMS) by cellular phone	Mean: 46.8	(56.0)	NS	NS	NS	Duration of diabetes, mean (yrs) 5.2

BMI = body mass index; BP = blood pressure; CHF = chronic heart failure; COPD = chronic obstructive pulmonary disease; DBP = diastolic blood pressure; DM = diabetes mellitus; DVT = deep vein thrombosis; ED = emergency department; GP = general practitioner; HS = hormone therapy; HTN = hypertension; MD = medical doctor; NS = not specified; PDA = personal digital assistant; PT = part time; SBP = systolic blood pressure; SD = standard deviation; SMBG = self-monitoring blood glucose; Yrs = years

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Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
Adachi, 2007[1]	Body weight (kg) change at 1 month	Group B: Self-help booklet only				54	-0.3	0.05
		Group KM: Kenkou-tatsujin (KT) program with 6 months of weighing and targeted behavior self-monitoring				46	-1.1	0.05
		Group K: KT program only				47	-0.9	
		Group BM: Un-tailored self-help booklet with 7-month self-monitoring of weight and walking				58	-0.5	Not significant
	Body weight (kg) change at 7 months	Group B: Self-help booklet only				54	-1.4	0.05
		Group KM: Kenkou-tatsujin (KT) program with 6 months of weighing and targeted behavior self-monitoring				46	-2.9	0.05
		Group K: KT program only				47	-2.2	
		Group BM: Un-tailored self-help booklet with 7-month self-monitoring of weight and walking				58	-1.6	
	BMI (kg/m²) change at 3 months	Group B: Self-help booklet only				54	-0.14	
		Group KM: Kenkou-tatsujin (KT) program with 6 months of weighing and				46	-0.93	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		targeted behavior¡¯s self-monitoring						
		Group K: KT program only				47	-0.38	
		Group BM: Un-tailored self-help booklet with 7-month self-monitoring of weight and walking				58	-0.2	
	BMI (kg/m²) change at 7 months	Group B: Self-help booklet only				54	-0.5	
		Group KM: Kenkou-tatsujin (KT) program with 6 months of weighing and targeted behavior self-monitoring				46	-1.22	
		Group K: KT program only				47	-0.86	
		Group BM: Un-tailored self-help booklet with 7-month self-monitoring of weight and walking				58	-0.68	
	% weight loss (%) at 1 month	Group B: Self-help booklet only				54	-2.2	
		Group KM: Kenkou-tatsujin (KT) program with 6 months of weighing and targeted behavior self-monitoring				46	-1.8	
		Group K: KT program only				47	-1.5	
		Group BM: Un-tailored self-help				58	-0.8	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		booklet with 7-month self-monitoring of weight and walking						
	% weight loss (%) at 7 months	Group B: Self-help booklet only				54	-4.1	
		Group KM: Kenkou-tatsujin (KT) program with 6 months of weighing and targeted behavior self-monitoring				46	4.7	
		Group K: KT program only				47	-3.3	
		Group BM: Un-tailored self-help booklet with 7-month self-monitoring of weight and walking				58	-2.6	
	Reduction quotient (%) at 1 month	Group B: Self-help booklet only				54	-15.8	Not significant
		Group KM: Kenkou-tatsujin (KT) program with 6 months of weighing and targeted behavior self-monitoring				46	-13	0.05
		Group K: KT program only				47	-10.8	
		Group BM: Un-tailored self-help booklet with 7-month self-monitoring of weight and walking				58	-5.7	Not significant
	Reduction quotient (%) at 7 months	Group B: Self-help booklet only				54	10	Not significant
		Group KM:				46	-35	0.05

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Kenkou-tatsujin (KT) program with 6 months of weighing and targeted behavior self-monitoring						
		Group K: KT program only				47	-23.1	
		Group BM: Un-tailored self-help booklet with 7-month self-monitoring of weight and walking				58	-18.3	Not significant
	5% weight loss (%) at 3 months	Group B: Self-help booklet only				54	10	
		Group KM: Kenkou-tatsujin (KT) program with 6 months of weighing and targeted behavior self-monitoring				46	30.6	
		Group K: KT program only				47	20.5	
		Group BM: Un-tailored self-help booklet with 7-month self-monitoring of weight and walking				58	17	
	5% weight loss (%) at 7 months	Group B: Self-help booklet only				54	20	
		Group KM: Kenkou-tatsujin (KT) program with 6 months of weighing and targeted behavior self-monitoring				46	38.9	
		Group K: KT				47	31.8	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		program only						
		Group BM: Un-tailored self-help booklet with 7-month self-monitoring of weight and walking				58	24.5	
	7 % weight loss (%) at 3 months	Group B: Self-help booklet only				54	4	
		Group KM: Kenkou-tatsujin (KT) program with 6 months of weighing and targeted behavior self-monitoring				46	16.7	0.10
		Group K: KT program only				47	4.5	0.10
		Group BM: Un-tailored self-help booklet with 7-month self-monitoring of weight and walking				58	3.8	0.10
	7 % weight loss (%) at 7 months	Group B: Self-help booklet only				54	10	
		Group KM: Kenkou-tatsujin (KT) program with 6 months of weighing and targeted behavior self-monitoring				46	19.4	N/S
		Group K: KT program only				47	15.9	N/S
		Group BM: Un-tailored self-help booklet with 7-month self-monitoring of weight and walking				58	7.5	N/S

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Self-related habits and weight loss: Body weight (kg)	Group B: Self-help booklet only				54		
		Group KM: Kenkou-tatsujin (KT) program with 6 months of weighing and targeted behavior self-monitoring			64.8	46	63.7	
		Group K: KT program only			64.8	47	63.7	
		Group BM: Un-tailored self-help booklet with 7-month self-monitoring of weight and walking				58		
	Body weight (kg): Improved eating habits	Group B: Self-help booklet only				54		
		Group KM: Kenkou-tatsujin (KT) program with 6 months of weighing and targeted behavior self-monitoring			64.3	46	63	
		Group K: KT program only			64.3	47	63	
		Group BM: Un-tailored self-help booklet with 7-month self-monitoring of weight and walking				58		
	Body weight (kg): Unimproved eating habits	Group B: Self-help booklet only				54		
		Group KM: Kenkou-tatsujin (KT) program with			66.2	46	65.9	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		6 months of weighing and targeted behavior self-monitoring						
		Group K: KT program only			66.2	47	65.9	
		Group BM: Un-tailored self-help booklet with 7-month self monitoring of weight and walking				58		
	Body weight (kg): Improved exercise habits	Group B: Self-help booklet only				54		
		Group KM: Kenkou-tatsujin (KT) program with 6 months of weighing and targeted behavior self-monitoring			64.4	46	63.2	
		Group K: KT program only			64.4	47	63.2	
		Group BM: Un-tailored self-help booklet with 7-month self monitoring of weight and walking				58		
	Body weight (kg): Unimproved exercise habits	Group B: Self-help booklet only				54		
		Group KM: Kenkou-tatsujin (KT) program with 6 months of weighing and targeted behavior self-monitoring			66.8	46	66.5	
		Group K: KT program only			66.8	47	66.5	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Group BM: Un-tailored self-help booklet with 7-month self-monitoring of weight and walking				58		
	Self-related habits and weight loss: BMI (kg/m²)	Group B: Self-help booklet only				54		
		Group KM: Kenkou-tatsujin (KT) program with 6 months of weighing and targeted behavior self-monitoring			26.1	46	25.7	
		Group K: KT program only			26.1	47	25.7	
		Group BM: Un-tailored self-help booklet with 7-month self monitoring of weight and walking				58		
	BMI (kg/m²): Improved eating habits	Group B: Self-help booklet only				54		
		Group KM: Kenkou-tatsujin (KT) program with 6 months of weighing and targeted behavior self-monitoring			25.9	46	25.4	
		Group K: KT program only			25.9	47	25.4	
		Group BM: Un-tailored self-help booklet with 7-month self-monitoring of weight and walking				58		
	BMI (kg/m²):	Group B: Self-help				54		

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Unimproved eating habit	booklet only						
		Group KM: Kenkou-tatsujin (KT) program with 6 months of weighing and targeted behavior self-monitoring			26.8	46	26.6	
		Group K: KT program only			26.8	47	26.6	
		Group BM: Un-tailored self-help booklet with 7-month self monitoring of weight and walking				58		
	BMI (kg/m²): Improved exercise habits	Group B: Self-help booklet only				54		
		Group KM: Kenkou-tatsujin (KT) program with 6 months of weighing and targeted behavior self-monitoring			26	46	25.5	
		Group K: KT program only			26	47	25.5	
		Group BM: Un-tailored self-help booklet with 7-month self monitoring of weight and walking				58		
	BMI (kg/m²): Unimproved exercise habits	Group B: Self-help booklet only				54		
		Group KM: Kenkou-tatsujin (KT) program with 6 months of weighing and targeted behavior			26.6	46	26.5	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		self-monitoring						
		Group K: KT program only			26.6	47	26.5	
		Group BM: Un-tailored self-help booklet with 7-month self monitoring of weight and walking				58		
Benhamou, 2007[2]	Hba1c	Weekly medical support through SMS based upon weekly review of glucose values	%		8.31	31	8.18	
		Download SMBG values on a weekly basis without receiving SMS	%		8.22	31	8.34	
	Glycemia	Weekly medical support through SMS based upon weekly review of glucose values	Mg/dl		166	31	160	
		Download SMBG values on a weekly basis without receiving SMS	Mg/dl		162	31	167	
	Adherence	Weekly medical support through sms based upon weekly review of glucose values	Number of capillary blood glucose values transmitted to the server, tests per day		4.85	31	4.74	
		Download SMBG values on a weekly basis without receiving SMS	Number of capillary blood glucose values transmitted to the server, tests per day		4.79	31	4.63	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
Berner, 2006[3]	Differential change in unsafe prescribing of NSAIDs for the intervention vs. control group	Control arm – did not receive 14 rules on clinical decision support rule on a handheld computer		34		28	NR	>0.05
	Intervention arm – received 14 rules on clinical decision support rule on a handheld computer		34		31	NR	<0.05	
Bosworth, 2009[4]	Estimated % in BP control	Control group (hypertension reminder)	%	143	32	143	43.9	0.18 (baseline to final)
		Provider decision support system group	%	151	44.9	151	43.7	0.89 (baseline to final)
		Patient behavioral intervention group	%	144	44.2	144	59.5	0.08 (baseline to final)
		Combined provider support system and patient behavioral intervention group	%	150	36.2	150	48.1	0.23 (baseline to final)
	Estimated mean systolic BP	Control group (hypertension reminder)	mm Hg	143	141.6	143	136.8	0.01 (baseline to final)
		Provider decision support system group	mm Hg	151	139.1	151	136.9	0.27 (baseline to final)
		Patient behavioral intervention group	mm Hg	144	138.8	144	136.3	0.20 (baseline to final)
		Combined provider support system and patient behavioral intervention group	mm Hg	150	139.2	150	136.8	0.26 (baseline to final)

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
Buhrman, 2004[5]	Praying or hoping	Waiting-list control condition			10.4	29	9.9	<0.05
		Internet-based cognitive-behavioral intervention with telephone support			12	22	10.5	<0.05
	Catastrophizing	Waiting-list control condition			13.7	29	11.8	<0.05
		Internet-based cognitive-behavioral intervention with telephone support			13.6	22	9.3	<0.05
	Control over pain	Waiting-list control condition			2.9	29	3.7	
		Internet-based cognitive-behavioral intervention with telephone support			2.8	22	3.6	<0.05
	Ability to decrease pain	Waiting-list control condition			2.6	29	3.4	
		Internet-based cognitive-behavioral intervention with telephone support			3	22	3.7	<0.05
	Life control	Waiting-list control condition			2.7	29	3.8	<0.05
		Internet-based cognitive-behavioral intervention with telephone support			3.1	22	3.6	<0.05
	Punishing responses	Waiting-list control condition			1.5	29	1.3	<0.05

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Internet-based cognitive-behavioral intervention with telephone support			1	22	0.7	<0.05
	Pairs	Waiting-list control condition			56.3	29	50.9	<0.05
		Internet-based cognitive-behavioral intervention with telephone support			55	22	51.7	<0.05
	Depression	Waiting-list control condition			6.6	29	4.8	<0.05
		Internet-based cognitive-behavioral intervention with telephone support			6.9	22	5.3	<0.05
Cadario, 2007[6]	Glycated hemoglobin %	Control	Glycated hemoglobin level					
		Glucobeeb, a Web-based tool to support the diabetes care	Glycated hemoglobin level		9.5	14	9.1	0.03
Clark, 2007[7]		Usual care						
		CHF Patients received healthcare via telemonitoring						
de Toledo, 2006[8]	Patients not readmitted	Education and home visits, no ECPR	%			NR	33.3	
		ECPR with education and home visits	%			NR	51.7	0.04
	Patients readmitted at least once	Education and home visits, no ECPR	%			NR	65.2	
		ECPR with education and home visits	%			NR	46.9	0.03

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Patients readmitted more than once	Education and home visits, no ECPR	%			NR	29.2	
		ECPR with education and home visits	%			NR	21.9	0.35
	Number of readmissions per patient	Education and home visits, no ECPR	N			NR	1.33	
		ECPR with education and home visits	N			NR	0.9	0.04
	Number of visits to the emergency room	Education and home visits, no ECPR	N			NR	0.54	
		ECPR with education and home visits	N			NR	0.36	0.15
	Mortality	Education and home visits, noECPR	%			NR	16.9	
		ECPR with education and home visits	%			NR	20.3	0.67
East, 1999[10]	Morbidity	Non-protocolized	MODS score			NR		
		Protocolized computerized decision support.	MODS score			NR		0.04
	Lung injury	Non-protocolized	Barotrauma score			NR		
		Protocolized computerized decision support.	Barotrauma Score			NR		<0.0001
Eccles, 2002[11]		No computerized clinical decision support						
		Computerized decision support for management of asthma and angina in adults						

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
Farmer, 2005[12]	A1c readings	Group did not receive clinical advice in response to real-time blood glucose readings	%	46	9.3	38	8.9	<0.04
		Group received clinical advice from a diabetes special nurses in response to real-time blood glucose readings	%	47	9.2	43	8.6	0.001/0.33 (baseline to final/between groups)
	Proportion of people achieving an A1c reduction of >=0.7% and an A1c <= 8.0% at 9 months	Group did not receive clinical advice in response to real-time blood glucose readings	%	46		38	8.7	
		Group received clinical advice from a diabetes special nurses in response to real-time blood glucose readings	%	47		43	29.8	
	Proportion of transmitted blood glucose tests in the hypoglycemic range	Group did not receive clinical advice in response to real-time blood glucose readings	% of blood glucose tests	46		38	3.5	
		Group received clinical advice from a diabetes special nurses in response to real-time blood glucose readings	% of blood glucose tests	47		43	5.3	0.0001
Feldman, 2005[13]	Patient skips medicine	Heart failure patients receiving usual care	Adjusted probability	227		227	27.6	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted probability	199		199	27.7	0.99
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted probability	202		202	25.4	0.604
	Patient is sure about when to take HF medicine	Heart failure patients receiving usual care	Adjusted probability	227		227	67.4	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted probability	199		199	70.3	0.494
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted probability	202		202	69.6	0.613
	Patient recognition of own HF medicines	Heart failure patients receiving usual care	Adjusted probability	227		227		

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted probability	199		199	No Data	0.002
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted probability	202		202	No Data	0.023
	Patient does not recognize any of own HF medicines	Heart failure patients receiving usual care	Adjusted probability	227		227	43.9	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted probability	199		199	31.1	
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted probability	202		202	34.3	
	Patient recognizes up to half of own HF medicines	Heart failure patients receiving usual care	Adjusted probability	227		227	29.8	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted probability	199		199	30.5	
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted probability	202		202	30.6	
	Patient recognizes more than half of own HF medicines	Heart failure patients receiving usual care	Adjusted probability	227		227	26.3	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted probability	199		199	38.4	
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted probability	202		202	35	
	Patient salts food	Heart failure patients receiving usual care	Adjusted probability	227		227	30.7	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted probability	199		199	27.6	0.49
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted probability	202		202	23.3	0.095
	Patient's weighing behavior	Heart failure patients receiving usual care	Adjusted probability	227		227	No Data	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted probability	199		199	No data	0.352
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted probability	202		202	No Data	0.082
	Patient has no scale	Heart failure patients receiving usual care	Adjusted probability	227		227	34.6	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted probability	199		199	38.3	
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted probability	202		202	27.9	
	Patient weighs self but not daily	Heart failure patients receiving usual care	Adjusted probability	227		227	44	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted probability	199		199	43	
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted probability	202		202	44.7	
	Patient weights self daily	Heart failure patients receiving usual care	Adjusted probability	227		227	21.4	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted probability	199		199	18.7	
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted probability	202		202	27.4	
	KCCQ summary score	Heart failure patients receiving usual care	Adjusted score (higher score = better outcome)	227		227	40.4	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted score (higher score = better outcome)	199		199	46.6	0.013
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted score (higher score = better outcome)	202		202	45.6	0.048
	KCCQ physical limitation domain score	Heart failure patients receiving usual care	Adjusted score (higher score = better outcome)	227		227	37.8	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted score (higher score = better outcome)	199		199	42.5	0.333
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted score (higher score = better outcome)	202		202	43	0.231
	KCCQ symptom domain score	Heart failure patients receiving usual care	Adjusted score (higher score = better outcome)	227		227	48.6	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted score (higher score = better outcome)	199			55.6	0.091
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted score (higher score = better outcome)	202		202	53.6	0.277
	KCCQ % w/quality of life domain score >=50	Heart failure patients receiving usual care	%	227		227	44.6	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	%	199		199	48	0.407
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	%	202		202	53.3	0.042
	KCCQ % w/social limitation domain score >= 50	Heart failure patients receiving usual care	%	227		227	27.8	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	%	199		199	34.8	0.09
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	%	202		202	35.2	0.064
	KCCQ % w/ self efficacy domain score >=50	Heart failure patients receiving usual care	%	227		227	85.8	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	%	199		199	86.8	0.756
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	%	202		202	86.3	0.88
	Depression	Heart failure patients receiving usual care	Adjusted score (higher score = presence of depression)	227		227	36.3	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted score (higher score = presence of depression)	199		199	37.4	0.802
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted score (higher score = presence of depression)	202		202	36.9	0.888
	Euroqol health-related quality of life	Heart failure patients receiving usual care	Adjusted score (higher score = better outcome)	227		227	39.3	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted score (higher score = better outcome)	199		199	48.9	0.003
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted score (higher score = better outcome)	202		202	40.2	0.777
	Home care-related costs / patient	Heart failure patients receiving usual care	US dollars	227		227	2814	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	US dollars	199		199	3371	0.062
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	US dollars	202		202	3425	0.058
	Overall costs / patient	Heart failure patients receiving usual care	US dollars	227		227	4996	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	US dollars	199		199	5869	0.084
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	US dollars	202		202	6330	0.02
	Home care-related costs in order to produce a 5% improvement in KCCQ summary score	Heart failure patients receiving usual care	US dollars	227		227	No data	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	US dollars	199		199	183	
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	US dollars	202		202	235	
	Overall costs in order to produce a 5% improvement in	Heart failure patients receiving usual care	US dollars	227		227	No data	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	KCCQ summary score	Heart failure patients whose nurses received e-mail recommendations (basic intervention)	US dollars	199		199	246	
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	US dollars	202		202	513	
Feldstein, 2006[14]	Proportion of study population with BMD evaluation only	Usual care				101	0.9	
		Patient-specific clinical guideline advice to the primary care provider delivered through an EMR message (EMR reminder)				101	23.8	<0.01 compared to Arm A
		An EMR reminder to the primary care provider plus an advisory letter with educational materials mailed to the patient (patient reminder)				109	22.9	0.43 compared to Arm B
	Proportion of study population with osteoporosis medication only	Usual care				101	4	
		Patient-specific clinical guideline advice to the primary care provider delivered through an EMR message (EMR reminder)				101	11.9	<0.01 compared to Arm A

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		An EMR reminder to the primary care provider plus an advisory letter with educational materials mailed to the patient (patient reminder)				109	10.1	0.54 compared to Arm B
	Proportion of study population with both BMD and osteoporosis medication	Usual care				101	1	
		Patient-specific clinical guideline advice to the primary care provider delivered through an EMR message (EMR reminder)				101	15.8	<0.01 compared to Arm A
		An EMR reminder to the primary care provider plus an advisory letter with educational materials mailed to the patient (patient reminder)				109	10.1	
	Proportion of study population with BMD or osteoporosis medication	Usual care				101	5.9	
		Patient-specific clinical guideline advice to the primary care provider delivered through an EMR message (EMR reminder)				101	51.5	<0.01 compared to Arm A

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		An EMR reminder to the primary care provider plus an advisory letter with educational materials mailed to the patient (patient reminder)				109		0.88 compared to Arm B
	Total calcium intake (n=22)	Usual care	mg/day		1308.6	22	851.2	
	Total calcium intake (n=33)	Patient-specific clinical guideline advice to the primary care provider delivered through an EMR message (EMR reminder)	mg/day		1116.5	33	1311.4	0.02 compared to Arm A
	Total calcium intake (n=37)	An EMR reminder to the primary care provider plus an advisory letter with educational materials mailed to the patient (patient reminder)	mg/day		1221.5	32	1224.7	0.05 compared to Arm A
	Regular activity (n=33)	Usual care			7	22	10	
	Regular activity (n=41)	Patient-specific clinical guideline advice to the primary care provider delivered through an EMR message (EMR reminder)			9	33	8	0.17 compared to Arm A

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Regular activity (n=42)	An EMR reminder to the primary care provider plus an advisory letter with educational materials mailed to the patient (patient reminder)			11	32	12	0.55 compared to Arm A
	Caloric expenditure per week (n=32)	Usual care			2325.7	22	1980.9	
	Caloric expenditure per week (n=38)	Patient-specific clinical guideline advice to the primary care provider delivered through an EMR message (EMR reminder)			3082.9	33	2312.7	0.96 compared to Arm A
	Caloric expenditure per week (n=38)	An EMR reminder to the primary care provider plus an advisory letter with educational materials mailed to the patient (patient reminder)			2614.4	32	2525.9	0.32 compared to Arm A
Fretheim, 2006[15]	First-time prescriptions for hypertension where thiazides were prescribed	Passive dissemination of guidelines	Proportion of patients	2365	209	1968	218	
		Educational outreach visit with audit and feedback, and computerized reminders linked to the medical record system	Proportion of patients	2784	161	2184	378	
	Patients assessed for CVD risk before prescribing anti-HTN	Passive dissemination of guidelines	Proportion of patients			786	112	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	or cholesterol-lowering drugs	Educational outreach visit with audit and feedback, and computerized reminders linked to the medical record system	Proportion of patients			854	147	
	Treatment goal achieved	Passive dissemination of guidelines	Proportion of patients	15411	5174	16598	6056	
		Educational outreach visit with audit and feedback, and computerized reminders linked to the medical record system	Proportion of patients	15914	4669	17213	5502	
Gaertner, 2004[16]	Preferred use of electronic	(Crossover) paper version of a pain diary	Crossover				75	
		(Crossover) Electronic pain diaries and palm-top computers	Crossover	75				
	Preferred use of paper	(crossover) paper version of a pain diary	Crossover				8	
		(Crossover) Electronic pain diaries and palm-top computers	Crossover	8				
	Undecided	(Crossover) paper version of a pain diary	Crossover				17	
		(Crossover) Electronic pain diaries and palm-top computers	Crossover	17				

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
Glasgow, 2000[17]	Behavioral outcomes: Block Fat Screener, no TF: no CR	Brief intervention across multiple offices and interventionists (Basic condition)			48.6	80	24.7	Not significant
	Behavioral outcomes: Kristal FFB fat composite	Brief intervention across multiple offices and interventionists (Basic condition)			1.9	80	1.6	0.017
	Behavioral outcomes: Kristal FFB fruit and vegetable	Brief intervention across multiple offices and interventionists (Basic condition)			1.9	80	1.7	
	Physiologic outcomes: HbA1c	Brief intervention across multiple offices and interventionists (Basic condition)			7.6	80	7.4	
	Physiologic outcomes: Total cholesterol	Brief intervention across multiple offices and interventionists (Basic condition)			210	80	206	0.010
	Physiologic outcomes: Weight	Brief intervention across multiple offices and interventionists (Basic condition)			199	80	197	Not significant
	Physiologic outcomes: Lipid ratio: total/HDL	Brief intervention across multiple offices and interventionists (Basic condition)			5.1	80	4.9	Not significant
	Quality of life /satisfaction outcomes: Diabetes intrusiveness	Brief intervention across multiple offices and interventionists (Basic condition)			25.7	80	26	0.014

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Quality of life: Satisfaction with program	Brief intervention across multiple offices and interventionists (Basic condition)			36	80		Not significant
	Quality of life /satisfaction outcomes: Process variable results Self-efficacy	Brief intervention across multiple offices and interventionists (Basic condition)			3.9	80	4	Not significant
	Quality-of life /satisfaction outcomes: chronic illness resources survey	Brief intervention across multiple offices and interventionists (Basic condition)				80		Not significant
Glasgow, 2005[18]	Laboratory assay measurement	Control group completed a touch screen computer assessment but one that focus general health risks and risks reciting that did not address the PRP measure		417	3.88	354	3.97	
		Intervention group completed treatment components touch screen, physician goal setting care manager meeting and follow-up phone call. Health risks and risks reciting addressed the PRP measure		469	3.92	379	4.29	0.001

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Patient-centered activities	Control group completed a touch screen computer assessment but one that focus general health risks and risks reciting that did not address the PRP measure		417	2.93	354	3.32	
		Intervention group completed treatment components touch screen, physician goal setting care manager meeting and follow-up phone call. Health risks and risks reciting addressed the PRP measure		469	3.04	379	3.73	<0.001
	Biological outcome	Control group completed a touch screen computer assessment but one that focus general health risks and risks reciting that did not address the PRP measure		417	7.3	354	7.17	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Intervention group completed treatment components touch screen, physician goal setting care manager meeting and follow-up phone call. Health risks and risks reciting addressed the PRP measure		469	7.33	379	7.11	0.571
	Other outcome	Control group completed a touch screen computer assessment but one that focus general health risks and risks reciting that did not address the PRP measure		417	28.5	354	27.5	
		Intervention group completed treatment components touch screen, physician goal setting care manager meeting and follow-up phone call. Health risks and risks reciting addressed the PRP measure		469	30.3	379	27.4	0.964
Glasgow, 2006[19]	Fruit and vegetable screener	UC: Computer-aided enhanced	CI all day screener (unit not specified)	161	5.1	153	5	
		TSM	NCI All Day screener (unit not specified)	174	5.5	148	5.7	0.27
	Daily fat intake	UC: Computer-aided enhanced	Block fat screener (not specified)	161	32.4	153	28.5	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		TSM	Block fat screener (not specified)	174	27.6	148	22.4	0.006
	Hba1c	UC: Computer-aided enhanced	%	161	7.5	153	7.5	
		TSM	%	174	7.4	148	7.3	0.46
	Total cholesterol / HDL cholesterol	UC: Computer-aided enhanced	Proportion	161	3.9	153	3.8	
		TSM	Proportion	174	3.9	148	3.8	0.33
	Total cholesterol	UC: Computer-aided enhanced	mg/dl	161	185.1	153	184.1	
		TSM	mg/dl	174	185.1	148	183.1	0.27
	HDL cholesterol	UC: Computer-aided enhanced	mg/dl	161	50	153	50.9	
		TSM	mg/dl	174	49.2	148	50.4	0.083
	PHQ-9 total score	UC: Computer-aided enhanced	Scale 0-27	161	5.4	153	5.5	
		TSM	0-27	174	5.7	148	5.5	0.53
	Diabetes distress scale	Uc: Computer-aided enhanced	Not specified	161	41.5	153	36.2	
		TSM	Not specified	174	40.1	148	33.6	0.29
	Weight	UC: Computer-aided enhanced	kg	161	94	153	94	
		TSM	kg	174	94.3	148	93.6	0.007
Glassman, 2007[20]	Subsequent adverse drug event	Usual care	ADEs			445	37	0.06
		Computerized retrospective drug utilization software	ADEs			458	45	0.06
	ADEs not serious	Usual Care	ADEs			445	51	
		Computerized retrospective drug utilization software	ADEs			458	58	
	ADE preventability	Usual Care	Associated warnings			445	16	0.79
		Computerized retrospective drug utilization software	Associated warnings			458	17	0.79
Gomez, 2002[21]	HbA1c	Group not using Diabtel system	%	10	8.1	10	8.15	
		Group using Diabtel system	%	10	8.4	10	7.9	0.053

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
Grant, 2008[22]	Improvement in glycemic control	Usual care	HbA	118		118	0.26	0.62
		Practice-linked online personal health records for type 2 diabetes mellitus	HbA	126		126	0.16	0.62
	Patients at goal	Usual care	HbA	118		118	73	0.53
		Practice-linked online personal health records for type 2 diabetes mellitus	HbA	126		126	73	0.53
	Patients at goal	Usual care	Patients with HbA1c level >7.0% at baseline	79			45	0.07
		Practice-linked online personal health records for type 2 diabetes mellitus	Patients with HbA1c level >7.0% at baseline	79			45	0.07
	Medication changes	Usual care	Patients who submitted personal health record journals to their physician's electronic medical record	118		41	15	0.001
		Practice-linked online personal health records for type 2 diabetes mellitus	Patients who submitted personal health record journals to their physician's electronic medical record	126		82	53	0.001
Green, 2008[23]	% with controlled BP at 12 months	Usual care		258		247	31	
		BP monitoring and patient Web services		258		247	36	0.21
		BP monitoring, patient Web services and pharmacist care		258		247	56	<0.001
	Adjusted change in SBP at 12 months	Usual care	mm Hg	258		247	- 5.3	
		BP monitoring and patient Web services		258		247	-8.2	<0.001

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		BP monitoring, patient Web services and pharmacist care		258		247	-13.2	<0.001
	Adjusted change in DBP at 12 months	Usual care	mm Hg	258		247	-3.5	
		BP monitoring and patient Web services		258		247	-4.4	<0.001
		BP monitoring, patient Web services and pharmacist care		258		247	- 4.6	<0.001
Hansson, 2008[24]	Quality of life: Gender	Participants getting standard treatment		236		208		0.334
		Participants getting standard treatment and a new manual zed intervention called DIALOG (is a computer mediated procedure)		271		243		0.622
	Quality of life: Age	Participants getting standard treatment		236		208		0.287
		Participants getting standard treatment and a new manualized intervention called DIALOG (is a computer mediated procedure)		271		243		0.924
	Quality of life: Living situation	Participants getting standard treatment		236		208		

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Participants getting standard treatment and a new manual zed intervention called DIALOG (is a computer mediated procedure)		271		243		0.463
	Quality of life: Marital status	Participants getting standard treatment		236		208		
		Participants getting standard treatment and a new manual zed intervention called DIALOG (is a computer mediated procedure)		271		243		0.608
	Quality of life: Employment	Participants getting standard treatment		236		208		0.934
		Participants getting standard treatment and a new manual zed intervention called DIALOG (is a computer mediated procedure)		271		243		0.379
	Quality of life: Duration of illness	Participants getting standard treatment		236		208		0.129

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Participants getting standard treatment and a new manual zed intervention called DIALOG (is a computer mediated procedure)		271		243		0.040
	Quality of life: Psychiatric hospital	Participants getting standard treatment		236		208		0.791
		Participants getting standard treatment and a new manual zed intervention called DIALOG (is a computer mediated procedure)		271		243		0.857
	Quality of life: Negative symptom	Participants getting standard treatment		236		208		0.022
		Participants getting standard treatment and a new manual zed intervention called DIALOG (is a computer mediated procedure)		271		243		0.107
	Unmet needs: Gender	Participants getting standard treatment		236		208		0.876

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Participants getting standard treatment and a new manual zed intervention called DIALOG (is a computer mediated procedure)		271		243		0.814
	Unmet needs: Age	Participants getting standard treatment		236		208		0.251
		Participants getting standard treatment and a new manual zed intervention called DIALOG (is a computer mediated procedure)		271		243		0.272
	Unmet needs: Living situation	Participants getting standard treatment		236		208		0.63
		Participants getting standard treatment and a new manual zed intervention called DIALOG (is a computer mediated procedure)		271		243		0.842
	Unmet needs: Marital status	Participants getting standard treatment		236		208		0.995

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Participants getting standard treatment and a new manual zed intervention called DIALOG (is a computer mediated procedure)		271		243		0.098
	Unmet needs: Employment	Participants getting standard treatment		236		208		309
		Participants getting standard treatment and a new manual zed intervention called DIALOG (is a computer mediated procedure)		271		243		0.047
	Unmet needs: Duration of illness	Participants getting standard treatment		236		208		0.757
		Participants getting standard treatment and a new manual zed intervention called DIALOG (is a computer mediated procedure)		271		243		0.002
	Unmet needs: Psychiatric hospital	Participants getting standard treatment		236		208		0.341

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Participants getting standard treatment and a new manual zed intervention called DIALOG (is a computer mediated procedure)		271		243		0.927
	Unmet needs: Negative symptoms	Participants getting standard treatment		236		208		0.009
		Participants getting standard treatment and a new manual zed intervention called DIALOG (is a computer mediated procedure)		271		243		0.539
	Treatment satisfaction: Gender	Participants getting standard treatment		236		208		0.058
		Participants getting standard treatment and a new manual zed intervention called DIALOG (is a computer mediated procedure)		271		243		0.572
	Treatment satisfaction: Age	Participants getting standard treatment		236		208		0.162

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Participants getting standard treatment and a new manual zed intervention called DIALOG (is a computer mediated procedure)		271		243		0.004
	Treatment satisfaction: Living situation	Participants getting standard treatment		236		208		0.001
		Participants getting standard treatment and a new manual zed intervention called DIALOG (is a computer mediated procedure)		271		243		0.607
	Treatment satisfaction: Marital status	Participants getting standard treatment		236		208		0.638
		Participants getting standard treatment and a new manual zed intervention called DIALOG (is a computer mediated procedure)		271		243		0.625
	Treatment satisfaction: Employment	Participants getting standard treatment		236		208		0.256

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Participants getting standard treatment and a new manual zed intervention called DIALOG (is a computer mediated procedure)		271		243		0.258
	Treatment satisfaction: Duration of illness	Participants getting standard treatment		236		208		0.412
		Participants getting standard treatment and a new manual zed intervention called DIALOG (is a computer mediated procedure)		271		243		0.994
	Treatment satisfaction: Psychiatric hospital	Participants getting standard treatment		236		208		0.284
		Participants getting standard treatment and a new manual zed intervention called DIALOG (is a computer mediated procedure)		271		243		0.247
	Treatment satisfaction: Negative symptoms	Participants getting standard treatment		236		208		0.065

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Participants getting standard treatment and a new manual zed intervention called DIALOG (is a computer mediated procedure)		271		243		0.280
Harno, 2006[25]	Body mass index	Usual care	kg/m^2		27.8	74	27.6	
		E-health application	kg/m^2		28.5	101	29.2	
	Systolic blood pressure	Usual care	mm Hg		136	74	137	
		E-health application	mm Hg		1.34	101	1.35	
	Diastolic blood pressure	Usual care	mm Hg		84	74	82	
		E-health application	mm Hg		81	101	79	<0.05
	Hemoglobin A1c	Usual care	%		8.21	74	7.83	
		E-health application	%		7.82	101	7.32	<0.05
	Fasting glucose	Usual care	mmol/l		9.91	74	10.87	
		E-health application	mmol/l		9.08	101	8.88	<0.001
	Cholesterol	Usual care	mmol/l		4.91	74	5.03	
		E-health application	mmol/l		4.95	101	4.74	<0.05
	HdL	Usual care	mmol/l		1.58	74	1.55	
		E-health application	mmol/l		1.58	101	1.66	
	LdL	Usual care	mmol/l		2.65	74	2.76	
		E-health application	mmol/l		2.7	101	2.52	<0.05
	Triglyceride	Usual care	mmol/l		1.46	74	1.67	
		E-health application	mmol/l		1.49	101	1.44	<0.05
	Creatinine	Usual care	mmol/l		84	74	73	
		E-health application	mmol/l		86	101	75	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
Hetlevik, 2000[26]	Fraction of patients without baseline registration of HbA1c	Diabetes mellitus patients whose physicians used pre-existing routines for treatment	%	535		535	22.4	
		Diabetes mellitus patients whose physicians used a computer-based clinical decision support system (CDSS)	%	499		499	27.5	
	Fraction of patients without a baseline registration of BP	Diabetes mellitus patients whose physicians used pre-existing routines for treatment	%	535		535	22.6	
		Diabetes mellitus patients whose physicians used a computer-based clinical decision support system (CDSS)	%	499		499	21.8	
	Fractions of patients without a baseline registration of serum cholesterol	Diabetes mellitus patients whose physicians used pre-existing routines for treatment	%	535		535	71	
		Diabetes mellitus patients whose physicians used a computer-based clinical decision support system (CDSS)	%	499		499	80	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Fractions of patients without a registered number of cigarettes	Diabetes mellitus patients whose physicians used pre-existing routines for treatment	%	535		416	94.5	
		Diabetes mellitus patients whose physicians used a computer-based clinical decision support system (CDSS)	%	499		368	82.6	
	Fraction of patients without registered cardiovascular inheritance	Diabetes mellitus patients whose physicians used pre-existing routines for treatment	%	535		416	83.4	
		Diabetes mellitus patients whose physicians used a computer-based clinical decision support system (CDSS)	%	499		368	78.7	
	Fraction of patients without registered height/weight of BMI	Diabetes mellitus patients whose physicians used pre-existing routines for treatment	%	535		416	93	
		Diabetes mellitus patients whose physicians used a computer-based clinical decision support system (CDSS)	%	499		368	78.2	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Fraction of patients without at least one variable making risk score calculation possible	Diabetes mellitus patients whose physicians used pre-existing routines for treatment	%	535		416	98.3	
		Diabetes mellitus patients whose physicians used a computer-based clinical decision support system (CDSS)	%	499		368	91.1	
	Average HbA1c in registered patients	Diabetes mellitus patients whose physicians used pre-existing routines for treatment	%	535		368	7.9	
		Diabetes mellitus patients whose physicians used a computer-based clinical decision support system (CDSS)	%	499		321	7.8	
	Systolic BP in registered patients	Diabetes mellitus patients whose physicians used pre-existing routines for treatment	mmm Hg	535		369	152.7	
		Diabetes mellitus patients whose physicians used a computer-based clinical decision support system (CDSS)	mm Hg	499		328	151.5	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Diastolic BP in registered patients	Diabetes mellitus patients whose physicians used pre-existing routines for treatment	mm Hg	535		369	85.1	
		Diabetes mellitus patients whose physicians used a computer-based clinical decision support system (CDSS)	mm Hg	499		328	82.8	
	Serum cholesterol in registered patients	Diabetes mellitus patients whose physicians used pre-existing routines for treatment	mmol/l	535		289		
		Diabetes mellitus patients whose physicians used a computer-based clinical decision support system (CDSS)	mmol/l	499		246	6.2	
	% of registered patients who are smokers	Diabetes mellitus patients whose physicians used pre-existing routines for treatment	% of patients	535		204	16	
		Diabetes mellitus patients whose physicians used a computer-based clinical decision support system (CDSS)	% of patients	499		256	19	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	% of registered patients with CV inheritance	Diabetes mellitus patients whose physicians used pre-existing routines for treatment	% of patients	535		225	63	
		Diabetes mellitus patients whose physicians used a computer-based clinical decision support system (CDSS)	%	499		227	66	
	BMI in registered patients	Diabetes mellitus patients whose physicians used pre-existing routines for treatment	kg/m^2	535		201	28.3	
		Diabetes mellitus patients whose physicians used a computer-based clinical decision support system (CDSS)	kg/m^2	499		226	28.6	
	Coronary heart disease risk score (female)	Diabetes mellitus patients whose physicians used pre-existing routines for treatment	Risk score units (40-year-old female has score = 1)	535		95	14.2	
		Diabetes mellitus patients whose physicians used a computer-based clinical decision support system (CDSS)	Risk score unit	499		89	14.3	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Coronary heart disease risk score (male)	Diabetes mellitus patients whose physicians used pre-existing routines for treatment	Risk score units (40-year-old female has score = 1; weight for male = 5)	535		58	48.7	
		Diabetes mellitus patients whose physicians used a computer-based clinical decision support system (CDSS)	Risk score units	499		84	51.4	
Hicks, 2008[27]	Outcome BP control	Usual care	%			1048	45	
		Computerized support	%			786	48	
	Mean systolic BP at outcome visit	Usual care	mm Hg			1048	137	
		Computerized support	mm Hg			786	138	0.67
	Mean diastolic BP at outcome visit	Usual care	mm Hg			1048	78	
		Computerized support	mm Hg			786	77	0.05
	Prescribing includes adherent drug class	Usual care	% MDs likely to prescribe			1048		
		Computerized support	% MDs likely to prescribe			786		
Homko, 2007[28]	Maternal feelings of diabetes self-efficacy: Total	Women in the control group were asked to record their information in a logbook, which was reviewed by the medical team at prenatal visit				29	4	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Internet group patients in the Internet group were provided with computer and Internet access. Women sent blood glucose and other health data directly to their care providers via the Internet and received information/advice from their health care provider				34	4.4	0.053
	Maternal feelings of diabetes self-efficacy: Subscale 1	Women in the control group were asked to record their information in a logbook, which was reviewed by the medical team at prenatal visit				29	4	
		Internet group patients in the Internet group were provided with computer and Internet access. Women sent blood glucose and other health data directly to their care providers via the Internet and received information/advice from their health care provider				34	4.5	0.039

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Maternal feelings of diabetes self-efficacy: Subscale 2	Women in the control group were asked to record their information in a logbook, which was reviewed by the medical team at prenatal visit				29	3.9	
		Internet group patients in the Internet group were provided with computer and Internet access. Women sent blood glucose and other health data directly to their care providers via the Internet and received information/advice from their health care provider				34	4.3	0.036
	Maternal feelings of diabetes self-efficacy: Subscale 3	Women in the control group were asked to record their information in a logbook, which was reviewed by the medical team at prenatal visit				29	4.1	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Internet group patients in the Internet group were provided with computer and Internet access. Women sent blood glucose and other health data directly to their care providers via the Internet and received information/advice from their health care provider				34	4.4	0.268
	Maternal glucose control: FBS(mg/dl)	Women in the control group were asked to record their information in a logbook, which was reviewed by the medical team at prenatal visit				29	88.6	
		Internet group patients in the Internet group were provided with computer and Internet access. Women sent blood glucose and other health data directly to their care providers via the Internet and received information/advice from their health care provider				34	90.8	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Maternal glucose control: Breakfast blood glucose(mg/dl)	Women in the control group were asked to record their information in a logbook, which was reviewed by the medical team at prenatal visit				29	110.9	
		Internet group patients in the Internet group were provided with computer and Internet access. Women sent blood glucose and other health data directly to their care providers via the Internet and received information/advice from their health care provider				34	108.4	
	Maternal glucose control: Lunch blood glucose (mg/dl)	Women in the control group were asked to record their information in a logbook, which was reviewed by the medical team at prenatal visit				29	108.5	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Internet group patients in the Internet group were provided with computer and Internet access. Women sent blood glucose and other health data directly to their care providers via the Internet and received information/advice from their health care provider				34	113.3	
	Maternal glucose control: Dinner blood glucose (mg/dl)	Women in the control group were asked to record their information in a logbook, which was reviewed by the medical team at prenatal visit				29	114.5	
		Internet group patients in the Internet group were provided with computer and Internet access. Women sent blood glucose and other health data directly to their care providers via the Internet and received information/advice from their health care provider				34	117.5	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Maternal glucose control: Mean blood glucose (mg/dl)	Women in the control group were asked to record their information in a logbook, which was reviewed by the medical team at prenatal visit				29	104.5	
		Internet group patients in the Internet group were provided with computer and Internet access. Women sent blood glucose and other health data directly to their care providers via the Internet and received information/advice from their health care provider				34	106.6	
	Maternal glucose control: A1c at delivery %	Women in the control group were asked to record their information in a logbook, which was reviewed by the medical team at prenatal visit				29	6.2	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Internet group patients in the Internet group were provided with computer and Internet access. Women sent blood glucose and other health data directly to their care providers via the Internet and received information/advice from their health care provider				34	6.1	
	Maternal pregnancy outcome: Cesarean delivery	Women in the control group were asked to record their information in a logbook, which was reviewed by the medical team at prenatal visit				29	40	
		Internet group patients in the Internet group were provided with computer and Internet access. Women sent blood glucose and other health data directly to their care providers via the Internet and received information/advice from their health care provider				34	69	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Maternal pregnancy outcome: Pre-eclampsia/gestational HTN	Women in the control group were asked to record their information in a logbook, which was reviewed by the medical team at prenatal visit				29	20	
		Internet group patients in the Internet group were provided with computer and Internet access. Women sent blood glucose and other health data directly to their care providers via the Internet and received information/advice from their health care provider				34	28	
	Maternal pregnancy outcome: Premature rupture of membranes	Women in the control group were asked to record their information in a logbook, which was reviewed by the medical team at prenatal visit				29	12	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Internet group patients in the Internet group were provided with computer and Internet access. Women sent blood glucose and other health data directly to their care providers via the Internet and received information/advice from their health care provider				34	3	
	Maternal pregnancy utcome: Placental abruption	Women in the control group were asked to record their information in a logbook, which was reviewed by the medical team at prenatal visit				29	0	
		Internet group patients in the Internet group were provided with computer and Internet access. Women sent blood glucose and other health data directly to their care providers via the Internet and received information/advice from their health care provider				34	3	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
Hunter, 2008[29]	Weight	Usual care	kg, pretest/posttest/change		86.6	222	87.4	
	BMI	6-month behavioral Internet treatment	kg, pretest/posttest/change		87.4	224	85.5	
		Usual care	kg/m^2		29.3	222	29.4	
	Waist circumference	6-month behavioral Internet treatment	kg/m^2		29.4	224	28.8	
		Usual care	cm		94.2	222	93.4	
	Body fat %	6-month behavioral Internet treatment	cm		94.5	224	92.2	
		Usual care			34.2	222	34.7	
	5% or more weight loss	6-month behavioral Internet treatment			34.5	224	33.9	
		Usual care	% Yes, change			222		
	% Gained weight	6-month behavioral Internet treatment	% Yes, change		23.6	224	19	
		Usual care	Change			222		
	Block dietary screener: Meat and snacks Screener score	6-month behavioral Internet treatment	Change		35.1	224	32.3	
		Usual care			24.2	222	20.8	
	Block dietary screener: Meat and snacks--% of calories from fat	6-month behavioral Internet treatment			13.7	224	15.8	
		Usual care			35.5	222	33.4	
	Fruit-vegetable-beans Screener score	6-month behavioral Internet treatment			15.8	224	17.4	
		Usual care			14.2	222	14.6	
	Dietary fiber score	6-month behavioral Internet treatment			2787.7	224	2765	
		Usual care			16.1	222	16.5	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Ipaq (total met)	6-month behavioral Internet treatment				224		
		Usual care	Minutes/week			222		
Jan, 2007[30]	Nighttime symptom scores for asthma	Traditional asthma care plan (written asthma diary + instructions for self-management)	Baseline/ week12/ change from baseline	76	0.05	71	0.05	0.998
		Internet-based monitoring of symptoms+ self-management plan	Baseline/ week12/ change from baseline	88	0.11	82	0.04	0.108
	Daytime symptom scores for asthma	Traditional asthma care plan (written asthma diary + instructions for self-management)	Baseline/ week12/ change from baseline	76	0.03	71	0.05	0.122/ 0.588
		Internet-based monitoring of symptoms+ self-management plan	Baseline/ week12/ change from baseline	88	0.14	82	0.07	
	Peak expiratory flow: Morning	Traditional asthma care plan (written asthma diary + instructions for self-management)	l/min, baseline/ week12/ change from baseline	76	219.2	71	230	0.072
		Internet-based monitoring of symptoms+ self-management plan	l/min, baseline/ week12/ change from baseline	88	223.1	82	241.9	0.017
	Peak expiratory flow: Night	Traditional asthma care plan (written asthma diary + instructions for self-management)	l/min, baseline/ week12/ change from baseline	76	224.7	71	235.9	0.07
		Internet-based monitoring of symptoms+ self-management plan	l/min, baseline/ week12/ change from baseline	88	232.5	82	255.6	0.01

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Peak expiratory flow: Daily variability	Traditional asthma care plan (written asthma diary + instructions for self-management)	l/min, baseline/ week12/ change from baseline	76	9.2	71	9.2	0.149/ 0.970
		Internet-based monitoring of symptoms+ self-management plan	l/min, baseline/ week12/ change from baseline	88	8.6	82	10.3	
Jerant, 2001[31]	Mean CHF-related readmissions	Usual care	Mean			12	0.3	0.1559
		Home telecare delivered via a 2-way video-conference device with an integrated electronic stethoscope	Number of events			12	0.1	0.1559
		Nursing telephone	Number of events			13	0.1	0.1559
Jerant, 2003[32]	CHF-related readmission costs	Usual care (home visit)				12		
		Telephone care				12		
		Telenursing care				12		
	CHF-related ED visits	Usual care (home visit)				12		
		Telephone care				12		
		Telenursing care				12		
	Mean direct patient care time per visit	Usual care (home visit)	Minutes			12	79	
		Telephone care				12	12	<0.0001
		Telenursing care				12	27	<0.0001
	Patient self adherence	Usual care (home visit)				12		
		Telephone care				12		
		Telenursing care				12		
	Medication regimen	Usual care (home visit)				12		
		Telephone care				12		
		Telenursing care				12		

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Health status	Usual care (home visit)				12		
		Telephone care				12		
		Telenursing care				12		
	Satisfaction	Usual care (home visit)				12		
		Telenursing care				12		
Jones, 1999[33]	Satisfaction score	Booklet information	Number (%) of patients	180		154	40	
		Personal computer information	Number (%) of patients	193		156	46	
		General computer information	Number (%) of patients	167		128	34	
	Prefer computer to 10-minute consultation with professional	Booklet information		180		154	10	
		Personal computer information		193		156	29	
		General computer information		167		128	20	
	Doctors' assessment: Patients above average in knowledge	Booklet information	%	180		154	20	
		Personal computer information	%	193		156	25	
		General computer information		167		128	35	
	Use of printed material at home	Booklet information	% of patients	180		154	83	
		Personal computer information	% of patients	193		156	70	
		General computer information	% of patients	167		128	57	
Kattan, 2006[34]	Maximum symptom days per 2 week	Control group (not specified)	Days	463		463	3.52	
		Physician feedback group	Days	466		466	3.43	0.54
	Days limited in activity for more than 1/2 day per 2 weeks	Control group (not specified)	Days	463		463	1.6	
		Physician feedback group	Days	466		466	1.42	0.09

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	School days missed per 2 week	Control group (not specified)	Days	463		463	0.72	
		Physician feedback group	Days	466		466	0.67	0.38
	Number of ED visits per year	Control group (not specified)	Visits	463		463	1.14	
		Physician Feedback Group	Visits	466		466	0.87	0.013
	Number of unscheduled clinic visits per year	Control group (not specified)	Visits	463		463	1.31	
		Physician Feedback Group	Visits	466		466	1.14	0.14
	Number of hospitalizations per year	Control group (not specified)	Hospitalizations	463		463	0.24	
		Physician Feedback Group	Hospitalizations	466		466	0.22	0.56
Kerr, 2008[35]	CESD scores of >=10 (44 patients)	‘‘Enhanced’’ standard care	Score		22.8	196	19.7	
		Patient-centered assessment and counseling for exercise and nutrition via the Internet	Score		13.8	205	18.9	
Krishna, 2003[36]	Knowledge Score among caregivers of children 0-6 yrs old	Control group received traditional patient education based on the National Asthma Education and Prevention Program		69	48.41	23	52.3	0.0293

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Intervention group received traditional patient education based on the National Asthma Education and Prevention Program as well as self-management education through the Interactive Multimedia Program for Asthma Control and Tracking		62	47.94	24	55.68	<0.0001
	Knowledge Score among caregivers of children 7-17 yrs old	Control group received traditional patient education based on the National Asthma Education and Prevention Program		52	49.57	28	51.7	-0.0079
		Intervention group received traditional patient education based on the National Asthma Education and Prevention Program as well as self-management education through the Interactive Multimedia Program for Asthma Control and Tracking		45	49.95	26	55.38	<0.0001

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Knowledge Score among caregivers of children 7-17 yrs old	Control group received traditional patient education based on the National Asthma Education and Prevention Program		52	43.44	28	47.51	
		Intervention group received traditional patient education based on the National Asthma Education and Prevention Program as well as self-management education through the Interactive Multimedia Program for Asthma Control and Tracking		45	43.11	25	53.12	<0.0001
	Change in knowledge, health outcome, resource utilization by children: Days of asthma symptoms	Control group received traditional patient education based on the National Asthma Education and Prevention Program		119	97.8	44	48.2	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Intervention group received traditional patient education based on the National Asthma Education and Prevention Program as well as self-management education through the Interactive Multimedia Program for Asthma Control and Tracking			104.5	42	23.9	<0.0001
	Change in knowledge, health outcome, resource utilization by children: Days of quick relief medicine	Control group received traditional patient education based on the National Asthma Education and Prevention Program			90.7	45	41	0.0004
		Intervention group received traditional patient education based on the National Asthma Education and Prevention Program as well as self-management education through the Interactive Multimedia Program for Asthma Control and Tracking			90	41	26.3	0.0002

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Change in knowledge, health outcome, resource utilization by children: Days of activity limitation	Control group received traditional patient education based on the National Asthma Education and Prevention Program			35.5	45	13.5	0.951
		Intervention group received traditional patient education based on the National Asthma Education and Prevention Program as well as self-management education through the Interactive Multimedia Program for Asthma Control and Tracking			46.2	40	6.7	<0.0001
	Change in knowledge, health outcome, resource utilization by children: Nights of sleep disturbance	Control group received traditional patient education based on the National Asthma Education and Prevention Program			62	45	17.1	<0.0001

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Intervention group received traditional patient education based on the National Asthma Education and Prevention Program as well as self-management education through the Interactive Multimedia Program for Asthma Control and Tracking			64.7	42	15.2	<0.0001
	Change in knowledge, health outcome, resource utilization by children: Urgent visit to physician	Control group received traditional patient education based on the National Asthma Education and Prevention Program			6.4	45	1.3	<0.0001
		Intervention group received traditional patient education based on the National Asthma Education and Prevention Program as well as self-management education through the Interactive Multimedia Program for Asthma Control and Tracking			6.6	40	0.8	<0.0001

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Change in knowledge, health outcome, resource utilization by children: Emergency room visits	Control group received traditional patient education based on the National Asthma Education and Prevention Program			1.2	45	0.6	0.0219
		Intervention group received traditional patient education based on the National Asthma Education and Prevention Program as well as self-management education through the Interactive Multimedia Program for Asthma Control and Tracking			2	42	0.1	0.0024
	Change in knowledge, health outcome, resource utilization by children: Hospitalizations	Control group received traditional patient education based on the National Asthma Education and Prevention Program			0.6	45	0.1	0.0313

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Intervention group received traditional patient education based on the National Asthma Education and Prevention Program as well as self-management education through the Interactive Multimedia Program for Asthma Control and Tracking			0.1	42	0.1	0.0625
	Change in knowledge, health outcome, resource utilization by children: Days of stay in hospital	Control group received traditional patient education based on the National Asthma Education and Prevention Program			6.4	45	5.4	0.0781
		Intervention group received traditional patient education based on the National Asthma Education and Prevention Program as well as self-management education through the Interactive Multimedia Program for Asthma Control and Tracking			2.7	42	0.6	0.1563

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Change in knowledge, health outcome, resource utilization by children: School days missed	Control group received traditional patient education based on the National Asthma Education and Prevention Program			6.4	43	5.4	0.1479
		Intervention group received traditional patient education based on the National Asthma Education and Prevention Program as well as self-management education through the Interactive Multimedia Program for Asthma Control and Tracking			7.9	40	1.4	0.0001
	Daily dose of inhaled corticosteroid	Control group received traditional patient education based on the National Asthma Education and Prevention Program			350.53	119	753.88	0.0364

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Intervention group received traditional patient education based on the National Asthma Education and Prevention Program as well as self-management education through the Interactive Multimedia Program for Asthma Control and Tracking		105	353.09	42	433.51	0.8327
Kucher, 2005[37]	Prophylactic Measures: Mechanical--Total	No computerized alert	Number of patients (%)			1255	1.5	
		Computerized alert to physician about patient's risk of deep-vein thrombosis	Number of patients (%)			1251	10	
	Prophylactic Measures: Mechanical--Compression stockings	No computerized alert	Number of patients (%)			1255	0.6	
		Computerized alert to physician about patient's risk of deep-vein thrombosis	Number of patients (%)			1251	4.1	
	Prophylactic Measures: Mechanical--Pneumatic boots	No computerized alert	Number of patients (%)			1255	1	
		Computerized alert to physician about patient's risk of deep-vein thrombosis	Number of patients (%)			1251	5.8	
	Prophylactic Measures:	No computerized alert	Number of patients (%)			1255	13	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Pharmacologic--Total	Computerized alert to physician about patient's risk of deep-vein thrombosis	Number of patients (%)			1251	23.6	
	Prophylactic Measures: Pharmacologic--Unfractionated heparin	No computerized alert	Number of patients (%)			1255	6.5	
		Computerized alert to physician about patient's risk of deep-vein thrombosis	No. Of patients (%)			1251	17	
	Prophylactic measures: Pharmacologic--Warfarin	No computerized alert	Number of patients (%)			1255	3.3	
		Computerized alert to physician about patient's risk of deep-vein thrombosis	Number of patients (%)			1251	2.2	
	Prophylactic measures: Pharmacologic--Enoxaparin	No computerized alert	Number of patients (%)			1255	3.3	
		Computerized alert to physician about patient's risk of deep-vein thrombosis	Number of patients (%)			1251	4.4	
	Venous thromboembolism at 30 days	No computerized alert	Number of patients (%)			71	5.7	
		Computerized alert to physician about patient's risk of deep-vein thrombosis	Number of patients (%)			41	3.3	
	Venous thromboembolism at 90 days	No computerized alert	Number of patients (%)			103	8.2	
		Computerized alert to physician about patient's risk of deep-vein thrombosis	Number of patients (%)			61	4.9	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Pulmonary embolism at 30 days	No computerized alert	Number of patients (%)			21	1.7	
		Computerized alert to physician about patient's risk of deep-vein thrombosis	Number of patients (%)			10	0.8	
	Pulmonary embolism at 90 days	No computerized alert	Number of patients (%)			35	2.8	
		Computerized alert to physician about patient's risk of deep-vein thrombosis	Number of patients (%)			14	1.1	
	Proximal-leg deep-vein thrombosis at 30 days	No computerized alert	Number of patients (%)			17	1.4	
		Computerized alert to physician about patient's risk of deep-vein thrombosis	Number of patients (%)			8	0.6	
	Proximal-leg deep-vein thrombosis at 90 days	No computerized alert	Number of patients (%)			23	1.8	
		Computerized alert to physician about patient's risk of deep-vein thrombosis	Number of patients (%)			10	0.8	
	Distal-leg deep-vein thrombosis at 30 days	No computerized alert	Number of patients (%)			8	0.6	
		Computerized alert to physician about patient's risk of deep-vein thrombosis	Number of patients (%)			3	0.2	
	Distal-leg deep-vein thrombosis at 90	No computerized alert	Number of patients (%)			12	1	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	days	Computerized alert to physician about patient's risk of deep-vein thrombosis	Number of patients (%)			5	0.4	
	Deep-vein thrombosis of the arms at 30 days	No computerized alert	Number of patients (%)			25	2	
		Computerized alert to physician about patient's risk of deep-vein thrombosis	Number of patients (%)			20	1.6	
	Deep-vein thrombosis of the arms at 90 days	No computerized alert	Number of patients (%)			33	2.6	
		Computerized alert to physician about patient's risk of deep-vein thrombosis	Number of patients (%)			32	2.5	
	Death at 30 days	No computerized alert	Number of patients (%)			157	12.5	
		Computerized alert to physician about patient's risk of deep-vein thrombosis	Number of patients (%)			174	13.9	
	Death at 90 days	No computerized alert	Number of patients (%)			279	22.3	
		Computerized alert to physician about patient's risk of deep-vein thrombosis	Number of patients (%)			282	22.5	
	Major hemorrhage at 30 days	No computerized alert	Number of patents (%)			19	1.5	
		Computerized alert to physician about patient's risk of deep-vein thrombosis	Number of patients (%)			19	1.5	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Minor hemorrhage at 30 days	No computerized alert	Number of patients (%)			88	7	
		Computerized alert to physician about patient's risk of deep-vein thrombosis	Number of patients (%)			81	6.5	
Laffel, 2007[38]	Mean decrease in A1C	Paper log books	Logbook data and A1C	92		92	0.27	0.02
		Integrated glucose meters and electronic logbooks (Electronic Group)	Logbook data and A1C	113		113	0.35	0.02
Lester, 2004[39]	Statin change	Usual care	%			124	2.3	<0.001
		Facilitated lipid management using interactive e-mail	%			132	15.3	<0.001
	Repeat fasting lipid profile	Usual care	%			124	7.6	0.16
		Facilitated lipid management using interactive e-mail	%			132	12.9	0.16
Liaw, 1998[40]	Improved patient's knowledge of own health	Patients with one or more chronic health problem without PHR received		22		22		
		Patients with one or more chronic health problem without PHR received		29		29	56%	
		Post test group without PHR		NR		NR		
	Patient felt more responsible for own health	Patients with one or more chronic health problem without PHR received		NR		NR		

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Patients with one or more chronic health problem without PHR received		NR		NR	52%	
		Post-test group without PHR		NR		NR		
	Improved knowledge of health promotion tasks	Patients with one or more chronic health problem without PHR received		NR		NR		
		Patients with one or more chronic health problem without PHR received		NR		NR	41%	
		Post-test group without PHR		NR		NR		
	Improved sharing of information with family	Patients with one or more chronic health problem without PHR received		NR		NR		
		Patients with one or more chronic health problem without PHR received		NR		NR	38%	
		Post-test group without PHR		NR		NR		
	Improved patient-doctor communication	Patients with one or more chronic health problem without PHR received		NR		NR		
		Patients with one or more chronic health problem without PHR received		NR		NR	32%	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Post-test group without PHR		NR		NR		
	Improved sharing of information with hospital	Patients with one or more chronic health problem without PHR received		NR		NR		
		Patients with one or more chronic health problem without PHR received		NR		NR		
		Post-test group without PHR		NR		NR		
	Improved sharing of information with other health care providers	Patients with one or more chronic health problem without PHR received		NR		NR		
		Patients with one or more chronic health problem without PHR received		NR		NR		
		Post-test group without PHR		NR		NR		
	Impact on systolic BP	Patients with one or more chronic health problem without PHR received		16		NR		
		Patients with one or more chronic health problem without PHR received		20		NR		0.04
		Post-test group without PHR		NR		NR		

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Impact on diastolic BP	Patients with one or more chronic health problem without PHR received		NR		NR		
		Patients with one or more chronic health problem without PHR received		NR		NR		Not significant
Lorig, 2006[41]	Health distress	Usual care	1-yr changes	501		426	-0.193	
		Internet-based CDSMP	1-yr changes	457		354	-0.377	
	Self-reported global health	Usual care	1-yr changes	501		426	-0.068	
		Internet-based CDSMP	1-yr changes	457		354	-0.102	
	Illness intrusiveness	Usual care	1-yr changes	501		426	-0.064	
		Internet-based CDSMP	1-yr changes	457		354	-0.150	
	Disability	Usual care	1-yr changes	501		426	-0.142	
		Internet-based CDSMP	1-yr changes	457		354	-0.166	
	Fatigue	Usual care	1-yr changes	501		426	-0.358	
		Internet-based CDSMP	1-yr changes	457		354	-0.720	
	Pain	Usual care	1-yr changes	501		426	-0.047	
		Internet-based CDSMP	1-yr changes	457		354	-0.367	
	Shortness of breath	Usual care	1-yr changes	501		426	-0.216	
		Internet-based CDSMP	1-yr changes	457		354	-0.537	
	Aerobic exercise	Usual care	1-yr changes	501		426	7.99	
		Internet-based CDSMP	(Minutes/week) 1-yr changes	457		354	12.1	
	Stretch/strength exercise	Usual care	(Minutes/week) 1-yr changes	501		426	1.16	
		Internet-based CDSMP	(Minutes/week) 1-yr changes	457		354	11.9	
	Communication with	Usual care	1-yr changes	501		426	0.221	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	physician	Internet-based CDSMP	1-yr changes	457		354	0.268	
	Practice stress management (times/wk)	Usual care	(Times/week) 1-yr Changes	501		426	0.200	
		Internet-based CDSMP	(Times/week) 1-yr changes	457		354	0.647	
	Self-efficacy	Usual care	1-yr changes	501		426	0.200	
		Internet-based CDSMP	1-yr changes	457		354	0.406	
	Physician visits (past 6 months)	Usual care	1-yr changes	501		426	-0.866	
		Internet-based CDSMP	1-yr changes	457		354	-0.680	
	Emergency visits (past 6 months)	Usual care	1-yr changes	501		426	-0.144	
		Internet-based CDSMP	1-yr Changes	457		354	-0	
	Days in hospital (past 6 months)	Usual care	1-yr changes	501		426	-0.243	
Lowensteyn, 1998[42]	Likelihood of high-risk patients for a followup coronary risk assessment	The control group physician received their profile only if the patient was clinically reevaluated during a 3-month followup visit		110				
		The profile group physician received coronary risk profiles for their patients within 10 working days after the baseline patient assessment providing early feedback		494		494		

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Likelihood of low-risk patients for a followup coronary risk assessment	The control group physician received their profile only if the patient was clinically reevaluated during a 3-month followup visit		66				
		The profile group physician received coronary risk profiles for their patients within 10 working days after the baseline patient assessment providing early feedback		288		288		
	Impact of coronary risk profiles on CHD risk factors:Total cholesterol (mmol/l)	The control group physician received their profile only if the patient was clinically reevaluated during a 3-month followup visit		89			6.11	
		The profile group physician received coronary risk profiles for their patients within 10 working days after the baseline patient assessment providing early feedback		202		202	6.55	0.05

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Impact of coronary risk profiles on CHD risk factors:HDL(mmol/l)	The control group physician received their profile only if the patient was clinically reevaluated during a 3-month followup visit		89			1.16	
		The profile group physician received coronary risk profiles for their patients within 10 working days after the baseline patient assessment providing early feedback		202		202	1.13	0.55
	Impact of coronary risk profiles on CHD risk factors: LDL (mmol/l)	The control group physician received their profile only if the patient was clinically reevaluated during a 3-month followup visit		89			3.88	
		The profile group physician received coronary risk profiles for their patients within 10 working days after the baseline patient assessment providing early feedback		202		202	4.37	0.05

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Impact of coronary risk profiles on CHD risk factors: Total/HDL ratio (mmol/l)	The control group physician received their profile only if the patient was clinically reevaluated during a 3-month followup visit		89			5.7	
		The profile group physician received coronary risk profiles for their patients within 10 working days after the baseline patient assessment providing early feedback		202		202	6.2	0.05
	Impact of coronary risk profiles on CHD risk factors: Systolic BP (mm Hg)	The control group physician received their profile only if the patient was clinically reevaluated during a 3-month followup visit		89			129.2	
		The profile group physician received coronary risk profiles for their patients within 10 working days after the baseline patient assessment providing early feedback		202		202	133	0.61

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Impact of coronary risk profiles on CHD risk Factors: Diastolic BP (mm Hg)	The control group physician received their profile only if the patient was clinically reevaluated during a 3-month followup visit		89			79.8	
		The profile group physician received coronary risk profiles for their patients within 10 working days after the baseline patient assessment providing early feedback		202		202	82.3	0.99
	Impact of coronary risk profiles on CHD risk factors: Body mass index (kg/m^2)	The control group physician received their profile only if the patient was clinically reevaluated during a 3-month followup visit		89			27.8	
		The profile group physician received coronary risk profiles for their patients within 10 working days after the baseline patient assessment providing early feedback		202		202	28.6	0.31

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Impact of coronary risk profiles on CHD risk factors: Smoker	The control group physician received their profile only if the patient was clinically reevaluated during a 3-month followup visit		89			21	
		The profile group physician received coronary risk profiles for their patients within 10 working days after the baseline patient assessment providing early feedback		202		202	42	0.64
	Impact of coronary risk profiles on CHD risk factors: 8-Yr coronary risk %	The control group physician received their profile only if the patient was clinically reevaluated during a 3-month followup visit		89			52	
		The profile group physician received coronary risk profiles for their patients within 10 working days after the baseline patient assessment providing early feedback		202		202	12	<0.01

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Impact of coronary risk profiles on CHD risk factors: Cardiovascular age (yrs)	The control group physician received their profile only if the patient was clinically reevaluated during a 3-month followup visit		89			52	
		The profile group physician received coronary risk profiles for their patients within 10 working days after the baseline patient assessment providing early feedback		202		202	54	<0.01
Madsen, 2008[43]	Differences in systolic daytime ambulatory BP monitoring	Conventional monitoring of BP	Decrease in systolic daytime ABPM (mm Hg)			-9.6		0.225
		Telemonitoring of BP	Decrease in systolic daytime ABPM (mm Hg)			-11.9		0.225
Maslin, 1998[44]	Mental health score on Short Form-36 questionnaire	Patients in the control group received usual care from multidisciplinary team	Score unit	49	68		68	0
		Patients in the intervention group received and interactive video disk system along with usual care from multidisciplinary team		51	60		68	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Anxiety score on the hospital anxiety and depression scale	Patients in the control group received usual care from multidisciplinary team	Score Unit	49				<0.001
		Patients in the intervention group received and interactive video disk system along with usual care from multidisciplinary team		51				
McCowan, 2001[45]	Reductions in patient initiated consultations	No intervention	Number of events			12	34	
		Computer decision support software to improve the management of asthma	Number of events			5	22	
	Reductions in the exacerbations of asthma	No intervention	Number of events			12	17	
		Computer decision support software to improve the management of asthma	Number of events			5	8	
	Assessment of symptoms	No intervention	Number of events			12	13	
		Computer decision support software to improve the management of asthma	Number of events			5	5	
	British asthma guidelines step	No intervention	Number of events			12	35	
		Computer decision support software to improve the management of asthma	Number of events			5	36	
	Admissions	No intervention	Number of events			12	1	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Computer decision support software to improve the management of asthma	Number of events			5		
	Outpatients	No intervention	Number of events			12	2	
		Computer decision support software to improve the management of asthma	Number of events			5	1	
McDonald, 2005[46]	Presence of pain assessed by nurse	Usual care	Adjusted probability			234	86.9	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	Adjusted probability			242	89.3	
		E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach	Adjusted probability			197	88	
	Medication assessment	Usual care	Adjusted probability			234	44.5	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	Adjusted probability			242	45.6	
		E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach	Adjusted probability			197	50.4	
	Mood assessment by nurse	Usual care	Adjusted probability			234	85.5	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	Adjusted probability			242	92.7	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach	Adjusted probability			197	88.9	
	Educational materials delivered by nurse	Usual care	Adjusted probability			234	1.3	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	Adjusted probability			242	2.4	
		E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach	Adjusted probability			197	7.3	
	Pain at its worst (range: 0–10)	Usual care	Adjusted probability/Score			234	4.5	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	Adjusted probability/Score			242	3.6	
		E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach	Adjusted probability/Score			197	3.3	
	Pain on average (range: 0–10)	Usual care	Adjusted probability/Score			234	3.7	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	Adjusted Probability/Score			242	2.2	
		E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach	Adjusted probability/Score			197	3.1	
	Pain interference	Usual care	Adjusted probability/Score			234	5.3	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	scale (range: 0–10)	Patient-specific, one-time e-mail reminder with pain-specific recommendations	Adjusted probability/Score			242	5.8	
		E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach	Adjusted probability/Score			197	5.2	
	Best quality of life	Usual care	Adjusted probability/Score			234	16.1	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	Adjusted probability/Score			242	16.9	
		E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach	Adjusted probability/Score			197	15.2	
	Severe pain	Usual care	Adjusted probability/Score			234	28.4	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	Adjusted probability/Score			242	32	
		E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach	Adjusted probability/Score			197	25.8	
	Severe insomnia	Usual care	Adjusted probability/Score			234	40.9	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	Adjusted probability/Score			242	39.5	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach	Adjusted probability/Score			197	32.8	
	Severe constipation	Usual care	Adjusted probability/Score			234	18.9	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	Adjusted probability/Score			242	14.8	
		E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach	Adjusted probability/Score			197	12	
	Inadequate pain management	Usual care	Adjusted probability/Score			234	68.5	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	Adjusted probability/Score			242	69.9	
		E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach	Adjusted robability/Score			197	64	
	Barriers summary score	Usual care	Score			234	37.7	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	Score			242	37.6	
		E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach	Score			197		
	Use of alternative	Usual care	Adjusted probability/Score			234	26.9	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	treatments	Patient-specific, one-time e-mail reminder with pain-specific recommendations	Adjusted probability/Score			242	22.6	
		E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach	Adjusted probability/Score			197	15.9	
	Probability of hospitalization	Usual care	Adjusted probability			234	22.2	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	Adjusted probability			242	22.1	
		E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach	Adjusted probability			197	16.6	
	Probability of ED use	Usual care	Adjusted probability			234	36.6	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	Adjusted probability			242	37.8	
		E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach	Adjusted probability			197	33.5	
	Home care-related costs	Usual care	US dollars			234	2642	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	US dollars			242	2789	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach	US dollars			197	2903	
	Overall costs	Usual care	US dollars			234	5687	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	US dollars			242	5966	
		E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach	US dollars			197	5611	
McGregor, 2006[47]	In-hospital mortality	Patients without computerized clinical decision support system	Patients who died in the hospital		180	8.19		
		Patients with computerized clinical decision support system	Patients who died in the hospital		359	7.84	0.52	
	Length of hospitalization	Patients without computerized clinical decision support system	Days		180	5		
		Patients with computerized clinical decision support system	Days		359	4	0.64	
	Hospital antimicrobial expenditure savings	Patients without computerized clinical decision support system	US dollar expenditures per patient		180	0		
		Patients with computerized clinical decision support system	US dollar expenditures per patient		359	37.64		

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Time spent managing antimicrobial utilization	Patients without computerized clinical decision support system	Person-hours per day		180	4.1		
		Patients with computerized clinical decision support system	Person-hours per day		359	3.2		
McKinley, 2001[48]	Survival	Usual care non-protocol managed by physician orders				33	79	
		Ventilation computerized protocol				34	70	Not significant
	ICU length of stay	Usual care non-protocol managed by physician orders	Days			33	31.4	
		Ventilation computerized protocol				34	34.5	not significant
	Morbidity	Usual care non-protocol managed by physician orders	Morbidity score			33	9.3	
		Ventilation computerized protocol				34	9.8	Not significant
	Barotrauma	Usual care non-protocol managed by physician orders	Score			33	0.83	
		Ventilation computerized protocol				34	1.01	nt significant
	FIO_2 exposure>0.6	Usual care non-protocol managed by physician orders				33	3.1	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Ventilation computerized protocol				34	1.8	<0.05
	P plateau exposure > 35 cm H_2O	Usual care non-protocol managed by physician orders				33	669	
		Ventilation computerized protocol				34	360	<0.05
Mitchell, 2004[49]	Final systolic blood pressure (SBP)	Control--no feedback practices		507		518	148	0.555
		Audit only practices		603		641	152.3	0.707 as compared to Arm A, 0.026 as compared to Arm C
		Audit plus strategic practices		645		646	146.5	0.555
	Final proportion with controlled blood pressure in hypertensive patients	Control--no feedback practices		507		518	45.7	
		Audit only practices		603		641	33.5	0.77
		Audit plus strategic practices		645		646	45.5	0.028
	All patients with BP<160/90	Control--no feedback practices		507		518		
		Audit only practices		603	39	641	47	
		Audit plus strategic practices		645	54.3	646	63	
	All patients with BP>=160/90	Control--no feedback practices		507		518		
		Audit only practices		603		641		
		Audit plus strategic practices		645	26.9	646	22.8	
	All patients with no recorded BP	Control--no feedback practices		507		518		
		Audit only practices		603		641		
		Audit plus strategic practices		645	18.8	646	14.2	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Hypertensive patients with BP recorded	Control--no feedback practices		507		518		
		Audit only practices		603		641		
		Audit plus strategic practices		645	96.1	646	96.6	
	Hypertensive patients with no recorded BP	Control--no feedback practices		507	10.4	518	7.7	
		Audit only practices		603	19.6	641	14	
		Audit plus strategic practices		645	3.9	646	3.4	
	Hypertensive patients with BP<160/90	Control--no feedback practices		507	40.5	518	56.5	
		Audit only practices		603	33.6	641	45.1	
		Audit plus strategic practices		645	53.9	646	62.1	
	Hypertensive patients with BP >=160/90	Control--no feedback practices		507	49.1	518	35.8	
		Audit only practices		603	46.8	641	40.9	
		Audit plus strategic practices		645	42.1	646	34.5	
	Hypertensive patients treated for HTN	Control--no feedback practices		507	84.3	518	91.4	
		Audit only practices		603	87.5	641	92.3	
		Audit plus strategic practices		645	84.3	646	93.7	
	Hypertensive patients who are treated with no record of BP	Control--no feedback practices		507	9.2	518	6.6	
		Audit only practices		603	15.9	641	12.9	
		Audit plus strategic practices		645	3	646	3.2	
	Hypertensive patients who are treated with BP>=160/90	Control--no feedback practices		507	41.5	518	32.3	
		Audit only practices		603	41.3	641	38.3	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Audit plus strategic practices		645	36.1	646	32.6	
	Hypertensive patients who have controlled BP	Control--no feedback practices		507	33.6	518	52.5	
		Audit only practices		603	30.3	641	41.1	
		Audit plus strategic practices		645	45.2	646	57.9	
Montgomery, 2000[50]	Mean 5-yr cardiovascular risk	Usual care	Risk score units	130	17.3		17.8	<0.01
		The intervention consisted of a clinical decision support system plus risk chart		202	16		16.7	
	Mean systolic blood pressure	Usual care	mm Hg	130	158		159	0
		The intervention consisted of a clinical decision support system plus risk chart		202	153		153	
	Mean diastolic blood pressure	Usual care	mm Hg	130	86		84	**SNR
		The intervention consisted of a clinical decision support system plus risk chart		202	85		85	
	Mean 5-yr cardiovascular risk	Usual care	Risk score units	130	17.3		17.8	<0.01
		The intervention consisted of a clinical decision support system plus risk chart		199	17.9		17.5	
	Mean systolic blood pressure (mm Hg)	Usual care	mm Hg	130	158		159	0.02

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		The intervention consisted of a clinical decision support system plus risk chart		199	156		153	
	Mean diastolic blood pressure	Usual care	mm Hg	130	86		84	**SNR
		The intervention consisted of a clinical decision support system plus risk chart		199	87		86	
	Number of patients with 0-1 classes of drugs prescribed	Usual care	Number of patients	130	58		50	0
		The intervention consisted of a clinical decision support system plus risk chart		202	88		81	
	Number of patients with 3 classes of drugs prescribed	Usual care	Number of patients	130	45		47	0
		The intervention consisted of a clinical decision support system plus risk chart		202	75		74	
	Number of patients with >=3 classes of drugs prescribed	Usual care	Number of patients	130	34		40	0
		The intervention consisted of a clinical decision support system plus risk chart		202	44		52	
	Number of patients with 0-1 classes of drugs prescribed	Usual care	Number of patients	130	58		50	0
		The intervention consisted of a clinical decision support system plus risk chart		199	98		68	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Number of patients with 3 classes of drugs prescribed	Usual care	Number of patients	130	45		47	0
		The intervention consisted of a clinical decision support system plus risk chart		199	58		67	
	Number of patients with >=3 classes of drugs prescribed	Usual care	Number of patients	130	34		40	0
Montgomery, 2007[51]	Decisional conflict scale (total)	Standard care	Score				27.8	
		Information program	Score				22.5	
		Decision analysis	Score				23.6	
	Mode of delivery: Elective Caesarean	Standard care	N				50	
		Information program	N			117	49	
		Decision analysis	N				41	
	Mode of delivery: Emergency Caesarean	Standard care	N				20	
		Information program	N			53	22	
		Decision analysis	N			50	21	
	Mode of delivery: Vaginal birth	Standard care	N				30	
		Information program	N				29	
		Decision analysis	N			88	37	
	Anxiety	Standard care					42.1	
		Information program					38.5	
		Decision analysis					38.7	
	Knowledge	Standard care					57.5	
		Information program					69.7	
		Decision analysis					68.0	
	Satisfaction with decision	Standard care					4.2	
		Information program					4.3	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
Montori, 2004[52]	6-month HbA1c	Control (glucometer transmission without feedback)	%			15	8.2	
	6-month HbA1c	Telecare (glucometer transmission with feedback)	%			13	7.8	
	Glycemic control	Control (glucometer transmission without feedback)				15	7	
	Glycemic control	Telecare (glucometer transmission with feedback)				13	29	
	Self-monitoring: Change at 6 months from baseline	Control (glucometer transmission without feedback)	%			15	0	
	Self-monitoring: Change at 6 months from baseline	Telecare (glucometer transmission with feedback)	%			13	10.7	
	Clinician review of data transmission with the study nurse	Control (glucometer transmission without feedback)	Minutes per patient			15	0	
	Clinician review of data transmission with the study nurse	Telecare (glucometer transmission with feedback)	Minutes per patient			13	9	
	Time spent by the nurse reviewing patients data during the 6 months of the study	Control (glucometer transmission without feedback)	Minutes per patient			15	12	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Time spent by the nurse reviewing patients data during the 6 months of the study	Telecare (glucometer transmission with feedback)	Minutes per patient			13	76	
	Time spent by the nurse providing feedback to patients during the 6 months of the study	Control (glucometer transmission without feedback)	Minutes per patient			15	18	
	Time spent by the nurse providing feedback to patients during the 6 months of the study	Telecare (glucometer transmission with feedback)	Minutes per patient			13	68	
Napolitano, 2003[54]	Physical activity: (Moderate) intervention outcome in baseline	Participants in the waiting list control group were told that they would have to wait 3 months to participate. They completed assessments at 1 and 3 months, similar to participants in the Internet condition. After their 3-month assessment, they were sent **to the internet condition**		35		31	80.86	
		Participants in the Internet condition group received access to the Web site for 3 months along with weekly e-mail tip sheets		30		21	68.79	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Physical activity: (Moderate) intervention outcome in 1 month	Participants in the waiting list control group were told that they would have to wait 3 months to participate. They completed assessments at 1 and 3 months, similar to participants in the Internet condition. After their 3-month assessment, they were sent to the internet condition		35		31	96.82	
		Participants in the Internet condition group received access to the Web site for 3 months along with weekly e-mail tip sheets		30		21	98.33	
	Physical activity: (Moderate) intervention outcome in 3 months	Participants in the waiting list control group were told that they would have to wait 3 months to participate. They completed assessments at 1 and 3 months, similar to participants in the Internet condition. After their 3-month assessment, they were sent to the internet condition		35		31	82	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Participants in the Internet condition group received access to the Web site for 3 months along with weekly e-mail tip sheets		30		21	112	Not significant
	Physical activity: (Walking) intervention outcome in baseline	Participants in the waiting list control group were told that they would have to wait 3 months to participate. They completed assessments at 1 and 3 months, similar to participants in the Internet condition. After their 3-month assessment, they were sent to the internet condition		35		31	87.57	
		Participants in the Internet condition group received access to the Web site for 3 months alone with weekly e-mail tip sheets		30		21	57.24	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Physical activity: (Walking) intervention outcome in 1 month	Participants in the waiting list control group were told that they would have to wait 3 months to participate. They completed assessments at 1 and 3 months, similar to participants in the Internet condition. After their 3-month assessment, they were sent to the internet condition		35		31	83.79	
		Participants in the Internet condition group received access to the Web site for 3 months along with weekly e-mail tip sheets		30		21	87.29	
	Physical activity: (Walking) intervention outcome in 3 months	Participants in the waiting list control group were told that they would have to wait 3 months to participate. They completed assessments at 1 and 3 months, similar to participants in the Internet condition. After their 3-month assessment, they were sent to the internet condition		35		31	68.39	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Participants in the Internet condition group received access to the Web site for 3 months along with weekly e-mail tip sheets		30		21	99.75	
Nguyen, 2008[55]	CRQ: Dyspnea with ADL	fDSMP (face-to-face)	Score 5-35	20	15.9	20	19.9	
		eDSMP Internet-based	Range 5-35	19	18.8	19	21.3	0.14
	Exercise stage of change: action or maintenance	fDSMP (face-to-face)	%	20		20		
		eDSMP Internet-based	%	19		19		NA
	Endurance exercise	fDSMP (face-to-face)	Total minutes/week	20	77	20	121	
		Edsmp Internet-based	Total minutes/wk	19	89	19	128	0.22
	Strength exercise	fDSMP (face-to-face)	Total minutes/week	20	21	20	53	
		eDSMP Internet-based	Total minutes/wk	19	11	19	34	0.54
	6-minute walk test	fDSMP (face-to-face)	M	20	406	20	394	
		eDSMP Internet-based	M	19	436	19	456	0.22
	CRQ: Fatigue	fDSMP (face-to-face)	Range 4-28	20	16.1	20	17.7	
		eDSMP Internet-based	Range 4-28	19	17.1	19	18.3	0.29
	CRQ: Mastery	fDSMP (face-to-face)	Range 4-28	20	20.4	20	22.4	
		eDSMP Internet-based	Range 4-28	19	21.7	19	23.6	0.35
	CRQ: Emotional functioning	fDSMP (face-to-face)	Range 7-49	20	33.4	20	34.5	
		eDSMP Internet-based	Range 7-49	19	35.9	19	36.8	0.33
	CRQ: Total score	fDSMP (face-to-face)	Range 2-140	20	85.8	20	94.5	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		eDSMP Internet-based	Range 20-140	19	93.5	19	99.9	0.19
	SF-36: Physical composite	fDSMP (face-to-face)	Range 0-100	20	32	20	8	
		IeDSMP nternet-based	Range 0-100	19	37.3	19	39.9	0.07
	SF-36: Mental composite	fDSMP (face-to-face)	Range 0-100	20	12.5	20	13.8	
		eDSMP Internet-based	Range 0-100	19	49.7	19	51.3	0.7
	Dyspnea knowledge	fDSMP (face-to-face)	Range 0-15	20	12.5	20	13.8	
		eDSMP Internet-based	Range 0-15	19	12.6	19	14.1	0.49
	Self-efficacy	fDSMP (face-to-face)	Range 0-10	20	4.6	20	5	
		eDSMP Internet-based	Range 0-10	19	4.7	19	6.7	0.18
	Perception of support	fDSMP (face-to-face)	Range 0-100	20	68.9	20	70.9	
		eDSMP Internet-based	Range 0-100	19	62.2	19	66.4	0.64
	Perception of exercise support / strongly agree	fDSMP (face-to-face)	%	20		20	80	
		eDSMP Internet-based	%	19		19	68	
	Perception of exercise support / agree	fDSMP (face-to-face)	%	20		20	10	
		eDSMP Internet-based	%				32	
	Satisfaction with program	fDSMP (face-to-face)	Scale 1-5	20		20	2.7	
		eDSMP Internet-based	Scale 1-5				2.6	
Noel, 2004[56]	Bed-days of care per patient over 6-month period	Received usual home health care services plus nurse care management	Days		13.82	57	5.11	0.001

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Received home telehealth plus nurse care management	Days		12.19	47	1.88	0.0001/0.085 (Baseline to final/ between groups)
	Total clinic visits per patient over 6-month period	Received usual home health care services plus nurse care management	Number of visits		16.33	57	14.96	0.26
		Received home telehealth plus nurse care management	Number of visits		14.51	47	14.83	1.000/0.958 (Baseline to final/ between groups)
	Urgent visits per patient over 6-month period	Received usual home health care services plus nurse care management	Number of visits		5.59	57	5.69	0.902
		Received home telehealth plus nurse care management	Number of visits		7.27	47	5.39	0.023/0.798 (Baseline to final/ between groups)
	RN home visits per patient over 6-month period	Received usual home health care services plus nurse care management	Number of visits		1.82	57	1.81	0.979
		Received home telehealth plus nurse care management	Number of visits		2.53	47	2	0.512/0.848 (Baseline to final/ between groups)
	Diabetic A1c levels at 6 months	Received usual home health care services plus nurse care management	Diabetic A1c test units		7.03	28	7.83	0.002
		Received home telehealth plus nurse care management	Diabetic A1c test units		8.3	23	7.3	0.0001/0.225 (Baseline to final/ between groups)

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Quality-of-life measure: Cognitive status at 12 months	Received usual home health care services plus nurse care management	Test units		19.42	14	19.43	0.635
		Received home telehealth plus nurse care management	Test units		19.31	8	20	0.095/0.006 (Baseline to final/ between groups)
	Quality-of-life measure: Functional level at 12 months	Received usual home health care services plus nurse care management	Test units		40.19	14	38.29	0.417
		Received home telehealth plus nurse care management	Test units		37.02	8	37.63	0.107/0.799 (Baseline to final/ between groups)
	Quality-of-life: Patient satisfaction at 12 months	Received usual home health care services plus nurse care management	Test units		98.7	14	95.57	0.004
		Received home telehealth plus nurse care management	Test units		103.55	8	109.75	0.427/0.0125 (Baseline to final/ between groups)
	Quality-of-life: Self-rated health status at 12 months	Received usual home health care services plus nurse care management	Test units		84.86	14	82.21	0.15
		Received home telehealth plus nurse care management	Test units		81.32	8	88	0.110/0.506 (Baseline to final/ between groups)
	Average/participant health care cost	Received usual home health care services plus nurse care management	US dollars			57		

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Received home telehealth plus nurse care management	US dollars			47		
Ojima, 2003[57]	Periodontal inflammation	Control (face-to-face tooth brushing instructions & telephone followup	Index of			NR		
		In addition to control activities utilized a Web-based instructional system				NR		<0.05
	Plaque accumulation	Control (face-to-face tooth brushing instructions & telephone followup	Index of			NR		
		In addition to control activities utilized a Web-based instructional system				NR		<0.05
	Gingival inflammation	Control (face-to-face tooth brushing instructions & telephone followup	Index of inflammation			NR		
		In addition to control activities utilized a Web-based instructional system				NR		<0.05
	Oral hygiene	Control (face-to-face tooth brushing instructions & telephone followup	Index of hygiene			NR		

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		In addition to control activities utilized a Web-based instructional system				NR		<0.05
Parati, 2009[58]	% with daytime BP normalization	Usual care		111		111	50	
		Teletransmitted home BP		187		187	62	
	Frequency of treatment changes	Usual care		111		111	14	
		Teletransmitted home BP		187		187	9	
	Quality of life at end of study per QOL assessment in HTN patient's questionnaire	Usual care		111		111		
		Teletransmitted home BP		187		187	33.8-43.0	
	Health care costs	Usual care	US dollars	111		111		
		Teletransmitted home BP	US dollars	187		187	96.92-159.90	
Phillips, 2001[59]	Depression	Standard care	Score		18	39	8	
		Video consultation with a nurse	Score		19	36	17	
		Telephone consultation with a nurse	Score		16	36	9	
	Quality of well-being	Standard care	Score		0.49	39	0.48	
		Video consultation with a nurse	Score		0.5	36	0.53	
		Telephone consultation with a nurse	Score		0.48	36	0.54	
	Quality of life							
	Annual hospital days	Standard care	Total number of hospital days/ time in the study			39		
		Video consultation with a nurse	Total number of hospital days/ time in the study			36		
		Telephone consultation with a nurse	Total number of hospital days/ time in the study			36		
Piette, 2000[60]	Depression	Usual care				NR	17.6	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Biweekly ATDM calls with telephone followup	Score			NR	13.7	
	Anxiety	Usual care				NR	3.7	
		Biweekly ATDM calls with telephone followup				NR	3.8	
	Self-efficacy	Usual care				NR	4.2	
		Biweekly ATDM calls with telephone followup				NR	4.5	
	Days in bed because of illness	Usual care				NR	1	
		Biweekly ATDM calls with telephone followup				NR	0.5	
	Days cut down on activities because of illness	Usual care				NR	1.8	
		Biweekly ATDM calls with telephone followup				NR	1.5	
	Diabetes-specific HRQL: Summary scale	Usual care				NR	2.1	
		Biweekly ATDM calls with telephone followup				NR	2.1	
	Satisfaction with care (summary scale)	Usual care				NR	3.3	
		Biweekly ATDM calls with telephone followup				NR	3.5	
	General HRQL: Physical functioning	Usual care				NR	52.7	
		Biweekly ATDM calls with telephone followup				NR	58.5	
	General HRQL: Role limitations (physical)	Usual care				NR	49.3	
		Biweekly ATDM calls with telephone followup				NR	46	
	General HRQL: Social functioning	Usual care				NR	69.3	
		Biweekly ATDM calls with telephone followup				NR	76.2	
	General HRQL:	Usual care				NR	74.3	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Bodily pain	Biweekly ATDM calls with telephone followup				NR	60.2	
	General HRQL: Role limitations (mental)	Usual care				NR	74.3	
		Biweekly ATDM calls with telephone followup				NR	80.3	
	General HRQL: General health perceptions	Usual care				NR	42.4	
		Biweekly ATDM calls with telephone followup				NR	46.1	
Poller, 2008[61]	Incidence of clinical events adjudicated	Manual dosage administration	Events per 100 patient-yrs			463	463	
		Computer assisted dosage	Events per 100 patient-yrs			420	420	
	Minor bleeds	Manual dosage administration	Events per 100 patient-yrs			245	245	
		Computer-assisted dosage	Events per 100 patient-yrs			211	211	
	Major bleeds	Manual dosage administration	Events per 100 patient-yrs			85	85	
		Computer-assisted dosage	Events per 100 patient-yrs			73	73	
	Thrombotic events	Manual dosage administration	Events per 100 patient-yrs			85	85	
		Computer-assisted dosage	Events per 100 patient-yrs			84	84	
	Deaths	Manual dosage administration	Events per 100 patient-yrs			48	48	
		Computer-assisted dosage	Events per 100 patient-yrs			52	52	
	Adjudicated as non-events	Manual dosage administration	Events per 100 patient-yrs			33	33	
		Computer-assisted dosage	Events per 100 patient-yrs			37	37	
	Tir	Manual dosage administration	%	65				
		Computer-assisted dosage	%	65.7				

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
Poller, 2008[62]	Time in target INR	Medical staff dosage		6503		6447	64.7	0.001
		Computer-assisted oral anticoagulant dosage		6716		6605	65.9	0.001
Priebe, 2007[63]	Subjective quality of life	Treatment as usual	Manchester Short Assessment of quality of life	4.74		4.72	0.04	
		New computer-mediated intervention structuring patient-clinician dialogue	Manchester Short Assessment of Quality of Life	4.86		4.87	0.04	
Proudfoot, 2004[64]	Beck Depression Inventory	Treatment as usual	Score: mean (SD)	146		92	16.2	0.0006
		Computerized	Score: mean (SD)	128		85	11.6	0.0006
	Beck Anxiety Inventory	Treatment as usual	Score: mean (SD)	146		92	12.8	0.06
		Computerized	Score: mean (SD)	128		85	10.6	0.06
	Work and Social Adjustment scale	Treatment as usual	Score: mean (SD)	146		92	13.4	0.002
		Computerized	Score: mean (SD)	128		85	10.0	0.002
	ASQ, coneg	Treatment as usual	Score: mean (SD)	146		92	84.1	
		Computerized	Score: mean (SD)	128		85	73.7	<0.001
	ASQ, copos	Treatment as usual	Score: mean (SD)	146		92	82.8	<0.008
		Computerized	Score: mean (SD)	128		85	87.6	<0.008
Quinn, 2008[65]	A1c mean	Control group		13	9.05	13	8.37	
		Well-Doc intervention		13	9.51	13	7.48	0.04
	Medication intensified	Control group	%	13		13	23.08	
		Well-Doc intervention	%	13		13	84.62	0.002
	Medication errors identified	Control group	%	13		13	0	
		Well-Doc intervention	%	13		13	53.38	0.002
	Physician received logbook	Control group	%	13		13	7.69	
		Well-Doc intervention	%	13		13	100	<0.001

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	New diagnosis depression	Control group	%	13		13	20	
		Well-Doc intervention	%	13		13	9.09	0.37
	Diet diabetes self-care	Control group	Mean days per week	13	3.15	13	3.86	
		Well-Doc intervention	Mean number of days per week	13	3.15	13	5.5	0.036
	Medications diabetes self-care	Control group	Mean days per week	13	6.3	13	6.75	
		Well-Doc intervention	Mean number of days per week	13	5.92	13	6.64	0.495
	Exercise diabetes self-care	Control group	Mean days per week	13	1.23	13	1.57	
		Well-Doc intervention	Mean number of days per week	13	2.08	13	2.92	0.657
	Improved knowledge of food (self-reported)	Control group	%	13		13	50	
		Well-Doc intervention	%	13		13	90.91	0.062
	Provider management improved	Control group	%	13		13	37.5	
		Well-Doc intervention	%	13		13	100	0.004
	Patient confidence	Control group	%	13		13	75	
		Well-Doc intervention	%	13		13	100	0.167
	Prior to study, patient remembers logbook or glucometers for physician visit	Control group	% Yes			13	0	
		Well-Doc intervention	% Yes			13	7.69	0.5
	Patient self-management skills improved	Control group	% Yes			13	15.38	
		Well-Doc intervention	% Yes			13	100	<0.001
	Physician received data to manage patient's diabetes	Control group	% Yes			13	7.69	
		Well-Doc intervention	% Yes			13	100	<0.001
	Physician received more patient data	Control group	% yes			13	23.08	
		Well-Doc intervention	% Yes			13	100	0.001
Raebel, 2007[66]	Proportion of pregnant women dispensed a category D or X medication	No Intervention	Dispensings of category D or X medications			5025	5.5	<0.001

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Computerized tool that alerted pharmacists when pregnant patients were prescribed U.S. Food and Drug Administration pregnancy risk category D or Xmedications	Dispensings of category D or X medications			6075	2.9	<0.001
Ralston, 2009[67]	Mean GHb (%)	Usual care	GHb level	41	7.9	35	8.1	
		Web-based care management	GHb level	42	8.2	39	7.3	0.12/0.01/<0.01
	GHb<7%	Usual care	GHb level	41	0	35	11	
		Web-based care management	GHb level	42	0	39	33	/0.03/0.03
	Outpatient visits	Usual care	Number of times visited	41	10.3	35	8.2	
		Web-based care management	Number of visits	42	9.6	39	10.2	0.71/0.36/0.18
	Primary care provider visits	Usual care	Number of times visited	41	3.3	35	3.1	
		Web-based care management	Number of visits	42	4.3	39	4.3	0.15/0.16/0.76
	Specialty physician visits	Usual care	Number of times visited	41	7	35	5.1	
		Web-based care management	Number of visits	42	5.3	39	5.9	.3/.66/.14
	Inpatient days	Usual care	Number of inpatient days	41	0.7	35	0.4	
		Web-based care management	Number of visits	42	0.3	39	0.5	0.31/0.77/0.32
Ross, 2004[68]	Kansas City Cardiomyopathy Questionnaire: Self-efficacy score	Usual care	Score unit	43	83		85	0.08

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Participants in the intervention group were given a user identification and password to SPPARO in order to access electronic hospital records		38	86		91	
	Symptom stability	Usual care	Score unit	43	49		46	0.01
		Participants in the intervention group were given a user identification and password to SPPARO in order to access electronic hospital records		38	49		63	
	Quality of life	Usual care	Score unit	43	56		62	0
		Participants in the intervention group were given a user identification and password to SPPARO in order to access electronic hospital records		38	56		64	
	Functional status	Usual care	Score unit	43	66		70	0
		Participants in the intervention group were given a user identification and password to SPPARO in order to access electronic hospital records		38	66		67	
	Clinical summary	Usual care	Score unit	43	64		66	0

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Participants in the intervention group were given a user identification and password to SPPARO in order to access electronic hospital records		38	64		69	
	Physical limitations	Usual care	Score unit	43	66		73	0
		Participants in the intervention group were given a user identification and password to SPPARO in order to access electronic hospital records						
Roumie, 2006[69]	Systolic blood pressure	Control group providers received only the e-mail message	mm Hg	255	157.3		145	0
		Intervention group providers received e-mail message and alert		362	158		146	
	Systolic blood pressure	Control group providers received only the e-mail message	mm Hg	255	157.3		145	0
		Intervention group providers received e-mail message and alert		358	156.3		138	
	Systolic blood pressure <=140	Control group providers received only the e-mail message	% of patients	255			40.9	**SNR

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Intervention group providers received e-mail message and alert		362			42	
	Dose increased	Control group providers received only the e-mail message	% of patients	255			13	0.07
		Intervention group providers received e-mail message and alert		362			9.1	
	Drug added	Control group providers received only the e-mail message	% of patients	255			15.7	0
		Intervention group providers received e-mail message and alert		362			15.4	
	Both increased dose and drug added	Control group providers received only the e-mail message	% of patients	255			3.7	0
		Intervention group providers received e-mail message and alert		362			4	
	Systolic blood pressure <=140	Control group providers received only the e-mail message	% of patients	255			40.9	**SNR
		Intervention group providers received e-mail message and alert		358			59.5	
	Dose increased	Control group providers received only the e-mail message	% of patients	255			13	0.07

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Intervention group providers received e-mail message and alert		358			8.7	
	Drug added	Control group providers received only the e-mail message	% of patients	255			15.7	0
		Intervention group providers received e-mail message and alert		358			17.5	
	Both increased dose and drug added	Control group providers received only the e-mail message	% of patients	255			3.7	0
		Intervention group providers received e-mail message and alert		358			3	
Ruland, 2003[70]	Congruence between patient-reported symptoms and those addressed in consult visit	Usual care				NR	2.84	
		Used computerized system for SDM for cancer symptoms care				NR	7.63	<0.01
	Ease of use	Used computerized system for SDM for cancer symptoms care	Composite score (range -16 to +16)			NR	5.06	
Scherr, 2009[71]	Improvement in New York Heart Association class improvement	Pharmacological treatment for chronic heart failure		54				<0.001
		Pharmacological treatment for chronic heart failure with telemedical surveillance		54	3	54	2	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Ejection fraction	Pharmacological treatment for chronic heart failure	% Ejection fraction	54	29		35	NS
		Pharmacological treatment for chronic heart failure with telemedical surveillance		54	25		35	
Schnipper, 2009[72]	All potential adverse drug events (PADEs)	Usual care	PADEs, n (per Patient)	160		160	1.44	
		IT application designed to facilitate medication reconciliation, integrated into the internally developed CPOE systems	PADEs, n (per Patient)	162		162	1.05	
	PADEs by type of error: History errors	Usual care	PADEs, n (per Patient)	160		160	0.96	
		IT application designed to facilitate medication reconciliation, integrated into the internally developed CPOE systems	PADEs, n (per Patient)	162		162	0.77	
	PADEs by type of error: Reconciliation errors	Usual care	PADEs, n (per Patient)	160		160	0.5	
		IT application designed to facilitate medication reconciliation, integrated into the internally developed CPOE systems	PADEs, n (per Patient)	162		162	0.32	
	PADEs by time of	Usual care	PADEs, n (per Patient)	160		160	0.31	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	occurrence: At admission	IT application designed to facilitate medication reconciliation, integrated into the internally developed CPOE systems	PADEs, n (per Patient)	162		162	0.27	
	PADEs by time of occurrence: At discharge	Usual care	PADEs, n (per Patient)	160		160	1.13	
		IT application designed to facilitate medication reconciliation, integrated into the internally developed CPOE systems	PADEs, n. (per Patient)	162		162	0.78	
Shea, 2007 [73]	Mean HbA1c level	Usual care	% of HbA1c	821	7.42		7.17	0.006
		Intervention group patients received home telemedicine unit		844	7.35		6.97	
	HbA1c in subgroup with HbA1c >7% at baseline	Usual care		821	8.52		7.78	0.002
		Intervention group patients received home telemedicine unit		844	8.35		7.42	
Shiffman, 2000 [74]	PEFR measurements	Control phase	Rate			NR	1.6	
		Intervention phase (guideline recommendations)				NR	2.2	
	Oxygen saturation measurements	Control phase				NR	0.48	
		Intervention phase (guideline recommendations)				NR	1.1	
	Nebulization	Control phase				NR	0.77	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	treatments	Intervention phase (guideline recommendations)				NR	1.2	
	Presentation to discharge: Improved	Control phase	% (n)			39		
		Intervention phase (guideline recommendations)				41	43	
	Presentation to discharge: No change	Control phase	% (n)			51		
		Intervention phase (guideline recommendations)				30		
	Presentation to discharge: Immediate disposition home	Control phase	% (n)			88		
		Intervention phase (guideline recommendations)				73		
	Presentation to discharge: ED/direct hospitalization	Control phase				2		
		Intervention phase (guideline recommendations)				1		
	1-week followup: Missed school	Control phase				37	44	
		Intervention phase (guideline recommendations)				33	48	
	1-week followup: Missed school--Average days missed	Control phase					1.29	
		Intervention phase (guideline recommendations)					1.04	
	1-week followup: Missed work	Control phase				20	24	
		Intervention phase (guideline recommendations)				16	23	
	1-week followup: Missed work--Average days missed	Control phase						
		Intervention phase (guideline recommendations)					0.46	
	1-week followup: Office revisit	Control phase				25	30	
		Intervention phase (guideline recommendations)				18	26	
	1-week followup: ED	Control phase				5	6	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	visits	Intervention phase (guideline recommendations)				0		
	1-week followup: Hospitalization	Control phase				4		
		Intervention phase (guideline recommendations)				0		
Smith, 2008[75]	HbA1c <7%	No virtual consultation	% of patients			358	56	0.60
		Virtual consultation for diabetes care				277	53	
	LDL-C <130mg/dL	No virtual consultation	% of patients			358	82	0.045
		Virtual consultation for diabetes care				277	76	
	LDL-C <100mg/dL	No virtual consultation	% of patients			358	50	0.70
		Virtual consultation for diabetes care				277	51	
	Blood pressure <130/80 mm Hg	No virtual consultation	% of patients			358	46	0.11
		Virtual consultation for diabetes care				277	41	
	Oral agent only	No virtual consultation	% of patients			358	46	0.99
		Virtual consultation for diabetes care				277	46	
	Insulin	No virtual consultation	% of patients			358	37	0.59
		Virtual consultation for diabetes care				277	39	
	Metformin	No virtual consultation	% of patients			358	46	0.34
		Virtual consultation for diabetes care				277	49	
	Aspirin	No virtual consultation	% of patients			358	52	0.001
		Virtual consultation for diabetes care				277	66	
	ACE inhibitor/	No virtual consultation	% of patients			358	56	0.14

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Virtual consultation for diabetes care				277	54	
	Statins	No virtual consultation	% of patients			358	46	0.58
		Virtual consultation for diabetes care				277	48	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
Subramanian, 2004[77]	Short Form-36: Physical component scale (change enrollment to 12 months)	Control group physicians received care suggestions generated with electronic medical record data alone	Score unit	365			1.3	0.03
		Intervention group physicians received care suggestions generated with electronic medical record data and symptom data obtained from questionnaires mailed to patients within 2 weeks of scheduled outpatient visits		355			-0.6	
	Short Form-36: Mental component scale (change enrollment to 12 months)	Control group physicians received care suggestions generated with electronic medical record data alone	Score unit	365			2.1	0.06

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Intervention group physicians received care suggestions generated with electronic medical record data and symptom data obtained from questionnaires mailed to patients within 2 weeks of scheduled outpatient visits		355			3.7	
Taenzer, 2000[78]	Physical functioning (higher score indicate better function)	Lung cancer patients in the control group completed a paper-and-pencil version of the EORTC QLQ only	Score unit	26			76.9	<0.05
		Lung cancer patients in the intervention group had physicians and nurses received quality-of-life training and who completed the computerized European Organization for Research and Treatment of Cancer Questionnaire (EORTC QLQ)		27			60	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Role functioning (higher scores indicate better function)	Lung cancer patients in the control group completed a paper-and-pencil version of the EORTC QLQ only	Score unit	26			84.6	0
		Lung cancer patients in the intervention group had physicians and nurses received quality-of-life training and who completed the computerized European Organization for Research and Treatment of Cancer Questionnaire (EORTC QLQ)		27			55.6	
	Emotional functioning (higher scores indicate better function)	Lung cancer patients in the control group completed a paper-and-pencil version of the EORTC QLQ only	Score unit	26			76.3	0

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Lung cancer patients in the intervention group had physicians and nurses received quality-of-life training and who completed the computerized European Organization for Research and Treatment of Cancer Questionnaire (EORTC QLQ)		27			75.9	
	Cognitive functioning (higher scores indicate better function)	Lung cancer patients in the control group completed a paper-and-pencil version of the EORTC QLQ only	Score unit	26			81.4	0
		Lung cancer patients in the intervention group had physicians and nurses received quality-of-life training and who completed the computerized European Organization for Research and Treatment of Cancer Questionnaire (EORTC QLQ)		27			80.3	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Social functioning (higher scores indicate better function)	Lung cancer patients in the control group completed a paper-and-pencil version of the EORTC QLQ only	Score unit	26			78.9	0
		Lung cancer patients in the intervention group had physicians and nurses received quality-of-life training and who completed the computerized European Organization for Research and Treatment of Cancer Questionnaire (EORTC QLQ)		27			74	
	Global functioning (higher scores indicate better function)	Lung cancer patients in the control group completed a paper-and-pencil version of the EORTC QLQ only	Score unit	26			64.7	0

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Lung cancer patients in the intervention group had physicians and nurses received quality-of-life training and who completed the computerized European Organization for Research and Treatment of Cancer Questionnaire (EORTC QLQ)		27			52.8	
	Number of functional scales indicating compromised function	Lung cancer patients in the control group completed a paper-and-pencil version of the EORTC QLQ only	Number of scales	26			3	0
		Lung cancer patients in the intervention group had physicians and nurses received quality-of-life training and who completed the computerized European Organization for Research and Treatment of Cancer Questionnaire (EORTC QLQ)		27			3.6	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Fatigue (higher scores indicate more symptomatology)	Lung cancer patients in the control group completed a paper-and-pencil version of the EORTC QLQ only	Score unit	26			28.6	0
		Lung cancer patients in the intervention group had physicians and nurses received quality-of-life training and who completed the computerized European Organization for Research and Treatment of Cancer Questionnaire (EORTC QLQ)		27			41.2	
	Nausea and vomiting (higher scores indicate more symptomatology)	Lung cancer patients in the control group completed a paper-and-pencil version of the EORTC QLQ only	Score unit	26			9	0

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Lung cancer patients in the intervention group had physicians and nurses received quality-of-life training and who completed the computerized European Organization for Research and Treatment of Cancer Questionnaire (EORTC QLQ)		27			8.6	
	Pain (higher scores indicate more symptomatology)	Lung cancer patients in the control group completed a paper-and-pencil version of the EORTC QLQ only	Score unit	26			15.4	<0.05
		Lung cancer patients in the intervention group had physicians and nurses received quality-of-life training and who completed the computerized European Organization for Research and Treatment of Cancer Questionnaire (EORTC QLQ)		27			26.5	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Dyspnea (higher scores indicate more symptomatology)	Lung cancer patients in the control group completed a paper-and-pencil version of the EORTC QLQ only	Score unit	26			34.6	0
		Lung cancer patients in the intervention group had physicians and nurses received quality-of-life training and who completed the computerized European Organization for Research and Treatment of Cancer Questionnaire (EORTC QLQ)		27			51.9	
	Sleep disturbance (higher scores indicate more symptomatology)	Lung cancer patients in the control group completed a paper-and-pencil version of the EORTC QLQ only	Score unit	26			24.4	0

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Lung cancer patients in the intervention group had physicians and nurses received quality-of-life training and who completed the computerized European Organization for Research and Treatment of Cancer Questionnaire (EORTC QLQ)		27			29.6	
	Appetite (higher scores indicate more symptomatology)	Lung cancer patients in the control group completed a paper-and-pencil version of the EORTC QLQ only	Score unit	26			19.2	0
		Lung cancer patients in the intervention group had physicians and nurses received quality-of-life training and who completed the computerized European Organization for Research and Treatment of Cancer Questionnaire (EORTC QLQ)		27			25.9	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Constipation (higher scores indicate more symptomatology)	Lung cancer patients in the control group completed a paper-and-pencil version of the EORTC QLQ only	Score unit	26			18	0
		Lung cancer patients in the intervention group had physicians and nurses received quality-of-life training and who completed the computerized European Organization for Research and Treatment of Cancer Questionnaire (EORTC QLQ)		27			19.8	
	Diarrhea (higher scores indicate more symptomatology)	Lung cancer patients in the control group completed a paper-and-pencil version of the EORTC QLQ only	Score unit	26			5.1	0

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Lung cancer patients in the intervention group had physicians and nurses received quality-of-life training and who completed the computerized European Organization for Research and Treatment of Cancer Questionnaire (EORTC QLQ)		27			2.5	
	Financial difficulties (higher scores indicate more symptomatology)	Lung cancer patients in the control group completed a paper-and-pencil version of the EORTC QLQ only	Score unit	26			18	0
		Lung cancer patients in the intervention group had physicians and nurses received quality-of-life training and who completed the computerized European Organization for Research and Treatment of Cancer Questionnaire (EORTC QLQ)		27			12.4	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Number of symptom scales indicating compromised functioning	Lung cancer patients in the control group completed a paper-and-pencil version of the EORTC QLQ only	Number of scales	26			4	0
		Lung cancer patients in the intervention group had physicians and nurses received quality-of-life training and who completed the computerized European Organization for Research and Treatment of Cancer Questionnaire (EORTC QLQ)		27			4.6	
	Number of functional and symptom scales indicating compromised function	Lung cancer patients in the control group completed a paper-and-pencil version of the EORTC QLQ only	Number of scales	26			7.1	0

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Lung cancer patients in the intervention group had physicians and nurses received quality-of-life training and who completed the computerized European Organization for Research and Treatment of Cancer Questionnaire (EORTC QLQ)		27			8.2	
	Total number of items endorsed	Lung cancer patients in the control group completed a paper-and-pencil version of the EORTC QLQ only	Number of items	26			10.6	0
		Lung cancer patients in the intervention group had physicians and nurses received quality-of-life training and who completed the computerized European Organization for Research and Treatment of Cancer Questionnaire (EORTC QLQ)		27			13.1	
Tamblyn, 2003[79]	New potentially	Usual care				53		

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	inappropriate prescriptions per 1000 visits	CDS provides information on all medications prescribed and potential problems				54		
	Rate of discontinuation of inappropriate prescriptions	Usual care				53		
		CDS provides information on all medications prescribed and potential problems				54		
	Therapeutic duplication by study physician and another	Usual care				53		
		CDS provides information on all medications prescribed and potential problems				54		
	Drug interaction caused by study physician	Usual care				53		
		CDS provides information on all medications prescribed and potential problems				54		
Tate, 2001[80]	Body Weight loss 3/6 months	Weight loss program: Internet education	kg	45	1.7	35	1.6	
		Weight loss program: Internet behavior therapy	kg	46	4	36	4.1	
	Waist circumference reduction 3/6months	Weight loss program: internet education	cm	45	3	35	3.1	
		Weight loss program: Internet behavior therapy	cm	46	6.7	36	6.4	
	Daily dietary intake	Weight loss program: internet education	kcal	45	1757	35	1256	
		Weight loss program: Internet behavior therapy	kcal	46	1558	36	1062	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Weekly physical activity	Weight loss program: internet education	cal	45	1031	35	1500	
		Weight loss program: Internet behavior therapy	kcal	46	1360	36	1903	
Tate, 2006[81]	Dietary intake	Web site + no counseling	kcal/day, baseline/3months/6months	67	1869.7	59	1603.5	
		Web site + e-mail counseling	kcal/day, baseline/3months/6months	64	2042.6	52	1484.3	
		Web site + computer-automated tailored counseling	kcal/day, baseline/3months/6months	61	1911.6	44	1488.7	
	Fat intake	Web site + no counseling	%/day, baseline/3months/6months	67	38.4	59	37.3	
		Web site + e-mail counseling	%/day, baseline/3months/6months	64	38.8	52	33.1	
		Web site + computer-automated tailored counseling	%/day, baseline/3months/6months	61	37.5	44	34	
	Physical activity	Web site + no counseling	kcal/week, baseline/3months/6months	67	1188.7	59	1064.4	
		Web Site+ e-Mail Counseling	kcal/week, baseline/3months/6months	64	1283.9	52	1377.1	
		Web site + computer-automated tailored counseling	Kcal/wk, baseline/3months/6months	61	1210.9	44	1335.1	
Taylor, 2006[82]	Continuous positive airway pressure (CPAP) use	Traditional care	Mean			NR	4.22	0.87
		Telemedicine support	Mean			NR	4.29	0.87
	Proportion of nights with CPAP	Traditional care	Mean proportion			NR	50	0.61
		Telemedicine support	Mean proportion			NR	47	0.61
	Functional status	Traditional care	Mean			NR	2.27	0.76
		Telemedicine support	Mean			NR	2.03	0.76
	Client satisfaction	Traditional care	Mean			NR	28.0	0.43

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Telemedicine support	Mean			NR	28.5	0.43
Taylor, 2008[83]	Quality of asthma documentation: Chest auscultation	PD	Yes or no		26	96		
		Electronic interface	Yes or no		23	100	0.35	
	Quality of asthma documentation: Peak expiratory flow	PD	Yes or no		14	52		
		Electronic interface	Yes or no		19	82	0.02	
	Quality of asthma documentation: Ability to verbalize	PD	Yes or no		16	59		
		Electronic interface	Yes or no		22	95	0.03	
	Quality of asthma documentation: Asthma severity	PD	Yes or no		17	63		
		Electronic interface	Yes or no		23	100	<0.01	
	Quality of asthma documentation: Smoking cessation advice	PD	Yes or no		8	29		
		Electronic interface	Yes or no		22	95	<0.01	
	Quality of asthma documentation: Asthma management plan	PD				15	55	
		Electronic interface	Yes or no		23	100	<0.01	
	Quality of asthma documentation: oral corticosteroid prescription	PD				16	59	
		Electronic interface	Yes or no		20	87	0.03	
	Quality of asthma documentation: Precipitating factors	PD				26	96	
		Electronic interface	Yes or no			23	100	0.35
	Quality of asthma documentation: Previous intensive care admissions	PD				16	59	
		Electronic interface	Yes or no			23	100	0.01
	Quality of asthma documentation: Oxygen saturations	PD				22	81	
		Electronic interface	Yes or no			21	91	0.32
	Consultation times	PD						
		Electronic interface	Median times in minutes					0.04

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
Thomas, 2004[84]	GHQ-12 score analyzed as a continuous variable or GHQ score	Control patients were treated as usual with access to locally agreed guidelines		397	21.6	301	14.5	
		Computer-generated patient-specific guidelines group		365	21.1	244	14.2	p=0.61
	Patient satisfaction	Control patients were treated as usual with access to locally agreed guidelines		387	4.7	299	6.2	
		Computer-generated patient-specific guidelines group		358	4.8	243	6.4	0.52
Thomas, 2007[85]	Number of patients who had HgbA1c monitoring within 6 months	Diabetes care outcomes in the control group				111	48.1	
		Diabetes care outcomes in the intervention group (computerized diabetes registry)				155	61.5	0.01
	Numberof patients who had LDL cholesterol monitoring within 1 yr	Diabetes care outcomes in the control group				148	64.1	
		Diabetes care outcomes in the intervention group (computerized diabetes registry)				191	75.8	0.02
	Mean HbA1c	Diabetes care outcomes in the control group	HgbA1c <7.0%		7.4	135	7.4	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Diabetes care outcomes in the intervention group (computerized diabetes registry)	HgbA1c <7.0%		7.3	156	7.3	0.13/0.38/0.83
	Mean LDL cholesterol	Diabetes care outcomes in the control group	LDL <100 mg/dl		101.6	141	97.5	
		Diabetes care outcomes in the intervention group (computerized diabetes registry)	LDL <100 mg/dl		103.6	152	98.4	0.14/0.60/0.61
	Mean systolic BP	Diabetes care outcomes in the control group	BP <130/85 mm Hg		129.1	116	130.8	
		Diabetes care outcomes in the intervention group (computerized diabetes registry)	BP <130/85 mm Hg		131.5	126	131	0.20/0.93
	Mean diastolic BP	Diabetes care outcomes in the control group			72.01	116	71.7	
		Diabetes care outcomes in the intervention group (computerized diabetes registry)	BP <130/85 mm Hg		72.6	126	72.4	0.79/0.64
Tierney, 2003[86]	Patients with any cardiac care suggestion	No intervention	% of suggestions that were complied with			163	22	
		Physician intervention	% of suggestions that were complied with			174	23	
	Patients with suggestions regarding starting or increasing an ACE inhibitor	No intervention	% of suggestions that were complied with			107	36	
		Physician intervention	% of suggestions that were complied with			109	38	
	Patients with suggestions	No intervention	% of suggestions that were complied with			82	1	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	regarding a pneumococcal vaccination	Physician intervention	% of suggestions that were complied with			104	10	
	Patients with suggestions regarding starting or increasing a beta blocker	No intervention	% of suggestions that were complied with			83	12	
		Physician intervention	% of suggestions that were complied with			96	16	
	Patients with suggestions regarding starting low-dose aspirin	No intervention	% of suggestions that were complied with			81	28	
		Physician intervention	% of suggestions that were complied with			74	24	
	Patients with suggestions regarding starting or increasing a diuretic	No intervention	% of suggestions that were complied with			73	27	
		Physician intervention	% of suggestions that were complied with			71	24	
	Patients with suggestions regarding starting or increasing a long-acting nitrate	No intervention	% of suggestions that were complied with			25	12	
		Physician intervention	% of suggestions that were complied with			30	20	
	Patients with suggestions regarding starting an antihyperlipidemic drug	No intervention	% of suggestions that were complied with			22	36	
		Physician intervention	% of suggestions that were complied with			22	32	
	Patients with suggestions regarding starting or increasing a calcium blocker	No intervention	% of suggestions that were complied with			17	59	
		Physician intervention	% of suggestions that were complied with			21	33	
	Physical function	No intervention	Short-form 36 subscale score			119	42	
		Physician intervention	Short-form 36 subscale score			142	36	
	Role physical	No intervention	Short-form 36 subscale score			119	53	
		Physician intervention	Short-form 36 subscale score			142	35	
	Pain	No intervention	Short-form 36 subscale score			119	53	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Physician intervention	Short-form 36 subscale score			142	47	
	General health	No intervention	Short-form 36 subscale score			119	42	
		Physician intervention	Short-form 36 subscale score			142	38	
	Vitality	No intervention	Short-form 36 subscale score			119	44	
		Physician intervention	Short-form 36 subscale score			142	40	
	Social function	No intervention	Short-form 36 subscale score			119	69	
		Physician intervention	Short-form 36 subscale score			142	65	
	Role emotional	No intervention	Short-form 36 subscale score			119	61	
		Physician intervention	Short-form 36 subscale score			142	61	
	Mental health	No intervention	Short-form 36 subscale score			119	63	
		Physician intervention	Short-form 36 subscale score			142	64	
	Overall health status	No intervention	Chronic heart disease questionnaire score			119	4.6	
		Physician intervention	Chronic heart disease questionnaire score			142	4.5	
	Dyspnea	No intervention	Chronic heart disease questionnaire score			119	5.2	
		Physician intervention	Chronic heart disease questionnaire score			142	5	
	Fatigue	No intervention	Chronic heart disease questionnaire score			119	4	
		Physician intervention	Chronic heart disease questionnaire score			142	3.8	
	Emotion	No intervention	Chronic heart disease questionnaire score			119	4.6	
		Physician intervention	Chronic heart disease questionnaire score			142	4.5	
	Number of all Emergency	No intervention	Number of all emergency department visits			181	1	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Department visits	Physician intervention	Number of all emergency department visits			197	1.1	
	Number of heart disease specific Emergency Department visits	No intervention	Number of heart disease specific emergency department visits			181	0.2	
		Physician intervention	Number of heart disease specific emergency department visits			197	0.2	
	Number of all hospitalizations	No intervention	Number of all hospitalizations			181	0.5	
		Physician intervention	Number of all hospitalizations			197	0.4	
	Number of heart disease-specific hospitalizations	No intervention	Number of heart disease specific hospitalizations			181	0.2	
		Physician intervention	Number of heart disease specific hospitalizations			197	0.2	
Tierney, 2005[87]	Quality of life: Physical function	Control (no intervention)				169	37	
		Pharmacist intervention				161	38	
		Physician intervention				194	38	
		Physician + pharmacist intervention				182	36	
	Quality of life: Role physical	Control (no intervention)				169	32	
		Pharmacist intervention				161	33	
		Physician intervention				194	32	
		Physician + pharmacist intervention				182	38	
	Quality of life: Pain	Control (no intervention)				169	44	
		Pharmacist intervention				161	47	
		Physician intervention				194	49	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Physician + pharmacist intervention	US dollars			182	48	
	Quality of life: General health	Control (no intervention)				169	34	
		Pharmacist intervention				161	29	
		Physician intervention				194	37	
		Physician + pharmacist intervention	US dollars			182	35	
	Quality of life: Vitality	Control (no intervention)				169	36	
		Pharmacist intervention				161	39	
		Physician intervention				194	37	
		Physician + pharmacist intervention				182	36	
	Quality of life; Social function	Control (no intervention)				169	63	
		Pharmacist intervention				161	63	
		Physician intervention				194	69	
		Physician + pharmacist intervention				182	61	
	Quality of life: Role emotional	Control (no intervention)				169	60	
		Pharmacist intervention				161	60	
		Physician intervention				194	65	
		Physician + pharmacist intervention				182	59	
	Quality of life: Mental health	Control (no intervention)				169	61	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Pharmacist intervention				161	62	
		Physician intervention				194	62	
		Physician + pharmacist intervention				182	50	
	Asthma qualify-of-life questionnaire subscales: Overall health status	Control (no intervention)				169	3.7	
		Pharmacist intervention				161	4.2	
		Physician intervention				194	4	
		Physician + pharmacist intervention				182	4.2	
	Asthma qualify-of-life questionnaire subscales: Activity	Control (no intervention)				169	3.9	
		Pharmacist intervention				161	4.6	
		Physician intervention				194	4.5	
		Physician + pharmacist intervention				182	4.4	
	Asthma qualify-of-life questionnaire subscales: Symptoms	Control (no intervention)				169	3.6	
		Pharmacist intervention				161	4	
		Physician intervention				194	4	
		Physician + pharmacist intervention				182	4.2	
	Asthma qualify-of-life questionnaire subscales: Emotion	Control (no intervention)				169	3.6	
		Pharmacist intervention				161	4.3	
		Physician intervention				194	3.8	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Physician + pharmacist intervention				182	4.4	
	Asthma qualify-of-life questionnaire subscales: Environment	Control (no intervention)				169	3.7	
		Pharmacist intervention				161	4.2	
		Physician intervention				194	3.9	
		Physician + pharmacist intervention				182	4	
	Medication adherence scores: Mean compliance score (Inui measure)	Control (no intervention)	%			169	80	
		Pharmacist intervention				161	80	
		Physician intervention				194	81	
		Physician + pharmacist intervention				182	82	
	Medication adherence scores: Mean compliance score (Morisky measure)	Control (no intervention)				169	0.88	
		Pharmacist intervention				161	0.85	
		Physician intervention				194	0.95	
		Physician + pharmacist intervention				182	0.89	
	Medication adherence scores: N (%) of subjects with prescription refills	Control (no intervention)	N (%)			96	87	
		Pharmacist intervention				89	81	
		Physician intervention				128	95	
		Physician + pharmacist intervention				109		
	Medication adherence scores:	Control (no intervention)	Mean ± SD			169	0.92	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Medication possession ratio	Pharmacist intervention				161	1	
		Physician intervention				194	0.98	
		Physician + pharmacist intervention				182	1.1	
	Patient satisfaction: Satisfaction with physician	Control (no intervention)				169	2.1	
		Pharmacist intervention				161	2	
		Physician intervention				194	1.9	
		Physician + pharmacist intervention				182	2.1	
	Patient satisfaction: Satisfaction with pharmacist	Control (no intervention)				169	2.1	
		Pharmacist intervention				161	2.1	
		Physician intervention				194	2.1	
		Physician + pharmacist intervention				182	2	
	Number of emergency department visits: All visits	Control (no intervention)				169	1.4	
		Pharmacist intervention				161	1.5	
		Physician intervention				194	1.4	
		Physician + pharmacist intervention				182	1.4	
	Number of emergency department visits: For reactive airways disease	Control (no intervention)				96	0.3	
		Pharmacist intervention				89	0.4	
		Physician intervention				128	0.3	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Physician + pharmacist intervention				109	0.4	
	Number of hospitalizations: All hospitalizations	Control (no intervention)				169	0.4	
		Pharmacist intervention				161	0.5	
		Physician intervention				194	0.5	
		Physician + pharmacist intervention				182	0.4	
	Number of hospitalizations: For reactive airways disease	Control (no intervention)				169	0.1	
		Pharmacist intervention				161	0.1	
		Physician intervention				194	0.1	
		Physician + pharmacist intervention				182	0.1	
	Direct health care charges: Outpatient charges	Control (no intervention)	US dollars			169	3,129	
		Pharmacist intervention	US dollars			161	2,814	
		Physician intervention	US dollars			194	3,142	
		Physician + pharmacist intervention				182	3,177	
	Direct health care charges: Inpatient charges	Control (no intervention)	US dollars			169	2,671	
		Pharmacist intervention	US dollars			161	2,519	
		Physician intervention	US dollars			194	4,864	
		Physician + pharmacist intervention				182	2,475	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Direct health care charges: Total health care charges	Control (no intervention)	US dollars			96	5,800	
		Pharmacist intervention	US dollars			89	5,333	
		Physician intervention	US dollars			128	8,006	
		Physician + pharmacist intervention	US dollars			109	5,652	
Verheijden, 2004[88]	Social support: Perceived support	Usual care	Baseline/Change after 4 months/Change after 8 months		5.7	73	-0.08	
		Web-based intervention--Heartweb	Baseline/Change after 4 months/Change after 8 months		5.7	73	0.11	
	Social support: Social network	Usual care	Baseline/Change after 4 months/Change after 8 months		3.5	73	0.04	
		Web-based intervention--Heartweb	Baseline/Change after 4 months/Change after 8 months		3.5	73	-0.06	
	Anthropometry: BMI	Usual care	Baseline/Change after 4 months/Change after 8 months		29.2	73	-0.21	
		Web-based intervention--Heartweb	kg/m^2 baseline/Change after 4 months/Change after 8 months		29.5	73	0.08	
	Anthropometry: Waist-to-hip ratio	Usual care	Baseline/Change after 4 months/Change after 8 months		0.92	73	-0.01	
		Web-based intervention--Heartweb	Baseline/Change after 4 months/Change after 8 months		0.91	73	-0.02	
	Systolic BlP	Usual care	mm Hg, baseline/Change after 4 months/Change after 8 months		136	73	-2.1	
		Web-based intervention--Heartweb	mm Hg, baseline/Change after 4 months/Change after 8 months		134	73	-0.4	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Diastolic BP	Usual care	mm Hg, baseline/ Cchange after 4 months/ change after 8 months		80	73	-1.4	
		Web-based intervention--Heartweb	mm Hg, baseline/Change after 4 months/Change after 8 months		81	73	-0.2	
	Total cholesterol	Usual care	mmol/l, baseline/Change after 4 months/Change after 8 months		5.4	73	-0.06	
		Web-based intervention--Heartweb	mmol/l, baseline/Change after 4 months/Change after 8 months		5.5	73	0.03	
	HDL cholesterol	Usual care	mmol/, baseline/Change after 4 months/Change after 8 months		1.47	73	0.02	
		Web-based intervention--Heartweb	mmol/l, baseline/Change after 4 months/Change after 8 months		1.56	73	0.04	
	LDL cholesterol	Usual care	mmol/l, baseline/ Change after 4 months/Change after 8 months		3.1	73	-0.1	
		Web-based intervention--Heartweb	mmol/l, baseline/Change after 4 months/Change after 8 months		3.2	73	0.06	
	Triglycerides	Usual care	mmol/l, baseline/Change after 4 months/Change after 8 months		1.9	73	-0.04	
		Web-based intervention--Heartweb	mmol/l, baseline/ Change after 4 months/Change after 8 months		1.9	73	-0.21	
Wakefield, 2008 [89]	Minnesota Living With Heart Failure score (higher score= worse quality of life)	Usual care	Score unit	42	60.6		56.6	0
		Patients in the intervention group received a videophone follow-up		33	60.2		54	
	Minn Living With	Usual care	Score unit	42	60.6		56.6	0

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Heart Failure score (higher score= worse quality of life)	Patients in the intervention group received a telephone follow-up		34	58.4		41.5	
	% mortality	Usual care	% of patients	49			22.4	0
		Patients in the intervention group received a videophone follow-up		52			28.9	
	Mortality	Usual care	% of patients	49			22.4	0
		Patients in the intervention group received a telephone follow-up		47			21.3	
Weber, 2008[90]	Average number of total medications	Usual care	Average number of total medications	207	7.46		7.62	
		Electronic medical record-based intervention	Average number of total medications	413	7.65		7.88	
	Patients on 8 or more medications	Usual care	%	207			44	
		Electronic medical record-based intervention	%	413			40	
Williamson, 2006[91]	Weight (kg) for adolescents	Internet-based control intervention				NR	6.3	
		Internet-based behavioral intervention program				NR	4.4	0.001
	BMI (kg/m²) for adolescents	Internet-based control intervention				NR	1.2	
		Internet-based behavioral intervention program				NR	0.73	0.04
	Body fat DXA (%) for adolescents	Internet-based control intervention				NR	0.84	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Internet-based behavioral intervention program				NR	-0.08	
	BMI %ile for dolescents	Internet-based control intervention				NR	-0.001	
		Internet-based behavioral intervention program				NR	-0.004	0.02
	Weight loss behavior for adolescents	Internet-based control intervention				NR		
		Internet-based behavioral intervention program				NR		0.0001
	Weight (kg) for parent	Internet-based control intervention				NR	-0.6	
		Internet-based behavioral intervention program				NR	-1.1	0.0001
	BMI (kg/m^2) for parent	Internet-based control intervention				NR	0.04	
		Internet-based behavioral intervention program				NR	-0.55	0.04
	BMI %ile for parent	Internet-based control intervention				NR	0.51	
		Internet-based behavioral intervention program				NR	0.36	
	BMI %ile for parent	Internet-based control intervention				NR	N/A	
		Internet-based behavioral intervention program				NR	N/A	0.0001

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Weight loss behavior for parent	Internet-based control intervention				NR		
		Internet-based behavioral intervention program				NR		0.0001
Womble, 2004[92]	Last observation carried forward in week 16	Participants received weight loss manual		24		24	3.6	0.05
		Participants received e-Diet		23		23	0.9	Not significant
	Last observation carried forward in week 52	Participants received weight loss manual		24		24	4	0.05
		Participants received e-Diet		23		23	1.1	Not significant
	Baseline carried forward in week 16	Participants received weight loss manual		24		24	3.2	
		Participants received e-Diet		23		23	0.9	0.01
	Baseline carried forward in week 52	Participants received weight loss manual		24		24	3.1	
		Participants received e-Diet		23		23	1.3	0.04
	Completers only in week 16	Participants received weight loss manual		31		31	4	Not significant
		Participants received e-Diet		31		31	1.3	Not significant
	Completers only in week 52	Participants received weight loss manual					4.4	Not significant
		Participants received e-Diet		31		31	2.1	Not significant
Yoon, 2008[93]	Effects of intervention on plasma glucose level: HbA1c %	Patients in the control group were not asked to access the Web		26	7.59		8.4	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Patients in the intervention group were asked to access a Web site by using a cellular phone or to access to the Internet and input their blood glucose levels weekly		25	8.09		6.77	
	Effects of intervention on plasma glucose level: FPG (mg/dl)	Patients in the control group were not asked to access the Web		26	142.2		168.9	
		Patients in the intervention group were asked to access a Web site by using a cellular phone or to access to the Internet and input their blood glucose levels weekly		25	151.5		14.8	
	Effects of intervention on plasma glucose level: 2HPMG (mg/dl)	Patients in the control group were not asked to access the Web		26	231.8		279.9	
		Patients in the intervention group were asked to access a Web site by using a cellular phone or to access to the Internet and input their blood glucose levels weekly		25	256.2		156.2	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
	Effects of intervention on total cholesterol (mg/dl)	Patients in the control group were not asked to access to the Web		26	171.1		200.35	
		Patients in the intervention group were asked to access a Web site by using a cellular phone or to access to the Internet and input their blood glucose levels weekly		25	179.8		176.7	
	Effects of intervention on triglycerides (mg/dl)	Patients in the control group were not asked to access to the Web		26	162.5		214.8	
		Patients in the intervention group were asked to access a Web site by using a cellular phone or to access to the Internet and input their blood glucose levels weekly		25	155.8		124.7	
	Effects of intervention on HDL-C (mg/dl)	Patients in the control group were not asked to access to the Web		26	45.1		51.9	

Evidence Table 10. All outcomes of studies addressing clinical outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n after Withdrawals)	Final Measure	P-value
		Patients in the intervention group were asked to access a Web site by using a cellular phone or to access to the Internet and input their blood glucose levels weekly		25	46.5		46.8	

ABPM = American Board of Preventive Medicine; ADE = adverse drug event; ASQ = attributional style questionnaire; ATDM = Asynchronous time-division multiplexing; BMI = body mass index; BP = blood pressure; CDS = computerized decision support; CDSMP = chronic disease self-management program; CDSS = computer-based decision support system; DSMP = disease self-management program; ECPR = electronic clinical patient record; EMR = electronic medical record; EORTC = European Organisation for Research and treatment of Cancer; HDL = high density lipoprotein; LDL = low density lipoprotein; PD = physician documentation; PHR = personal health record; QLQ = quality of life questionnaire; SD – standard deviation; UC = usual care

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Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
Benhamou, 2007[1]	Glycemia	mg/dl	Patients receiving weekly medical support through SMS based upon weekly review of glucose values vs. patients downloading self-monitored blood glucose (self-monitored blood glucose) values on a weekly basis without receiving SMS	30 30	162 166	167 160	5 -6	-11 -7	0.064
Cadario, 2007[2]	Median HbA1c percentage	Percentage of glycated hemoglobin	Glucobeeb, a Web-based tool to support the diabetes care vs. patients who did not use Glucobeeb	14 12	9.1 9.5	9.4 9.1	0.3 -0.4	-0.7 -0.3	0.03
	Median HbA1c percentage	Percentage of HbA1c	Glucobeeb, a Web-based tool to support the diabetes care vs. patients who did not use Glucobeeb	14 12	9.1 9.5	9.1 8.8	0 -0.7	-0.7 -0.3	0.01
Farmer, 2005[3]	Mean	Percentage	Group received	38	9.3	8.9	-0.4	-0.2	0

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	HbA1c level	of glycated hemoglobin	clinical advice from a diabetes special nurses in response to real-time blood glucose readings vs. patients who received minimal feedback from nurses	43	9.2	8.6	-0.6	-0.3	
	Proportion of transmitted blood glucose tests in the hypoglycemic range	Blood glucose tests	Group received clinical advice from a diabetes special nurses in response to real-time blood glucose readings vs. patients who received minimal feedback from nurses	38 43		3.5 5.3		0 1.8	0.0001
	Proportion	Percentage	Group received	38		8.7		0	**SNR

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	of participants achieving an HbA1c reduction of >=0.7% and an HbA1c <= 8.0% at 9 months	of patients with outcome	clinical advice from a diabetes special nurses in response to real-time blood glucose readings vs. patients who received minimal feedback from nurses	43		29.8		21.1	
Glasgow, 2000[4]	Physiologic outcomes: HbA1c	Percentage of HbA1c	Telephone follow-up vs. the basic intervention condition received by all participants involved a meeting with a health counselor at a central location and having specific dietary goals set with the aid of a multimedia touch-screen computer	67 75	7.6 7.3	7.4 7.3	-0.2 0	0.2 -0.1	0
	Physiologic	mg/dl	Telephone	67	210	206	-4	-5	0

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	outcomes: Total cholesterol		follow-up vs. the basic intervention condition received by all participants involved a meeting with a health counselor at a central location and having specific dietary goals set with the aid of a multimedia touch-screen computer	75	203	194	-9	-12	
	Physiologic	kg	Telephone	67	199	197	-2	0	0

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	outcomes: Weight		follow-up vs. the basic intervention condition received by all participants involved a meeting with a health counselor at a central location and having specific dietary goals set with the aid of a multimedia touch-screen computer	75	212	210	-2	13	
	Physiologic	No unit	Telephone	67	5.1	4.9	-0.2	-0.3	0

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	outcomes lipid ratio: Total/HDL		follow-up vs. The basic intervention condition received by all participants involved a meeting with a health counselor at a central location and having specific dietary goals set with the aid of a multimedia touch-screen computer	75	5.1	4.6	-0.5	-0.3	
	Quality of	Score unit	Telephone	67	25.7	26	0.3	0.1	0.058

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	life: Satisfaction outcomes--Diabetes intrusiveness		follow-up vs. the basic intervention condition received by all participants involved a meeting with a health counselor at a central location and having specific dietary goals set with the aid of a multimedia touch-screen computer	75	29.2	29.6	0.4	3.6	
	Physiologic	Percentage	Community	67	7.6	7.4	-0.2	0.1	0

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	outcomes: HbA1c	of HbA1c	resources vs. the basic intervention alone. The basic intervention condition received by all participants involved a meeting with a health counselor at a central location and having specific dietary goals set with the aid of a multimedia touch-screen computer	67	7.5	7.4	-0.1	0	
	Physiologic	mg/dl	Community	67	210	206	-4	4	0

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	outcomes: Total cholesterol		resources vs. basic intervention alone. The basic intervention condition received by all participants involved a meeting with a health counselor at a central location and having specific dietary goals set with the aid of a multimedia touch-screen computer	67	202	202	0	-4	
	Physiologic	kg	Community	67	199	197	-2	0	0

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	outcomes: Weight		resources vs. basic intervention alone. The basic intervention condition received by all participants involved a meeting with a health counselor at a central location and having specific dietary goals set with the aid of a multimedia touch-screen computer	67	219	217	-2	20	
	Physiologic	No unit	Community	67	5.1	4.9	-0.2	-0.5	0.017

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	outcomes lipid ratio: Total/HDL		resources vs. basic intervention alone. The basic intervention condition received by all participants involved a meeting with a health counselor at a central location and having specific dietary goals set with the aid of a multimedia touch-screen computer	67	5.2	4.5	-0.7	-0.4	
	Quality of	Score unit	Community	67	25.7	26	0.3	-0.7	0

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	life: Satisfaction outcomes--Diabetes intrusiveness		resources vs. basic intervention alone. The basic intervention condition received by all participants involved a meeting with a health counselor at a central location and having specific dietary goals set with the aid of a multimedia touch-screen computer	67	28.6	28.2	-0.4	2.2	
	Physiologic	Percentage	Telephone	67	7.6	7.4	-0.2	0.1	0

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	outcomes: HbA1c	of HbA1c	follow-up support and community resources vs. basic intervention. The basic intervention condition received by all participants involved a meeting with a health counselor at a central location and having specific dietary goals set with the aid of a multimedia touch-screen computer	68	7.6	7.5	-0.1	0.1	
	Physiologic	mg/dl	Telephone	67	210	206	-4	0	0

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	outcomes: Total cholesterol		follow-up support and community resources vs. Basic intervention. The basic intervention condition received by all participants involved a meeting with a health counselor at a central location and having specific dietary goals set with the aid of a multimedia touch-screen computer	68	205	201	-4	-5	
	Physiologic	kg	Telephone	67	199	197	-2	0	0

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	outcomes: Weight		follow-up support and community resources vs. basic intervention. The basic intervention condition received by all participants involved a meeting with a health counselor at a central location and having specific dietary goals set with the aid of a multimedia touch-screen computer	68	221	219	-2	22	
	Physiologic outcomes: Lipid ratio	No unit	Telephone follow-up support and	67	5.1	4.9	-0.2	0	0.045

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	Total cholesterol/ HDL cholesterol		community resources vs. basic intervention. The basic intervention condition received by all participants involved a meeting with a health counselor at a central location and having specific dietary goals set with the aid of a multimedia touch-screen computer	68	4.9	4.7	-0.2	-0.2	
	Quality of	Score unit	Telephone	67	25.7	26	0.3	-1.9	0

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	life: Satisfaction outcomes--Diabetes intrusiveness		follow-up support and community resources vs. basic intervention. The basic intervention condition received by all participants involved a meeting with a health counselor at a central location and having specific dietary goals set with the aid of a multimedia touch-screen computer	68	30.8	29.2	-1.6	3.2	
Glasgow,	HbA1c	Percentage	Intervention	354	7.3	7.13	-0.17	-0.02	0

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
2005[5]		of HbA1c	group completed treatment components touch-screen, physician goal-setting care manager meeting and follow-up phone call. Health risks and risks reciting addressed the Provider Recognition Program measure vs. control group completed a touch-screen computer assessment but one that focused on general health risks and risks reciting that did not address the Provider Recognition Program measure	379	7.33	7.14	-0.19	0.01	
	Total	No unit	Intervention	354	4.38	4.14	-0.24	0.09	0

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	cholesterol/ HDL cholesterol		group completed treatment components touch-screen, physician goal-setting care manager meeting and follow-up phone call. Health risks and risks reciting addressed the Provider Recognition Program measure vs. control group completed a touch-screen computer assessment but one that focused on general health risks and risks reciting that did not address the Provider Recognition Program measure	379	4.32	4.17	-0.15	0.03	
Glasgow,	HbA1c	Percentage	Tailored self-	153	7.5	7.5	0	-0.1	0

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
2006[6]		of glycated hemoglobin	management vs. computer-aided enhanced usual care	148	7.4	7.3	-0.1	-0.2	
	Total cholesterol/ HDL cholesterol	No unit	Tailored self-management vs. computer-aided enhanced usual care	153 148	3.9 3.9	3.8 3.8	-0.1 -0.1	0 0	0
	Patient Health Questionaire-9 total score	Score unit	Tailored self-management vs. computer-aided enhanced usual care	153 148	5.4 5.7	5.5 5.5	0.1 -0.2	-0.3 0	0
	Diabetes Distress scale	Score unit	Ttailored self-management vs. computer-aided enhanced usual care	153 148	41.5 40.1	36.2 33.6	-5.3 -6.5	-1.2 -2.6	0
	Total cholesterol	mg/dl	Tailored self-management vs. computer-aided enhanced usual care	153 148	185.1 185.1	184.1 183.1	-1 -2	-1 -1	
	HDL cholesterol	mg/dl	Tailored self-management vs. computer-aided enhanced usual care	153 148	50 49.2	50.9 50.4	0.9 1.2	0.3 -0.5	0.083
	Weight	Grams	Tailored self-	153	94	94	0	-0.7	0.007

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
			management vs. computer-aided enhanced usual care	148	94.3	93.6	-0.7	-0.4	
	Patient Health Questionaire-9 total score	Score unit	Tailored self-management vs. computer-aided enhanced usual care	153 148	5.4 5.7	5.5 5.5	0.1 -0.2	-0.3 0	0
Gomez, 2002[7]	Median HbA1c level	Percentage of HbA1c	Group using DIABTel telemedicine system vs. usual care	10 10	8.10 8.4	8.15 7.9	0.05 -0.5	-0.55 -0.25	0.053
Grant, 2008[8]	Decline in	Percentage	Web-based	118		0.26			0

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	HbA1c	of HbA1c	personal health records that imported clinical and medications data, provided patient-tailored decision support, and enabled the patient to author a "diabetes care plan" for electronic submission to their physician prior to upcoming appointments vs. personal health records to update and submit family history and health maintenance information	126		0.16		0.1	
	HbA1c	Percentage	Web-based	118		7.2			0

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
		of HbA1c	personal health records that imported clinical and medications data, provided patient-tailored decision support, and enabled the patient to author a "diabetes care plan" for electronic submission to their physician prior to upcoming appointments vs. personal health records to update and submit family history and health maintenance information	126		7.1		0.1	
	HbA1c goal	Percentage	Web-based	118		68			0

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
		of HbA1c	personal health records that imported clinical and medications data, provided patient-tailored decision support, and enabled the patient to author a "diabetes care plan" for electronic submission to their physician prior to upcoming appointments vs. personal health records to update and submit family history and health maintenance information	126		73		-5	
Harno, 2006[9]	Body mass	kg/m^2	E-health	74	27.8	27.6	-0.2	0.9	0

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	index		application with a diabetes management system and a home care link vs. usual care that did not involve e-health	101	28.5	29.2	0.7	1.6	
	Systolic blood pressure	mm Hg	E-health application with a diabetes management system and a home care link vs. usual care that did not involve e-health	74 101	136 134	137 135	1 1	0 -2	0
	Diastolic blood pressure	mm Hg	E-health application with a diabetes management system and a home care link vs. usual care that did not involve e-health	74 101	84 81	82 79	-2 -2	0 -3	<0.05
	HbA1c	Percentage	E-health	74	8.21	7.83	-0.38	-0.12	<0.05

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
		of HbA1c	application with a diabetes management system and a home care link vs. usual care that did not involve e-health	101	7.82	7.32	-0.5	-0.51	
	Fasting glucose	mg/dl	E-health application with a diabetes management system and a home care link vs. usual care that did not involve e-health	74 101	9.91 9.08	10.87 8.88	0.96 -0.2	-1.16 -1.99	<0.001
	Cholesterol	mmol/l	E-health application with a diabetes management system and a home care link vs. usual care that did not involve e-health	74 101	4.91 4.95	5.03 4.74	0.12 -0.21	-0.33 -0.29	<0.05
	HDL	mmol/l	E-health	74	1.58	1.55	-0.03	0.11	0

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
			application with a diabetes management system and a home care link vs. usual care that did not involve e-health	101	1.58	1.66	0.08	0.11	
	LDL	mmol/l	E-health application with a diabetes management system and a home care link vs. usual care that did not involve e-health	74 101	2.65 2.7	2.76 2.52	0.11 0.18	-0.29 -0.24	<0.05
	Triglyceride	mmol/l	E-health application with a diabetes management system and a home care link vs. usual care that did not involve e-health	74 101	1.46 1.49	1.67 1.44	0.21 -0.05	-0.26 -0.23	<0.05
	Creatinine	mmol/l	E-health	74	84	73	-11	0	0

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
			application with a diabetes management system and a home care link vs. usual care that did not involve e-health	101	86	75	-11	2	
Hetlevik, 2000[10]	Average HbA1c in registered patients	Percentage of HbA1c	Diabetes mellitus patients whose physicians used a computer-based clinical decision support system (CDSS) vs. diabetes mellitus patients whose physicians used pre-existing routines for treatment	408 368	8.2 8.2	8 7.9	-0.2 -0.3	-0.1 -0.1	0.083
	Systolic	mm Hg	Diabetes	408	151.7	153.7	2	-3.1	**SNR

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	blood pressure in registered patients		mellitus patients whose physicians used a computer-based clinical decision support system (CDSS) vs. diabetes mellitus patients whose physicians used pre-existing routines for treatment	368	152.5	151.4	-1.1	-2.3	
	Diastolic blood pressure in registered patients	mm Hg	Diabetes mellitus patients whose physicians used a computer-based clinical decision support system (CDSS) vs. diabetes mellitus patients whose physicians used pre-existing routines for treatment	408 368	85.3 84.5	85.3 82.8	0 -1.7	-1.7 -2.5	**SNR

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	Serum cholesterol in registered patients	mmol/l	Diabetes mellitus patients whose physicians used a computer-based clinical decision support system (CDSS) vs. diabetes mellitus patients whose physicians used pre-existing routines for treatment	408 368	6.6 6.6	6.3 6.2	-0.3 -0.4	-0.1 -0.1	0.007
	Body mass index in registered patients	kg/m^2	Diabetes mellitus patients whose physicians used a computer-based clinical decision support system (CDSS) vs. diabetes mellitus patients whose physicians used pre-existing routines for treatment	408 368		28.3 28.6		 0.3	<0.001

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	Coronary heart disease risk score (female)	Score unit	Diabetes mellitus patients whose physicians used a computer-based clinical decision support system (CDSS) vs. diabetes mellitus patients whose physicians used pre-existing routines for treatment	408 368		14.2 14.3		 0.1	**SNR
	Coronary heart disease risk score (male)	Score unit	Diabetes mellitus patients whose physicians used a computer-based clinical decision support system (CDSS) vs. diabetes mellitus patients whose physicians used pre-existing routines for treatment	408 368		48.7 51.4		 2.7	**SNR

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	Percentage of registered patients who are smokers	Percentage of patients with outcome	Diabetes mellitus patients whose physicians used a computer-based clinical decision support system (CDSS) vs. diabetes mellitus patients whose physicians used pre-existing routines for treatment	408 368		16 19		 3	0.05
	Percentage of registered patients with cardiovascular inheritance	Percentage of patients with outcome	Diabetes mellitus patients whose physicians used a computer-based clinical decision support system (CDSS) vs. diabetes mellitus patients whose physicians used pre-existing routines for treatment	408 368		63 66		 3	<0.001

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
Homko, 2007[11]	Percent of patients requiring diabetes therapy (diet)	Percentage of patients with outcome	Patients in the Internet group were provided with computer and Internet access. Women sent blood glucose and other health data directly to their care providers via the Internet and received information advice from their health care provider vs. women in the control group, who were asked to record their information in a logbook, which was reviewed by the medical team at prenatal visit	25 32		64 44		-20	**SNR
	Percent of	Percentage	Patients in the	25		32			**SNR

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	patients requiring diabetes therapy (glyburide)	of patients with outcome	Internet group were provided with computer and internet access. Women sent blood glucose and other health data directly to their care providers via the Internet and received information advice from their health care provider vs. women in the control group, who were asked to record their information in a logbook, which was reviewed by the medical team at prenatal visit	32		25		-7	
	Percent of	Percentage	Patients in the	25		4			<0.05

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	patients requiring diabetes therapy (insulin)	of patients with outcome	Internet group were provided with computer and internet access. Women sent blood glucose and other health data directly to their care providers via the internet and received information advice from their health care provider vs. women in the control group, who were asked to record their information in a logbook, which was reviewed by the medical team at prenatal visit	32		31		27	
	Fasting	mg/dl	Patients in the	25	88.4	88.6	0.2	-3.4	**SNR

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	blood sugar		Internet group were provided with computer and internet access. Women sent blood glucose and other health data directly to their care providers via the internet and received information advice from their health care provider vs. women in the control group, who were asked to record their information in a logbook, which was reviewed by the medical team at prenatal visit	32	94	90.8	-3.2	2.2	
	HbA1c at	Percentage	Patients in the	25		6.2			**SNR

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	delivery	of HbA1c	Internet group were provided with computer and internet access. Women sent blood glucose and other health data directly to their care providers via the internet and received information advice from their health care provider vs. women in the control group, who were asked to record their information in a logbook, which was reviewed by the medical team at prenatal visit	32		6.1		-0.1	
	Maternal	mg/dl	Patients in the	25		104.5			**SNR

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	glucose control: Mean blood glucose (mg/dl)		Internet group were provided with computer and internet access. Women sent blood glucose and other health data directly to their care providers via the internet and received information advice from their health care provider vs. women in the control group, who were asked to record their information in a logbook, which was reviewed by the medical team at prenatal visit	32		106.6		2.1	
	Maternal	Percentage	Patients in the	25		40			0

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	pregnancy outcome: Caesarean delivery	of patients with outcome	Internet group were provided with computer and internet access. Women sent blood glucose and other health data directly to their care providers via the internet and received information advice from their health care provider vs. women in the control group, who were asked to record their information in a logbook, which was reviewed by the medical team at prenatal visit	32		69		29	
	Maternal	Percentage	Patients in the	25		12			**SNR

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	pregnancy outcome: Premature rupture of membranes	of patients with outcome	Internet group were provided with computer and internet access. Women sent blood glucose and other health data directly to their care providers via the internet and received information advice from their health care provider vs. women in the control group, who were asked to record their information in a logbook, which was reviewed by the medical team at prenatal visit prenatal visit	32				-9	
	Maternal	Percentage	Patients in the	25		0			**SNR

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	pregnancy outcome: Placental abruption	of patients with outcome	Internet group were provided with computer and internet access. Women sent blood glucose and other health data directly to their care providers via the internet and received information advice from their health care provider vs. women in the control group, who were asked to record their information in a logbook, which was reviewed by the medical team at prenatal visit	32		3		3	
	Maternal	Percentage	Patients in the	25		20			**SNR

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	pregnancy outcome: Pre-eclampsia/ gestational hypertension	of patients with outcome	Internet group were provided with computer and internet access. Women sent blood glucose and other health data directly to their care providers via the internet and received information advice from their health care provider vs. Women in the control group, who were asked to record their information in a logbook, which was reviewed by the medical team at prenatal visit	32		28		8	
Laffel, 2007[12]	Mean	Percentage	Integrated	92		0.27			0

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	decrease in HbA1c	of HbA1c	glucose meters and electronic logbooks (electronic group) vs. paper log books (control group)	113		0.35		0.08	
Montori, 2004[13]	Mean HbA1c level	Percentage of glycated hemoglobin	Telecare (glucometer transmission with feedback) vs. glucometer transmission without feedback	15 13	8.8 9.1	8.2 7.8	-0.6 -1.3	-0.7 -0.4	0.03
	Proportion of patients with HbA1c with HbA1c <=0.7% after 6months	Percentage of patients with outcome	Telecare (glucometer transmission with feedback) vs. glucometer transmission without feedback	15 13		7 29		0 22	**SNR
Noel, 2004[14]	Bed-days-	Days	Intervention	57	525	194	-331	63	<0.0001

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	of-care		patients received home telehealth units that used standard phone lines to communicate with the hospital and were integrated into hospital electronic health records vs. usual home healthcare services plus nurse case management	47	317	49	-268	-145	
	Urgent	Visits	Intervention	57	302	307	5	-88	0.023

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	clinic/emergency room visits		patients received home telehealth units that used standard phone lines to communicate with the hospital and were integrated into hospital electronic health records vs. usual home healthcare services plus nurse case management	47	320	237	-83	-70	
	HbA1c	Percentage	Intervention	57	7.03	7.83	0.8	-1.8	<0.0001

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
		of glycated hemoglobin	patients received home telehealth units that used standard phone lines to communicate with the hospital and were integrated into hospital electronic health records vs. usual home healthcare services plus nurse case management	47	8.3	7.3	-1	-0.53	
	Cognitive	Score unit	Intervention	57	19.42	19.43	0.01	0.68	<0.028

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	status		patients received home telehealth units that used standard phone lines to communicate with the hospital and were integrated into hospital electronic health records vs. usual home healthcare services plus nurse case management	47	19.31	20	0.69	0.57	
Piette, 2000[15]	Depression score	Score unit	Biweekly automated telephone disease management (ATDM) calls with telephone follow-up vs. usual care	Total of 248 participants in study		17.6			0.023
				Total of 248 participants in study		13.7		-3.9	
	Anxiety score	Score unit	Biweekly automated telephone disease management (ATDM) calls with telephone follow-up vs. usual care	Total of 248 participants in study		3.7			**SNR
				Total of 248 participants in study		3.8		0.1	

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	Self-efficacy score	Score unit	Biweekly automated telephone disease management (ATDM) calls with telephone follow-up vs. usual care	Total of 248 participants in study		4.2			0.006
				Total of 248 participants in study		4.5		0.3	
	Days in bed because of illness	Days	Biweekly automated telephone disease management (ATDM) calls with telephone follow-up vs. usual care	Total of 248 participants in study		1			0.026
				Total of 248 participants in study		0.5		-0.5	
	Days cut down on activities because of illness	Days	Biweekly automated telephone disease management (ATDM) calls with telephone follow-up vs. Usual care	Total of 248 participants in study		1.8			**SNR
				Total of 248 participants in study		1.5		-0.3	
	Diabetes-specific health-	Score unit	Biweekly automated telephone	Total of 248 participants in study		2.1			**SNR

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	related quality of life: Summary scale		disease management (ATDM) calls with telephone follow-up vs. usual care	Total of 248 participants in study		2.1		0	
	General health-related quality of life: Physical functioning	Score unit	Biweekly automated telephone disease management (ATDM) calls with telephone follow-up vs. usual care	Total of 248 participants in study		52.7			**SNR
				Total of 248 participants in study		58.5		5.8	
	General health-related quality of life: Role limitations (physical)	Score unit	Biweekly automated telephone disease management (ATDM) calls with telephone follow-up vs. usual care	Total of 248 participants in study		49.3			**SNR
				Total of 248 participants in study		46		-3.3	
	General health-related quality of life: Social functioning	Score unit	Biweekly automated telephone disease management (ATDM) calls with telephone follow-up vs. usual care	Total of 248 participants in study		69.3			**SNR
				Total of 248 participants in study		76.2		6.9	
	General health-related	Score unit	Biweekly automated telephone	Total of 248 participants in study		56.7			**SNR

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	quality of life: Bodily pain		disease management (ATDM) calls with telephone follow-up vs. usual care	Total of 248 participants in study		60.2		3.5	
	General health-related quality of life: Role limitations (mental)	Score unit	Biweekly automated telephone disease management (ATDM) calls with telephone follow-up vs. usual care	Total of 248 participants in study		74.3			**SNR
				Total of 248 participants in study		80.3		6	
	General health-related quality of life: General health perceptions	Score unit	Biweekly automated telephone disease management (ATDM) calls with telephone follow-up vs. usual care	Total of 248 participants in study		42.4			<0.042
						46.1		3.7	
Quinn, 2008[16]	HbA1c level	Percentage	Well-doc	13	9.05	8.37	-0.68	-1.35	<0.02

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
		of glycated hemoglobin	intervention vs. Control group. The intervention group received cell phone-based software designed by endocrinologists and certified diabetes educators. Patients randomized to the control group received One Touch Ultra™ BG meters (Life scan, Milpitas, CA) and adequate BG testing strips and lancets for the duration of the trial	13	9.51	7.48	-2.03	-0.89	
	New	Percent of	Well-doc	13		20			0

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	diagnosis depression	patients with new diagnosis	intervention vs. control group. The intervention group received cell phone-based software designed by endocrinologists and certified diabetes educators. Patients randomized to the control group received One Touch Ultra™ BG meters (Lifescan, Milpitas, CA) and adequate BG testing strips and lancets for the duration of the trial.	13		9		-11	
Ralston, 2009[17]	Mean glycated hemoglobin	Percentage of glycated hemoglobin	Web-based care management vs. usual care	35 39	7.9 8.2	8.1 7.3	0.2 -0.9	-1.1 -0.8	0.01
	Glycated	Percentage	Web-based	35	100	89	11	22	0.03

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	hemoglobin <7%	of patients with outcome	care management vs. usual care	39	100	67	33	-22	
Shea, 2007 [18]	Mean HbA1c level	% of HbA1c	Home telemedicine unit vs. no home telemedicine unit	821 844	7.42 7.35	7.17 6.97	0.25 0.38	0.13 -0.2	0.006
	HbA1c in subgroup with HbA1c >7% at baseline	% of HbA1c	Home telemedicine unit vs. no home telemedicine unit	821 844	8.52 8.35	7.78 7.42	0.74 0.93	0.19 -0.36	0.002
Smith, 2008[19]	HbA1c (median	Percentage of HbA1c	Virtual consultation vs. no virtual consultation	277 358	7.3 7.3	6.7 6.7	-0.6 -0.6	0 0	0
	Systolic blood pressure, median	mm Hg	Virtual consultation vs. no virtual consultation	277 358	130 130	128 129	-2 -1	1 1	0
	Diastolic blood pressure (mm Hg), median	Mm Hg	Virtual consultation vs. no virtual consultation	277 358	72 72	70 70	-2 -2	0 0	0
	LDL-c (mg/dl), median	Mg/dl	Virtual consultation vs. no virtual consultation	277 358	105 104	95 92	-10 -12	-2 -3	0
	Estimated	Score unit	Virtual	277	16	16	0	-3	0

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	10-yr coronary artery disease risk 10-y risk, median		consultation vs. no virtual consultation	358	18	15	-3	-1	
	Minnesota community aggregate optimal diabetes score	Percentage of patients with outcome	Virtual consultation vs. no virtual consultation	277 358		18 30		12	0
Thomas, 2007[20]	Mean HgbA1c	Percentage of glycated hemoglobin	Computerized diabetes registry vs. control group (usual clinic education)	231 252	7.4 7.3	7.4 7.3	0 0	0 -0.1	0
	Mean LDL cholesterol	mg/dl	Computerized diabetes registry vs. control group (usual clinic education)	231 252	101.6 103.6	97.5 98.4	-4.1 -5.2	-1.1 0.9	0
	Mean systolic blood pressure	mm Hg	Computerized diabetes registry vs. control group (usual clinic education)	231 252	129.1 131.5	130.8 131	1.7 -0.5	-2.2 0.2	0
	Mean	mm Hg	Computerized	231	70.5	73.5	3	-3.2	0

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	diastolic blood pressure		diabetes registry vs. Control group (usual clinic education)	252	72.6	72.4	-0.2	-1.1	
	HbA1c	% of glycated hemoglobin	Patients receiving weekly medical support through SMS based upon weekly review of glucose values vs. patients downloading self-monitored blood glucose (SMBG) values on a weekly basis without receiving SMS	30 30	8.22 8.31	8.34 8.18	0.12 -0.13	-0.25 -0.16	0.097
	HgbA1c <7.0% (% with outcome)	% of patients with outcome	Computerized diabetes registry vs. control group (usual clinic education)	231 252		62 58		0 -4	0
	Mean LDL <100 mg/dl (% with outcome)	Percentage of patients with outcome	Computerized diabetes registry vs. control group (usual clinic education)	231 252		61 60		 -1	0
	Bp <130/85	Percentage	Computerized	231		50		0	0

Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	mmHg (% with outcome	of patients with outcome	diabetes registry vs. control group (usual clinic education)	252		50		0	
Yoon, 2008[21]	Mean HbA1c level	HbA1c	Access to a website through cell phones or wired connections transmitting blood glucose levels weekly through telecare and receiving feedback and suggestions from providers vs. usual care that did not use cell phones for treatment	26 25	7.59 8.09	8.4 6.77	0.81 -1.32	-2.13 -1.63	<0.05

**SNR: Significance not reported

P-value of 0 = p-value > 0.10

ATDM: Automated telephone disease management, BG: Blood glucose, SMS: Short message service, CDSS: Clinical decision support system, dl: Deciliter, HbA1c: Glycated hemoglobin, HDL: High-density lipoprotein, kg: Kilograms, LDL: Low-density lipoprotein, mg: Milligrams, mmHg: Millimeters mercury, PHQ: Patient Health Questionnaire, mmol: Millimoles, SMBG: Self-monitored blood glucose, TSM: Tailored self-management

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Evidence Table 11. Outcomes related to diabetes mellitus in studies addressing clinical outcomes (continued)

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Evidence Table 12. Outcomes related to heart disease in studies addressing clinical outcomes

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
Feldman, 2005[1]	Kansas City Cardiomyopathy Questionnaire: Summary score--Adjusted score (higher score = better outcome)	Score unit	Heart failure patients whose nurses received e-mail recommendations (basic intervention) vs. heart failure patients receiving usual care	227 199		40.4 46.6		6.20	0.013
	Kansas City Cardiomyopathy Questionnaire: Physical limitation domain score--Adjusted score (higher score = better outcome)	Score unit	Heart failure patients whose nurses received e-mail recommendations (basic intervention) vs. heart failure patients receiving usual care	227 199		37.8 42.5		4.70	0
	Kansas City Cardiomyopathy Questionnaire: Symptom domain score (higher score = better outcome)	Score unit	Heart failure patients whose nurses received e-mail recommendations (basic intervention) vs. heart failure patients receiving usual care	227 199		48.6 55.6		7.00	0.091
	Depression:	Score unit	Heart failure	227		36.3			0

Evidence Table 12. Outcomes related to heart disease in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	Adjusted score (higher score = presence of depression)		patients whose nurses received e-mail recommendations (basic intervention) vs. heart failure patients receiving usual care	199		37.4		1.10	
	Euroquality of life: Health-related quality of life-- Adjusted score (higher score = better outcome)	Score unit	Heart failure patients whose nurses received e-mail recommendations (basic intervention) vs. heart failure patients receiving usual care	227 199		39.3 48.9		 9.60	0.003
	Kansas City Cardiomyopathy Questionnaire: Summary score-- Adjusted score (higher score = better outcome)	Score unit	Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention) vs. heart failure patients receiving usual care	227 202		40.4 45.6		 5.20	0.048
	Kansas City	Score unit	Heart failure	227		37.8			0

Evidence Table 12. Outcomes related to heart disease in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	Cardiomyopathy Questionnaire: Physical limitation domain score--Adjusted score (higher score = better outcome)		patients whose nurses received e-mail recommendations and additional resources (augmented intervention) vs. heart failure patients receiving usual care	202		43		5.20	
	Kansas City Cardiomyopathy Questionaire: Symptom domain score (higher score = better outcome)	Score unit	Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention) vs. heart failure patients receiving usual care	227 202		48.6 53.6		 5.00	0
	Depression:	Score Unit	Heart failure	227		36.3			0

Evidence Table 12. Outcomes related to heart disease in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	Adjusted score (higher score = presence of depression)		patients whose nurses received e-mail recommendations and additional resources (augmented intervention) vs. Heart failure patients receiving usual care	202		86.3		50.00	
	Euro quality of life: Health-related quality of life--Adjusted score (higher score = better outcome)	Score Unit	Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention) vs. heart failure patients receiving usual care	227 202		39.3 36.9		 -2.40	0
	Kansas City	%age of	Heart failure	227		44.6			0

Evidence Table 12. Outcomes related to heart disease in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	Cardiomyopathy Questionaire: % w/quality of life domain score >=50 (higher score = better outcome)	patients	patients whose nurses received e-mail recommendations (basic intervention) vs. heart failure patients receiving usual care	199		48		3.40	
	Kansas City Cardiomyopathy Questionnaire: % w/social limitation domain score >= 50 (higher score = better outcome)	%age of patients	Heart failure patients whose nurses received e-mail recommendations (basic intervention) vs. heart failure patients receiving usual care	227		27.8			0.9
				199		34.8		7.00	
	Kansas City Cardiomyopathy Questionnaire: % w/ self-efficacy domain score >=50	%% of patients	Heart failure patients whose nurses received e-mail recommendations (basic intervention) vs. heart failure patients receiving usual care	227		85.8			0
				199		86.8		1.00	
	Kansas City	%% of patients	Heart failure	227		44.6			0

Evidence Table 12. Outcomes related to heart disease in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	Cardiomyopathy Questionnaire: % w/quality of life domain score >=50 (higher score = better outcome)		patients whose nurses received e-mail recommendations and additional resources (augmented intervention) vs. heart failure patients receiving usual care	202		53.3		8.70	
	Kansas City Cardiomyopathy Questionnaire: % w/social limitation domain score >= 50 (higher score = better outcome)	%% of patients	Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention) vs. heart failure patients receiving usual care	227		27.8			0
				202		35.2		7.40	
	Kansas City	%% of patients	Heart failure	227		85.8			0

Evidence Table 12. Outcomes related to heart disease in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	Cardiomyopathy Questionaire: % w/ self efficacy domain score >=50		patients whose nurses received e-mail recommendations and additional resources (augmented intervention) vs. heart failure patients receiving usual care	202		35.2		-50.60	
Jerant, 2001 [2]	Median health care utilization	US dollars	Home telecare videoconferencing vs. usual care	12		21,595			<0.001
				13		7487		-14108	
	Mean health care utilization	US dollars	Home telecare videoconferencing vs. usual care	12		93686			<0.05
				13		29701		-63985	
	Median health care utilization	US dollars	Nurse phone calls with nurse vs. usual care	12		21,595			0
				12		4117		-17478	
	Mean health care utilization	US dollars	Nurse phone calls with nurse vs. usual care	12		93686			<0.05
				12		28,888		-64798	
Jerant, 2003 [3]	Emotional subscale on Minnesota Living With Heart Failure Questionnaire: Mean	Score unit	Telecare vs. usual care	12	11.8	8.2	-3.6	1.7	**SNR
				13	14.1	12.2	-1.9	4.00	

Evidence Table 12. Outcomes related to heart disease in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	Physical subscale on Minnesota Living With Heart Failure Questionnaire: Mean	Score unit	Telecare vs. usual care	12 13	26.4 27.8	16.1 21.2	-10.3 -6.6	3.7 5.10	**SNR
	Total score on Minnesota Living With Heart Failure Questionnaire: Mean	Score Unit	Telecare vs. usual care	12 13	58.3 64.1	38.1 50.4	-20.2 -13.7	6.5 12.30	**SNR
	Short Form-36: Mental component score	Score Unit	Telecare vs. usual care	12 13	41.8 41.5	48.9 44.6	7.1 3.1	-4 -4.30	**SNR
	Short Form-36: Physical component score	Score Unit	Telecare vs. usual care	12 13	34.2 30.1	33.7 35.1	-0.5 5	5.5 1.40	**SNR
	Emotional subscale on Minnesota Living With Heart Failure Questionnaire: Mean	Score Unit	Telephone vs. usual care	12 12	11.8 8.8	8.2 5.2	-3.6 -3.6	0 -3.00	**SNR
	Physical	Score unit	Telephone vs.	12	26.4	16.1	-10.3	1.7	**SNR

Evidence Table 12. Outcomes related to heart disease in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	subscale on Minnesota Living With Heart Failure Questionnaire: Mean		usual care	12	24.4	15.8	-8.6	-0.30	
	Total score on Minnesota Living With Heart Failure Questionnaire: Mean	Score unit	Telephone vs. usual care	12 12	58.3 54	38.1 35.5	-20.2 -18.5	1.7 -2.60	**SNR
	Short Form-36: Mental component score	Score unit	Telephone vs. usual care	12 12	41.8 44.7	48.9 52.7	7.1 8	0.9 3.80	**SNR
	Short Form-36: Physical component score	Score unit	Telephone vs. usual care	12 12	34.2 28.1	33.7 29	-0.5 0.9	1.4 -4.70	**SNR
Kucher, 2005[4]	Death at 30 days	% of patients	Computerized alert to physician about patient's risk of deep-vein thrombosis vs. no computerized alert	1251 1255		12.5 13.9		 1.40	0
	Death at 90	% of patients	Computerized	1251		22.3			0

Evidence Table 12. Outcomes related to heart disease in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	days		alert to physician about patient's risk of deep-vein thrombosis vs. no computerized alert	1255		22.5		0.20	
	Major hemorrhage at 30 days	% of patients	Computerized alert to physician about patient's risk of deep-vein thrombosis vs. no computerized alert	1251 1255		1.5 1.5		 0.00	0
	Minor hemorrhage at 30 days	% of patients	Computerized alert to physician about patient's risk of deep-vein thrombosis vs. no computerized alert	1251 1255		7 6.5		 -0.50	0
	Mechanical	% of patients	Computerized	1251		1.5			<0.001

Evidence Table 12. Outcomes related to heart disease in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	prophylaxis		alert to physician about patient's risk of deep-vein thrombosis vs. no computerized alert	1255		10		8.50	
	Pharmacologic prophylaxis	% of patients	Computerized alert to physician about patient's risk of deep-vein thrombosis vs. no computerized alert	1251 1255		13 23.6		 10.60	<0.001
	Deep-vein thrombosis of the arms at 90 days	% of patients	Computerized alert to physician about patient's risk of deep-vein thrombosis vs. no computerized alert	1251 1255		2.6 2.5		 -0.10	0
Lowensteyn, 1998[5]	Total-cholesterol	mmol/L	Coronary risk profile to physician vs. no risk profile to physician	782 176	6.11 6.55	6.02 6.06	-0.09 -0.49	-0.4 0.04	0.05
	HDL-	mmol/L	Coronary risk	782	1.16	1.16	0	0.02	0

Evidence Table 12. Outcomes related to heart disease in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	cholesterol		profile to physician vs. no risk profile to physician	176	1.13	1.15	0.02	-0.01	
	LDL-c	mmol/L	Coronary risk profile to physician vs. no risk profile to physician	782	3.88	3.87	-0.01	-0.39	0.05
				176	4.37	3.97	-0.4	0.10	
	Total-cholesterol/HDL-cholesterol ratio	No units	Coronary risk profile to physician vs. no risk profile to physician	782	5.7	5.5	-0.2	-0.4	0.05
				176	6.2	5.6	-0.6	0.10	
	Systolic blood pressure	mm Hg	Coronary risk profile to physician vs. no risk profile to physician	782	129.2	128	-1.2	-0.8	0
				176	133	131	-2	3.00	
	Diastolic blood pressure	mm Hg	Coronary risk profile to physician vs. no risk profile to physician	782	79.8	79.9	0.1	-1	0
				176	82.3	81.4	-0.9	1.50	
	Body mass index	kg/m^2	Coronary risk profile to physician vs. no risk profile to physician	782	27.8	27.5	-0.3	0.1	0
				176	28.6	28.4	-0.2	0.90	
	8-year coronary risk	% of patients	Coronary risk profile to physician vs. no risk profile to physician	782	9.6	9.3	-0.3	-1.5	<0.01
				176	12	10.2	-1.8	0.90	
	Cardiovascular	Years	Coronary risk	782	52	51.9	-0.1	-0.5	<0.01

Evidence Table 12. Outcomes related to heart disease in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	age		profile to physician vs. no risk profile to physician	176	54	53.4	-0.6	1.50	
Mitchell, 2004[6]	Final systolic blood pressure	mm Hg	Audit only practices vs. patients who received no feedback	1813 1339		148 151.2		 3.20	0
	Final systolic blood pressure	mm Hg	Audit plus strategic practices vs. patients who received no feedback	1813 1951		148 146.5		 -1.50	0
	Final proportion with controlled blood pressure in hypertensive patients	% of patients	Audit only practices vs. patients who received no feedback	1813 1339		45.7 33.5		 -12.20	0
	All patients with blood pressure<160/ 90	% of patients	Audit only practices vs. patients who received no feedback	1813 1339	47.5 39	58 47	10.5 8	-2.5 -11.00	0
	All patients with blood pressure>=160 /90	% of patients	Audit only practices vs. patients who received no feedback	1813 1339	30.1 26.8	24.1 26.7	-6 -0.1	5.9 2.60	0
	All patients with no recorded blood pressure	% of patients	Audit only practices vs. patients who received no feedback	1813 1339	22.4 34.2	17.9 26.3	-4.5 -7.9	-3.4 8.40	0

Evidence Table 12. Outcomes related to heart disease in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	Final proportion with controlled blood pressure in hypertensive patients	% of patients	Audit plus strategic practices vs. patients who received no feedback	1813 1951		45.7 45.5		 -0.20	0.028
	All patients with blood pressure<160/ 90	% of patients	Audit plus strategic practices vs. patients who received no feedback	1813 1951	47.5 54.3	58 63	10.5 8.7	-1.8 5.00	0.08
	All patients with blood pressure>=160 /90	% of patients	Audit plus strategic practices vs. patients who received no feedback	1813 1951	30.1 26.9	24.1 22.8	-6 -4.1	1.9 -1.30	0
	All patients with no recorded blood pressure	% of patients	Audit plus strategic practices vs. patients who received no feedback	1813 1951	18.8	17.9 14.2	17.9 -4.6	-22.5 -3.70	0
	Blood pressure control	% of patients	Audit plus strategic practices vs. patients who received no feedback	1813 1339		45.7 33.5		 -12.20	
	Blood pressure control	% of patients	Audit plus strategic practices vs. patients who received no feedback	1813 1951		45.7 45.5		 -0.20	

Evidence Table 12. Outcomes related to heart disease in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
Poller, 2008[7]	Incidence of clinical events adjudicated	Events per 100 patient-yrs	Parma 5 computer-assisted dosage program vs. manual dosage	5290 5131		463 420		 -43.00	0.08
	Minor bleeds	Events per 100 patient-yrs	Parma 5 computer-assisted dosage program vs. manual dosage	5290 5131		245 211		 -34.00	**SNR
	Major bleeds	Number of events	Parma 5 computer-assisted dosage program vs. manual dosage	5290 5131		85 73		 -12.00	**SNR
	Thrombotic events	Number of events	Parma 5 computer-assisted dosage program vs. manual dosage	5290 5290		85 84		 -1.00	**SNR
	Deaths	Number of events	Parma 5 computer-assisted dosage program vs. manual dosage	5131 5131		48 52		 4.00	**SNR
	Adjudicated as	Number of	Parma 5	5290		33			**SNR

Evidence Table 12. Outcomes related to heart disease in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	non-events	events	computer-assisted dosage program vs. manual dosage	5131		37		4.00	
	Total events in deep-vein thrombosis/pulmonary embolism group	Number of events	Parma 5 computer-assisted dosage program vs. manual dosage	5290 5131		152 115		 -37.00	0.05
	Time for which international normalized ratio (INR) was in range	Mean % of time	Computer-assisted oral anticoagulant dosage vs. medical staff dosage	6503 6605		64.7 65.9		 1.20	<0.001
Poller, 2008[8]	Incidence of clinical events adjudicated (events per 100 patient-yrs)	Number of events	Computer-assisted oral anticoagulant dosage vs. medical staff dosage	6503 6605		555 513		 -42.00	**SNR
	Minor bleeds	Events per 100 patient-yrs	Computer-assisted oral anticoagulant dosage vs. medical staff dosage	6503 6605		288 253		 -35.00	**SNR
	Major bleeds	Number of	Computer-	6503		99			**SNR

Evidence Table 12. Outcomes related to heart disease in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
		events	assisted oral anticoagulant dosage vs. medical staff dosage	6605		93		-6.00	
	Thrombotic events	Number of events	Computer-assisted oral anticoagulant dosage vs. medical staff dosage	6503		106			**SNR
				6605		97		-9.00	
	Deaths	Number of events	Computer-assisted oral anticoagulant dosage vs. medical staff dosage	6503		62			**SNR
				6605		70		8.00	
	Adjudicated as non-events	Number of events	Computer-assisted oral anticoagulant dosage vs. medical staff dosage	6503		40			**SNR
				6605		47		7.00	
	Total events in deep-vein thrombosis/pulmonary embolism group	Number of events	Computer-assisted oral anticoagulant dosage vs. medical staff dosage	6503		152			0.001
				6605		115		-37.00	
	Time for which	Mean % of	Computer-	6503		64.7			<0.001

Evidence Table 12. Outcomes related to heart disease in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	international normalized ratio (INR) was in range (mean %)	time	assisted oral anticoagulant dosage vs. medical staff dosage	6605		65.9		1.20	
	Incidence of clinical events adjudicated	Events per 100 patient-yrs	Computer-assisted oral anticoagulant dosage vs. medical staff dosage	6503 6605		555 513		 -42.00	**SNR
Ross, 2004[9]	Kansas City Cardiomyopathy Questionnaire: Self-efficacy score	Score unit	Participants in the intervention group were given a user identification and password to SPPARO in order to access electronic hospital records vs. patients in the control group, who continued to receive standard care in the practice	43 38	83 86	85 91	2 5	3 6.00	0.08
	Symptom	Score unit	Participants in	43	49	46	-3	17	0.01

Evidence Table 12. Outcomes related to heart disease in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	stability		the intervention group were given a user identification and password to SPPARO in order to access electronic hospital records vs. patients in the control group, who continued to receive standard care in the practice	38	49	63	14	17.00	
	Quality of life	Score unit	Participants in	43	56	62	6	2	0

Evidence Table 12. Outcomes related to heart disease in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
			the intervention group were given a user identification and password to SPPARO in order to access electronic hospital records vs. patients in the control group, who continued to receive standard care in the practice	38	56	64	8	2.00	
	Functional	Score unit	Participants in	43	66	70	4	-3	0

Evidence Table 12. Outcomes related to heart disease in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	status		the intervention group were given a user identification and password to SPPARO in order to access electronic hospital records vs. patients in the control group, who continued to receive standard care in the practice	38	66	67	1	-3.00	
	Clinical	Score unit	Participants in	43	64	66	2	3	0

Evidence Table 12. Outcomes related to heart disease in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	summary		the intervention group were given a user identification and password to SPPARO in order to access electronic hospital records vs. patients in the control group, who continued to receive standard care in the practice	38	64	69	5	3.00	
	Physical	Score unit	Participants in	43	66	73	7	-4	0

Evidence Table 12. Outcomes related to heart disease in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	limitations		the intervention group were given a user identification and password to SPPARO in order to access electronic hospital records vs. Patients in the control group, who continued to receive standard care in the practice	38	66	69	3	-4.00	
Roumie, 2006[10]	Systolic blood pressure	mm Hg	Provider who received e-mail message and alert vs. provider who received only the e-mail message	255 362	157.3 158	145 146	-12.3 -12	0.3 1.00	0
	Systolic blood pressure	mm Hg	Provider who received e-mail message, alert and patient education vs. provider who received only the e-mail message	255 358	157.3 156.3	145 138	-12.3 -18.3	-6 -7.00	0
	Systolic blood	% of patients	Provider who	255		40.9			**SNR

Evidence Table 12. Outcomes related to heart disease in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	pressure <=140		received e-mail message and alert vs. provider who received only the e-mail message	362		42		1.10	
	Dose increased	% of patients	Provider who received e-mail message and alert vs. provider who received only the e-mail message	255		13			0.07
				362		9.1		-3.90	
	Drug added	% of patients	Provider who received e-mail message and alert vs. provider who received only the e-mail message	255		15.7			0
				362		15.4		-0.30	
	Both increased dose and drug added	% of patients	Provider who received e-mail message and alert vs. provider who received only the e-mail message	255		3.7			0
				362		4		0.30	
	Systolic blood	% of patients	Provider who	255		40.9			**SNR

Evidence Table 12. Outcomes related to heart disease in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	pressure <=140		received e-mail message, alert and patient education vs. provider who received only the e-mail message	358		59.5		18.60	
	Dose increased	% of patients	Provider who received e-mail message, alert and patient education vs. provider who received only the e-mail message	255		13			0.07
				358		8.7		-4.30	
	Drug added	% of patients	Provider who received e-mail message, alert and patient education vs. provider who received only the e-mail message	255		15.7			0
				358		17.5		1.80	
	Both increased dose and drug added	% of patients	Provider who received e-mail message, alert and patient education vs. provider who received only the e-mail message	255		3.7			0
				358		3		-0.70	
Scherr, 2009[11]									

Evidence Table 12. Outcomes related to heart disease in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
Subramanian, 2004[12]	Short Form-36: Physical component scale (change enrollment to 12 months)	Score unit	Physicians were randomly assigned to receive either care suggestions generated with electronic medical record data and symptom data obtained from questionnaires mailed to patients within 2 weeks of scheduled outpatient visits (intervention group) vs. physicians whose suggestions generated with electronic medical record data alone (control group)	365 355		1.3 -0.6		 -1.90	0.03
	Short Form-36:	Score unit	Physicians	365		2.1			0.06

Evidence Table 12. Outcomes related to heart disease in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	Mental component scale (change enrollment to 12 months)		were randomly assigned to receive either care suggestions generated with electronic medical record data and symptom data obtained from questionnaires mailed to patients within 2 weeks of scheduled outpatient visits (intervention group) vs. physicians whose suggestions generated with electronic medical record data alone (control group)	355		3.7		1.60	
Tierney,	Mental Health	Score unit	Evidence-	119		63			**SNR

Evidence Table 12. Outcomes related to heart disease in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
2003[13]	Short Form-36: Subscale score		based cardiac care suggestions, approved by a panel of local cardiologists and general internists, were displayed to physicians and pharmacists as they cared for enrolled patients vs. control group where suggestions were withheld	142		64		1.00	
	Overall health	Score unit	Evidence-	119		4.6			**SNR

Evidence Table 12. Outcomes related to heart disease in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	status (chronic heart disease questionnaire score)		based cardiac care suggestions, approved by a panel of local cardiologists and general internists, were displayed to physicians and pharmacists as they cared for enrolled patients vs. control group where suggestions were withheld	142		4.6		0.00	
	Dyspnea	Score unit	Evidence-	119		5.2			**SNR

Evidence Table 12. Outcomes related to heart disease in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	chronic heart disease questionnaire score		based cardiac care suggestions, approved by a panel of local cardiologists and general internists, were displayed to physicians and pharmacists as they cared for enrolled patients vs. control group where suggestions were withheld	142		5.3		0.10	
	Fatigue	Score unit	Evidence-	119		4			**SNR

Evidence Table 12. Outcomes related to heart disease in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	chronic heart disease questionnaire score		based cardiac care suggestions, approved by a panel of local cardiologists and general internists, were displayed to physicians and pharmacists as they cared for enrolled patients vs. control group where suggestions were withheld	142		3.8		-0.20	
	Emotion	Score unit	Evidence-	119		4.6			**SNR

Evidence Table 12. Outcomes related to heart disease in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	(chronic heart disease questionnaire score)		based cardiac care suggestions, approved by a panel of local cardiologists and general internists, were displayed to physicians and pharmacists as they cared for enrolled patients vs. control group where suggestions were withheld	142		4.6		0.00	
	Mental Health Short Form-36: Subscale score	Score unit	Printed a note (rather than bottle labels) instructing the pharmacist to view the care suggestions in Pharmacist Intervention Recording System vs. control group where suggestions were withheld	119 106		63 64		 1.00	**SNR
	Overall health	Score unit	Printed note	119		4.6			**SNR

Evidence Table 12. Outcomes related to heart disease in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	status (chronic heart disease questionnaire score)		(rather than bottle labels) instructing the pharmacist to view the care suggestions in Pharmacist Intervention Recording System vs. control group where suggestions were withheld	106		4.5		-0.10	
	Dyspnea chronic heart disease questionnaire score	Score unit	Printed note (rather than bottle labels) instructing the pharmacist to view the care suggestions in Pharmacist Intervention Recording System vs. control group where suggestions were withheld	119 106		5.2 5		 -0.20	**SNR
	Fatigue	Score unit	Printed note	119		4			**SNR

Evidence Table 12. Outcomes related to heart disease in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	chronic heart disease questionnaire score		(rather than bottle labels) instructing the pharmacist to view the care suggestions in Pharmacist Intervention Recording System vs. Control group where suggestions were withheld	106		3.8		-0.20	
	Emotion	Score unit	Printed note (rather than bottle labels) instructing the pharmacist to view the care suggestions in Pharmacist Intervention Recording System vs. control group where suggestions were withheld	119		4.6			**SNR
				106		4.5		-0.10	
	Mental Health	Score unit	Evidence-	119		63			**SNR

Evidence Table 12. Outcomes related to heart disease in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	Short Form-36: Subscale score		based cardiac care suggestions, approved by a panel of local cardiologists and general internists, were displayed to physicians and pharmacists as they cared for enrolled patients, with a printed note (rather than bottle labels) instructing the pharmacist to view the care suggestions in Pharmacist Intervention Recording System vs. control group where suggestions were withheld	113		65		2.00	
	Overall health	Score unit	Evidence-	119		4.6			**SNR

Evidence Table 12. Outcomes related to heart disease in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	status (chronic heart disease questionnaire score)		based cardiac care suggestions, approved by a panel of local cardiologists and general internists, were displayed to physicians and pharmacists as they cared for enrolled patients, with a printed note (rather than bottle labels) instructing the pharmacist to view the care suggestions in Pharmacist Intervention Recording System vs. control group where suggestions were withheld	113		4.6		0.00	
	Dyspnea	Score unit	Evidence-	119		5.2			**SNR

Evidence Table 12. Outcomes related to heart disease in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	(chronic heart disease questionnaire score)		based cardiac care suggestions, approved by a panel of local cardiologists and general internists, were displayed to physicians and pharmacists as they cared for enrolled patients, with a printed note (rather than bottle labels) instructing the pharmacist to view the care suggestions in Pharmacist Intervention Recording System vs. control group where suggestions were withheld	113		5.2		0.00	
	Fatigue	Score unit	Evidence-	119		4			**SNR

Evidence Table 12. Outcomes related to heart disease in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	(chronic heart disease questionnaire score)		based cardiac care suggestions, approved by a panel of local cardiologists and general internists, were displayed to physicians and pharmacists as they cared for enrolled patients, with a printed note (rather than bottle labels) instructing the pharmacist to view the care suggestions in Pharmacist Intervention Recording System vs. control group where suggestions were withheld	113		4		0.00	
	Emotion	Score unit	Evidence-	119		4.6			**SNR

Evidence Table 12. Outcomes related to heart disease in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	(chronic heart disease questionnaire score)		based cardiac care suggestions, approved by a panel of local cardiologists and general internists, were displayed to physicians and pharmacists as they cared for enrolled patients, with a printed note (rather than bottle labels) instructing the pharmacist to view the care suggestions in Pharmacist Intervention Recording System vs. control group where suggestions were withheld	113		4.7		0.10	
Verheijden, 2004 [14]	Mean perceived social support	Score unit	Web-based nutrition counseling and social support vs. usual care	68 61	5.7 5.7	5.63 5.53	-0.07 -0.17	-0.1 -0.10	0
	Mean BMI	kg/m^2	Web-based	68	29.2	29.19	-0.01	-0.01	0

Evidence Table 12. Outcomes related to heart disease in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
			nutrition counseling and social support vs. usual care	61	29.5	29.48	-0.02	0.29	
	Mean systolic blood pressure	mm Hg	Web-based nutrition counseling and social support vs. usual care	68 61	136 134	130.8 132.1	-5.2 -1.9	3.3 1.30	0
	Mean diastolic blood pressure	mm Hg	Web-based nutrition counseling and social support vs. usual care	68 61	80 81	76.8 78.5	-3.2 -2.5	0.7 1.70	0
	Mean total cholesterol	mmol/L	Web-based nutrition counseling and social support vs. usual care	68 61	5.4 5.5	5.29 5.42	-0.11 -0.08	0.03 0.13	0
Wakefield, 2008 [15]	Minn Living With Hheart Failure score (higher score= worse quality of life)	Score unit	Videophone follow-up vs. usual care	42 33	60.6 60.2	56.6 54	-4 -6.2	-2.2 -2.60	0
	Minn Living With Heart Failure score (higher score= worse quality of life)	Score unit	Telephone follow-up verses usual care	42 34	60.6 58.4	56.6 41.5	-4 -16.9	-12.9 -15.10	0
	% mortality	% of patients	Videophone follow-up vs. usual care	49 52		22.4 28.9		 6.50	0

Evidence Table 12. Outcomes related to heart disease in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	Mortality		Telephone follow-up vs. usual care. Usual care subjects contacted their primary care nurse case manager by telephone if needed. Intervention subjects contacted their assigned study nurse via telephone if needed after discharge. The intervention nurses reinforced discharge plans, had full access to patient records, and employed strategies to improve subjects' compliance with prescribed treatment plans.	49 47		22.4 21.3		 -1.10	0

**SNR: Significance not reported

P-value of "0" denotes a p-value > 0.10

SNR = Significance not reported; ABPM: Ambulatory blood pressure monitoring; CV = Cardiovascular; DVT = Deep vein thrombosis; HbA1c = Glycated hemoglobin; HDL-c; High-density lipoprotein cholesterol; HTN = Hypertension; INR = International normalized ratio; kg = Kilograms; L = Liters; LDL-c = Low-density lipoprotein cholesterol; mm Hg = Millimeters Mercury; mmol = Millimoles; PE = Pulmonary embolism; PIRS = Pharmacist Intervention Recording System; Minn = Minnesota

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Evidence Table 13. Outcomes related to cancer in studies addressing clinical outcomes

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
Maslin, 1998[1]	Mental health score on Short Form-36 questionnaire	Score unit	Interactive video disk system + usual care from multidisciplinary team vs. usual care from multidisciplinary team	49 51	68 60	68 68	0 8	8 0	0
	Anxiety score on the hospital anxiety and depression scale	Score unit	Interactive video disk system + usual care from multidisciplinary team vs. usual care from multidisciplinary team	49 51				 0	<0.001
McDonald, 2005[2]	Pain at its worst (range: 0-10)	Score unit	Patient-specific, one-time e-mail reminder with pain-specific recommendations vs. usual care	234 242		4.5 3.3		 -1.2	0
	Pain on average (range: 0-10)	Score unit	Patient-specific, one-time e-mail reminder with pain-specific recommendations vs. usual care	234 242		3.7 3.1		 -0.6	0.03
	Pain interference scale (range: 0-10)	Score unit	Patient-specific, one-time e-mail reminder with pain-specific recommendations vs. usual care	234 242		5.3 5.2		 -0.1	0
	Best quality of life	Score unit	Patient-specific, one-time e-mail reminder with pain-specific recommendations vs. usual care	234 242		16.1 15.2		 -0.9	0
	Severe pain	Score	Patient-specific, one-	234		28.4			0

Evidence Table 13. Outcomes related to cancer in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
		unit	time e-mail reminder with pain-specific recommendations vs. usual care	242		32.8		4.4	
	Severe insomnia	Score unit	Patient-specific, one-time e-mail reminder with pain-specific recommendations vs. usual care	234		40.9			0
				242		12		-28.9	
	Severe constipation	Score unit	Patient-specific, one-time e-mail reminder with pain-specific recommendations vs. usual care	234		18.9			0
				242		64		45.1	
	Pain at its worst (range: 0-10)	Score unit	E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach vs. usual care	234		4.5			0
				197		3.3		-1.2	
	Pain on average (range: 0-10)	Score unit	E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach vs. usual care	234		3.7			0.03
				197		3.1		-0.6	
	Pain interference scale (range: 0-10)	Score unit	E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach vs. usual care	234		5.3			0
				197		5.2		-0.1	
	Best quality of life	Score unit	E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach vs. usual care	234		16.1			0
				197		15.2		-0.9	
	Severe pain	Score	E-mail reminder +	234		28.4			0

Evidence Table 13. Outcomes related to cancer in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
		unit	provider prompts + patient education + clinical nurse specialist outreach vs. usual care	197		32.8		4.4	
	Severe insomnia	Score unit	E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach vs. usual care	234 197		40.9 12		 -28.9	0
	Severe constipation	Score unit	E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach vs. usual care	234 197		18.9 64		 45.1	0
Ruland, 2003[3]	Number of reported symptoms (0-10)	% of patients with outcome	Used computerized system for shared decision making for cancer symptoms care vs. usual care	25 27		2.25 2.73		 0.48	0
	Number of reported symptoms (0-15)	% of patients with outcome	Used computerized system for shared decisionmaking for cancer symptoms care vs. usual care	25 27		2.25 3.77		 1.52	0.032
	Number of reported symptoms (0-20)	% of patients with outcome	Used computerized system for shared decisionmaking for cancer symptoms care vs. usual care	25 27		2.18 4.5		 2.32	0.016
	Number of reported symptoms (0-25)	% of patients with outcome	Used computerized system for shared decisionmaking for cancer symptoms care vs. usual care	25 27		2.17 5.28		 3.11	0.004
	Number of reported	% of	Used computerized	25		2.17			0.017

Evidence Table 13. Outcomes related to cancer in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	symptoms (0-30)	patients with outcome	system for shared decisionmaking for cancer symptoms care vs. usual care	27		5.25		3.08	
	Number of reported symptoms (0-40)	% of patients with outcome	Used computerized system for shared deicionmaking for cancer symptoms care vs. usual care	25 27		2.63 6.56		 3.93	0
	Number of reported symptoms (0-50)	% of patients with outcome	Used computerized system for shared decisionmaking for cancer symptoms care vs. usual care	25 27		2.84 7.63		 4.79	0.042
Taenzer, 2000[4]	Physical functioning (higher score indicate better function)	Score unit	Lung cancer patients whose physicians and nurses received quality-of-life training and who completed the computerized European Organization for Research and Treatment of Cancer Questionnaire (EORTC QLQ) vs. patients who completed a paper-and-pencil version of the EORTC QLQ only	26 27		76.9 60		 -16.9	<0.05
	Role functioning	Score	Lung cancer patients	26		84.6			<0.01

Evidence Table 13. Outcomes related to cancer in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	(higher scores indicate better function)	unit	whose physicians and nurses received quality-of-life training and who completed the computerized EORTC QLQ vs. patients who completed a paper-and pencil version of the EORTC QLQ only	27		55.6		-29	
	Emotional functioning (higher scores indicate better function)	Score unit	Lung cancer patients whose physicians and nurses received quality-of-life training and who completed the computerized EORTC QLQ vs. patients who completed a paper-and-pencil version of the EORTC QLQ only	26		76.3			0
				27		75.9		-0.4	
	Cognitive functioning (higher scores indicate better function)	Score unit	Lung cancer patients whose physicians and nurses received quality-of-life training and who completed the computerized EORTC QLQ vs. patients who completed a paper-and-pencil version of the EORTC QLQ only	26		81.4			0
				27		80.3		-1.1	
	Social functioning	Score	Lung cancer patients	26		78.9			0

Evidence Table 13. Outcomes related to cancer in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	(higher scores indicate better function)	unit	whose physicians and nurses received quality-of-life training and who completed the computerized EORTC QLQ vs. patients who completed a paper-and-pencil version of the EORTC QLQ only	27		74		-4.9	
	Global functioning (higher scores indicate better function)	Score unit	Lung cancer patients whose physicians and nurses received quality-of-life training and who completed the computerized EORTC QLQ vs. patients who completed a paper-and-pencil version of the EORTC QLQ only	26 27		64.7 52.8		 -11.9	0
	Number of functional scales indicating compromised function	Number of scales	Lung cancer patients whose physicians and nurses received quality-of-life training and who completed the computerized EORTC QLQ vs. patients who completed a paper-and-pencil version of the EORTC QLQ only	26 27		3 3.6		 0.6	0
	Fatigue (higher	Score	Lung cancer patients	26		28.6			0

Evidence Table 13. Outcomes related to cancer in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	scores indicate more symptomatology)	unit	whose physicians and nurses received quality-of-life training and who completed the computerized EORTC QLQ vs. patients who completed a paper-and-pencil version of the EORTC QLQ only	27		41.2		12.6	
	Nausea and vomiting (higher scores indicate more symptomatology)	Score unit	Lung cancer patients whose physicians and nurses received quality-of-life training and who completed the computerized EORTC QLQ vs. patients who completed a paper-and-pencil version of the EORTC QLQ only	26 27		9 8.6		 -0.4	0
	Pain (higher scores indicate more symptomatology)	Score unit	Lung cancer patients whose physicians and nurses received quality-of-life training and who completed the computerized EORTC QLQ vs. patients who completed a paper-and-pencil version of the EORTC QLQ only	26 27		15.4 26.5		 11.1	0
	Dyspnea (higher	Score	Lung cancer patients	26		34.6			<0.05

Evidence Table 13. Outcomes related to cancer in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	scores indicate more symptomatology)	unit	whose physicians and nurses received quality-of-life training and who completed the computerized EORTC QLQ vs. patients who completed a paper-and-pencil version of the EORTC QLQ only	27		51.9		17.3	
	Sleep disturbance (higher scores indicate more symptomatology)	Score unit	Lung cancer patients whose physicians and nurses received quality-of-life training and who completed the computerized EORTC QLQ vs. patients who completed a paper-and-pencil version of the EORTC QLQ only	26 27		24.4 29.6		 5.2	0
	Appetite (higher scores indicate more symptomatology)	Score unit	Lung cancer patients whose physicians and nurses received quality-of-life training and who completed the computerized EORTC QLQ vs. patients who completed a paper-and-pencil version of the EORTC QLQ only	26 27		19.2 25.9		 6.7	0
	Constipation	Score	Lung cancer patients	26		18			0

Evidence Table 13. Outcomes related to cancer in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	(higher scores indicate more symptomatology)	unit	whose physicians and nurses received quality-of-life training and who completed the computerized EORTC QLQ vs. patients who completed a paper-and-pencil version of the EORTC QLQ only	27		19.8		1.8	
	Diarrhea (higher scores indicate more symptomatology)	Score unit	Lung cancer patients whose physicians and nurses received quality-of-life training and who completed the computerized EORTC QLQ vs. patients who completed a paper-and-pencil version of the EORTC QLQ only	26 27		5.1 2.5		 -2.6	0
	Financial difficulties (higher scores indicate more symptomatology)	Score unit	Lung cancer patients whose physicians and nurses received quality-of-life training and who completed the computerized EORTC QLQ vs. patients who completed a paper-and-pencil version of the EORTC QLQ only	26 27		18 12.4		 -5.6	0
	Number of	Number	Lung cancer patients	26		4			0

Evidence Table 13. Outcomes related to cancer in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	symptom scales indicating compromised functioning	of scales	whose physicians and nurses received quality-of-life training and who completed the computerized EORTC QLQ vs. patients who completed a paper-and-pencil version of the EORTC QLQ only	27		4.6		0.6	
	Number of functional and symptom scales indicating compromised function	Number of scales	Lung cancer patients whose physicians and nurses received quality-of-life training and who completed the computerized EORTC QLQ vs. patients who completed a paper-and-pencil version of the EORTC QLQ only	26 27		7.1 8.2		 1.1	0
	Total number of items endorsed	Number of items	Lung cancer patients whose physicians and nurses received quality-of-life training and who completed the computerized EORTC QLQ vs. patients who completed a paper-and-pencil version of the EORTC QLQ only	26 27		10.6 13.1		 2.5	0

**SNR: Significance not reported

P-value of "0" denotes p-value > 0.10

EORTC QLQ: European Organization for Research and Treatment of Cancer Quality of Life Questionnaire.

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Evidence Table 14. Outcomes related to hypertension in studies addressing clinical outcomes

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
Bosworth, 2009[1]	Estimated mean systolic blood pressure	mm Hg	Patient behavioral intervention group vs. control group (HTN reminder) whose providers did not receive decision support system	143	141.6	136.8	-4.8	2.3	0
				144	138.8	136.3	-2.5	-0.50	
	Estimated mean systolic blood pressure	mm Hg	Combined patient and provider intervention vs. control group (HTN reminder) whose providers did not receive decision support system	143	141.6	136.8	-4.8	2.4	0
				150	139.2	136.8	-2.4	0.00	
	Estimated mean systolic blood pressure	mm Hg	Provider decision support system group vs. control group (HTN reminder)	143	141.6	136.8	-4.8	-2.6	0
				151	139.1	136.9	-2.2	0.10	
	Estimated % in blood pressure control	% of patients	Patient behavioral intervention	143	32	43.9	11.9	3.4	0

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
			group vs.control group (HTN reminder) whose providers did not receive decision support system	144	44.2	59.5	15.3	15.60	
	Estimated % in blood pressure control	% of patients	Provider decision support system group vs. control group (HTN reminder) whose providers did not receive decision support system	143	32	43.9	11.9	-13.1	0
				151	44.9	43.7	-1.2	-0.20	
	Estimated percent in blood pressure control	% of patients	Combined patient and provider intervention vs. control group (HTN reminder) whose providers did not receive decision support system	143	32	43.9	11.9	0	0
				150	36.2	48.1	11.9	4.20	
Fretheim,	Cardiovascular	Cardiovasc	Educational	446	14.5	14	-0.5	-0.3	0

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
2006[2]	risk among patients started on treatment	ular risk score	outreach visit with audit and feedback, and computerized reminders linked to the medical record system vs. passive dissemination of guidelines	516	15.1	14.3	-0.8	0.3	
	Patients with cardiovascular risk above 20%	% of patients with outcome	Educational outreach visit with audit and feedback, and computerized reminders linked to the medical record system vs. passive dissemination of guidelines	446	23.4	22	-1.4	-1.5	0
				516	25.8	22.9	-2.9	0.9	
	Treatment goal achieved among diabetes patients	% of patients with outcome	Educational outreach visit with audit and feedback, and computerized reminders linked to the medical record system vs. passive dissemination of guidelines	446	30.6	33.7	3.1	-2.2	0
				516	30.6	31.5	0.9	-2.2	
	Treatment goal	% of	Educational	446	29.7	31.3	1.6	0.8	0

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	for HTN achieved	patients with outcome	outreach visit with audit and feedback, and computerized reminders linked to the medical record system vs. passive dissemination of guidelines	516	24.8	27.2	2.4	-4.1	
Green, 2008[3]	Adjusted change in systolic blood pressure at 12 months	mm Hg	Blood pressure monitoring and patient Web services vs. usual care	247 246		−5.3 -8.2		 -2.90	0.03
	Adjusted change in systolic blood pressure at 12 months	mm Hg	Blood pressure monitoring and patient Web services and pharmacist care vs. usual care	247 237		−5.3 -14.2		 -8.90	<0.001
	% of patients with controlled blood pressure at 12 months	% of patients	Blood pressure monitoring and patient Web services vs. usual care	247 246		31 36		 5.00	0
	% of patient with controlled	% of patients	Blood pressure monitoring and	247		31			<0.001

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	blood pressure at 12 months		patient Web services and pharmacist care vs. usual care	237		56		25.00	
Hicks, 2008[4]	Blood pressure control	% of patients	Computerized support vs. usual care	1048		45			0
				786		48		3.00	
	Mean systolic blood pressure at outcome visit	mm Hg	Computerized support vs. usual care	1048		137			0
				786		138		1.00	
	Mean diastolic blood pressure at outcome visit	mm Hg	Computerized support vs. usual care	1048		78			<0.05
				786		77		-1.00	
Madsen, 2008[5]	Daytime ABPM systolic blood pressure	mm Hg	Telemonitoring of blood pressure vs. conventional monitoring of blood pressure	118	152.2	142.7	-9.5	-2.5	0
				105	153.1	141.1	-12	-1.60	
	Daytime ABPM diastolic blood pressure	mm Hg	Telemonitoring of blood pressure vs. conventional monitoring of blood pressure	118	90.5	85.1	-5.4	-0.8	0
				105	91.2	85	-6.2	-0.10	

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	Nighttime ABPM systolic blood pressure	mm Hg	Telemonitoring of blood pressure vs. conventional monitoring of blood pressure	118 105	133.7 132	125.2 122.6	-8.5 -9.4	-0.9 -2.60	0
	Nighttime ABPM diastolic blood pressure	mm Hg	Telemonitoring of blood pressure vs. conventional monitoring of blood pressure	118 105	77.8 77.6	72.6 71.8	-5.2 -5.8	-0.6 -0.80	0
	Daytime ABPM systolic blood pressure (age >=60)	mm Hg	Telemonitoring of blood pressure vs. conventional monitoring of blood pressure	50 45		144.3 142.3		 -2.00	0
	Daytime ABPM diastolic blood pressure (age >=60)	mm Hg	Telemonitoring of blood pressure vs. conventional monitoring of blood pressure	50 45		84 82.8		 -1.20	0
	Change in daytime ABPM systolic blood pressure (age >=60)	mm Hg	Telemonitoring of blood pressure vs. conventional monitoring of blood pressure	50 45		-7 -12.4		 -5.40	0.086
	Change in	mm Hg	Telemonitoring	50		-3.7			0

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	daytime ABPM diastolic blood pressure (age >=60)		of blood pressure vs. conventional monitoring of blood pressure	45		-6		-2.30	
	% achieved target blood pressure	% of Patients	Telemonitoring of blood pressure vs. conventional monitoring of blood pressure	50		25			0.01
				45		60		35.00	
Mitchell, 2004[6]	Final systolic blood pressure	mm Hg	Audit only practices vs. patients who received no feedback	1813		148			0
				1339		151.2		3.20	
	Final systolic blood pressure	mm Hg	Audit plus Strategic practices vs. patients who received no feedback	1813		148			0
				1951		146.5		-1.50	
	Final proportion with controlled blood pressure in hypertensive patients	% of Patients	Audit only practices vs. patients who received no feedback	1813		45.7			0
				1339		33.5		-12.20	
	All patients	% of	Audit only	1813	47.5	58	10.5	-2.5	0

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	with blood pressure<160/90	Patients	practices vs. patients who received no feedback	1339	39	47	8	-11.00	
	All patients with blood pressure>=160/90	% of Patients	Audit only practices vs. patients who received no feedback	1813	30.1	24.1	-6	5.9	0
				1339	26.8	26.7	-0.1	2.60	
	All patients with no recorded blood pressure	% of Patients	Audit only practices vs. patients who received no feedback	1813	22.4	17.9	-4.5	-3.4	0
				1339	34.2	26.3	-7.9	8.40	
	Final proportion with controlled blood pressure in hypertensive patients	% of Patients	Audit plus strategic practices vs. patients who received no feedback	1813		45.7			0.028
				1951		45.5		-0.20	
	All patients with blood pressure<160/90	% of Patients	Audit plus strategic practices vs. patients who received no feedback	1813	47.5	58	10.5	-1.8	0.08
				1951	54.3	63	8.7	5.00	
	All patients with blood pressure>=160/90	% of Patients	Audit plus strategic practices vs. patients who received no feedback	1813	30.1	24.1	-6	1.9	0
				1951	26.9	22.8	-4.1	-1.30	
	All patients	% of	Audit plus	1813	18.8	17.9	17.9	-22.5	0

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	with no recorded blood pressure	Patients	strategic practices vs. patients who received no feedback	1951		14.2	-4.6	-3.70	
	Blood pressure control	% of Patients	Audit plus strategic practices vs. patients who received no feedback	1813		45.7			
				1339		33.5		-12.20	
	Blood pressure control	% of Patients	Audit plus strategic practices vs. patients who received no feedback	1813		45.7			
				1951		45.5		-0.20	
Montgomery, 2000[7]	Mean 5-yr cardiovascular risk	Risk score units	Clinical decision system support plus risk chart vs. usual care	130	17.3	17.8	0.5	0.2	<0.01
				202	16	16.7	0.7	-1.10	
	Mean systolic blood pressure	mm Hg	Clinical decision system support plus risk chart vs. usual care	130	158	159	1	-1	0
				202	153	153	0	-6.00	
	Mean diastolic blood pressure	mm Hg	Clinical decision system support plus risk chart vs. usual care	130	86	84	-2	2	**SNR
				202	85	85	0	1.00	
	Mean 5-yr	Risk score	Cardiovascular	130	17.3	17.8	0.5	-0.9	<0.01

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	cardiovascular risk	units	risk chart vs. usual care (routine clinical care)	199	17.9	17.5	-0.4	-0.30	
	Mean systolic blood pressure (mm Hg)	mm Hg	Cardiovascular risk chart vs. usual care (routine clinical care)	130 199	158 156	159 153	1 -3	-4 -6.00	0.02
	Mean diastolic blood pressure	mm Hg	Cardiovascular risk chart vs. usual care (routine clinical care)	130 199	86 87	84 86	-2 -1	1 2.00	**SNR
	Number of patients with 0-1 classes of drugs prescribed	Number of patients	Clinical decision system supportplus risk chart vs. usual care	130 202	58 88	50 81	-8 -7	1 31.00	0
	Number of patients with 3 classes of drugs prescribed	Number of patients	Clinical decision system support plus risk chart vs. usual care	130 202	45 75	47 74	2 -1	-3 27.00	0
	Number of patients with >=3 classes of drugs prescribed	Number of patients	Clinical decision system support plus risk chart vs. usual care	130 202	34 44	40 52	6 8	2 12.00	0
	Number of	Number of	Cardiovascular	130	58	50	-8	-22	0

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	patients with 0-1 classes of drugs prescribed	patients	risk chart vs. usual care (routine clinical care)	199	98	68	-30	18.00	
	Number of patients with 3 classes of drugs prescribed	Number of patients	Cardiovascular risk chart vs. usual care((routine clinical care)	130 199	45 58	47 67	2 9	7 20.00	0
	Number of patients with >=3 classes of drugs prescribed	Number of patients	Cardiovascular risk chart vs. usual care (routine clinical care)	130 199	34 52	40 73	6 21	15 33.00	0
Parati, 2009[8]	Quality of life at end of study per quality of life assessment in HTN patients' questionnaire	Score unit	Teletransmitted home blood pressure vs. usual care	113	38.2 37.7	38.3 38.4	0.1 0.7	0.6 0.10	0
	Quality of life at end of study per quality of life assessment in HTN patients' questionnaire	Score unit	Teletransmitted home blood pressure vs. patients who received usual care	113 216	38.2 37.7	38.3 38.4	0.1 0.7	0.6 0.10	0

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	% of patients with daytime blood pressure normalization	% of patients	Teletransmitted home blood pressure vs. Usual care	113 216		50 62	50 62	12 12.00	<0.05
	% of patients with daytime blood pressure normalization	% of patients	Teletransmitted home blood pressure vs. Patients who received usual care	113 		50 62	50 62	12 12.00	<0.05

**SNR: Significance not reported

P-value of 0 = p-value > 0.10

ABPM: Ambulatory blood pressure monitoring, CV: Cardiovascular, DVT: Deep-vein thrombosis, HbA1c: Glycated hemoglobin, HDL-c; High-density lipoprotein cholesterol, HTN: Hypertension, INR: International normalized ratio, kg: kilograms, l: Liters, LDL-c: Low-density lipoprotein cholesterol, mm Hg: Millimeters Mercury, mmol: Millimoles, PE: Pulmonary embolism, PIRS: Pharmacist Intervention Recording System, Minn: Minnesota, PTS: Patients.

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Evidence Table 15. Study characteristics of studies addressing intermediate outcomes.

Author, Year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion criteria	Exclusion Criteria	Jadad Score
Adachi, 2007[1]	Obesity	RCT	NS	Patient	Research site	20–65 yrs old, Female, BMI>=24 or BMI>=23 with mild hypertension, hyperlipidemia, or diabetes mellitus and reducing weight	BMI 30 or more, History of major medical or psychiatric problems or orthopedic problems that prohibited exercise, Received a diet and/or exercise program within 6 months, Currently, previously, or planning to be pregnant within 6 months	-1
Apkon, 2005[2]	Quality of care via 24 health care process measures	RCT	2002	System	Outpatient clinic, Military practices	18 yrs or older, Had scheduled appointment, Speak and read English	Less than 18 years old, Participated in Coupler session, Scheduled for obstetric care, Had emergency medical condition	-1
Barak, 2006[3]	Intervention helpfulness	Qualitative:		Clients seeking support through online support chat and profession, All therapists who evaluated the discussions	Pool of archived conversations	NS	NS	
Barnabei, 2008[4]	Menopause/HRT	RCT	NS	Clinician, Patient	Outpatient clinic	Women born between 1930 and 1960, Appointment scheduled between	Appointment related to current pregnancy or cancer	1

Evidence Table 15. Study characteristics of studies addressing intermediate outcomes (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion criteria	Exclusion Criteria	Jadad Score
						November 9, 2004, and December 2, 2005		
Beale, 2006[5]	Cancer (other)	RCT	(At least 3 months) (NS)	Patient	Patient	13-29 yrs old, Diagnosis of cancer	History of photo seizures, Inability to communicate in English, Spanish or French, Incapable of following study schedule	0
Bosworth, 2009[6]	Hypertension	RCT	(24)	Clinician, Patient	Medical system (network of hospitals and/or clinics)	Patient must be followed by one of the 32 randomized providers, Diagnosis of HTN, HTN prescription filled in the last year	Chronic kidney disease	0
Buhrman, 2004[7]	Chronic back pain	RCT	2001 (2)	Patient	Research site	1865 yrs, Access to the Internet, Had been in contact with a physician, Had back pain (i.e. lumbar, thoracic and/or cervical area, Had chronic pain (i.e., pain that lasted longer than 3 months)	Suffering pain that could increase as a consequence of activity (e.g., spinal stenosis), Wheelchair-bound, Had planned any surgical treatment, Suffered from heart or vascular diseases	2
Chan, 2003[8]	Asthma	RCT	NS	Patient	Outpatient clinic, Internet	6–17 yrs old, With persistent asthma	NS	0
Chen, 2008[9]	NS	RCT	2007 (2)	Patient	Outpatient clinic, specifically, the health	Chinese Asian	NS	0

Evidence Table 15. Study characteristics of studies addressing intermediate outcomes (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion criteria	Exclusion Criteria	Jadad Score
					promotion center of Sir Run Shaw Hospital, School of Medicine, Zhejiang University, China			
Clark, 2007[10]	CHF	RCT	2004 (12) (NS)	Patient	Medical system (network of hospitals and/or clinics)	More than 18 yrs old, Diagnosis of CHF, Telephone access	Current enrollment in a CHF disease management program, Planned cardiac surgery within 3 months, Diagnosis of hypertrophic cardiomyopathy/restrictive pericarditis, Eligible for heart transplant, Life expectancy <12 months, Untreated thyroid disease, Pregnancy	1
Col, 2007[11]	Menopause/HRT	RCT	2000 (24)	System	Outpatient clinic, Medical system (network of hospitals and/or clinics)	45-60 yrs old, Female, Premenopausal or postmenopausal	Non-English-speaking, Reported a history of dementia breast cancer, heart disease, or a terminal illness	2
Cruz-Correia, 2007[12]	Asthma	RCT	NS	System	Outpatient clinic	16-65 yrs old, Diagnosis of asthma for 6+ months, Use inhaled budesonide /formoterol, Pre-bronchodilator FEV1 >50% predicted	Severe psychiatric, neurological, oncologic or immunologic disease, Unable to access Internet during study period	2

Evidence Table 15. Study characteristics of studies addressing intermediate outcomes (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion criteria	Exclusion Criteria	Jadad Score
Dansky, 2008[13]	Heart failure	RCT	2004 (enrollment ended at 22 months)	Patient	Community, Residents served by home health agency	Patients with heart failure, Ability to communicate in conversational English, Cognitively intact, Able to see and hear the equipment, Had a phone line in the home	NS	-1
Delichatsios, 2001[14]	Obesity	RCT	(> 6 months) (NS)	Patient	Outpatient clinic	25 yrs,Sedentary, Suboptimal diet	Debilitating medical condition, Regularly exercise	1
Dobke, 2008[15]	Wound care	RCT	2003 (36)	Clinician, Patient	Hospital, Field wound care nurse	Problem wounds, Alert and intellectually interactive	NS	-1
East, 1999[16]	Mechanical ventilation management in ARDS	RCT	NS	Patient	Hospital, Medical system (network of hospitals and/or clinics)	Diagnosis of ARDS	ARDS for > 21 days duration, Severe chronic systemic disease	0
Feldman, 2005[17]	Heart failure: E-mail reminder to nurses	RCT	(45 days)	Clinician	Home health care	18 years or older, with a primary diagnosis of HF (ICD9-CM 428).	Not cognitively able to give informed consent, Non-English/Spanish-speaking	-2
Feldstein, 2006[18]	Osteoporosis	RCT	1999 (NS)	Clinician, Patient	Nonprofit, group-model HMO in the Pacific Northwest	50-89 yrs old, Female, HMO member for at least the 12 months before the start of the study, Sustained a study-defined fracture (any clinical fracture	Male, Pharmacological treatment for osteoporosis, Exclusionary medical condition (n5193), including malignancies (except non-melanoma skin cancers), chronic renal failure, dementia, organ transplant, and	1

Evidence Table 15. Study characteristics of studies addressing intermediate outcomes (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion criteria	Exclusion Criteria	Jadad Score
						except skull, facial, finger, toe, ankle, or any open fracture suggestive of high force)	cirrhosis, in the 12 months before the start of the study, Without a primary care provider, In osteoporosis clinical trials, Nursing home resident, Without an address, Research center employee, Received a BMD measurement	
Frank, 2004[19]	Cancer (breast)	RCT	1998 (12 months)	Clinician	Outpatient clinic	NS	NS	-2
Frosch, 2008[20]	Cancer (other) Prostate cancer	RCT, Fully crossed 2x2 factorial design	200 (15)	Patient	Outpatient clinic, Health Appraisal Clinic of Kaiser Permanente, San Diego, California	> 50 yrs old, Male, Had broadband Internet access at home or at work	NS	2
Gaertner, 2004[21]	Cancer and non-cancer chronic pain	RCT	NS	Patient	NS	All patients with cancer and non-cancer pain primarily seen in the outpatient clinic during the baseline phase, if their treatment was estimated to last longer than 4 weeks	Expected duration of treatment of <4 weeks, Physical or cognitive inability to use both pain diary versions, Refusal to provide written consent	1
Gielen, 2007[22]	Safety knowledge	RCT	2004 (17)	Parent	Medical system (network of hospitals and/or clinics), Pediatric emergency department	Parents of child 4-66 months old in ED, English-speaking parent or older sibling, Lived in Baltimore	Child suspected of abuse, Critically ill child	0
Glasgow,	Diabetes	RCT	(6)	Patient	Outpatient	More than 40 yrs	Had type 1 rather than	-1

Evidence Table 15. Study characteristics of studies addressing intermediate outcomes (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion criteria	Exclusion Criteria	Jadad Score
2000[23]					clinic	old, Meeting the Wellborn criteria 28 for type 2 diabetes on the basis of age at diagnosis, body mass index, and when insulin was begun, Lliving independently, Had a telephone, Not planning to move out of the area	type 2 diabetes, Not intending to be in the area for the coming year, Having no telephone	
Glasgow, 2006[24]	Diabetes	RCT		Patient	Outpatient clinic	25 yrs or older, Diagnosed with type 2 diabetes for at least 6 months, Able to read and write English	NS	1
Glazebrook, 2006[25]	Cancer (other) melanoma	RCT	NS)	Patient	Outpatient clinic	From a convenience sample of morning, afternoon, and evening surgeries, Patient with at least one risk factor for melanoma (red hair, multiple moles, history of sunburn as a child, freckling, family history of melanoma, fair sun-sensitive skin)	NS	1
Gomez,	Diabetes	Pilot	(6-month	Patient	Hospital	Inadequate	NS	-2

Evidence Table 15. Study characteristics of studies addressing intermediate outcomes (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion criteria	Exclusion Criteria	Jadad Score
2002[26]		crossover	crossover)			metabolic control and diabetes mellitus duration of over 5 years		
Gray, 2000[27]	Care for premature infants	RCT	1997 (18 months)	Patient	Hospital, Home through telemedicine	Premature infants, VLBW, Admitted to NICU during study period, Born at one hospital (Beth Israel Deaconess Medical Center) during study period, Part of a multiple birth: One child randomized to study and siblings got the same intervention	Expected length of stay <14 days, Family had no permanent residence, Non-English-speaking, Discharge to other than biologic family expected, ISDN access not available at family's primary residence, Followup stopped if child died in NICU or was sent to a chronic care facility	-1
Green, 2008[28]	Hypertension	RCT	2005 (18)	Patient	Medical system (network of hospitals and/or clinics), Large, nonprofit, integrated group practice (Group Health)	Patients 25-75 yrs old, With controlled HTN, Taking anti-HTN medications, Ability to use a computer, Regular access to the Web, An e-mail address, Willingness to attend screening visits, Obtained all antihypertensive medications at Group Health–owned	No diagnoses of diabetes, cardiovascular, or renal disease, or other serious conditions	1

Evidence Table 15. Study characteristics of studies addressing intermediate outcomes (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion criteria	Exclusion Criteria	Jadad Score
						pharmacies		
Harno, 2006[29]	Diabetes	RCT	2001 (12-24)	System, Clinician, Patient	Hospital, Outpatient clinic	Patients with type 1 or type 2 diabetes	Technical reasons, Other diseases or lifestyle problems, Refused or reason unknown	1
Helzer, 2008[30]	Alcohol abuse	RCT	2000 (36)	Patient	Medical system (network of hospitals and/or clinics)	More than 21 yrs old, Female with >7 standard drinks per day, or Male with >14 standard drinks per day	Substance abuse diagnosis in last 12 months, Psychosis or major depression with medication change in last 12 months, Plans to move out of the area within 6 months, Lack of daily phone access	0
Homko, 2007[31]	Diabetes	RCT, Pre-test/post-test, design	January 2003 (43)	Patient	Outpatient clinic, Endocrinology outpatient department of a tertiary care hospital	Able to access the Internet in the home, Able to perform blood glucose self-testing, Had own cellular phone	Clinical history of a severe illness, Renal insufficiency with a creatinine level >1.5mg/dl, Using insulin pump	0
Hunter, 2008[32]	Obesity	RCT	2003 (recruited between June 2003 and October 2005)	Patient	USAF personnel	18-65 yrs old, USAF personnel, weight within 5 pounds or above their maximum allowable weight (MAW) for the USAF, Availability of a personal computer with Internet access, Plans to remain in the local area for 1 year, At Lackland or Randolph Air Force Base or	Lost more than 10 pounds in the previous 3 months, Used prescription or over-the-counter weight-loss medications in the previous 6 months, Had any physical activity restrictions, Had a history of myocardial infarction, stroke, or cancer in the last 5 years, Reported diabetes, angina, or thyroid difficulties, or had orthopedic or joint problems that would prohibit exercise,	2

Evidence Table 15. Study characteristics of studies addressing intermediate outcomes (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion criteria	Exclusion Criteria	Jadad Score
						Brooks City Base	Currently pregnant or breast-feeding, or had plans to become pregnant in the next year	
Jan, 2007[33]	Asthma	RCT	2004 (12)	Patient	Outpatient clinic, Pediatric allergy and asthma clinic at National Cheng Kung University Medical Center	6-12 yrs old, Had access to the Internet via their caregiver, Diagnosed as having persistent asthma following the GINA clinical practice guidelines	Diagnosis of bronchopulmonary dysplasia, Other chronic co-morbid condition that could affect their quality of life	-1
Japuntich, 2006[34]	Smoking	RCT	2001 (21)	Patient	NS	18 yrs or older, Smoking at least 10 cigarettes per day, Had a traditional phone line, Literate in English	Being pregnant or likely to become pregnant during the study, Current depression, Current use of psychiatric medication, Medical condition contraindicating bupropion SR use, Current use of a smoking cessation product or treatment	-1
Jerant, 2003[35]	Alcohol abuse	RCT	1999 (12)	Patient	Home	40 yrs or older, Black, White or Hispanic, Male or female, Had an active telephone line in the home, English-speaking, Had a family physician or primary care physician in the UCD health	Charlson Co-morbidity score of 6 or greater, 15-item Geriatric Depression Scale score of 7 or greater, Mini-Mental State Exam score of 20 or lower, Symbol Digits Modalities Test >2 SDs below age-/education-adjusted mean score -- HL	-1

Evidence Table 15. Study characteristics of studies addressing intermediate outcomes (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion criteria	Exclusion Criteria	Jadad Score
						system, Adequate vision and hearing		
Kaner, 2007[36]	Atrial fibrillation and anticoagulation	Quasi-experimental: Qualitative	2003 (13)	Clinician, Patient	Outpatient clinic	General practitioners	NS	-1
Kim, 2004[37]	Wounds	Prospective cohort design	1999 (18)	Clinician, Patient	Outpatient clinic	Chronic stage 2, 3, or 4 pressure sores, Postoperative wounds having undergone a tissue flap procedure for a grade 3 or 4 pressure ulcer, Diabetic ulcer, Hospital inpatient, outpatient, or nursing home resident, Informed consent	Mentally incompetent	
Krishna, 2003[38]	Asthma	RCT	NS	Patient	Outpatient clinic, Pediatric Pulmonary and Allergy Clinic of the University of Missouri-Columbia Health Care	Less than 18 yrs old, Confirmed diagnosis of asthma	Diagnosis of cystic fibrosis, bronchopulmonary dysplasia, or other chronic lung diseases	2
Kukafka, 2002[39]	Patients with acute myocardial infarction	RCT	NS	Clinician, Patient	Community	Eligibility according to predetermined AMI risk criteria	NS	-2
Kuppermann, 2009[40]	Pregnancy	RCT	2001 (24)	Patient		Pregnant woman of any age, 20	Carrying more than one fetus, Had	0

Evidence Table 15. Study characteristics of studies addressing intermediate outcomes (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion criteria	Exclusion Criteria	Jadad Score
						weeks gestation or less, Had not yet undergone any prenatal testing, Ability to speak English or Spanish	become pregnant using in vitro fertilization, Candidate for prenatal diagnosis because of family history	
Kypri, 2004[41]	Substance abuse	RCT	2002	Patient	Online	17–26 yrs old, Scored 8 or more on the Alcohol Use Disorders Identification Test, Consuming more than four/six standard drinks (females/males) on one or more occasions in the preceding 4 weeks, User of the Student Health Service of the University of Otago	NS	2
Laffel, 2007[42]	Diabetes	RCT, Other: Continued observation	2008 (16.5)	Patient	Outpatient clinic, Home	Adult and pediatric (less than 21 yrs old), Regimen of two or more daily injections or continuous subcutaneous insulin infusion, Suboptimal (A1c 8%) but stable glycemic control, defined as A1c at week 4 within 1% of that at	Previous use of One Touch Ultra Smart, Risk of hypoglycemia as a contraindication to improving glycemic control, Regimen of premixed, fixed-ratio combination insulin with an unwillingness to use self-mixed insulin, Active use of meter downloading and computer-based data management software	2

Evidence Table 15. Study characteristics of studies addressing intermediate outcomes (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion criteria	Exclusion Criteria	Jadad Score
						enrollment (week 0), BG monitoring frequency of two or more times daily		
Liaw, 1998[43]	Alcohol abuse	RCT	(18) (NS)	Patient	Outpatient clinic	One or more chronic health problems	NS	1
Lieberman, 2006[44]	Alcohol abuse	RCT	(18)	Patient	Online	Alcohol-abusing subject (criteria not stated)	NS	0
Lorig, 2006[45]	Chronic condition/health problem	RCT	(18)	Patient	Online/ Research site	18 yrs or older, Physician's diagnosis of heart disease, chronic lung disease or type 2 diabetes, Access to computer, Internet and e-mail, Agreed to 1-2 hours per week of logon time spread over at least 3 sessions/wk for 6 weeks, Able to complete online questionnaire	Active treatment of cancer for 1 year, Participated previously in the small-group Chronic Disease Self-Management Program	0
Lowensteyn, 1998[46]	Coronary health assessment (primary prevention of CHD)	RCT	(3)	Clinician, Patient	Outpatient clinic	30-74 yrs old, No diagnosis of CVD, Physicians were invited to select patients from their practice to participate in the study. They were	NS	0

Evidence Table 15. Study characteristics of studies addressing intermediate outcomes (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion criteria	Exclusion Criteria	Jadad Score
						told to enroll patients for whom they thought a risk profile would be clinically useful		
Marceau, 2007[47]	Chronic pain	RCT	NS	System	Hospital	Older than 21 yrs English-speaking, Experiencing chronic pain for longer than 3 months	21 years or younger Younger than 21 yrs, Inability to speak or read English, Cognitive impairment, No access to a landline telephone	-1
Marcus, 2007[48]	Diet, exercise, physical activity, not obesity	RCT	(12)	Patient, telephone and printed letters	NS	18-65 yrs old, Healthy, Underactive	BMI >35, Asthma, Emphysema, Chronic bronchitis, HTN, Heart disease, Stroke, Medication that impaired physical performance	1
Marks, 2004[49]	Mental health (other): Panic/phobia	RCT	NS	Patient	Outpatient clinic	DSM-IV agoraphobia without panic disorder, Panic disorder with agoraphobia, Social phobia, or simple phobia, Rating of >=4 on the Global Phobia scale, Informed written consent, No active psychotic illness, Suicidal depression, or disabling cardiac or respiratory disease, Not on a	NS	1

Evidence Table 15. Study characteristics of studies addressing intermediate outcomes (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion criteria	Exclusion Criteria	Jadad Score
						benzodiazepine or a diazepam (equivalent dose of>5 mg/day), Not on>21 units (males) or >14 units (females) of alcohol a week, Had not begun or changed dose or type of antidepressant medication within the last 4 weeks		
Maslin, 1998[50]	Cancer (breast)	Quasi-experimental: Experimental random design, not blinded	(24)	Patient	Medical system (network of hospitals and/or clinics) (NS)	NS	Pregnancy, Evidence of bilateral or multifocal breast cancer, Large tumor, Paget's disease or inflammatory breast cancer, Evidence of extension or metastasis of breast cancer, Contraindication to mastectomy, Contradiction to radiation, Hearing visual or cognitive impairment	-1
Matheny, 2007[51]	Test result communication	RCT	2002 (29)	Clinician	Medical system (network of hospitals and/or clinics)	NS	Primary care physician raised concerns	0
McDonald, 2005[52]	Safety (over children)	RCT	2002 (4)	Parent of patient	Outpatient clinic	Availability in waiting room, Availability of recruiter	NS	2
Montgomery, 2000[53]	Hypertension	RCT	(12)	Clinician	Outpatient clinic	60-79 yrs old, Had	NS	1

Evidence Table 15. Study characteristics of studies addressing intermediate outcomes (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion criteria	Exclusion Criteria	Jadad Score
						hypertension diagnosis, Been prescribed antihypertensive drugs in the previous year		
Montgomery, 2007[54]	Pregnant women with a previous Caesarian section	RCT	May 2004 (20)	Patient	Medical system (network of hospitals and/or clinics)	Women with one previous lower segment Caesarean section, No current obstetric problems, Delivery expected at 37 weeks or more	Limited ability to speak or understand English, Most recent delivery was not a Caesarean section	-1
Napolitano, 2003[55]	Obesity	RCT	(1 and 3)		Medical system (network of hospitals and/or clinics), Employees, not necessarily patients	Physical activity Readiness Questionnaire (PAR-Q) negative, Overweight, Smoker	Physical activity Readiness Questionnaire (PAR-Q) if signs of cardiac or other health problem and physician forbid participation, Too active, Participating in (another) Internet weight loss study, Medical problems that could make compliance difficult or dangerous (e.g., CAD, CVA, ethanol/substance abuse), Hospitalization for psychiatric disorder in last 3 years or currently suicidal or psychotic, Orthopedic problems limiting exercise participation), Current or planned	1

Evidence Table 15. Study characteristics of studies addressing intermediate outcomes (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion criteria	Exclusion Criteria	Jadad Score
							pregnancy	
Neumann, 2006[56]	Alcohol abuse	RCT	2001 (15)	Patient	Hospital, emergency department	18 yrs or older, In Emergency Department, Primary diagnosis of acute injury, those who were readmitted were included in same study group	Medically unstable or required hospital admission, Had severe pain (>3 points on a 10-point numeric rating scale), Had a severe psychiatric condition, Did not speak German, In police custody, Pregnant, Member of the hospital staff, Severe intoxication	1
Nguyen, 2008[57]	COPD	RCT	(6 months intended but study stopped)	Patient	Pilot study: one group in face-to-face self-management program; the other in online program	Diagnosis of COPD and being clinically stable for at least 1 month, Spirometry results showing at least mild obstructive disease defined as post-bronchodilator forced expiratory volume in 1 (FEV1)-to-forced vital capacity (FVC) ratio 80% predicted, ADL limited by dyspnea, Use of the Internet and/or checking e-mail at least once per week with a Windows operating system, Oxygen	Any active symptomatic illness (cancer, heart failure, ischemic heart disease with known coronary artery or valvular heart disease, psychiatric illness, or neuromuscular disease), Participated in a pulmonary rehabilitation program in the last 12 months, Were currently participating in >2 days of supervised maintenance exercise	2

Evidence Table 15. Study characteristics of studies addressing intermediate outcomes (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion criteria	Exclusion Criteria	Jadad Score
						saturation > 85% on room air or 6 L/min of nasal oxygen at the end of a 6-minute walk test		
Ojima, 2003[58]	Periodontal disease management	RCT, Usability: Development of Web-based intervention system	NS	System	Workplace	Workers (unspecified location)	NS	-1
Parati, 2009[59]	Hypertension	RCT	NS	Clinician, Patient	Private practice	18-75 yrs old, Diagnosis of uncontrolled essential HTN	Diagnosis of secondary HTN, Major systemic disease, Atrial fibrillation, Frequent cardiac arrhythmias, Severe atrioventricular block, Obesity (BMI >30 kg/m^2) or an arm circumference of more than 32 cm or both, Technical problems due to incompatible phone lines at home	-1
Patten, 2006[60]	Smoking	RCT	2000 (9)	Patient	Outpatient clinic, Home	11-18 yrs old, Provided written informed assent/ consent, and as required by the IRB, a parent or guardian provided written informed consent if the teen was 11½-17 yrs old,	Homeless, Reported current (past 3 months) alcohol or drug abuse/dependence as assessed by the Personal Experience Screening Questionnaire, Recently received treatment for alcohol/	-1

Evidence Table 15. Study characteristics of studies addressing intermediate outcomes (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion criteria	Exclusion Criteria	Jadad Score
						Smoked a total of 10 cigarettes or more during the previous 30 days, Reported cigarettes were the primary tobacco product being used, Were willing and able to complete treatment and assessment visits	drug problems, Met current (past 3 months), DSM-IV criteria for major depressive disorder, Another study participant from the same household	
Peters, 2006[61]	Primary care	Quasi-experimental: Before/after patients/physicians	2002 (6)	Clinician, Patient, Cluster-randomized: 3/71 control, 3/71 intervention	Outpatient clinic, Medical system (network of hospitals and/or clinics)	NS	NS	-2
Piette, 2000[62]	Diabetes	RCT	()	Patient	Outpatient clinic, Home	Older than 75 yrs, Diabetes, On oral hypoglycemic drug	Psychotic, Life expectancy <12 months, Non-English/Spanish-speaking, Diabetic without medication, Leaving the clinic, No pushbutton telephone	2
Priebe, 2007[63]	Mental health (other): Schizophrenia and psychotic disorders	RCT	2002 (29)	Clinician, Patient	Community mental health care	18-65 yrs old, Professional qualification in mental health or a minimum of 1 year's professional experience in an outpatient	NS	1

Evidence Table 15. Study characteristics of studies addressing intermediate outcomes (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion criteria	Exclusion Criteria	Jadad Score
						setting, and an active caseload as key worker, The caseloads of participating clinicians were screened to identify suitable patients meeting the following inclusion criteria: Living in the community (not 24-h supported accommodation) and treated as outpatients by community psychiatric teams; Had routinely at least one meeting with their key worker every 2 months with the expectation that they would continue with the service for the next 12 months; Had no severe organic psychiatric illness or primary substance misuse		
Quinn, 2008[64]	Diabetes	RCT	(3)	Clinician, Patient	Outpatient clinic, cell phone	18–70 yrs old, Diagnosis of type 2 diabetes for at least 6 months, A1c >=7.5% and	NS	1

Evidence Table 15. Study characteristics of studies addressing intermediate outcomes (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion criteria	Exclusion Criteria	Jadad Score
						been on a stable diabetes therapeutic regimen for 3 months prior to study enrollment		
Rothert, 2006[65]	Obesity	RCT	2002 (6)	Patient	Outpatient clinic, Home	More than 18 yrs old, Patient of Kaiser Permanente, Web access, E-mail address, BMI 27-40 kg/m^2, Willing to complete followup questionnaires	Surgical management of obesity, Pregnant, Considering pregnancy	1
Roumie, 2006[66]	Hypertension	RCT	2003 (6)	System, Clinician, Patient	Hospital, Outpatient clinic	21-90 yrs old, Filled prescriptions at a Veterans Administration pharmacy, At least 2 uncontrolled blood pressure measurements in the 6-month baseline period (systolic blood pressure >140 mm Hg or diastolic blood pressure >=90 mm Hg), Only taking 1 antihypertensive medication	At least 1 recorded blood pressure reading between July and December 2003 that was at goal (systolic blood pressure <=90mm Hg), Declined chart review, Taking more than 1 antihypertensive medication at the time of chart review	2
Ruland, 2003[67]	Cancer (other)	RCT, Usability:	(2)	Clinician, Patient	Outpatient clinic	More than 21 yrs old, Able to	New patients coming for their first	-1

Evidence Table 15. Study characteristics of studies addressing intermediate outcomes (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion criteria	Exclusion Criteria	Jadad Score
		Cluster randomization at level of clinician				read, write, and speak English, No cognitive impairment, Able to provide informed consent, Did not feel too fatigued, Participation approved by patients' physicians	consultation	
Santamore, 2008[68]	Hypertension	RCT	NS	Patient	Medical system (network of hospitals and/or clinics)	18-85 yrs old,>=10% 10-year risk of CVD, Able to read, Had access to a telephone	Coronary artery disease, Class 3 or 4 heart failure, Severe angina, End-stage renal disease on dialysis, Living in nursing home or boarding home, Pregnancy	-1
Saver, 2007[69]	Cancer (breast)	RCT	2001		Medical system (network of hospitals and/or clinics)	45–75 yrs old, Female	Male	2
Schapira, 2007[70]	Post-menopausal women who needed to decide about hormone therapy	RCT	2002 (18)	Patient	Medical system (network of hospitals and/or clinics)	45-74 yrs old, Female, Post-menopausal defined as amenorrheic for 12 months or a documented FSH > 25IU/l.	Non-English-speaking, Cognitive dysfunction defined by a score of <23 on the Folstein MiniMental State exam, Absolute contraindication to the use of HT	0
Schumann, 2008[71]	Smoking	Not a clinical study: Study of theoretic	NS	Patient	Outpatient clinic	NS	NS	-2

Evidence Table 15. Study characteristics of studies addressing intermediate outcomes (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion criteria	Exclusion Criteria	Jadad Score
		al and empirical variability						
Sevick, 2008[72]	Diabetes	RCT	September 2004 and December 2006	System	Combination of scheduled visits and educational sessions at an academic research facility at the University of Pittsburgh and at community settings when participants employed the intervention in their daily lives.	18 yrs or older, Diagnosis of type 2 diabetes	History of hypoglycemic coma/seizure within the last 12 months, Hypoglycemia requiring 3rd party assistance within the last 3 months, Unwillingness to do capillary blood testing, History consistent with type 1 diabetes, Unwilling or unable to participate in scheduled group classes, Receiving renal dialysis	0
Shea, 2007[73]	Diabetes	RCT	2000 (35)	Patient, Nurse case managers	Federally designated medically underserved area (MUA or HPSA)	55 yrs or older, Current Medicare beneficiary, Had diabetes mellitus as defined by a physician's diagnosis and being on treatment with diet, an oral hypoglycemic agent, or insulin, Residence in a federally designated medically underserved area, Oral fluency in either English or	Moderate or severe cognitive, visual, or physical impairment or the presence of severe comorbid disease	2

Evidence Table 15. Study characteristics of studies addressing intermediate outcomes (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion criteria	Exclusion Criteria	Jadad Score
						Spanish		
Smith, 2008[74]	Diabetes	RCT	2003 (18)	Clinician	Medical system (network of hospitals and/or clinics)	Primary care physicians working in the 6 clinics, 120 internists and family medicine practitioners, and their panel of diabetes patients (N=5468)	NS	0
Stevens, 2008[75]	Adolescent behavior	RCT	2005 (9)	Patient,	Outpatient clinic	11-20 yrs old	NS	-1
Subramanian, 2004[76]	CHF	RCT	NS	Clinician, Patient	Outpatient clinic	Both an active diagnosis of heart failure and evidence of left ventricular systolic dysfunction on echocardiogram, cardiac scan, or cardiac catheterization	Not expected by their physicians to survive 1 year, Psychosis, Cognitive impairment, Hearing loss, No telephone access	-2
Taenzer, 2000[77]	Cancer (other)	RCT	NS	Patient	Outpatient clinic	Diagnosis of lung cancer, Attendance at TBCC output clinic, Fluent in English, Eyesight sufficient to use computer	NS	
Tate, 2006[78]	Obesity	RCT	NS	Patient	Research site	20-65 yrs old, Body mass index 27-40, Willingness to use meal replacements as part of the dietary regimen,	History of heart attack, stroke, or cancer in the past 5 years, Diabetes, angina, or orthopedic or joint problems that would prohibit exercise, A major psychiatric disorder	0

Evidence Table 15. Study characteristics of studies addressing intermediate outcomes (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion criteria	Exclusion Criteria	Jadad Score
						Availability of a computer with Internet access	involving hospitalization during the past year, Current, planned, or previous (within 6 months) pregnancy, Recent weight loss (e.g., from medications, surgery, or other), Residing with another participant, Transportation/extended travel/moving	
Taylor, 2008[79]	Asthma	RCT	2006	System, Clinician	Hospital, Medical system (network of hospitals and/or clinics)	NS	NS	-1
Thomas, 2004[80]	Mental health (other): Common mental disorders	RCT	(6)	Patient	Outpatient clinic	16 yrs or older, Completed the GHQ-124 and scored three or more	Previous diagnosis of psychotic illness, Mental handicap or cognitive impairment, Language or literacy difficulties, Severe or terminal physical illness	0
Tierney, 2003[81]	Heart failure	RCT	1994 (28)	Patient	Outpatient clinic	Patient with heart failure who had objective evidence of left ventricular dysfunction on an echocardiogram (either the cardiologist impression of left ventricular systolic dysfunction or a	Had no telephone, Were noncommunicative, prisoner, or nursing home resident	0

Evidence Table 15. Study characteristics of studies addressing intermediate outcomes (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion criteria	Exclusion Criteria	Jadad Score
						fractional shortening of <25%)		
Tierney, 2005[82]	Asthma COPD	RCT	1994 (12)	Clinician	Research hospital network	18 yrs or older, Had either previously visited the study practices The diagnosis of asthma or COPD recorded during any inpatient, Emphysema recorded as a reading on any prior chest radiograph, Two or more prescriptions for inhaled beta-agonists, corticosteroids, Ipratropium	NS	-1
Tjam, 2006[83]	Diabetes	RCT	2002 (20)		Hospital	Adult type 1 or 2 diabetes, Internet-proficient, Had access to internet	Blindness, No dexterity, Reading level below 5th grade, End-stage disease, Gestational diabetes	0
Trautmann, 2008[84]	Recurrent headache	Quasi-experimental	NS	NS	NS	10-18 yrs, At least 2 headache attacks per month	NS	1
Tuil, 2007[85]	Fertility (in vitro fertilization)	RCT	2004	Patient	Fertility clinic	More than 18 yrs old, Own a personal computer with Internet access, Fluent in Dutch	NS	-1
Wakefield,	Heart failure	RCT		Patient		Mini Mental	Assigned to control	1

Evidence Table 15. Study characteristics of studies addressing intermediate outcomes (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion criteria	Exclusion Criteria	Jadad Score
2008[86]						Status Exam score of > 22, Phone line at home, Diagnosis of heart failure, Hospital admission for heart failure exacerbation	group of larger study (no recordings available), Not all three interactions successfully recorded, Patient died or dropped out of study	
Williams, 2007[87]	Diabetes	RCT	(12)	Patient	Medical system (network of hospitals and/or clinics)	NS	NS	-1
Williamson, 2006[88]	Obesity	RCT	NS	Patient	Outpatient clinic	11-15 yrs old, African American, Female, BMI above the 85th percentile for age and gender based on 1999 National Health and Nutrition Examination Study normative data, At least one obese biological parent, One designated parent who was overweight and willing to participate in the study, Family was willing to pay $300 out-of pocket expenses toward the purchase of the	NS	1

Evidence Table 15. Study characteristics of studies addressing intermediate outcomes (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length in Months)	Level	Setting	Inclusion criteria	Exclusion Criteria	Jadad Score
						computer worth $1,000, The family home had electricity and at least one functional telephone line		
Winzelberg, 2000[89]	Prevent eating disorder	RCT	(2)	System	University	Female, Student from a West Coast public university, Desire to improve body image satisfaction	History of bulimia or anorexia nervosa, Purging behaviors, BMI below 18	-2
Woods, 1999[90]	Sickle cell anemia	Assigned to usual care/tele medicine based on clinic location	1998	Patient	Outpatient clinic, Outreach clinic or telemedicine	Adults with sickle cell disease	NS	
Yardley, 2007[91]	Fall prevention activities	RCT	2005 (July to December (6))	Patient	Web-based	65 yrs or older, Responded to advertisement for balance training		0
Yeh, 2008[92]	Diabetes	Quasi-experimental	NS	Patient	Outpatient clinic, University hospital outpatient diabetes clinic	Chinese, Mmale or female, Type 2 diabetes, Normal level of consciousness, Ability to read or communicate with spoken language	NS	

ARDS = acute respiratory distress syndrome; CAD = coronary artery disease; CHF = chronic heart failure; COPD = chronic obstructive pulmonary disease; CVA = cerebrovascular event; CVD = cardiovascular disease; DSIM-IV = Diagnostic and Statistical Manual of Mental Disorders – IV; ED = emergency department; HMO = health maintenance organization; HPSA = Health professional shortage area; HRT = hormone replacement therapy; HT = hormone therapy; HTN = hypertension; ISDN = integrated

services digital network; NICU = neonatal intensive care unit; NS = not specified; RCT = randomized controlled trial; USAF = United States Air Force; VLBW = very low birth weight

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Evidence Table 16. Participant characteristics of studies addressing intermediate outcomes

Author, Year	Control Intervention	Age	Female, n (%)	Race, n (%)	Income: Ranges, n (%)	Education, n (%)	Other Categories, n (%)
Adachi, 2007[1]	Control	Mean: 46.3, Range: 8.6	54 (100)	NS	NS	NS	Height (cm) 157.6, SD: 5.9; Body weight (kg) 65.1, SD: 6.4; BMI (kg/m^2): 26.1, SD: 1.6; [Daily habits 10 eating measures, 6 activity measures]
	KM group: Full KT program with 6-month weight and targeted behavior's self-monitoring	Mean: 46.6, Range: 10.1	46 (100)	NS	NS	NS	Height (cm) 157.5, SD: 6.1 ; Body weight (kg) 65.3, SD: 6.4; BMI (kg/m^2) 26.2, SD: 1.4; [Daily habits 10 eating measures, 6 activity measures]
	Group K: Full KT program only	Mean: 45.3, Range: 10.4	47 (100)	NS	NS	NS	Height (cm) 157.0, SD: 5.5; Body weight (kg) 64.8, SD: 6.5; BMI (kg/m^2) 26.2, SD: 1.5; [Daily habits 10 eating measures, 6 activity measures]
	Group BM: An untailored self-help booklet with 7-month self-monitoring of weight and walking	Mean: 46.6, Range: 9	58 (100)	NS	NS	NS	
Apkon, 2005[2]	Control	Mean: 35.3, SD: 11.0	587 (60.8)	NS	NS	NS	Military status – Active duty 425 (44.0), Beneficiary 490 (50.7), Reserve 0, Retired 51 (5.3); Visit type – Acute 416 (43.1), Established 27 (2.8), Routine 375 (38.8), Wellness 139 (14.4), Other 9 (0.9); Healthcare opportunities – Screening/prevention 662 (68.5), Acute/chronic 239 (24.7)
	Coupler group	Mean: 34.4, SD: 10.4	593 (63.4)	NS	NS	NS	Military status – Active duty 361 (38.6), Beneficiary 527 (56.3), Reserve 1 (0.1), Retired 47 (5.0); Visit type – Acute 383 (40.9), Established 47 (5.0), Routine 365 (39.0) ; Wellness: 126 (13.5), Other 15 (1.6); Healthcare opportunities – Screening/prevention 687 (73.4), Acute/chronic: 244 (26.1)
Barak, 2006[3]	Control	Range: 15-50	40	NS	NS	NS	

Evidence Table 16. Participant characteristics of studies addressing intermediate outcomes (continued)

Author, Year	Control Intervention	Age	Female, n (%)	Race, n (%)	Income: Ranges, n (%)	Education, n (%)	Other Categories, n (%)
	Study 1: Positive statements re helpfulness vs. Alternative (A): did not mention anything	Range: 15-50	40	NS	NS	NS	
Barnabei, 2008[4]	Control	Mean: 52.5 SD: 5.6	147 (100)	White: 130 (90), Non-white: 15 (10)	NS	HS grad or less 18 (12), Trade school, some college or more: 127 (88)	Current HT use – Yes 43 (29), No 104 (71)
	Talktoyourdoc (TTYD) tool	Mean: 52.5 SD: 5.3	141 (100)	White: 126 (92), Non-white: 11 (8)	NS	HS grad or less: 19 (14), Trade school, some college or more: 119 (86)	Current HT use – Yes 39 (28), No 102 (72)
Beale, 2006[5]	Control			NS	NS	NS	Did not report on control group
	Received access to Re-Mission, and 195 actually received the intervention			NS	NS	NS	
Bosworth, 2009[6]	Control	Mean: 64, SD: 12	(1)	White: (58), Black: (38), Other: (2)	Employed: (34), Inadequate income: (20)	HS or less: (51)	Married (73); Taking BP meds for >5yr (57); No exercise (42); Current smoker (24); Diabetic (41), Baseline BP control (34); SBP, mean (SD): 142 (19), DBP, mean (SD): 76 (12)
	Provider decision support intervention	Mean: 63, SD: 11	(3)	White: (58), Black: (39), Other: (2)	Employed: (32), Inadequate income: (21)	HS or less: (52)	Married (66); Taking BP meds for >5yrs (56); No exercise (41); Current smoker (21); Diabetic (39); Baseline BP control (46); SBP, mean 138, SD: 17; DBP, mean 76, SD 10
	Patient behavioral intervention	Mean: 65, SD: 11	(1)	White: (57), Black: (38), Other1: (5)	Employed: (26), Inadequate income: (22)	HS or less: (50)	Married (72); Taking BP meds for >5 yrs (58); No exercise (49); Current smoker (30); Diabetic (31); Baseline BP control (45); SBP, mean 139, SD: 17, DBP, mean 74, SD: 12

Evidence Table 16. Participant characteristics of studies addressing intermediate outcomes (continued)

Author, Year	Control Intervention	Age	Female, n (%)	Race, n (%)	Income: Ranges, n (%)	Education, n (%)	Other Categories, n (%)
	Combined	Mean: 62, SD: 11	(3)	White: (55), Black: (43), Other: (2)	Employed: (23), Inadequate income: (23)	HS or less: (51)	Married (62), Taking BP meds for >5 yrs: (55); No exercise (44); Current smoker (26); Diabetic (38); Baseline BP control (36); SBP, mean 140, SD: 18; DBP, mean 78, (SD): 11
Buhrman, 2004[7]	Control	Mean: 45, Range: 10.7	18 (62.1)	NS	NS	Nine-year compulsory school: 7 (24.1), Upper secondary school: 6 (21), University education <2 years: 2 (6.9), University education >2 years: 14 (48.3)	
	Participants were instructed to follow the scheduled program, reading the information corresponding to each week, and submitting treatment registrations regularly. If the diary data were not delivered as expected, a reminder was sent one week later. Participants were also encouraged to ask questions or comment on pain, the training program or other relevant issues. They could do this by e-mail or during the weekly telephone call	Mean: 43.5, Range: 10.3	14 (63.6)	NS	NS	Nine-year compulsory school: 2 (9.1), Upper secondary school: 6 (27); University education <2 years: 3 (13.6), University education >2 years: 11 (50)	
Cruz-Correia, 2007[8]	Control	Mean: 29	15(71)	NS	NS	Median, yrs: 11, Range, yrs: 4-18	

Evidence Table 16. Participant characteristics of studies addressing intermediate outcomes (continued)

Author, Year	Control Intervention	Age	Female, n (%)	Race, n (%)	Income: Ranges, n (%)	Education, n (%)	Other Categories, n (%)
	P'ASMA (portal for assessment and self-management of asthma)	Mean: 29	15(71)	NS	NS	Median, yrs: 11, Range, yrs: 4-18	
Col, 2007[9]	Control	Mean: 53.2, Median: 5.1		White:(96.0)	NS	<8 yrs: (22.0), 8-12 yrs: (26.0, 2-16 yrs: (42), >16 yrs: (10.0)	Married or partnered (76.0); Menopausal symptoms (4.6) – Vasomotor 4.6, Psychosocial 11.6, Physical 27.5, Sexual 4.6
	Decision aid alone	Mean: 51.2, Median: 4.8		White: 95.6	NS	<8 yrs: (28.98), 12 yrs: (31.1) 12-16 yrs: (37.8) >16yrs: (2.)2	Married or partnered (77.8); Menopausal symptoms (4.0) – Vasomotor 4.0, Psychosocial 11.9, Physical 27.4, Sexual 4.8
	Decision aid plus coached care	Mean: 52.5, Median: 5.1		White: 100	NS	<8 yrs: (20), 8-12 yrs: (12), 12-16yrs: (56), >16yrs: (12)	Married or partnered (69.4); Menopausal symptoms (5.2) – Vasomotor (5.2), Psychosocial 11.6, Physical 27.5, Sexual 4.4
Clark, 2007[10]	Control	NS	NS				
	Nurse-coordinated telephone-monitoring CHF management strategy	Mean: 74.7	35	NS	NS	NS	
Chan, 2003[11]	Control	Mean: 8.7, SD: 2.5	(20)	NS	NS	NS	
	Internet-based education (the “virtual group”) - received all education online; patients in the virtual group input their peak flow readings and daily asthma symptom diaries on the Web siteand received asthma education via an educational Web site	Mean: 6.6, SD: 0.5	(80)	NS	NS	NS	
Chen, 2008[12]	Control	Mean: 51.14	(42.5)	Asian: (100)	NS	NS	

Evidence Table 16. Participant characteristics of studies addressing intermediate outcomes (continued)

Author, Year	Control Intervention	Age	Female, n (%)	Race, n (%)	Income: Ranges, n (%)	Education, n (%)	Other Categories, n (%)
	A reminder was sent via SMS 72 h prior to the appointment. The reminder was similar in content, including participant's name and appointment details, but differed in the way the content was distributed to them. In SMS group participants received text messaging	Mean: 50.01	(41.5)	Asian: (100)	NS	NS	
	A reminder was sent via telephone 72 h PTA	Mean: 50.52	(43.3)	Asian: (100)	NS	NS	
Dobke, 2008[13]	Control	Mean: 53.9, SD: 10.4)	8	NS	NS	NS	Nature of wound – Pressure sore 8, Venostasis ulcers 1, Arterial ulcers but no diabetes 1, Diabetic foot 5
Delichatsios, 2001[14]	Control	Mean: 45.7	72	White: 43.3, Black: 46	>$2,000 per mo: (58.2)	12-16 yrs: (46.0), >16 yrs: (24.0), 12-16 yrs: (48.3)	BMI 28.7
	Computer monitor of daily diet, educational feedback, advice, counseling	Mean: 46.2	72.3	White: 46.6, Black: 43.2	>$2,000: (57.4)	>16 yrs: (24.5)	BMI 28.7
Dansky, 2008[15]	Control	Mean: 76.88 at time 3, Median: 78, SD: 10		NS	NS	NS	
	Monitor only: Patients in the treatment groups received a tele-home care system for the duration of their home health services, to be used in conjunction with usual home health care	Mean: 76.72 at time 3, Median: 79, SD: 10.52					

Evidence Table 16. Participant characteristics of studies addressing intermediate outcomes (continued)

Author, Year	Control Intervention	Age	Female, n (%)	Race, n (%)	Income: Ranges, n (%)	Education, n (%)	Other Categories, n (%)
	Monitor and Video	Mean: 78.11 at time 3, Median: 79, SD: 7.11		NS	NS	NS	
East, 1999[16]	Control			NS	NS	NS	
	Computerized decision support			NS	NS	NS	
Feldstein, 2006[18]	Control	Range: 50-89	NS	NS	<=$20,000: 20 (19.8), >$20,000: 21 (20.8), Unknown: 60 (59.4)	Unknown =46 (45.5), <=High school =32 (31.7), >=Some college =23 (22.8)	Fracture type – Hip 9 (8.9), Vertebra 9 (8.9), Wrist 15 (14.9), Other 68 (67.3); Current smoker – No 92 (91.1), Yes 9 (8.9); Weight =3 12 (11.9); Adequate calcium intake – No 32 (31.7), Yes 16 (15.8), Unknown 53 (52.5); Regular activity – No 40 (39.6), Yes 14 (13.9), Unknown 47 (46.5)
	EMR reminder to primary care physician	Range: 50-89		NS	<=$20,000: 27 (26.7), >20,000: 13 (12.9), Unknown: 61 (60.4)	Unknown: 45 (44.6), <=High school: 31 (30.7), >=Some college: 25 (24.8)	Fracture type – Hip 12 (11.9), Vertebra 10 (9.9), Wrist 17 (16.8), Other 62 (61.4); Current smoker – No 90 (89.1), Yes 11 (10.9); Weight =3 18 (17.8); Adequate calcium intake – No 36 (35.6), Yes 14 (13.9), Unknown 51 (50.5); Regular activity – No 44 (43.6), Yes 13 (12.9), Unknown 44 (43.6)
	EMR reminder to primary care physician plus mailed patient reminder letter	Range: 50-89		NS	<=$20,000: 28 (25.7), >$20,000: 17 (15.6), Unknown =: 64 (58.7)	Unknown: 42 (38.5), <=High school: 39 (35.8), >=Some college: 28 (25.7)	Fracture type: – Hip 16 (14.7), Vertebra 2 (1.8), Wrist 17 (15.6), Other 74 (67.9); Current smoker – No 100 (91.7), Yes 9 (8.3); Weight =3 12 (11.0); Adequate calcium intake – No 40 (36.7), Yes 17 (15.6), Unknown 52 (47.7); Regular activity – No 52 (47.7), Yes 13 (11.9), Unknown 44 (40.4)

Evidence Table 16. Participant characteristics of studies addressing intermediate outcomes (continued)

Author, Year	Control Intervention	Age	Female, n (%)	Race, n (%)	Income: Ranges, n (%)	Education, n (%)	Other Categories, n (%)
Frank, 2004[19]	Control	Mean: 35.4	(57)	NS	NS	NS	Number of services in 6 months before start of trial, median (interquartile range) 1 (0–2); Fees charged per consultation in 6 months before trial, median (interquartile range) $21 ($0–59); Number of long term problems coded before trial, median (interquartile range) 0 (0–1)
	In-consultation reminders about 12 outstanding preventive activities	Mean: 36	(56)	NS	NS	NS	Number of services in 6 months before start of trial, median (interquartile range) 1 (0–2); Fees charged per consultation in 6 months before trial, median (interquartile range) $21 ($0–56); Number of long term problems coded before trial, median (interquartile range) 0 (0–1)
Feldman, 2005[20]	Control	Mean: 71.2 +/- 12.2	(76.7)	White: (23.4), Black: (41.9), Latino: (30.0), Other: (4.9)	<$10,000: (51.5)	<12 yrs: (54.2)	Usual care 227
	E-mail reminder	Mean: 72.4, SD: 12.1	(64.8)	White: (23.6), Black: (42.7), Latino: (31.2), Other: (2.5)	<$10,000: (43.7)	<12 yrs: (56.8)	Basic N 199
	E-mail reminder and a laminated card	Mean: 71.8, SD 12.0	(65.4)	White: (28.2), Black: (35.6), Latino:(33.2) Other: (1: 3.0)	<$10,000: (40.1)	<12 yrs: (54.0)	Augmented N 202

Evidence Table 16. Participant characteristics of studies addressing intermediate outcomes (continued)

Frosch, 2008[21]	Control	Mean: 59.0 (5.1)	0	White: 133 (88.1), Black: 4 (2.6), Latino: 6 (4.0), Asian: 6 (4.0), Other: 2 (1.3)	NS	8-12 yrs: 6 (4.0), 12-16 yrs: 86 (56.9), >16 yrs: 59 (39.1), Some grad school: 10 (6.6), Completed postgraduate: 49 (32.5)	Marital status: – Married 123 (81.5), Other 28 (18.5); History of cancer – Self 18 (11.9), Family 104 (68.9), Friends 112 (74.2); Concern about prostate cancer – Not at all 15 (9.9), A little 39 (25.8), Somewhat 63 (41.7), Considerable 25 (16.1), Extreme 9 (6.0); No. of previous PSA tests, mean 2.6, SD: 2.9; Pretest choice ofPSA 145 (96.0); Who should make medical decisions – Physician only 10 (6.6), Mostly physician 12 (7.9), Physician and patient together 109 (72.9), Mostly patient 16 (10.6), Patient only 4 (2.6); Pretest treatment preference – Iintervention 99 (65.6), Watchful waiting 52 (34.4); [also Internet access at home and work]
Gaertner, 2004[22]							
	Paper-based pain diary			NS	NS	NS	Demographic data provided combined for both groups
	Electronic palm-top pain diary			NS	NS	NS	
Gielen, 2007[23]	Control	4-66 months (child), 14-30 yrs (parent)	Mother (90.4)	Black :(94.1), Other: (5.8)	<$5,000: (66.5), >$5,000: (33.5)	<8 yrs: (11.1), 8-12 yrs: (73.2), 12-16 yrs: (15.7)	
	The intervention group received a personalized report containing tailored, stage-based safety messages based on the precaution adoption process model. The control group received a report on other child health topics	4-66 months (child), 14-30 yrs (parent)	Mother (90.6)	Black (92.2), Other: (7.8)	<$5,000: (60.9), >$5,000: (39.0)	<8 yrs: (9.2), 8-12 yrs: (75.8), 12-16 yrs: (15.0)	

Evidence Table 16. Participant characteristics of studies addressing intermediate outcomes (continued)

Glasgow, 2006[24]	Control	Mean: 61.0, SD: 11.0	80 (50.0)	White: 128 (79.6), Latino: 29 (18.3)	<$30,000: 40 (24.9), $30,000-49,999: 57 (35.6), $50,000-69,999: 30 (18.8), >=$70,000: 33 (20.8)	8-12 yrs: 44 (27.6), 12-16 yrs: 97(60.3), >16 yrs: 20(12.2)	Comorbidities (range 0-10) 3.1 (2.1); BMI, kg 31.9 (7.2); Taking insulin (19.2); Married (63.5); Smoker (11.9)
Glasgow, 2000[25]	Control	Mean: 60.6, SD: 9.5	66.3	White: (90)	NS	Some college or more: (46.3)	Retired (45.0); Live alone (51.2)
	Basic and community resource condition	Mean: 60.5, SD: 8.6	47.4	White: (90.9)	NS	Some college or more: (59.7)	Retired (28.6); Live alone (58.4)
	Basic and telephone followup conditions	Mean: 59.0, SD: 9.6	57	White: (88.6)	NS	Some college or more: (63.0)	Retired (31.6); Live alone (44.3)
Glazebrook, 2006[26]	Control	Mean: 38.4 SD = 15.2	259 (78.5)	NS	NS	>16 yrd-- further or higher education: 147 (51.2)	Professional or skilled non-manual occupation 137 (42.4); Sought advice regarding suspicious lesion in the past year 28 (11.6)
	Interactive multimedia intervention, Skinsafe	Mean: 38.2, SD = 14.3	214 (82.6)	NS	NS	>16 yrs--further or higher education: 125 (54.1)	Professional or skilled non-manual occupation 98 (39.8); Sought advice regarding suspicious lesion in the past year 28(14.2)
Gomez, 2002[27]	Control						
	Combined condition	Mean: 57.4, SD: 9.4	56.3	White: (91.4)	NS	Some college or more: (58.0)	
Graham, 2007[28]	Control			NS	NS	NS	
	Survey on perceptions of decision aid and willingness to use		79 (29)	NS	NS	>16 yrs: 450 (100)	
Gray, 2000[29]	Control	Mean: gestational age(weeks): 27.5	308 (30)	Black: 236(23) [maternal African American]	NS	NS	Birth weight 35 9g SD: 30, High-risk maternal antenatal transfer (19); [also plurality, insurance]
	Care link group	Mean: gestational age (weeks): 27.8	336(35)	Black: 182(19) [maternal African American]	NS	NS	Birth weight: 35 6g SD: 23; High-risk maternal antenatal transfer (30); [also plurality, insurance]

Evidence Table 16. Participant characteristics of studies addressing intermediate outcomes (continued)

Green, 2008[30]		Mean: 58.6, SD: 8.5	141 (54.7)	White: 214 (82.9), Black: 22 (8.5), Asian: 8 (3.1), Other: 14 (5.4)		8-12 Year: 22 (8.5), Some college: 117 (45.3), College grad: 48 (18.6), >16 yrs: 71 (27.5)	Employed – FT 158 (61.2), Retired 75 (29.1), PT 16 (16.2), Other 9 (3.5); Anti-HTN medication class – None 13 (5), One 127 (49.2), Two 89 (34.5) Three or more 29 (11.2); Current smoker 20 (8.1); BMI – Normal 16 (6.5), Overweight 72 (29.4), Obese 157 (64.1); Have home BP monitor 137 (53.1); SBP, mean 151.3, SD: 10.6; DBP, mean 89.4, SD: 8
	BP monitoring and pt Web services training	Mean: 59.5, SD: 8.3	119 (45.9)	White: 223 (86.1), Black: 18 (6.9), Asian: 9 (3.5), other: 9 (3.5)		8-12 yrs: 19 (7.3), Some college: 110 (42.5), College grad: 72 (27.8), >16 yrs: 58 (22.4)	Employed – FT 130 (50.2), Retired 103 (39.8), PT 21 (8.1), Other 5 (1.9); Anti-HTN medication class – None 5 (1.9), One 120 (46.3), Two 86 (33.2) Three or more 48 (18.5); Current smoker 14 (5.5); BMI – Normal, 14 (5.6), Over-weight, 84 (33.3), Obese 154 (61.1); Have home BP monitor 160 (61.8); SBP, mean 152.2, SD: 10; DBP, mean 89, SD: 7.9
	BP monitoring and pt Web services training + Pharmacist care	Mean: 59.3, SD: 8.6	146 (55.6)	White: 207 (79.3), Black: 21 (8), Asian: 12 (4.6), Other: 21 (8)		8-12 yrs: 130 (50.2), Some college: 97 (37.2), College grad: 75 (28.7), >16 yrs: 68 (26.1)	Employed – FT 147 (56.3), Retired 92 (35.2), PT 14 (5.4), Other 8 (3.1); Anti-HTN medication class – None 10 (3.8), One 119 (45.6), Two 86 (33.2), Three or more 46 (17.6); Current smoker 18 (6.9); BMI – Normal, 24 (9.5), Overweight 81 (32.1), Obese 147 (58.3); Have home BP monitor 140 (53.6); SBP, mean 152.2, SD: 10; DBP 88.9, SD: 8.1
Harno, 2006[31]	Control	NS	NS	NS	NS	NS	BMI 27.8 (0.60); SBP 136 (1.8); DBP 84 (1.1); HbA1c 8.21 (0.18)
	E-health application with a DMS (Diabetes Management System) and a home care link	NS	NS	NS	NS	NS	BMI 28.5 (0.60); SBP 134 (1.8); DBP 81 (1.0); HbA1c 7.82 (0.13)

Evidence Table 16. Participant characteristics of studies addressing intermediate outcomes (continued)

Hassol, 2004[32]	Control			NS	NS	12-16 yrs: (40) of 1421	
	Online survey (and focus group information)	Range: >18 yrs	(60) of 1421	White: (98) of 1421	NS	>16 yrs: (27) of 1421 Other 1: High school or less: (33) of 1421	Duration of MyChart use
Helzer, 2008[33]	Control	Mean: 46	(45)	White: (97)	NS	Mean, yrs: 14.9	FT employed (80)
	Daily IVR for 6 months	Mean: 44	(37)	White: (96)	NS	Mean, yrs: 14.8	FT employed (74)
	IVR plus feedback	Mean: 45	(39)	White: (98)	NS	Mean, yrs: 15	FT Employed (80)
	IVR, feedback and compensation	Mean: 48.5	(32)	White: (98)	NS	Mean, yrs: 14.9	
Hunter, 2008[34]	Control	Mean: 34.4, SD: 7.2	50.5	White: (53.2)		High school or some college: (61.7)	Married or partnered (73.0); Enlisted 75.2; Yrs in service 13.0, SD: 6.6; Plan to retire from AF (81.4)
	Behavioral Internet treatment (BIT)	Mean: 33.5, SD: 7.4	50.0	White: (58)	NS	High school or some college: (63.9)	Married or partnered 73.0; Enlisted 81.7; Yrs in service 12.4, SD: 6.6; Plan to retire from AF (78.9)
Homko, 2007[35]	Women in the control group were asked to record their information in a logbook, which was reviewed by the medical team at prenatal visit	Mean: 47.5, SD: 9.1	15 (57.7)	NS	NS		BMI, mean (kg/m^2) 23.4 (controls) and 24.5 (intervention group); . Duration of diabetes, mean (yrs) 8.0 (controls) and 5.2 (intervention group). There was no significant difference in age, sex, BMI, duration of diabetes, diabetes medication, blood pressure, blood glucose, and serum lipids levels between the two groups. At the pre-test, no significant difference was found in HbA1c levels between the groups
Jan, 2007[36]	Control	Mean: 9.9, SD: 3.2	48 (63.2)	NS	NS	Primary caregiver, high school or below: 43 (56.6), Primary caregiver, college or above: 33 (43.4)	History of asthma (yrs) 2.1, SD: 1.2; Asthma severity (persistent) – Mild 33 (43.4), Moderate 35 (46.1), Severe 8 (10.5); Uses of quick relief medication per month 2.1, SD: 0.3; Emergency department visits per year 2.8, SD: 1.2; Passive smoking in household 18 (23.7)

Evidence Table 16. Participant characteristics of studies addressing intermediate outcomes (continued)

	Blue Angel for Asthma Kids, an Internet-based interactive asthma educational and monitoring program	Mean: 10.9, SD: 2.5	53 (60.3)	NS	NS	Primary care giver high school or below: 58 (66.0), Primary caregiver, college or above: 30 (34.0)	History of asthma (yrs) 2.4, SD: 1.9; Asthma severity (persistent) – Mild 33 (47.5), Moderate 43 (48.9), Severe 12(13.6); Uses of quick relief medication per month 2.4, SD:0.9; Emergency department visits per year 3.1, SD: 1.3; Passive smoking in household 21 (23.9)
Japuntich, 2006[37]	Control	Mean: 41, Range: 11.8	79 (54.9)	White: 119 (82.6)	NS	<8 yrs: 4 (2.8), 8-12 yrs: 40 (27.8), 12-16 yrs: 68 (47.2), >16 yrs: 31 (21.5)	
	The experimental group included the same Bupropion, counseling, and follow-up, as well as a study computer, a dial-up Internet connection, and 12 weeks of access to the CHESS SCRP Web site, which they were encouraged to access once per day. Computer distribution and use	Mean: 40.6 Range: 12.4	77 (55)	White: 105 (75.4)	NS	<8 yrs: 5 (3.6), 8-12 yrs: 41 (29.5), 12-16 yrs: 72 (51.8), >16 yrs: 21 (15.1)	
Jerant, 2003[38]	Control	Mean: 72.7	6 (50)	White: 7 (58), Black: 4 (33), Latino: 1 (8)	NS	NS	Blue Cross 2(17); Commercial capitated 5 (50); MediCal capitated 1 (8); MediCal fee-for-service 4 (33); Medicare 0 (0); Distance from hospital, mean (miles)12.3, SD: 8.4; CHF duration, mean (mos) 30.4, SD: 30 [+ 5 other CHF-related measures]
Kaner, 2007[39]	Control	NS	NS	NS	NS	NS	

Evidence Table 16. Participant characteristics of studies addressing intermediate outcomes (continued)

	Implicit (concise) patient decision aid involved individualized risk and benefit presentation and a section to support shared decision-making	NS	NS	NS	NS	NS	
	Explicit (extended) patient decision aid additionally included patients' elicited values for health and treatment states derived via standard gamble and analyzed in a Markov decision analysis	NS	NS	NS	NS	NS	
Kim, 2004[40]	Control						
	Diagnostic evaluations of a wound were made both by a treating physician in person as well as by a remote physician using the telemedicine system	Mean: 59, Range: 24-83					Were married or had a live-in partner (35.3); Lived at home rather than in a nursing home (97.1); Living without assistance (41.3); Received some kind of assistance or care at home (58.7); Had a FT or PT caregiver (39.7); Had some assistance (12.7); Used a FT nurse 6.3%; Considered their overall health to be – Good or very good (63.3), Fair:(23.3), Poor (13.3); No significant differences between the two participating sites in demographic composition of the sample

Evidence Table 16. Participant characteristics of studies addressing intermediate outcomes (continued)

Krishna, 2003[41]	All control group participants received asthma education as part of the usual care, including verbal and printed information on the disease and concepts related to its control		45 (37)	White: 102 (84.3), Black: 9 (7.4), American: 7, Other/unknown: 3	NS	<8 yrs: 115 (95), 8-12 yrs: 6 (5)	
	In addition to receiving conventional patient education, children and families in the intervention group used Interactive Multimedia Program for Asthma Control and Tracking (IMPACT) during routine office visits.		35 (32.7)	White: 93 (87), Black: 10 (9.3), American: 2, Other/unknown: 2	NS	<8 yrs: 102 (95.3), 8-12 yrs: 5 (4.7)	
Kukafka, 2002[42]	Control			NS	NS	NS	
	The tailored Web-based intervention: Algorithms			NS	NS	NS	
	Non-tailored Web based intervention			NS	NS	NS	
	Non-tailored paper-based Intervention			NS	NS	NS	
Kuppermann, 2009[43]	Control	Mean: 32.5, SD: 6.0	252 (100)	White: 111 (44.8), Black: 42 (16.9), Latino: 40 (16.1), Asian: 39 (15.7), Other: 16 (6.5)	<$ 50,000 :80 (34.2), $50,000-100,000: 85 (36.3), >=$100,000: 69 (29.5)	8-12 yrs: 45 (18.1), 12-16syrs: 56 (22.5), sCollege graduate: 148 (59.4)	Religion – Catholic 76 (30.5), Other Christian 64 (25.7), Other religion 27 (10.8), No religious affiliation 82 (32.9); Desire for shared decisionmaking – Me alone/mostly me 104 (42.8), Shared equally 123(50.6), Health care provider alone/mostly provider 16 (6.6)

Evidence Table 16. Participant characteristics of studies addressing intermediate outcomes (continued)

	Prenatal testing decision-assisting tool	Mean: 32.2, SD: 5.9	244 (100)	White: 120 (49.6), Black: 35 (14.5), Latino: 48 (19.8), Asian: 27 (11.2), other: 12 (5.0)	<$50,000: 68 (30.0), $50,000-100,000: 73 (32.2), >=$100,000: 86 (37.9)	8-12 yrs: 39 (16.0), 12-16 yrs: 57 (23.5), College graduate: 147 (60.5)	Religion – Catholic 75 (31.1), Other Christian 64 (26.6), Other religion 42 (17), No religious affiliation 60 (24.9); Desire for shared decisionmaking – Me alone/mostly me 100 (43.3), Shared equally 108 (46.8), Health care provider alone/mostly provider 23(10.0)
Kypri, 2004[44]	Control	Mean: 20.4, Range: 1.8		NS	NS		
	Web-based assessment and personalized feedback on users' drinking	Mean: 19.9, Range: 1.4		NS	NS	NS	
Laffel, 2007[45]	Control	Mean: 35.0	50 (54.3)	NS	NS	NS	Type 1 73 (79.4); Type 2 19 (20.6); Duration of diabetes (yrs) 14.0, SD: 10.0; Frequency of SMBG (times/day) 3.8, SD: 1.2; HbA1c (9.3) 9.0 SD: 0.91
	Integrated meter with electronic logbook for glycemic control	Mean: 35.7	65 (55.6)	NS	NS	NS	Type 1 90 (79.6); Type 2 23 (20.4); Duration of diabetes (yrs) 13.3, SD: 10.3; Frequency of SMBG (times/day) 3.9, SD: 1.4; HbA1c (%) 9.06, SD: 1.29
Liaw, 1998[46]	Control	5-24 yrs: 5%, 25-64 yrs: 27%, 65-74 yrs; 18%, >75 yrs: 50%		NS	NS	NS	
	Pt provided with a computer-generated patient handheld record and underwent a pre- and posttest along with control group.	5-24 yrs: 10%, 25-64 yrs: 28%, 65-74 yrs: 17%; >75 yrs: 45%					
	Pt had an intervention but took posttest only	5-24 yrs: 0%, 25-64 yrs: 43%, 65-74 yrs: 14%, >75 yrs: 43%	20 (68) 15 (69) 8 (60)	NS	NS	NS	

Evidence Table 16. Participant characteristics of studies addressing intermediate outcomes (continued)

Lieberman, 2006[47]	Control	Mean: 37.2, Range: 11.8	(37.2)	White: (83) (ethnicity: Non-Hispanic or Latino), Black: (1.7) (race), Latino: (7.0) (ethnicity), Asian: (2.3) (race), American: (2.3) (race), Other: (1) (ethnicity: no response), Other: (87.2) (race: white), Other: (6.5) (race: no response)	NS	NS	Age at first drink (yrs) 16.4, SD: 3.9; Drinks per week 34.3, SD: 31.6; AUDIT score 17, SD: 8.8

Evidence Table 16. Participant characteristics of studies addressing intermediate outcomes (continued)

	Experimental group: Multimedia--the evaluation consisted of an alcohol consumption questionnaire and three questionnaires that assessed the effects of alcohol use on a subject and his/her functioning. After completing all four questionnaires, each subject received individualized feedback in multimedia format designed to raise his/her level of intellectual and emotional appreciation of the negative effects of alcohol on his/her life.	Mean: 36, Range: 12.1	(31)	White: 83.5% (ethnicity: non-Hispanic or Latino), Black: (1.6) (race), Latino: (4.1) (ethnicity), Asian: (4.1) (race), American: (2.5) (race), other: (12.4) (ethnicity: no response), Other: (86.8) (race: white), Other: (5.0) (race: no response)	NS	NS	Age at first drink (yrs) 17.4, SD: 5.5; Drinks per week 32.4, SD: 50.8; AUDIT score 15.7, SD: 8.4
Lorig, 2006[48]	Control	Mean: 57.6, SD: 11.3	305 (71.6)	White: 377 (88.7)	NS	Mean yrs: 15.8 (3.16)	Married (63.6); Web use – Health-related Web site visits in last 6 mos 9.54 (16.8); Diseases – Diabetes (63.9), Hypertension (46.7), Lung disease (44.1), Heart disease (25.4), Arthritis (24.9); Self-efficacy (1-10 scale) 6.01, SD: 2.17; Health care utilization – Physician visits in past 6 mos 5.09 , SD: 5.78, Emergency visits in past 6 mos 0.354 , SD: 0.950, Days in hospital in past 6 mos 0.98, SD: 5.53; [also 7 health indicators; 4 health behaviors]

Evidence Table 16. Participant characteristics of studies addressing intermediate outcomes (continued)

	Use of Internet Chronic Disease Self-Management Program	Mean: 57.4, SD: 10.5	252 (71.2)	White: 309 (87.3)	NS	Mean yrs: 15.4 (3.00)	Married (68.0); Web use – Health-related Web site visits in last 6 mos 10.2, SD: 16.6; Diseases – Diabetes (61.6), Hypertension (45.8), Lung disease (47.3), Heart disease (22.3), Arthritis (24.9); Self-efficacy (1-10 scale) 6.05 (2.22); Health care utilization – Physician visits in past 6 mos 4.94, SD: (.69, Emergency visits in past 6 mos 0.308, SD: 0.778), Days in hospital in past 6 mos 1.09, SD: 4.14; [also 7 health indicators; 4 health behaviors]
Lowensteyn, 1998[49]	The control group received their profiles only if the patient was clinically reevaluated during a 3-month follow-up	Mean: 50.7, SD: 11.3	(35.2)	NS	NS	NS	
	The profile group of physicians received two copies of the patient's coronary risk profile within 10 working days: One copy of the profile became part of the patient's medical record, and the other was presented to the patient at a return visit (approximately 2 weeks following initial visit) to take home after an appropriate interpretation by the physician	Mean: 50.5SD: 10.8	(35.2)	NS	NS	NS	

Evidence Table 16. Participant characteristics of studies addressing intermediate outcomes (continued)

Maslin, 1998[50]	Control	Mean: 52.1, Range: 28-73	49 (100)	NS	NS	NS	
	In addition to support from the multidisciplinary team, the women were offered use of the IVD to aid them in decisionmaking if they wished	Mean: 52.1, Range: 28-73	51 (100)	NS	NS	NS	
Marceau, 2007[51]	Control	Mean: 48, Median: 8, Range: 34-65	(69)	Caucasian: (82)	NS	NS	Duration of pain, mean (yrs) 8.4, SD: 7.9, Range: 0.5-31.6
	Self-monitoring using electronic diary	Mean: 48, Median: 8, Range: 34-65	(69)	Caucasian: (82)	NS	NS	Duration of pain, mean (yrs) 8.4, SD: 7.9, Range: 0.5-31.6
Marcus, 2007[52]	Control	Mean: 44.7	85.9	White: 87.2	$50,000: (65.4)	>16 yrs: 65.4	
	Print-based individualized feedback	Mean: 43.44	75.3	White: 86.4	> $50,000: (55.6)	>16 yrs: 65.4	
	Telephone-based individualized feedback	Mean: 45	85	White: 85	>$50,000: (62.5)	>16 yrs: 78.8	
	TSM: social cognitive theory-based tailored self-management	Mean: 62.0, SD: 11.7	90 (50.3)	White: 129 (74), Latino: 30 (17)	<$30,000: 52 (29.9), $30,000-49,999: 49 (28), $50,000-69,999: 35 (20.1), >=$70000: 38 (21.9)	8-12 yrs: 54 (30.8), 12-16 yrs: 89 (51.1), >16yrs: 31(18.0)	Comorbidities (range 0-10) 2.9 (1.9); BMI, kg 31.3 (7.0); Taking insulin (24.2); Married (67.6); Smoker (8.1)
Marks, 2004[53]	Control	Mean: 37.9, SD: 12.2	28 (74)	Control-- White: 28 (76)	NS	Mean yrs: 11.3 +/-1.7	Primary diagnosis – Agoraphobia 12 (32), Specific phobia 16 (42), Social phobia 10 (26); Source of referral – Self-referred 33 (87%), GP 3 (8), Mental health professional 2 (5); Medications – SSRI 3 (8), TCA 6 (16), OA 1 (2), BZD 3 (8)

Evidence Table 16. Participant characteristics of studies addressing intermediate outcomes (continued)

	Fearfighter: self-exposure therapy guided mainly by a stand-alone computer system	Mean: 38.2, SD: 11.7	24 (69)	White: 25 (86)	NS	Mean yrs: 11.3 +/-1.5	Primary diagnosis – Agoraphobia 9 (26), Specific phobia 16 (46), Social phobia 10 (28); Source of referral – Self-referred 24 (68), GP 9 (26), Mental health professional 2 (6); Medications – SSRI 2 (7), TCA 3 (10), OA 0, BZD 1 (3)
	Relaxation: mainly stand-alone computer and audiotape-guided self relaxation without exposure	Mean: 38.5 SD: 14.9	10 (59)	White: 17 (100)	NS	Mean yrs: 11.0 +/- 1.2	Primary diagnosis – Agoraphobia 6 (35), Specific phobia 7 (41), Social phobia 4 (24); Source of referral – Self-referred 13 (76%), GP 3 (18), Mental health professional 1 (6); Medications – SSRI 0, TCA 0, OA 1 (6), BZD 0
	Patients assigned to video-based telecare group received scheduled home telecare visits using the telecare equipment as well as video and electronic stethoscope	Mean: 66.6	7 (54)	White: 4 (31), Black: 8 (62), Latino: 1(8)	NS	NS	Blue Cross 1 (8); Commercial capitated 3 (23); MediCal capitated 2 (15); MediCal fee-for-service 6(46); Medicare 1(8); Distance from hospital, mean (miles) 9.6, SD: 7.0; CHF duration, mean (mos) 11.0, SD: 16.5 [+ 5 other CHF-related measures]
	Patients assigned to telephone care received scheduled phone calls from the study nurse	Mean: 71.3	7 (58)	White: 7 (58), Black: 5 (42), Latino: 0 (0)	NS	NS	Blue Cross 1 (8); Commercial capitated 7 (58); MediCal capitated 0 (0); MediCal fee-for-service 3 (25); Medicare 1(8); Distance from hospital, mean (miles,)12.4, SD: 16.8; CHF duration, mean (mos) 54.8, SD: 71.2 [+ 5 other CHF-related measures]
Matheny, 2007[54]	Control	Mean: 57.1	(64.6)	White: (65.9), Black: (19.1), Other: (14.9)	NS	NS	

Evidence Table 16. Participant characteristics of studies addressing intermediate outcomes (continued)

	An automated test result notification system known as Results Manager (RM) that was embedded in the longitudinal medical record	Mean: 57.7	(76.3)	White: (65.3), Black: (19.1), Other: (15.7)	NS	NS	
McDonald, 2005[55]	Control	Mean: 9.7 months (child), 26 yrs (mother)	(48)	White: 5 (9) (child), Black: 53 (91)	NS	Completed HS: (76%)	Housing status – Rent (86), Own (5), Neither rent nor own (9); Children living with two-parent family (41); Children living with additional siblings (68); Doctor's yr of residency – First 37, Second 37, Third 26
	Safetyland: Kiosk-based tailored interventions	Mean: 9.4 months (child), 26 yrs (mother)	(56)	White: 4 (6) (child), Black: 59 (94)	NS	Completed HS: (72)	Housing status – (79), Rent (7), Own (7), Neither rent nor own (14); Children living with two-parent family (51); Children living with additional siblings (62); Doctor's yr of residency – First (47) Second (37) Third (16)
Montgomery, 2000[56]	Control	Mean: 71,SD: 5	77(49)	NS	NS	NS	Total 157; 5-yr cardio risk >=10%138 (88); Absolute 5-yr risk, mean (%) 19, SD: 9; SBP, mean (mm Hg) 158, SD: 21; DBP, mean (mm Hg) 86, SD: 11; BMI, mean 27, SD: 4; Total cholesterol, mean (mmol/l) 6.0, SD: 1.1(n=81); [more health status measures]
	Arm B--the chart-only arm: Patients were randomized to a computer-based clinical decision support system plus cardiovascular risk chart; cardiovascular risk chart alone; or usual care	Mean: 70 SD: 6	130(57)	NS	NS	NS	Total 228; 5-yr cardio risk >=10%198 (87); Absolute 5-yr risk, mean (%): 19, SD: 8) SBP, mean (mm Hg) 156, SD: 19; DBP, mean (mm Hg) 87, SD: 9; BMI, mean 29, SD: 4; Total cholesterol, mean (mmol/l) 6.1, SD: 1.0(n=167); [more health status measures]

Evidence Table 16. Participant characteristics of studies addressing intermediate outcomes (continued)

	Arm A: Computer-based clinical decision support system plus chart 10 practices	Mean: 71	123 (54)	NS	NS	NS	Total 229; 5-yr cardio risk >=10% 189, (83); Absolute 5--yr risk, mean (%) 18, SD: 8; SBP, mean (mm Hg) 153, SD: 19; DBP, mean (mm Hg) 85, SD: 9; BMI, mean 27, SD: 4; Total cholesterol, mean (mmol/l) 6.0, SD: 1.0 (n=113); more health status measures
Saver, 2007	Control	Mean: 54.5	205 (100)	White: 164 (80), Black: 25 (12), Asian: 8 (4), Other: 8 (4)	Income: $55,700	NS	Health insurance (98); Home computer (82); Hormone therapy use – Not using (69), Using but reconsidering (9), Using and planning to continue: (22); Taking calcium (66); Exercising regularly (63); Premenopausal (12); Perimenopausal (23); Postmenopausal (44); Hysterectomy (20)
Saver, 2007	Control	Mean: 54.5	205 (100)	White: 164 (80), Black: 25 (12), Asian: 8 (4), Other: 8 (4)	Income: $55,700	NS	Health insurance (98); Home computer (82); Hormone therapy use – Not using (69), Using but reconsidering (9), Using and planning to continue: (22); Taking calcium (66); Exercising regularly (63); Premenopausal (12); Perimenopausal (23); Postmenopausal (44); Hysterectomy (20)
Saver, 2007	Control	Mean: 54.5	205 (100)	White: 164 (80), Black: 25 (12), Asian: 8 (4), Other: 8 (4)	Income: $55,700	NS	Health insurance (98); Home computer (82); Hormone therapy use – Not using (69), Using but reconsidering (9), Using and planning to continue: (22); Taking calcium (66); Exercising regularly (63); Premenopausal (12); Perimenopausal (23); Postmenopausal (44); Hysterectomy (20)

Evidence Table 16. Participant characteristics of studies addressing intermediate outcomes (continued)

	CHESS-MAB: 'Decision Notebook' based on multi-attribute utility theory	Mean: 54.6	204 (100)	White: 175 (86), Black: 10 (6), Asian: 6 (3), Other: 6 (3)	Income $61,900	NS	Health insurance (94); Home computer (87); Hormone therapy use – Not using (51), Using but reconsidering (14), Using and planning to continue (36); Taking calcium (67); Exercising regularly (67); Premenopausal (12); Perimenopausal (14); Postmenopausal (51); Hysterectomy (24)
Montgomery, 2007[57]	Control	Mean: 32.4, Range: 4.6	247 (100)	NS	<Ł20: 42 (18), Ł20-30: 53 (23), Ł30-40: 51 (22), >Ł40: 89 (38), <Ł20: 44 (19)	Degree: 92 (38), GCSE/NVQ1-3: 99 (40) Other3: A level/ HND: 42(17)	
	Information programmed: Women navigated through descriptions and probabilities of clinical outcomes for mother and baby associated with planned vaginal birth, elective Caesarean section, and emergency Caesarean section	Mean: 32.8, Range: 4.7	250 (100)	NS	Ł20-30: 57 (24), Ł30-40: 46 (19), >Ł40: 89 (38)	Degree: 97 (39), A level/ HND:47 (19), GCSE/NVQ1-3: 92 (37)	
	Decision analysis: Mode of delivery was recommended based on utility assessments performed by the woman combined with probabilities of clinical outcomes within a concealed decision tree. Both Interventions were delivered via a laptop computer after brief instructions from a researcher	Mean: 32.5, Range: 4.8	245 (100)	NS	<Ł20: 48 (20), Ł20-30: 49 (21), Ł30-40: 44 (19), >Ł40: 96 (40)	Degree: 103 (42), A level/ HND:36 (15), GCSE/NVQ1-3: 97 (40)	

Evidence Table 16. Participant characteristics of studies addressing intermediate outcomes (continued)

Napolitano, 2003[58]	Control			NS	NS	NS	
	Internet based on social cognitive theory and was targeted toward the stages of motivational readiness			NS	NS	NS	9 male 56 female Married White, 41(63) % earning ~ $50,000, 41(63) Skill using the Internet", 59(9 1) Confidence using the Internet, 36 (55) Skill using-mail, 59 (92.2) Confidence using e-mail, 59 (92.2) Body mass index (M/SD), 26.6/4.29 51 (78) Completed college or postgraduate work, 61 (95.3) Stage distribution, 63 (98.4) Contemplation Preparation, 20(3 1) Minutes of activity (M/SD), 75.4/69.3 Moderate activity Walking, 73.81136.6
Neumann, 2006[59]	Control	Mean: 31, Range: 25-38	126(22)	NS	NS	High school degree :310 (54)	BMI 23.5, Range: 21.5-25.6; Injury severity score 1, Range: 1-1; Employed (64); Married, significant other (44); Alcohol use data – Alcohol intake (g/d weekly average) 26, Range: 14-47, At-risk drinking (47), Alcohol dependence (9), Harmful alcohol use (12), AUDIT score 8(6-11), Binge drinking >6 drinks (53); Motivational stage – Precontemplation (50), Contemplation (30), Action (20); Other substance use – Current tobacco use (60), Illicit drug use (past year) (34), Cannabis 31%, Ecstasy (5), Cocaine (7), Opiates (2), Other illicit drug use (3)

Evidence Table 16. Participant characteristics of studies addressing intermediate outcomes (continued)

	Computer-generated feedback about current drinking status based on information obtained from the AUDIT and RTCQ	Mean: 30, Range: 24-39	112 (20)	NS	NS	High school degree: 309 (55)	BMI 23.1, Range: 21.4-25.6; Injury severity score 1, Range: 1-1; Employed (62); Married, significant other (46); Alcohol use data – Alcohol intake (g/d weekly average) 28, Range: 14-46, At-risk drinking (50), Alcohol dependence (8), Harmful alcohol use (14), AUDIT score 7(6-11), Binge drinking >6 drinks (54); Motivational stage – Precontemplation (51), Contemplation (28), Action (21); Other substance use – Current tobacco use (60), Illicit drug use (past year) (34), Cannabis (32), Ecstasy (5), Cocaine (6), Opiates (1), Other illicit drug use (5)
Nguyen, 2008[60]	Control				NS	12-16 yrs: 8 (40)	
	fDSMP	Mean: 70.9,SD: 8.6	9 (45)	White: 20 (100)	NS	>16 yrs: 12 (60)	Not currently employed, or currently disabled or retired 15 (75); Living with spouse or other 13 (65); Currently smoking 1 (5); Distance to clinical site (km) 13.1, SD: 15.7; BMI (kg/m^2) 27.7, SD: 6.4; [several disease severity measures]; [several computer / internet skills]
	eDSMP	Mean: 68.0 ± 8.3	8 (39)	White: 18 (95)	NS	12-16 yrs: 10 (50), >16yrs: 9 (50)	Not currently employed, or currently disabled or retired 13 (72); Living with spouse or other 12 (63); Currently smoking 2 (11); Distance to clinical site (km) 20.4, SD: 18; BMI (kg/m^2) 29.4, SD: 5.9; [several disease severity measures]; [several computer / internet skills]

Evidence Table 16. Participant characteristics of studies addressing intermediate outcomes (continued)

	Traditional didactic decision aid providing information about prostate specific antigen (PSA) screening options and outcomes	Mean: 58.5 (5.5)	0	White: 133 (85.8), Black: 6 (3.9), Latino: 7 (4.5), Asian: 4 (2.6), Other: 5 (3.2)	NS	8-12 yrs: 8 (5.2), 12-16yrs: 83 (53,6), >16yrs: 64 (41.3)	Marital status– Married 119 (76.8), Other 36 (23.2); History of cancer – Self 18 (11.6), Family 102 (65.8), Friends 120 (77.4); Concern about prostate cancer – Not at all 14 (9.0), A little 42 (27.1), Somewhat 63 (40.6), Considerable 26 (16.8), Extreme 10 (6.5); No. of previous PSA tests, mean 3.0, SD: 4.8; Pretest choice of PSA 148 (95.5); Who should make medical decisions – Physician only 4 (2.6), Mostly physician 19 (12.3), Physician and patient together 120 (77.4), Mostly patient 11 (7.1),Patient only 1(0.6); Pretest treatment preference – Intervention 102 (65.8), Watchful waiting 53 (34.2) [also Internet access at home and work]
	Chronic disease trajectory model for prostate cancer followed by a time–trade-off exercise	Mean: 58.4 (5.6)	0	White: 127 (83.0), Black: 2 (1.3), Latino: 15 (9.8), Asian: 7 (4.6), Other: 2 (1.3)	NS	8-12 yrs: 6 (3.9), 12-16 yrs: 75 (49.0), >16yrs: 72 (47.0)	Marital status – Married 114 (74.5), Other 39 (25.5); History of cancer – Self 12 (7.8), Family 101 (66.0), Friends 114 (74.5); Concern about prostate cancer – Not at all 15 (9.8), A little 49 (32.0), Somewhat 56 (36.6), Considerable 26 (17.0), Extreme 7 (4.6); No. of previous PSA tests, mean 2.1, SD: 2.6; Pretest choice of PSA 148 (96.7); Who should make medical decisions – Physician only 3 (2.0), Mostly physician 20 (13.1), Physician and patient together 119 (77.8),Mostly patient 9 (5.9), Patient only 2 (1.3); Pretest treatment preference – Intervention 101 (66.0), Watchful waiting 52 (34.0); [also Internet access at home and work]

Evidence Table 16. Participant characteristics of studies addressing intermediate outcomes (continued)

	Both the didactic decision aid and the chronic disease trajectory model	Mean: 58.8 (5.4)	0	White: 133 (87.5), Black: 5 (3.3), Latino: 4 (2.6), Asian: 7 (4.6), Other: 3 (2.0)	NS	8-12 yrs: 7 (4.6), 12-16 yrs: 66 (43.4), >16yrs: 79 (52.0)	
	Internet group patients in the Internet group were provided with computer and Internet access. Women sent blood glucose and other health data directly to their care providers via the Internet and received information/advice from their health care provider	Mean: 46.8, SD: 8.8	14 (56)	NS	NS	NS	See text box above
Ojima, 2003[61]	Control			NS	NS	NS	
	Experimental (group E) received Web-based follow-up as well as two occasions of face-to-face tooth brushing instruction and telephone follow-up			NS	NS	NS	
Parati, 2009[62]	Control	Mean: 58.1, SD: 10.8	52 (45.9)	NS	NS		BMI, mean: 26.9, SD: 3.6; Treated HTN patient, 85 (76.6); Clinic SBP, mean: 148.7, SD: 11.7; Clinic DBP, mean 88.8, SD: 8.6; Daytime SBP, mean 140.3, SD: 10.5; Daytime DBP, mean: 84.3, SD: 8.2
Patten, *2006{*[63]	Control				NS		

Evidence Table 16. Participant characteristics of studies addressing intermediate outcomes (continued)

	Clinic-based, brief office intervention consisting of four individual counseling sessions	Mean: 15.8, Median: 16, Range: 11-18	34 (49)	White: (86)		<8 yrs: (9), 9th grade: (25), 10-11: (54), >12: (13)	
	Stomp Out Smokes (SOS), an Internet, home-based intervention	Mean: 15.7, Median: 16, Range: 12-18	35 (50)	White: (90)	NS	<8 yrs: (16), 9th grade: (21), 10-11: (50), >12: (13)	
	BP management based on HBPM combined with teletransmission of home self-measured BP values in between the scheduled clinic visits	Mean: 57.2, SD: 10.7	85 (45.5)	NS	NS		BMI, mean: 26.9, SD: 4.1; Treated HTN patient 148 (79.1); Clinic SBP, mean 148.4, SD: 12.6; Clinic DBP, mean 88.7, SD 7.4; Daytime SBP, mean 139.4, SD: 11.0; Daytime DBP, mean 83.9, SD: 8.0
Peters, 2006{[64]	Control	Mean: 32.9	(50.5)	NS	NS	<8 yrs: 309 (100)	Household size 4.6
	Early diagnosis and prevention system: While patients were waiting to be seen by the health worker, the computer operator assessed the patient's vital statistics and asked a series of questions about the presenting complaint and a review of their physiological systems	Mean: 38.1	(56.8)	NS	NS	<8 yrs: 296 (100)	Household size 4.4
Piette, 2000[65]	Control	Mean: 53.3	56.5	White: (29), Hispanic: (51.6), Other: (19.4)	< $10000 :(56.3)	NS	

Evidence Table 16. Participant characteristics of studies addressing intermediate outcomes (continued)

	In addition to usual care, intervention patients received biweekly ATDM calls with telephone follow-up by a diabetes nurse educator. Patients used the ATDM calls to report information about their health and self-care and to access self-care education. The nurse used patients' ATDM reports to allocate her time according to their needs	Mean: 55.7	61.3	White: (29), Hispanic: (47.6), Other: (23.4)	< $10,000: (59.1)	NS	
Priebe, 2007[66]	Control	Mean: 41.8	83 (35.2)	NS	NS	NS	Condition – Undifferentiated schizophrenia 89 (37.7), Paranoid schizophrenia 63 (26.7), Catatonic schizophrenia 4 (1.7), Hebephrenic schizophrenia 10 (4.2), Schizoaffective manic 7 (3.0), Schizoaffective depression (moderate) 9 (3.8), Schizoaffective depression (severe) 2 (0.8), Schizoaffective bipolar disorder 9 (3.8), Delusional disorder 2 (0.8), Other non-organic psychotic disorders 41 (17.4)

Evidence Table 16. Participant characteristics of studies addressing intermediate outcomes (continued)

	In the intervention group, clinicians used DIALOG, a computer-mediated procedure, to discuss 11 domains with their patients	Mean: 42.5	88 (32.5)	NS	NS	NS	Condition – Undifferentiated schizophrenia 91 (33.6), Paranoid schizophrenia 89 (32.8), Catatonic schizophrenia 1 (0.4), Hebephrenic schizophrenia 7 (2.6), Schizoaffective manic 19 (7.0), Schizoaffective depression (moderate) 9 (3.3), Schizoaffective depression (severe) 3 (1.1), Schizoaffective bipolar disorder 15 (5.5), Delusional disorder 1 (0.4), Other non-organic psychotic disorders 36 (13.3)
Quinn, 2008[67]	Control	Range: 20–54 (6); 55–64 (7)	8	White: 7, Black: 6	NS	NS	Yrs with diabetes, mean 11; Body mass index, mean (kg/m^2)= 34.58; Comorbid conditions – Hypertension 8, Hyperlipidemia 6, Coronary artery disease 0, Microvascular complications 4; Medication treatment regimen – Oral hypoglycemic alone 7, Insulin alone 4 , Insulin and oral hypoglycemic 0, Injectable non-insulin 1; Physician specialty – Primary care 8, Endocrinology 5
	Cell phone-based diabetes management software system used with Web-based data analytics and therapy optimization tools	Range: 20–54 (8), 55–64 (5)	9	White: 3, Black: 10	NS	NS	Yrs with diabetes, mean 7.61; Body mass index, mean (kg/m^2)= 34.07; Comorbid conditions– Hypertension 8, Hyperlipidemia 8, Coronary artery disease 1, Micro-vascular complications 4; Medication treatment regimen – Oral hypoglycemic alone 3, Insulin alone 4, Insulin and oral hypoglycemic 60, Injectable non-insulin 6; Physician specialty – Primary care 12, Endocrinology 1

Evidence Table 16. Participant characteristics of studies addressing intermediate outcomes (continued)

Roumie, 2006[68]	Control	Mean: 65.1, SD: 11.9	11 (3.4)	NS	NS	NS	
	Provider education (same as control) + alert 1-time patient-specific electronic notification that was sent by the pharmacy to the prescribing provider through each eligible patient's electronic medical record over a 1-week period in June 2004	Mean: 65.5, SD: 12.0	15 (2.7)	NS	NS	NS	
	Provider education (same as control) + alert (same as Arm B) + patient education: personalized letter that contained educational information concerning hypertension	Mean: 64.6, SD: 12.6	19 (4.0)	NS	NS	NS	
Rothert, 2006[69]	Control				NS	NS	
	Tailored expert system condition: Outcomes of an Internet-based expert system vs. a user-navigated, information- only program for weight management	Mean: 45.6, SD: 12.1	(82.9) of 1475	White: (56.8), Black: (35.4), Latino: (3.4), Other: (4.4)			BMI (kg/m^2) 33.0 (3.8); Motivation (0-10 scale) 7.2 (2.0); Self-efficacy (1-5 scale) 2.5 (0.8); Weight (kg) 92.2 (14.4)
	Information only condition	Mean: 45.2, SD: 12.0	(82.7) of 1387	White: (56.3), Black: (35.8), Latino: (3.1), Other: (4.8)	NS	NS	BMI (kg/m^2) 31.0 (3.9); Motivation (0-10 scale) 7.3 (2.1); Self-efficacy (1-5 scale) 2.5 (0.8); Weight (kg) 92.5 (14.3)

Evidence Table 16. Participant characteristics of studies addressing intermediate outcomes (continued)

Ruland, 2003[70]	Control			NS	NS		Patients 25; MDs 5
	In the experimental group, after collecting the demographic data, assessment summaries were printed and given to the patient and clinician in the subsequent consultation			NS	NS		Patients 27; MDs 9
Santamore, 2008[71]	Control	Mean: 63.2	(45)	White: (72), Black: (26), Other: (2)	NS	NS	
	Telemedicine System (Insight Telehealth, LLC, Valley Forge, PA), a disease-management interactive healthcare delivery system comprising a secure Internet server and a database: The server contained the clinical status database linked to a browser interface. This arrangement allowed patients to send data directly to their care provider via the Internet and to receive data for disease management from the database	Mean: 62	(43)	White: (69), Black: (28), other: (3)	NS	NS	
Saver, 2007[72]	Control	Mean: 54.5	205 (100)	White: 164 (80), Black: 25 (12), Asian: 8 (4), Other: 8 (4)	Income: $55,700	NS	Health insurance (98); Home computer (82); Hormone therapy use – Not using (69), Using but reconsidering (9), Using and planning to continue: (22); Taking calcium (66); Exercising regularly (63); Premenopausal (12); Perimenopausal (23); Postmenopausal (44); Hysterectomy (20)

Evidence Table 16. Participant characteristics of studies addressing intermediate outcomes (continued)

Sevick, 2008[73]	**Control**						
	Palmone Tungsten/E2 PDAs preloaded with Balancelog®						
Schapira, 2007[74]	**Control**	Mean: 57.8, Range: 7.5	88 (100)	White: 64 (73), Black: 22 (25), Other/unknown: 2(2)	<$19,999: 25 (28), $20,000-34,999: 32 (36), $35,000-49,999: 17 (19), $50,000+: 17 (16)	<8 yrs: 2 (2), 8-12 yrs: 17 (19), 12-16 yrs: 57 (65), >16 yrs: 12 (14)	Prior HT use – Current user 34 (39), former user 35 (40) never user 19 (22); Prior hysterectomy 44 (50); Baseline menopausal attitudes – Problem (1-5 range) 3.2, SD: 0.69, Control (1-5 range) 2.3, SD: 0.57
	Computer-based decision aid--easy to use and retained risk information incorporated from emerging scientific data	Mean: 57.8, SD: 7.2	89 (100)	White: 64 (72), Black: 24 (27), Unknown: 1(1)	<$19,999: 31 (35), $20,000-34,999: 22 (25), $35,000-49,999: 19 (21), $50,000+: 17 (19)	< 8y rs: 4 (5), 8-12 yrs: 20 (23), 12-16 yrs: 56 (64), >16yrs: 9 (10)	Prior HT use – Current user 2 (33), former user 37 (42), never user 23 (25); Prior hysterectomy 42 (47); Baseline menopausal attitudes – Problem (1-5 range) 3.1, SD: 0.78, Control (1-5 range) 2.4, SD: 0.53
Schumann, 2008[75]	**Control**			NS	NS	NS	
	Tailored, TTM-based			NS	NS	NS	
Shea, 2007[76]	**Control**	Mean: ~71, Median: ~70		NS	NS	NS	
	Participants randomized to the intervention group received a home telemedicine unit (HTU) developed specifically for Ideatel (American Telecare, Inc., Eden Prairie, MN). The HTU consisted of a Web-enabled computer with modem connection to an existing telephone line	Mean: ~71, Median: ~70					

Evidence Table 16. Participant characteristics of studies addressing intermediate outcomes (continued)

Smith, 2008[77]	**Control**		13 (29)	NS	NS		Specialty – Internal Medicine, 25 (56), Family Medicine 32 (71); Years in practice 15, Range 1-34
	Diabetes Electronic Management System (DEMS)--virtual consultation		19 (39)	NS	NS		Specialty – Internal Medicine 25 (51), Family Medicine 24 (49), Years in practice 13, Range 3-42
	Telemedicine consult on patients with chronic wounds	Mean: 54.9 (± 10.8)	8	NS	NS	NS	Nature of wound – Pressure sore 10, Venostasis ulcers 1, Arterial ulcers but no diabetes 0, Diabetic foot 4
Stevens, 2008[78]	Control	Mean: 13.9, SD: 2.2	(54)	White: 312 (36), Black: 499 (57), Latino: 33 (4), Other: 34 (4)	NS	NS	Medicaid as their insurance provider 672 (77); Had commercial insurance 133 (15); Had no insurance 59 (7)
	Computerized behavioral screening (the Health eTouch system)	Mean: 13.9, SD: 2.2	(54)	White: 312 (36), Black: 499 (57), Latino: 33 (4), Other: 34 (4)	NS	NS	Medicaid as their insurance provider 672 (77); Had commercial insurance 133 (15); Had no insurance 59 (7)
Subramanian, 2004[79]	Control	Mean: 69, SD :9	(3)	NS	NS	NS	
	Computer-based care suggestions generated with EMR data and symptom data obtained from questionnaires mailed to patients within 2 weeks of scheduled outpatient visits	Mean: 69, SD :9	(2)	NS	NS	NS	

Evidence Table 16. Participant characteristics of studies addressing intermediate outcomes (continued)

Taenzer, 2000[80]		Mean: 64.4	9 of 26	NS	NS	NS	
	Patients completed a computerized version of the European Organization for Research and Treatment of Cancer (EORTC) QLQ-C30 questionnaire in order to provide the clinic staff with quality-of-life information prior to the clinic appointment	Mean: 65.6	10 of 27	NS	NS	NS	
Tate, 2006[81]	Control				NS		
	Web site and NC: No counseling Internet group	Mean: 49.9, Range: 8.3	55 (82)	Minority ethnicity: 6 (9)		College graduate: (49)	Married 49 (73); Weight (kg) 88.3, SD: 13.9; BMI 32.3, SD: 3.7; Waist circumference (cm) 106.4, SD: 11.3; Internet experience (yrs) 4.7, SD: 2.9; Weekly Internet use (hrs) 4.5, SD: 4.9
	Computer-automated e-mail feedback (AF) tailored computer automated feedback	Mean: 49.7, Range: 11.4	53 (87)	Minority ethnicity: 6 (10)	NS	College graduate: (59)	Married 46 (75); Weight (kg) 89.0, SD: 13.2; BMI 32.7, SD: 3.5; Waist circumference (cm) 107.6, SD: 11.2; Internet experience (yrs) 4.4, SD: 2.2; Weekly Internet use (hrs) 5.0, SD: 4.2
	Web site and HC human e-mail counseling	Mean: 47.9, Range: 9.8	54 (84)	Minority ethnicity: 8 (13)	NS	College graduate: (56)	
Taylor, 2008[82]	Control	Median: 29 years		NS	NS	NS	Male (14), Seniority Resident (12), Senior Resident (5), Registrar (7), Emergency physician (3)
	EI, electronic interface	Median: 30 years		NS	NS	NS	Male (10), Resident (5), Senior resident (6), Registrar (10), Emergency physician (2)

Evidence Table 16. Participant characteristics of studies addressing intermediate outcomes (continued)

Thomas, 2004[83]	Control	Mean: 42.4	66	NS	NS	NS	Married/cohabiting (60); Home owners/occupiers (63); Car owners (84); Living comfortably (15); with long-standing disability/infirmity (66)
	Participants completed a computerized psychosocial assessment that generated a report for the GP, including patient-specific treatment recommendations	Mean: 43.5	72	NS	NS	NS	Married/cohabiting (58); Home owners/occupiers (61); Car owners (79); Living comfortably (16); Long-standing disability/infirmity (61)
Tjam, 2006[84]	Control		11 (55.0)	NS	NS	<8 yrs: 8 (40.0), 8-12 yrs: 3 (15.0), 12-16 yrs: 9 (45.0)	Age (yrs) >=65, 6 (30.0); Marital status – Married 14 (70.0), Not married 6 (30.0); Living arrangement – Living with spouse or other 19 (95.0), Live alone 1(5.0); Employment status – Working full- or part-time 8 (40.0), Not working outside of home 9 (45.0), Did not respond 3(15.0); Drinking problem – Yes 1 (5.0); Smoking – Yes 3 (15.0); Self-perceived poor health – Yes 1 (5.3); Trade-offs (daily living vs. medical care) – Yes 2 (11.1); Informal support services (e.g., living with patient) 19 (95)

Evidence Table 16. Participant characteristics of studies addressing intermediate outcomes (continued)

	Interactive Internet program		19 (51.4)	NS	NS	<8 yrs: 8 (21.6), 8-12 yrs: 5 (13.5), 12-16 yrs: 24 (64.9)	Age (yrs) >=65**,** 4 (10.8); Marital status – Married 30 (81.1), Not married 7 (18.9); Living arrangement – Living with spouse or other 36 (97.3), Live alone 1(2.7); Employment status – working full- or part-time 24 (64.9), Not working outside of home 9(24.), Did not respond 4(10.8); Drinking problem – Yes 2 (5.4); Smoking – Yes 7 (18.9); Self-perceived poor health – Yes 4 (10.8); Trade-offs (daily living vs. medical care) –Yes 4 (10.8); Informal support services (e.g., living with patient) 36 (97.3)
Tierney, 2003[85]	Control	Mean: 60, SD: 13	(66)	Black: (59)	NS	NS	Primary care visits during the study, mean 4.5, SD: 3.5; Enrolled patients completing the 12-month interview 119 (66)
	Physician intervention	Mean: 61, SD: 12	(61)	Black: (54)	NS	NS	Primary care visits during the study 5.3, SD: 4.1; Enrolled patients completing the 12-month interview 142 (72)
	Pharmacist intervention	Mean: 57, SD: 12	(68)	Black: (55)	NS	NS	Primary care visits during the study 4.8, SD: 3.7 Enrolled patients completing the 12-month interview 107 (68)
Tierney, 2005[86]	Control	Mean: 52, SD: 13	71	Control--White: 61	NS	Mean yrs: 9.9, SD,: 3.0	COPD (74)
	Physician intervention	Mean: 50, SD: 14	77	White: 55	NS	Mean yrs: 10.1, SD: 2.9	COPD (70)
	Pharmacist intervention	Mean: 51, SD: 14	68	White: 56	NS	Mean yrs: 10.8 SD: 2.7	COPD (63)
	Both interventions	Mean: 51, SD: 14	71	White: 59	NS	Mean yrs: 10.4 SD: 2.9	

Evidence Table 16. Participant characteristics of studies addressing intermediate outcomes (continued)

Trautmann, 2008[87]	Control			NS	NS		
	Computer-delivered CBT (6 sessions) + 6 chat sessions with the trainer	Mean: 13.4, SD: 2.6			NS		
	Computer-delivered education+ chat	Mean: 13.4, SD: 2.6		NS	NS		
Tuil, 2007[88]	Control	Mean: Male=36.92, Female=32.56	40	NS	NS	NS	Doing paid work – Male (92), Female (85); Having first IVF treatment –Male 90; Female 88; With higher education – Male 49, Female 40
	Internet-based personal health record	Mean: Male=36.04, Female=32.85	51	NS	NS	NS	Doing paid work – Male: (96), Female (93); Having first IVF treatment – Male (93), Female (91); With higher education – Male (46), Female (49)
Wakefield, 2008[89]	Control				NS		
	Telephone	Mean: 72, SD: 9.2	0	White: 12 (86), Black: 2(14)		<8 yrs: 0 8-12 yrs: 4 (29) 12-16 yrs: 4 (29) >16 yrs: 6 (43)	Mini-Mental Status Exam (MMSE) 27.1, SD: 2.1; Marital status – Married 7 (50), Divorced 2 (14), Other 5 (35)
	Videophone	Mean: 68.1, SD: 8.3	0	White: 14 (100)	NS	<8 yrs: 1 (7), 8-12 yrs: 2 (14), 12-16 yrs: 8 (57), 16 yrs: 3 (21)	Mini-Mental Status Exam (MMSE) 28.5, SD: 1.8; Marital status – Married 11 (79), Divorced 2 (14), Other 1 (7)
Williams, 2007[90]	Control	Mean: 64.6		NS	NS	NS	
	Patient-centered, computer-assisted diabetes care intervention	Mean: 61.4		NS	NS	NS	

Evidence Table 16. Participant characteristics of studies addressing intermediate outcomes (continued)

Williamson, 2006[91]	Control				NS	NS	
	Interactive behavior therapy			NS	NS	NS	Only information on age was provided, and this was for the entire sample, not by group
	Internet intervention			NS	NS	NS	
Winzelberg, 2000[92]	Control	Range: 18-33	29	White: (53), Black: (3), Latino: (35), Asian: (5), Other: (3)	NS	University	
	Internet-delivered computer-assisted health education (CAHE)	Range: 18-33	31	White: (53), Black: (3), Latino: (35), Asian: (5), other: (3)	NS	University	
Woods, 1999[93]	Control	Mean: 33.32, SD: 10.23	33 (55)	NS	NS	mean, yrs: 12.62, SD: 2.25	Insurance status – Medicaid: 25 (41.7), Medicare 4 (6.7), Private insurance 11 (18.3), Medicaid/Medicare 12 (20.0), Other 1 (1.7), None 7 (11.7); Employment status – Employed 13 (21.7), Unemployed 47 (78.3); Genotype – HbSS 49 (81.7), HbSC 7 (11.7), HbSbthal 3 (5.0), Other 1 (1.7); Hydroxyurea treatment – Yes 29 (48.3) No 31 (51.7); Complications – Cardiomyopathy 4(7.0), Other 0 (0)

Evidence Table 16. Participant characteristics of studies addressing intermediate outcomes (continued)

	Telemedicine	Mean: 29.37, SD: 10.18	36 (30)	NS	NS	Mean, yrs: 12.03 SD: 2.39	Insurance status – Medicaid 43 (1.7), Medicare 4 (6.7), Private insurance 6 (10.0), Medicaid/Medicare 6 (10.0), Other 1 (1.7), None 0 (0.0); Employment status – Employed 17 (28.3), Unemployed 43 (71.7), Genotype – HbSS 57 (95.0), HbSC 1 (1.7), HbSbthal 2 (3.3), Other 0 (0.0); Hydroxyurea treatment – Yes 45 (75.0), No 15 (25.0); Complications – Cardiomyopathy 0 (0.0), Other – 0 (0)
Yardley, 2007[94]	Control	Mean: 65-97	94 (69)	NS	NS	NS	Self-rated balance – Good 13 (9.5), Unsteadiness 97 (71); Poor vision 34 (25); Take >= 4 medications 60 (44)
	Interactive web-based program that tailored advice about undertaking strength and balance training (SBT) activities	Mean: 65-97	90 (63)	NS	NS	NS	Self-rated balance – Good 11 (8), Unsteadiness 97 (71); Poor vision 43 (30); Take >= 4 medications 51 (35)
Yeh, 2008[95]	Control				NS		
	Internet-based integrated patient education system with pharmaceutical education for diabetes management	Mean: 56.81, SD: 15.58	25 (50)	Asian: 50 (100)	NS	<8 yrs: 19 (38), 8-12 yrs: 9 (18), College or university: 19(38), Master or PhD: 1 (2), Other--illiterate 2 (4)	Duration of diabetes (yrs) 8.84, SD: 7.9

A level/HND: Advanced level/higher national diploma; AF: Air Force, ATDM: Automated telephone disease management, BIT: Behavioral Internet treatment, BM: Body mass index, BP: blood pressure, BZD: benzodiazepines, CAHE: Computer-assisted health education, CBT: , CD: , CDSS: Clinical decision support system, CHESS SCRP: Comprehensive Health Enhancement Support System for Smoking Cessation and Relapse Prevention, CHESS-MAB: CHESS for Menopause and Beyond, CHF: Congestive heart failure, cm: Centimeter, DEMS: Diabetes Electronic Management System, DIALOG: Clinical dialogue, DBP: Diastolic blood pressure, DMS: Diabetes Management System, E2 PDAs: , PDA: Personal digital assistants, eDSMP: Dyspnea self-management programs—Internet-based, EI: Electronic interface, EMR: Electronic medical record, EORTC: European Organization for Research and Treatment of Cancer, fDSMP: Face-to-face dyspnea self-management program, FT: fulltime, GP: General practictioner, h: Hour, HbA1c: Glycated hemoglobin, HBPM: Home blood pressure monitoring, HbSbthal: Hemoglobin S beta-thalasemia, HbSC: hemoglobin genotype SC, HbSS: hemoglobin genotype SS, HC: , HL: , HS: high school, HT: Hormone therapy, HTN:

Evidence Table 16. Participant characteristics of studies addressing intermediate outcomes (continued)

Hypertension, HTU: Home telemedicine unit, IMPACT: Interactive Multimedia Program for Asthma Control and Tracking, Inc: incorporated, IVD: Interactive video disk, IVR: Interactive voice response, kg/m^2: kilogram per square meter, km: Kilometer, KT: Kenkou-tatsujin, LLC: Limited liability company, MD: Medical degree, mm Hg: Millimeters mercury, MMSE : Mini Mental Status Exam, MN: Minnesota, n or No.: Number, NC: No counseling, NS: Not specified, PA: Pennsylvania, P'ASMA: Portal for assessment and self-management of asthma, PSA: Prostate-specific antigen, PT: Parttime, pt: Patient, QLQ: Quality-of-life questionnaire, RM: Results manager, SBT: Strength and balance training, SD: standard deviation, SMBG: Self-monitoring of blood glucose, SMS: Short message service, SOS: Stomp Out Smokes, SSRI: Selective serotonin reuptake inhibitor, SBP: Systolic blood pressure, TCA: Tricyclic antidepressants, TSM: TSM tailored self-management, TTM: Transtheoretical model, TTYD: TalkToYourDoc.

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Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
Adachi, 2007[1]	Body weight (kg) change at 1 month	Group B: Self-help booklet only			54		-0.3	<0.05
		Group KM: Kenkou-tatsujin (‘T) program with 6 months of weighing and targeted behavior self-monitoring			46		-1.1	<0.05
	Body weight (kg) change at 1 month	Group K: KT program only			47		-0.9	
		Group BM: An un-tailored self-help booklet with -month self-monitoring of weight and walking			58		-0.5	Not significant
	Body weight (kg) change at 7 months	Group B: Self-help booklet only			54		-1.4	<0.05
		Group KM: Kenkou-tatsujin (KT) program with 6 months of weighing and targeted behavior self-monitoring			46		-2.9	<0.05
		Group K: KT program only			47		-2.2	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Group BM: An un-tailored self-help booklet with 7-month self-monitoring of weight and walking			58		-1.6	
	BMI (kg/m²) change at 3 months	Group B: Self-help booklet only			54		-0.14	
		Group KM: Kenkou-tatsujin (KT) program with 6 months of weighing and targeted behavior self-monitoring			46		-0.93	
		Group K: KT program only			47		-0.38	
		Group BM: An un-tailored self-help booklet with 7-month self-monitoring of weight and walking			58		-0.2	
	BMI (kg/m²) change at 7 months	Group B: Self-help booklet only			54		-0.5	
		Group KM: Kenkou-tatsujin (KT) program with 6 months of weighing and targeted behavior self-monitoring			46		-1.22	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Group K: KT program only			47		-0.86	
		Group BM: An un-tailored self-help booklet with 7-month self-monitoring of weight and walking			58		-0.68	
	% weight loss (%) at 1 month	Group B: Self-help booklet only			54		-2.2	
		Group KM: Kenkou-tatsujin (KT) program with 6 months of weighing and targeted behavior self-monitoring			46		-1.8	
		Group K: KT program only			47		-1.5	
		Group BM: An un-tailored self-help booklet with 7-onth self-monitoring of weight and walking			58		-0.8	
	% weight loss (%) at 7 months	Group B: Self-help booklet only			54		-4.1	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Group KM: Kenkou-tatsujin (KT) program with 6 months of weighing and targeted behavior self-monitoring			46		4.7	
		Group K: KT program only			47		-3.3	
		Group BM: An un-tailored self-help booklet with 7-month self-monitoring of weight and walking			58		-2.6	
	Reduction quotient (%) at 1 month	Group B: Self-help booklet only			54		-15.8	Not significant
		Group KM: Kenkou-tatsujin (KT) program with 6 months of weighing and targeted behavior self-monitoring			46		-13	<0.05
		Group K: KT program only			47		-10.8	
		Group BM: An un-tailored self-help booklet with 7-month self-monitoring of weight and walking			58		-5.7	Not significant

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Reduction quotient (%) at 7 months	Group B: Self-help booklet only			54		10	Not significant
		Group KM: Kenkou-tatsujin (KT) program with 6 months of weighing and targeted behavior self-monitoring			46		-35	<0.05
		Group K: KT program only			47		-23.1	
		Group BM: An un-tailored self-help booklet with 7-month self-monitoring of weight and walking			58		-18.3	Not significant
	5% weight loss at 3 months	Group B: Self-help booklet only			54		10	
		Group KM: Kenkou-tatsujin (KT) program with 6 months of weighing and targeted behavior self-monitoring			46		30.6	
		Group K: KT program only			47		20.5	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Group BM: An un-tailored self-help booklet with 7-month self-monitoring of weight and walking			58		17	
	5% weight loss at 7 months	Group B: Self-help booklet only			54		20	
		Group KM: Kenkou-tatsujin (KT) program with 6 months of weighing and targeted behavior self-monitoring			46		38.9	
		Group K: KT program only			47		31.8	
		Group BM: An un-tailored self-help booklet with 7-month self-monitoring of weight and walking			58		24.5	
	7 % weight loss at 3 months	Group B: Self-help booklet only			54		4	
		Group KM: Kenkou-tatsujin (KT) program with 6 months of weighing and targeted behavior self-monitoring			46		16.7	=<0.10

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Group K: KT program only			47		4.5	<0.10
		Group BM: An un-tailored self-help booklet with 7-month self-monitoring of weight and walking			58		3.8	<0.10
	7 % weight loss at 7 months	Group B: Self-help booklet only			54		10	
		Group KM: Kenkou-tatsujin (KT) program with 6 months of weighing and targeted behavior self-monitoring			46		19.4	N/S
		Group K: KT program only			47		15.9	Not significant
		Group BM: An un-tailored self-help booklet with 7-month self-monitoring of weight and walking			58		7.5	Not significant
	Self-related habits and	Group B: Self-help booklet only			54			

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	weight loss: Body weight (kg)	Group KM: Kenkou-tatsujin (KT) program with 6 months of weighing and targeted behavior's self-monitoring			46	64.8	63.7	
		Group K: KT program only			47	64.8	63.7	
		Group BM: An un-tailored self-help booklet with 7-month self monitoring of weight and walking			58			
	Body weight (kg): Improved eating habits	Group B: Self-help booklet only			54			
		Group KM: Kenkou-tatsujin (KT) program with 6 months of weighing and targeted behavior self-monitoring			46	64.3	63	
		Group K: KT program only			47	64.3	63	
		Group BM: An un-tailored self-help booklet with 7-month self-monitoring of weight and walking			58			

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Body weight (kg): Unimproved eating habits	Group B: Self-help booklet only			54			
		Group KM: Kenkou-tatsujin (KT) program with 6 months of weighing and targeted behavior self-monitoring			46	66.2	65.9	
		Group K: KT program only			47	66.2	65.9	
		Group BM: An un-tailored self-help booklet with 70-month self-monitoring of weight and walking			58			
	Body weight (kg): Improved exercise habits	Group B: Self-help booklet only			54			
		Group KM: Kenkou-tatsujin (KT) program with 6 months of weighing and targeted behavior self-monitoring			46	64.4	63.2	
		Group K: KT program only			47	64.4	63.2	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Group BM: An un-tailored self-help booklet with 7-month self-monitoring of weight and walking			58			
	Body weight (kg): - Unimproved exercise habits	Group B: Self-help booklet only			54			
		Group KM: Kenkou-tatsujin (KT) program with 6 months of weighing and targeted behavior self-monitoring			46	66.8	66.5	
		Group K: KT program only			47	66.8	66.5	
		Group BM: An un-tailored self-help booklet with 7-month self-monitoring of weight and walking			58			
	Self-related habits and weight loss: BMI (kg/m²)	Group B: Self-help booklet only			54			
		Group KM: Kenkou-tatsujin (KT) program with 6 months of weighing and targeted behavior self-monitoring			46	26.1	25.7	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Group K: KT program only			47	26.1	25.7	
		Group BM: An un-tailored self-help booklet with 7-month self-monitoring of weight and walking			58			
	BMI (kg/m²): Improved eating habits	Group B: Self-help booklet only			54			
		Group KM: Kenkou-tatsujin (KT) program with 6 months of weighing and targeted behavior self-monitoring			46	25.9	25.4	
		Group K: KT program only			47	25.9	25.4	
		Group BM: An un-tailored self-help booklet with 7-month self-monitoring of weight and walking			58			
	BMI (kg/m²): Unimproved	Group B: Self-help booklet only			54			

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	eating habits	Group KM: Kenkou-tatsujin (KT) program with 6 months of weighing and targeted behavior self-monitoring			46	26.8	26.6	
		Group K: KT program only			47	26.8	26.6	
		Group BM: An un-tailored self-help booklet with 7-month self-monitoring of weight and walking			58			
	BMI (kg/m²): Improved exercise habits	Group B: Self-help booklet only			54			
		Group KM: Kenkou-tatsujin (KT) program with 6 months of weighing and targeted behavior self-monitoring			46	26	25.5	
		Group K: KT program only			47	26	25.5	
		Group BM: An un-tailored self-help booklet with 7-month self-monitoring of weight and walking			58			

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	BMI (kg/m²): Unimproved exercise habits	Group B: Self-help booklet only			54			
		Group KM: Kenkou-tatsujin (KT) program with 6 months of weighing and targeted behavior self-monitoring			46	26.6	26.5	
		Group K: KT program only			47	26.6	26.5	
		Group BM: An un-tailored self-help booklet with 7-month self-monitoring of weight and walking			58			
Apkon, 2005[2]	Healthcare opportunities fulfilled	Usual care			704		30.7	
		Coupler			721		33.9	0.12 as compared to Arm A
	Screening/prevention opportunities fulfilled	Usual care			704		30.4	
		Coupler			721		34.8	0.02 as compared to Arm A
	Acute/chronic opportunities fulfilled	Usual care			704		32.6	
		Coupler			721		27.7	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Total costs/resource consumption	Usual care	US dollars		704		698	
		Coupler	US dollars		721		789	0.05 as compared to Arm A
	Costs: Ambulatory visits	Usual care	US dollars		704		292	
		Coupler	US dollars		721		307	0.17 as compared to Arm A
	Costs: Laboratory testing	Usual care	US dollars		704		31	
		Coupler	US dollars		721		43	0.04 as compared to Arm A
	Costs: Siagnostic imaging	Usual care	US dollars		704		29	
		Coupler	US dollars		721		31	0.26 as compared to Arm A
	Costs: Pharmacy use	Usual care	US dollars		704		164	
		Coupler	US dollars		721		203	0.03 as compared to Arm A
	Speed,	Usual care	Score		792		4.19	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	efficiency, courtesy during visit	Coupler	Score		781		4.17	0.23 as compared to Arm A
	Satisfaction with health care provider	Usual care			792		4.37	
		Coupler	Score		781		4.4	0.82 as compared to Arm A
	Overall visit assessment	Usual care			792			
		Coupler	Score		781		4.27	0.74 as compared to Arm A
Barnabei, 2008[3]	Providers able to convey HT information to patients	Patients undergoing menopausal HT who did not have access to TTYD Web site	Number of patients	154	147			
		Patients undergoing menopausal HT who had access to TTYD Web site	Number of patients	151	141			0.12
	Level of relevance of patients questions	Patients undergoing menopausal HT who did not have access to TTYD Web site	Ordinal scale units (1 to 5 with "5" the highest response)	154	147		3.5	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Patients undergoing menopausal HT who had access to TTYD Web site	Ordinal scale units (1 to 5 with "5" the highest response)	151	141		3.8	0.03
	Level of patients engagement regarding discussion of HT	Patients undergoing menopausal HT who did not have access to TTYD Web site	Ordinal scale units (1 to 5 with "5" the highest response)	154	147		3.7	
		Patients undergoing menopausal HT who had access to TTYD Web site	Ordinal scale units (1 to 5 with "5" the highest response)	151	141		3.7	0.05
	Level of appropriateness of medical history convey by patient	Patients undergoing menopausal HT who did not have access to TTYD Web site	Ordinal scale units (1 to 5 with "5" the highest response)	154	147		3.8	
		Patients undergoing menopausal HT who had access to TTYD Web site	Ordinal scale units (1 to 5 with "5" the highest response)	151	141		3.8	0.03

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Level of satisfaction of discussion with patient	Patients undergoing menopausal HT who did not have access to TTYD Web site	Ordinal scale units (1 to 5 with "5" the highest response)	154	147		3.7	
		Patients undergoing menopausal HT who had access to TTYD Web site	Ordinal scale units (1 to 5 with "5" the highest response)	151	141		3.7	0.01
	Efficiency of visit compared with other visits	Patients undergoing menopausal HT who did not have access to TTYD Web site	Ordinal scale units (1 to 5 with "5" the highest response)	154	147		3.1	
		Patients undergoing menopausal HT who had access to TTYD Web site	Ordinal scale units (1 to 5 with "5" the highest response)	151	141		3.1	0.04
	Time to complete appointment	Patients undergoing menopausal HT who did not have access to TTYD Web site	Minutes	154	147		20.3	
		Patients undergoing menopausal HT who had access to TTYD Web site	Minutes	151	141		20.3	0.78

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Number of patients that came to appointment with questions	Patients undergoing menopausal HT who did not have access to TTYD Web site	Number of patients	154	147		80	
		Patients undergoing menopausal HT who had access to TTYD Web site	Number of patients	151	141		96	<0.01
	Patient previously seen this provider	Patients undergoing menopausal HT who did not have access to TTYD Web site	Number of patients	154	147		78	
		Patients undergoing menopausal HT who had access to TTYD Web site	Number of patients	151	141		81	0.5
	Decisions regarding HT	Patients undergoing menopausal HT who did not have access to TTYD Web site	Number of patients	154	147		43	
		Patients undergoing menopausal HT who had access to TTYD Web site	Decisions regarding HT	151	141		28/69/3	0.78
	Patients' feelings about amount of time with provider	Patients undergoing menopausal HT who did not have access to TTYD Web site	Number of patients	154	147		1/76/24	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Patients undergoing menopausal HT who had access to TTYD Web site	Number of patients	151	141		1/69/31	0.43
	Patients' feelings about level of encouragement of provider	Patients undergoing menopausal HT who did not have access to TTYD Web site	Ordinal scale units (1 to 5 with "5" the highest response)	154	147		4.2	
		Patients undergoing menopausal HT who had access to TTYD Web site	Ordinal scale units (1 to 5 with "5" the highest response)	151	141		4.3	0.3
	Patients' feelings about level satisfaction with answers to questions	Patients undergoing menopausal HT who did not have access to TTYD Web site	Ordinal scale units (1 to 5 with "5" the highest response)	154	147		4.6	
		Patients undergoing menopausal HT who had access to TTYD Web site	Ordinal scale units (1 to 5 with "5" the highest response)	151	141		4.7	0.68
	Patients' feelings about level of positively of interaction with	Patients undergoing menopausal HT who did not have access to TTYD Web site	Ordinal scale units (1 to 5 with "5" the highest response)	154	147		4.5	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	provider	Patients undergoing menopausal HT who had access to TTYD Web site	Ordinal scale units (1 to 5 with "5" the highest response)	151	141		4.6	0.23
	Patients' feelings about level of comfort in making decisions about HT	Patients undergoing menopausal HT who\ did not have access to TTYD Web site	Ordinal scale units (1 to 5 with "5" the highest response)	154	147		4.2	
		Patients undergoing menopausal HT who had access to TTYD Web site	Ordinal scale units (1 to 5 with "5" the highest response)	151	141		4.3	0.19
Benhamou, 2007[4]	Adherence of patients in performing self-monitored blood glucose (SMBG)	Patients in the control group downloaded self-monitored blood glucose (SMBG) values on a weekly basis without receiving SMS	Glucose values transmitted	30	4.79		4.63	0.054
		Patients in the intervention group received weekly medical support through SMS based upon weekly review of glucose values		30	4.85		4.74	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
Bosworth, 2009[5]	Estimated % in BP control	Control group (hypertension reminder)	%	143	143	32	43.9	0.18 (baseline to final)
	Estimated % in BP control (standard error)	Provider decision support system group	%	151	151	44.9	43.7	0.89 (baseline to final)
		Patient behavioral intervention group	%	144	144	44.2	59.5	0.08 (baseline to final)
		Combined provider support system and patient behavioral intervention group	%	150	150	36.2	48.1	0.23 (baseline to final)
	Estimated mean systolic BP	Control group (hypertension reminder)	mm Hg	143	143	142	137	0.01 (Baseline to final)
	Estimated mean systolic BP (standard error)	Provider decision support system group	mm Hg	151	151	139	137	0.27 (baseline to final)
		Patient behavioral intervention group	mm Hg	144	144	139	136	0.20 (baseline to final)

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Combined provider support system and patient behavioral intervention group	mm Hg	150	150	139	137	0.26 (baseline to final)
Buhrman, 2004[6]	Praying or hoping	Waiting-list control condition			29	10.4	9.9	<0.05
		Internet-based cognitive-behavioral intervention with telephone support			22	12	10.5	<0.05
	Catastrophizing	Waiting-list control condition			29	13.7	11.8	<0.05
		Internet-based cognitive-behavioral intervention with telephone support			22	13.6	9.3	<0.05
	Control over pain	Waiting-list control condition			29	2.9	3.7	
		Internet-based cognitive-behavioral intervention with telephone support			22	2.8	3.6	<0.05
	Ability to decrease pain	Waiting-list control condition			29	2.6	3.4	
		Internet-based cognitive-behavioral intervention with telephone support			22	3	3.7	<0.05

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Life control	Waiting-list control condition			29	2.7	3.8	<0.05
		Internet-based cognitive-behavioral intervention with telephone support			22	3.1	3.6	<0.05
	Punishing responses	Waiting-list control condition			29	1.5	1.3	<0.05
		Internet-based cognitive-behavioral intervention with telephone support			22	1	0.7	<0.05
	Pairs	Waiting-list control condition			29	56.3	50.9	<0.05
		Internet-based cognitive-behavioral intervention with telephone support			22	55	51.7	<0.05
	Depression	Waiting-list control condition			29	6.6	4.8	<0.05
		Internet-based cognitive-behavioral intervention with telephone support			22	6.9	5.3	<0.05
Chan, 2003[7]	Number of inhalers per month	Office-based asthma education	Mean number (SD)	5	1.1 (0.6)	5	0.5 (0.4)	
		Internet-based asthma education		5	0.5 (0.5)	5	0.4 (0.3)	
	Number of	Office-based asthma	Total number	5	293	5	88	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	diary entries	education						
		Internet-based asthma education		5	119	5	30	
Chen, 2008[8]	Attendance rate	Routine medical procedure -- participants received no reminder		619	619			
		SMS -- participants received a text message delivered through a mobile telephone Short Messaging Service reminder		620	615			p-value= 0.001
		Telephone contact -- participants were called by the medical assistants from the health promotion center and there was no other information included in the phone conversation		620	614		88.3	p-value= <0.001
	Cost effectiveness: Time spent	SMS -- participants received a text message delivered through a mobile telephone Short Messaging Service reminder		620	615			

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Telephone contact -- participants were called by the medical assistants from the health promotion center and there was no other information included in the phone conversation		620	614			
	Cost effectiveness: Research assistant salary/hour	SMS -- participants received a text message delivered through a mobile telephone Short Messaging Service reminder		620	615			
		Telephone contact -- participants were called by the medical assistants from the health promotion center and there was no other information included in the phone conversation		620	614			
	Cost effectiveness: Telecommunication cost	SMS: participants received a text message delivered through a mobile telephone Short Messaging Service reminder		620	615			

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Telephone contact -- participants were called by the medical assistants from the health promotion center and there was no other information included in the phone conversation		620	614			
	Cost effectiveness: Total cost incurred	SMS: participants received a text message delivered through a mobile telephone Short Messaging Service reminder		620	615			
		Telephone contact -- participants were called by the medical assistants from the health promotion center and there was no other information included in the phone conversation		620	614			
	Cost effectiveness: Total cost/patient	SMS: participants received a text message delivered through a mobile telephone Short Messaging Service reminder		620	615			

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Telephone contact -- participants were called by the medical assistants from the health promotion center and there was no other information included in the phone conversation		620	614			
	Cost effectiveness: Total cost/attendance	SMS: participants received a text message delivered through a mobile telephone Short Messaging Service reminder		620	615			
		Telephone contact -- participants were called by the medical assistants from the health promotion center and there was no other information included in the phone conversation		620	614			
	Cost effectiveness: Ratio of cost/attendance	SMS: participants received a text message delivered through a mobile telephone Short Messaging Service reminder		620	615			

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Telephone contact -- participants were called by the medical assistants from the health promotion center and there was no other information included in the phone conversation		620	614			
Clark, 2007[9]		Usual care						
		CHF Patients received healthcare via telemonitoring						
Col, 2007[10]	Change in total decisional conflict pre/post	Generic educational materials	Scale 1-5	50	32		0.09	
	Adherence to paper diary at 4 weeks	DA	Scale 1-5	45	31		0.7	
	Internet diary and Piko-1 at 4 weeks	DA+CC	Scale 1-5	50	36		0.51	
	Change in uncertainty scale	Generic educational materials	Scale 1-5	50	32		0.03	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	I am very interested in using the internet for monitoring asthma	DA	Scale 1-5	45	31		0.48	
	I am very interested in using paper for monitoring asthma	DA+CC	Scale 1-5	50	36		0.84	
	Change in Information scale	Generic educational materials	Scale 1-5	50	32		0.23	
		DA	Scale 1-5	45	31		1.25	
	It was very easy to record data Change in Values scale	DA+CC	Scale 1-5	50	36		0.66	
		Generic educational materials	Scale 1-5	50	32		-0.01	
	It was easy to view data	DA	Scale 1-5	45	31		0.73	
		DA+CC	Scale 1-5	50	36		0.29	
	Change in Support scale	Generic educational materials	Scale 1-5	50	32		0.14	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		DA	Scale 1-5	45	31		0.55	
	I liked to use it Change in effective choice	DA+CC	Scale 1-5	50	36		0.47	
		Generic educational materials	Scale 1-5	50	32		0.03	
	I liked to use it very much	DA	Scale 1-5	45	31		0.23	
		DA+CC	Scale 1-5	50	36		0.22	
	Change in satisfaction with process	Generic educational materials	Scale 0-100	50	32		56.4	
		DA	Scale 0-100	45	31		63.7	
	It was easy to forget Change in satisfaction with decision made	DA+CC	Scale 0-100	50	36		63.5	
		Generic educational materials	Scale 0-100	50	32		56	
	It was very easy to forget	DA	Scale 0-100	45	31		64.9	
		DA+CC	Scale 0-100	50	36		61.9	
	Change in self-reported	Generic educational materials	Scale 0-100	50	32		16.1	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	knowledge	DA	Scale 0-100	45	31		16.1	
	It may be very useful to me Change in actual knowledge	DA+CC	Scale 0-100	50	36		42.9	
		Generic educational materials	Scale 1-7	50	32		0.41	
	It may contribute to improve asthma control	DA	Scale 1-7	45	31		1.94	
		DA+CC	Scale 1-7	50	36		1.17	
	It may contribute to improve asthma control a lot	Internet: Web-based monitoring and decision support tool	%	19			73	
		Paper	%	19			50	
	It may contribute to improve treatment adherence	Internet: Web-based monitoring and decision support tool	%	19			100	
		Paper	%	19			87	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	It may contribute to improve treatment adherence	Internet: Web-based monitoring and decision support tool	%	19			64	
		Paper	%	19			53	
	It may contribute to improve asthma care	Internet: Web-based monitoring and decision support tool	%	19			100	
		Paper	%	19			87	
	It may contribute to improve asthma care a lot	Internet: Web-based monitoring and decision support tool	%	19			80	
		Paper	%	19			69	
	How many days did you not register symptoms? None	Internet: Web-based monitoring and decision support tool	%	19			0	
		Paper	%	19			38	
	How many days did you not register symptoms? 1-2 days	Internet: Web-based monitoring and decision support tool	%	19			14	
		Paper	%	19			13	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	How many days did you not register symptoms? More than 3 days	Internet: Web-based monitoring and decision support tool	%	19			86	
		Paper	%	19			50	
Dansky, 2008, [11]	Hospitalizations	Patients in the control group had routine home visits only	% of patients with outcome	112			59.5	0
		Patients in the intervention group received telehomecare monitor and video		45			64.4	
	Emergency department visits	Patients in the control group had routine home visits only	% of patients with outcome	112			35.7	<0.05
		Patients in the intervention group received telehomecare monitor and video		45			68.9	
	Hospitalizations	Patients in the control group had routine home visits only	% of patients with outcome	112			59.5	0
		Patients in the intervention group received telehomecare monitor and video		127			62.2	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Emergency department visits	Patients in the control group had routine home visits only	% of patients with outcome	112			35.7	0
		Patients in the intervention group received telehomecare monitor and video		127			70.1	
Delichatsios, 2001[12]	Mean intake of fruit using FFQ	Control -- computer-mediated telephone education program about physical activity	Servings per day		53	2.4	2	
		Intervention -- computer-mediated telephone education program about nutrition	Servings per day		61	2.8	3.2	<0.05
	Mean intake of vegetables using FFQ	Control -- computer-mediated telephone education program about physical activity	Servings per day		53	3.5	3.6	
		Intervention computer-mediated telephone education program about nutrition	Servings per day		61	3.8	4.5	
	Mean intake of red/processed meats using FFQ	Control -- computer-mediated telephone education program about physical activity	Servings per day		53	0.7	0.6	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Intervention -- computer-mediated telephone education program about nutrition	Servings per day		61	0.7	0.5	
	Mean intake of whole fat dairy foods using FFQ	Control -- computer-mediated telephone education program about physical activity	Servings per day		53	1.4	1.1	
		Intervention -- computer-mediated telephone education program about nutrition	Servings per day		61	1.6	1	
	Mean intake of whole grain foods using FFQ	Control -- computer-mediated telephone education program about physical activity	Servings per day		53	0.6	0.7	
		Intervention -- computer-mediated telephone education program about nutrition	Servings per day		61	0.7	0.7	
	Global diet quality using FFQ	Control -- computer-mediated telephone education program about physical activity	Score		53	55	55.4	
		Intervention -- computer-mediated telephone education program about nutrition	Score		61	54.7	64	<0.05

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Mean intake of dietary fiber using FFQ	Control -- computer-mediated telephone education program about physical activity	g		53	20	18	
		Intervention -- computer-mediated telephone education program about nutrition	g		61	21	22	<0.05
	Mean intake of saturated fat using FFQ	Control -- computer-mediated telephone education program about physical activity	Percent energy		53	10.3	10.5	
		Intervention -- computer-mediated telephone education program about nutrition	Percent energy		61	10.1	8.8	<0.05
	Mean intake of folate using FFQ	Control -- computer-mediated telephone education program about physical activity	Micrograms		53	316	29	
		Intervention -- computer-mediated telephone education program about nutrition	Micrograms		61	339	34	
	Mean intake of calcium using FFQ	Control -- computer-mediated telephone education program about physical activity	Milligrams		53	795	68	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Intervention -- computer-mediated telephone education program about nutrition	Milligrams		61	806	648	
	Mean intake of iron using FFQ	Control -- computer-mediated telephone education program about physical activity	Milligrams		53	2020	1619	
		Intervention -- computer-mediated telephone education program about nutrition	Milligrams		61	14.4	13.6	
	Mean intake of vitamin A using FFQ	Control -- computer-mediated telephone education program about physical activity	Retinol equivalents		53	2020	1619	
		Intervention -- computer-mediated telephone education program about nutrition	Retinol equivalents		61	1917	1811	
	Mean intake of vitamin C using FFQ	Control -- computer-mediated telephone education program about physical activity	Milligrams		53	156	142	
		Intervention -- computer-mediated telephone education program about nutrition	Milligrams		61	183	183	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Mean intake of beta-carotene using FFQ	Control -- computer-mediated telephone education program about physical activity	Micrograms		53	####	####	
		Intervention -- computer-mediated telephone education program about nutrition	Micrograms		61	####	####	
	Mean intake of fruit using Primescreen	Control -- computer-mediated telephone education program about physical activity	Servings per day		150	1.2	1.5	
		Intervention -- computer-mediated telephone education program about nutrition	Servings per day		148	1.1	1.5	<0.05
	Mean intake of vegetables using Primescreen	Control -- computer-mediated telephone education program about physical activity	Servings per day		150	1.2	1.4	
		Intervention -- computer-mediated telephone education program about nutrition	Servings per day		148	1.3	1.5	
	Mean intake of red/processed meats using Primescreen	Control -- computer-mediated telephone education program about physical activity	Servings per day		150	0.4	0.4	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Intervention -- computer-mediated telephone education program about nutrition	Servings per day		148	0.4	0.4	
	Mean intake of whole fat dairy foods using Primescreen	Control -- computer-mediated telephone education program about physical activity	Servings per day		150	0.5	0.4	
		Intervention -- computer-mediated telephone education program about nutrition	Servings per day		148	0.6	0.4	
	Mean intake of whole-grain foods using Primescreen	Control -- computer-mediated telephone education program about physical activity	Servings per day		150	0.4	0.4	
		Intervention -- computer-mediated telephone education program about nutrition	Servings per day		148	0.4	0.5	
	Mean intake of dietary fiber using Primescreen	Control -- computer-mediated telephone education program about physical activity	g		150	6	6.2	
		Intervention -- computer-mediated telephone education program about nutrition	g		148	6.2	7.3	<0.05

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Mean intake of saturated fat using Primescreen	Control -- computer-mediated telephone education program about physical activity	% energy		150	12.2	11.8	
		Intervention -- computer-mediated telephone education program about nutrition	% energy		148	12.6	10.7	<0.05
	Mean intake of folate using Primescreen	Control -- computer-mediated telephone education program about physical activity	µg		150	123	127	
		Intervention -- computer-mediated telephone education program about nutrition	µg		148	125	144	<0.05
	Mean intake of calcium using Primescreen	Control -- computer-mediated telephone education program about physical activity	mg		150	315	336	
		Intervention -- computer-mediated telephone education program about nutrition	mg		148	295	318	
	Mean intake of iron using Primescreen	Control -- computer-mediated telephone education program about physical activity	mg		150	3.8	3.8	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Intervention -- computer-mediated telephone education program about nutrition	mg		148	4.2	4.2	
	Mean intake of vitamin A using Primescreen	Control -- computer-mediated telephone education program about physical activity	Retinol equivalents		150	644	648	
		Intervention computer-mediated telephone education program about nutrition	Retinol equivalents		148	621	776	<0.05
	Mean intake of vitamin C using Primescreen	Control -- computer-mediated telephone education program about physical activity	mg		150	78	75	
		Intervention -- computer-mediated telephone education program about nutrition	mg		148	74	92	<0.05
Dobke, 2008[13]	Satisfaction scores	No telemedicine	Satisfaction and decisional conflict scale scores	15	15		2.53	0.004
		Telemedicine	Satisfaction and decisional conflict sScale scores	15	15		1.13	0.004

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Decisional conflict score	No telemedicine	Satisfaction and decisional conflict scale scores	15	15		35	<0.001
		Telemedicine	Satisfaction and decisional conflict scale scores	15	15		14	<0.001
	Mean consultation duration	No telemedicine	Minutes	15	15		50	
		Telemedicine	Minutes	15	15		35	<0.01
East, 1999[14]	Morbidity	Non-protocolized	Mods score		NR			
		Protocolized computerized decision support	MODS score		NR			0.04
	Lung injury	Non-protocolized	Barotrauma score		NR			
		Protocolized computerized decision support	Barotrauma Score		NR			<0.0001
Feldman, 2005[15]	Patient skips medicine	Heart failure patients receiving usual care	Adjusted probability	227	227		27.6	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted probability	199	199		27.7	0.99

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted probability	202	202		25.4	0.604
	Patient is sure about when to take HF medicine	Heart failure patients receiving usual care	Adjusted probability	227	227		67.4	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted probability	199	199		70.3	0.494
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted probability	202	202		69.6	0.613
	Patient recognition of own HF medicines	Heart failure patients receiving usual care	Adjusted probability	227	227			
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted probability	199	199		No Data	0.002

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted probability	202	202		No Data	0.023
	Patient does not recognize any of own HF medicines	Heart failure patients receiving usual care	Adjusted probability	227	227		43.9	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted probability	199	199		31.1	
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted probability	202	202		34.3	
	Patient recognizes up to half of own HF medicines	Heart failure patients receiving usual care	Adjusted probability	227	227		29.8	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted probability	199	199		30.5	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted probability	202	202		30.6	
	Patient recognizes more than half of own HF medicines	Heart failure patients receiving usual care	Adjusted probability	227	227		26.3	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted probability	199	199		38.4	
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted probability	202	202		35	
	Patient salts food	Heart failure patients receiving usual care	Adjusted probability	227	227		30.7	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted probability	199	199		27.6	0.49

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted probability	202	202		23.3	0.095
	Patient's weighing behavior	Heart failure patients receiving usual care	Adjusted probability	227	227		No Data	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted probability	199	199		No data	0.352
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted probability	202	202		No Data	0.082
	Patient has no scale	Heart failure patients receiving usual care	Adjusted probability	227	227		34.6	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted probability	199	199		38.3	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted probability	202	202		27.9	
	Patient weighs self but not daily	Heart failure patients receiving usual care	Adjusted probability	227	227		44	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted probability	199	199		43	
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted probability	202	202		44.7	
	Patient weights self daily	Heart failure patients receiving usual care	Adjusted probability	227	227		21.4	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted probability	199	199		18.7	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted probability	202	202		27.4	
	KCCQ summary score	Heart failure patients receiving usual care	Adjusted score (higher score = better outcome)	227	227		40.4	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted score (higher score = better outcome)	199	199		46.6	0.013
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted score (higher score = better outcome)	202	202		45.6	0.048
	KCCQ physical limitation domain score	Heart failure patients receiving usual care	Adjusted score (higher score = better outcome)	227	227		37.8	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted score (higher score = better outcome)	199	199		42.5	0.333
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted score (higher score = better outcome)	202	202		43	0.231
	KCCQ symptom domain score	Heart failure patients receiving usual care	Adjusted score (higher score = better outcome)	227	227		48.6	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted score (higher score = better outcome)	199			55.6	0.091
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted score (higher score = better outcome)	202	202		53.6	0.277

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	KCCQ percent w/quality of life domain score >=50	Heart failure patients receiving usual care	%	227	227		44.6	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	%	199	199		48	0.407
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	%	202	202		53.3	0.042
	KCCQ percent w/social limitation domain score >= 50	Heart failure patients receiving usual care	%	227	227		27.8	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	%	199	199		34.8	0.09
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	%	202	202		35.2	0.064

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	KCCQ percent w/ self efficacy domain score >=50	Heart failure patients receiving usual care	%	227	227		85.8	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	%	199	199		86.8	0.756
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	%	202	202		86.3	0.88
	Depression	Heart failure patients receiving usual care	Adjusted score (higher score = presence of depression)	227	227		36.3	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted score (higher score = presence of depression)	199	199		37.4	0.802

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted score (higher score = presence of depression)	202	202		36.9	0.888
	Euroqol health-related quality of life	Heart failure patients receiving usual care	Adjusted score (higher score = better outcome)	227	227		39.3	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted score (higher score = better outcome)	199	199		48.9	0.003
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted score (higher score = better outcome)	202	202		40.2	0.777
	Home care-related	Heart failure patients receiving usual care	US follars	227	227		2814	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	costs/patient	Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Us follars	199	199		3371	0.062
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	US dollars	202	202		3425	0.058
	Overall costs/patient	Heart failure patients receiving usual care	US dollars	227	227		4996	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	US dollars	199	199		5869	0.084
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	US dollars	202	202		6330	0.02
	Home care-related costs in	Heart failure patients receiving usual care	US dollars	227	227		No data	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	order to produce a 5% improvement in KCCQ summary score	Heart failure patients whose nurses received e-mail recommendations (basic intervention)	US dollars	199	199		183	
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	US dollars	202	202		235	
	Overall costs in order to produce a 5% improvement in KCCQ summary score	Heart failure patients receiving usual care	US dollars	227	227		No data	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	US dollars	199	199		246	
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	US dollars	202	202		513	
Feldstein,	Proportion of	Usual care			101		0.9	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
2006[16]	study population with BMD evaluation only	Patient-specific clinical guideline advice to the primary care provider delivered through an EMR message (EMR reminder)			101		23.8	<0.01 compared to Arm A
		An EMR reminder to the primary care provider plus an advisory letter with educational materials mailed to the patient (patient reminder)			109		22.9	0.43 compared to Arm B
	Proportion of study population with osteoporosis medication only	Usual care			101		4	
		Patient-specific clinical guideline advice to the primary care provider delivered through an EMR message (EMR reminder)			101		11.9	<0.01 compared to Arm A
		An EMR reminder to the primary care provider plus an advisory letter with educational materials mailed to the patient (patient reminder)			109		10.1	0.54 compared to Arm B
	Proportion of	Usual care			101		1	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	study population with both BMD and osteoporosis medication	Patient-specific clinical guideline advice to the primary care provider delivered through an EMR message (EMR reminder)			101		15.8	<0.01 compared to Arm A
		An EMR reminder to the primary care provider plus an advisory letter with educational materials mailed to the patient (patient reminder)			109		10.1	
	Proportion of study population with BMD or osteoporosis medication	Usual care			101		5.9	
		Patient-specific clinical guideline advice to the primary care provider delivered through an EMR message (EMR reminder)			101		51.5	<0.01 compared to Arm A
		An EMR reminder to the primary care provider plus an advisory letter with educational materials mailed to the patient (patient reminder)			109			0.88 compared to Arm B
	Total calcium intake (n=22)	Usual care	Mg/day		22	1309	851	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Total calcium intake (n=33)	Patient-specific clinical guideline advice to the primary care provider delivered through an EMR message (EMR reminder)	Mg/day		33	1117	1311	0.02 compared to Arm A
	Total calcium intake (n=37)	An EMR reminder to the primary care provider plus an advisory letter with educational materials mailed to the patient (patient reminder)	Mg/day		32	1221.5	1224.7	0.05 compared to Arm A
	Regular activity (n=33)	Usual care			22	7	10	
	Regular activity (n=41)	Patient-specific clinical guideline advice to the primary care provider delivered through an EMR message (EMR reminder)			33	9	8	0.17 compared to Arm A
	Regular activity (n=42)	An EMR reminder to the primary care provider plus an advisory letter with educational materials mailed to the patient (patient reminder)			32	11	12	0.55 compared to Arm A

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Caloric expenditure per week (n=32)	Usual care			22	2326	1981	
	Caloric expenditure per week (n=38)	Patient-specific clinical guideline advice to the primary care provider delivered through an EMR message (EMR reminder)			33	3083	2313	0.96 compared to Arm A
	Caloric expenditure per week (n=38)	An EMR reminder to the primary care provider plus an advisory letter with educational materials mailed to the patient (patient reminder)			32	2614.4	2525.9	0.32 compared to Arm A
Finch, 2005[17]	Perspectives about telemedicine	Qualitative study					More educate self-managers	
Frank, 2004[18]	Preventive opportunities for tetanus immunization	Control -- usual care			####			
		Automatic electronic reminders for preventive services to physicians			####			
	Opportunities	Control -- usual care			222		1.5	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	taken for tetanus immunization	Automatic electronic reminders for preventive services to physicians			333		2.8	
	Preventive opportunities for recording of allergies	Control -- usual care			####			
		Automatic electronic reminders for preventive services to physicians			####			
	Opportunities taken for recording of allergies	Control -- usual care			682		5	
		Automatic electronic reminders for preventive services to physicians			991		9	
	Preventive opportunities for pneumococcal immunization	Control -- usual care			2370			
		Automatic electronic reminders for preventive services to physicians			2079			
	Opportunities taken for pneumococcal immunization	Control -- usual care			39		1.6	
		Automatic electronic reminders for preventive services to physicians			58		2.8	
	Preventive opportunities for recording of weight	Control -- usual care			####			
		Automatic electronic reminders for preventive services to physicians			####			

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Opportunities taken for recording of weight	Control -- usual care			567		4.9	
		Automatic electronic reminders for preventive services to physicians			654		6.2	
	Preventive opportunities for MMR immunization	Control -- usual care			523			
		Automatic electronic reminders for preventive services to physicians			446			
	Opportunities taken for MMR immunization	Control -- usual care			48		8.2	
		Automatic electronic reminders for preventive services to physicians			46		10.3	
	Preventive opportunities for smoking status	Control -- usual care			9407			
		Automatic electronic reminders for preventive services to physicians			8908			
	Opportunities taken for smoking status	Control -- usual care			171		1.8	
		Automatic electronic reminders for preventive services to physicians			181		2	
	Preventive	Control -- usual care			4833			

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	opportunities for cervical smear	Automatic electronic reminders for preventive services to physicians			4387			
	Opportunities taken for cervical smear	Control -- usual care			348		7.2	
		Automatic electronic reminders for preventive services to physicians			343		7.8	
	Preventive opportunities for blood pressure	Control -- usual care			4404			
		Automatic electronic reminders for preventive services to physicians			4370			
	Opportunities taken for blood pressure	Control -- usual care			666		15.1	
		Automatic electronic reminders for preventive services to physicians			677		15.5	
	Preventive opportunities for diabetes screening	Control -- usual care			1900			
		Automatic electronic reminders for preventive services to physicians			1858			
	Opportunities taken for diabetes screening	Control -- usual care			47		2.4	
		Automatic electronic reminders for preventive services to physicians			45		2.4	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Preventive opportunities for influenza immunization	Control -- usual care			912			
		Automatic electronic reminders for preventive services to physicians			935			
	Opportunities taken for influenza immunization	Control -- usual care			248		27.2	
		Automatic electronic reminders for preventive services to physicians			245		26.2	
	Preventive opportunities for lipid screening	Control -- usual care			7929			
		Automatic electronic reminders for preventive services to physicians			7268			
	Opportunities taken for lipid screening	Control -- usual care			176		2.4	
		Automatic electronic reminders for preventive services to physicians			176		2.4	
Frosch, 2008[19]	Clicked on assigned link	Internet links	%	151			77	
		CDT group	%	153			87	
		TDA group	%	155			85	
		Combination CDT and TDA	%	152			77	
	PSA screening: Pretest choice	Internet links	%	151			96	
		CDT group	%	153			96.7	
		TDA	%	155			95.5	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Combination CDT and TDA	%	152			96.7	
	PSA screening: Reduction in choice	Internet links	Change in %					
		CDT group	Change in %					<0.001
		TDA	Change in %					<0.001
		Combination CDT and TDA						<0.001
	Watchful waiting at pretest	Internet links	%	151			34.4	
		CDT group	%	153			34	
		TDA	%	155			34.2	
		Combination CDT and TDA		152			40.8	
	Total knowledge score/imputed data	Internet links	10 items	151			7.24	
		CDT group	10 items	153			7.69	0.005
		TDA	10 items	155			8.14	0.005
		Combination CDT and TDA	Change in %	152			7.71	0.005
	Total knowledge score/complete cases only	Internet links	10 items		99		7.49	
		CDT group	10 items		115		8.03	0.001
		TDA	10 items		119		8.65	0.001
		Combination CDT and TDA	%		120		8.03	0.001
Gaertner, 2004[20]	Preferred use of electronic	(crossover) paper version of a pain diary	Crossover				75	
		(crossover) Electronic pain diaries and palm-top computers	Crossover	75				

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Preferred use of paper	(crossover) paper version of a pain diary	Crossover				8	
		(crossover) Electronic pain diaries and palm-top computers	Crossover	8				
	Undecided	(crossover) paper version of a pain diary	Crossover				17	
		(crossover) Electronic pain diaries and palm-top computers	Crossover	17				
Gielen, 2007[21]	Knowledge of child safety seats, smoke alarms, poison storage	General information	Total proportion correct, mean+/-SD, %	453	375		66.4	0
		Computer kiosk to promote child safety	Total proportion correct, mean +/-SD, %	448	384		72.6	0
Glasgow, 2000[22]	Behavioral outcomes: Block Fat Screener – No TF, no CR	Brief intervention across multiple offices and interventionists (Basic Condition)			80	48.6	24.7	NS
	Behavioral outcomes: Kristal FFB--Fat composite	Brief intervention across multiple offices and interventionists (Basic Condition)			80	1.9	1.6	0.017

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Behavioral outcomes: Kristal FFB--Fruit and vegetable	Brief intervention across multiple offices and interventionists (Basic Condition)			80	1.9	1.7	
	Physiologic outcomes: HBA1c	Brief intervention across multiple offices and interventionists (Basic Condition)			80	7.6	7.4	
	Physiologic outcomes: Total cholesterol	Brief intervention across multiple offices and interventionists (Basic Condition)			80	210	206	0.010
	Physiologic outcomes: Weight	Brief intervention across multiple offices and interventionists (Basic Condition)			80	199	197	Not significant
	Physiologic outcomes: Lipid ratio--Total/HDL	Brief intervention across multiple offices and interventionists (Basic Condition)			80	5.1	4.9	Not significant
	Quality of life /satisfaction outcomes: Diabetes intrusiveness	Brief intervention across multiple offices and interventionists (Basic Condition)			80	25.7	26	0.014

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Quality of life: Satisfaction with program	Brief intervention across multiple offices and interventionists (Basic Condition)			80	36		Not significant
	Quality of life /satisfaction outcomes: Process variable results-- Self-efficacy	Brief intervention across multiple offices and interventionists (Basic Condition)			80	3.9	4	Not significant
	Quality-of life /satisfaction outcomes: Chronic illness resources survey	Brief intervention across multiple offices and interventionists (Basic Condition)			80			Not significant
Glasgow, 2006[23]	Fruit and vegetable screener	UC: Computer-aided enhanced	NCI All Day screener (unit not specified)	161	153	5.1	5	
		TSM: Tailored self-management	NCI All Day screener (unit not specified)	174	148	5.5	5.7	0.27
	Daily fat intake	UC: Computer-aided enhanced	Block fat screener (not specified)	161	153	32.4	28.5	
		TSM: Tailored self-management	Block fat screener (not specified)	174	148	27.6	22.4	0.006

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	HbA1c	UC: Computer-aided enhanced	%	161	153	7.5	7.5	
		TSM: Tailored self-management	%	174	148	7.4	7.3	0.46
	Total cholesterol/HDL cholesterol	UC: Computer-aided enhanced	Proportion	161	153	3.9	3.8	
		TSM: Tailored self-management	Proportion	174	148	3.9	3.8	0.33
	Total cholesterol	UC: Computer-aided enhanced	mg/dl	161	153	185	184	
		TSM: Tailored self-management	mg/dl	174	148	185	183	0.27
	HDL cholesterol	UC: Computer-aided enhanced	mg/dl	161	153	50	50.9	
		TSM: Tailored self-management	mg/dl	174	148	49.2	50.4	0.083
	PHQ-9: Total score	UC: Computer-aided enhanced	Scale 0-27	161	153	5.4	5.5	
		TSM: Tailored self-management	0-27	174	148	5.7	5.5	0.53
	Diabetes distress scale	UC: Computer-aided enhanced	Not specified	161	153	41.5	36.2	
		TSM: Tailored self-management	Not specified	174	148	40.1	33.6	0.29
	Weight	UC: Computer-aided enhanced	kg	161	153	94	94	
		TSM: Tailored self-management	kg	174	148	94.3	93.6	0.007

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
Glazebrook, 2006[24]	Melanoma knowledge score	Control	Scale 0-12	329	228	2.75	3.36	
		Skinsafe multimedia intervention	Scale 0-12	258	199	2.9	4.12	<0.001
	Skin protective behavior score	Control	Scale 0-8	321	245	4.66	5.3	
		Skinsafe multimedia intervention	Scale 0-8	256	214	4.6	5.7	0.007
	Number of participants checking moles	Control	%	327	245			
		Skinsafe multimedia intervention	%	257	214	61.9	86.9	0.045
Gomez, 2002[25]	Hba1c	Group not using DIABTel system	%	10	10	8.1	8.15	
		Group using DIABTel system	%	10	10	8.4	7.9	0.053
Grant, 2008[26]	Proportion of follow-up visits with diabetes mellitus–related medication changes among patients who	Patients in the control group received personal health records to update and submit family history and health maintenance information	Proportion of follow-up visits	118			15	<0.001

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	submitted personal health record journals to their physician's electronic medical record	Patients in the intervention group received Web-based personal health records (PHRS) that imported clinical and medications data, provided patient-tailored decision support, and enabled the patient to author a "diabetes care plan" for electronic submission to their physician prior to upcoming appointments		126			53	
Gray, 2000[27]	Length of stay in NICU (LOS)	Usual care	Days				70.6	
		Carelink	Days				68.5	
Green, 2008[28]	% with controlled BP at 12 months	Usual care		258	247		31	
		BP monitoring and patient Web services		258	247		36	0.21
		BP monitoring, patient Web services and pharmacist care		258	247		56	<0.001
	Adjusted change in systolic BP at	Usual care	mm Hg	258	247		- 5.3	
		BP monitoring and patient Web services		258	247		-8.2	<0.001

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	12 months	BP monitoring, patient Web services and pharmacist care		258	247		-13.2	<0.001
	Adjusted change in diastolic BP at 12 months	Usual care	mm Hg	258	247		-3.5	
		BP monitoring and patient Web services		258	247		-4.4	<0.001
		BP monitoring, patient Web services and pharmacist care		258	247		- 4.6	p<0.001
Hassol, 2004[29]								
Harno, 2006[30]	Body mass index	Usual care	Kg/m2		74	27.8	27.6	
		E-health application	Kg/m2		101	28.5	29.2	
	Systolic BP	Usual care	mm Hg		74	136	137	
		E-health application	mm Hg		101	1.34	1.35	
	Diastolic BP	Usual care	mm Hg		74	84	82	
		E-health application	mm Hg		101	81	79	<0.05
	Hemoglobin A1c	Usual care	%		74	8.21	7.83	
		E-health application	%		101	7.82	7.32	<0.05
	Fasting glucose	Usual care	mmol/l		74	9.91	10.9	
		E-health application	mmol/l		101	9.08	8.88	<0.001
	Cholesterol	Usual care	mmol/l		74	4.91	5.03	
		E-health application	mmol/l		101	4.95	4.74	<0.05
	HDL	Usual care	mmol/l		74	1.58	1.55	
		E-health application	mmol/l		101	1.58	1.66	
	LDL	Usual care	mmol/l		74	2.65	2.76	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		E-health application	mmol/l		101	2.7	2.52	<0.05
Helzer, 2008[31]	Weekly consumption of alcohol during followup at 3 months	No interactive voice response		81	81		20.7	
		Interactive voices respond only, no feedback		75	75		25.3	p-value=.02
		Interactive voices respond with feedback		75	75		25.9	p-value=0.49
		Interactive voices respond with feedback plus a moneitary calling incentive		53	53		22.4	p-value=0.11
	Weekly consumption of alcohol during followup at 6 months	No interactive voice response		81	81		18.3	
		Interactive voices respond only, no feedback		75	75		25	p-value=.01
		Interactive voices respond with feedback		75	75		22.4	p-value=0.04
		Interactive voices respond with feedback plus a monetary calling incentive		53	53		20.4	p-value=0.36
	Awareness of consumption	No interactive voice response						

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	assessed at the 6-month interview	Interactive voices respond only, no feedback						
	Awareness of consumption assessed at the 6-month interview: Referral	Interactive voices respond with feedback		73	73		3.24	
		Interactive voices respond with feedback plus a monetary calling incentive		47	47		3.26	
	Awareness of consumption assessed at the 6-month interview: Initial interview	Interactive voices respond with feedback		73	73		2.94	
		Interactive voices respond with feedback plus a monetary calling incentive		47	47		3.46	
	Awareness of consumption assessed at the 6-month interview: IVR calls	Interactive voices respond with feedback		73	73		3.73	
		Interactive voices respond with feedback plus a monetary calling incentive		47	47		4.06	
	Awareness of consumption	Interactive voices respond with feedback		73	73		3.7	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	assessed at the 6-month interview: Graph	Interactive voices respond with feedback plus a monetary calling incentive		47	47		3.8	
	Awareness of consumption assessed at the 6-month interview: Doctors comments	Interactive voices respond with feedback		73	73		3.25	
		Interactive voices respond with feedback plus a monetary calling incentive		47	47		3.71	
	Awareness of consumption assessed at the 6-month interview: Payment for participation	Interactive voices respond with feedback		73	73		1.61	
		Interactive voices respond with feedback plus a monetary calling incentive		47	47		2.4	
Homko, 2007[32]	Maternal Feelings of Diabetes Self-Efficacy: Total	Women in the control group were asked to record their information in a logbook, which was reviewed by the medical team at prenatal visit			29		4	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Internet group patients in the Internet group were provided with computer and Internet access. Women sent blood glucose and other health data directly to their care providers via the Internet and received information/advice from their health care provider			34		4.4	0.053
	Maternal Feelings of Diabetes Self-Efficacy: Subscale 1	Women in the control group were asked to record their information in a logbook, which was reviewed by the medical team at prenatal visit			29		4	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Internet group patients in the Internet group were provided with computer and Internet access. Women sent blood glucose and other health data directly to their care providers via the Internet and received information/advice from their health care provider			34		4.5	0.039
	Maternal Feelings of Diabetes Self-Efficacy: Subscale 2	Women in the control group were asked to record their information in a logbook, which was reviewed by the medical team at prenatal visit			29		3.9	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Internet group patients in the Internet group were provided with computer and Internet access. Women sent blood glucose and other health data directly to their care providers via the Internet and received information/advice from their health care provider			34		4.3	0.036
	Maternal Feelings of Diabetes Self-Efficacy: Subscale 3	Women in the control group were asked to record their information in a logbook, which was reviewed by the medical team at prenatal visit			29		4.1	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Internet group patients in the Internet group were provided with computer and Internet access. Women sent blood glucose and other health data directly to their care providers via the Internet and received information/advice from their health care provider			34		4.4	0.268
	Maternal glucose control: FBS (mg/dl)	Women in the control group were asked to record their information in a logbook, which was reviewed by the medical team at prenatal visit			29		88.6	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Internet group patients in the Internet group were provided with computer and Internet access. Women sent blood glucose and other health data directly to their care providers via the Internet and received information/advice from their health care provider			34		90.8	
	Maternal glucose control: Breakfast blood glucose (mg/dl)	Women in the control group were asked to record their information in a logbook, which was reviewed by the medical team at prenatal visit			29		110.9	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Internet group patients in the Internet group were provided with computer and Internet access. Women sent blood glucose and other health data directly to their care providers via the Internet and received information/advice from their health care provider			34		108.4	
	Maternal glucose control: Lunch blood glucose (mg/dl)	Women in the control group were asked to record their information in a logbook, which was reviewed by the medical team at prenatal visit			29		108.5	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Internet group patients in the Internet group were provided with computer and Internet access. Women sent blood glucose and other health data directly to their care providers via the Internet and received information/advice from their health care provider			34		113.3	
	Maternal glucose control: Dinner blood glucose (mg/dl)	Women in the control group were asked to record their information in a logbook, which was reviewed by the medical team at prenatal visit			29		114.5	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Internet group patients in the Internet group were provided with computer and Internet access. Women sent blood glucose and other health data directly to their care providers via the Internet and received information/advice from their health care provider			34		117.5	
	Maternal glucose control: Mmean blood glucose (mg/dl)	Women in the control group were asked to record their information in a logbook, which was reviewed by the medical team at prenatal visit			29		104.5	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Internet group patients in the Internet group were provided with computer and Internet access. Women sent blood glucose and other health data directly to their care providers via the Internet and received information/advice from their health care provider			34		106.6	
	Maternal glucose control: A1c % at delivery	Women in the control group were asked to record their information in a logbook, which was reviewed by the medical team at prenatal visit			29		6.2	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Internet group patients in the Internet group were provided with computer and Internet access. Women sent blood glucose and other health data directly to their care providers via the Internet and received information/advice from their health care provider			34		6.1	
	Maternal pregnancy outcome: Caesarean delivery	Women in the control group were asked to record their information in a logbook, which was reviewed by the medical team at prenatal visit			29		40	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Internet group patients in the Internet group were provided with computer and Internet access. Women sent blood glucose and other health data directly to their care providers via the Internet and received information/advice from their health care provider			34		69	
	Maternal pregnancy outcome: Pre-eclampsia/ gestational hypertension	Women in the control group were asked to record their information in a logbook, which was reviewed by the medical team at prenatal visit			29		20	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Internet group patients in the Internet group were provided with computer and Internet access. Women sent blood glucose and other health data directly to their care providers via the Internet and received information/advice from their health care provider			34		28	
	Maternal pregnancy outcome: Premature rupture of membranes	Women in the control group were asked to record their information in a logbook, which was reviewed by the medical team at prenatal visit			29		12	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Internet group patients in the Internet group were provided with computer and Internet access. Women sent blood glucose and other health data directly to their care providers via the Internet and received information/advice from their health care provider			34		3	
	Maternal pregnancy utcome: Placental abruption	Women in the control group were asked to record their information in a logbook, which was reviewed by the medical team at prenatal visit			29		0	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Internet group patients in the Internet group were provided with computer and Internet access. Women sent blood glucose and other health data directly to their care providers via the Internet and received information/advice from their health care provider			34		3	
Hunter, 2008[33]	Weight	Usual care	Kg, pretest/posttest/change		222	86.6	87.4	
		6-Month behavioral Internet treatment	Kg, pretest/posttest/change		224	87.4	85.5	
	BMI	Usual care	Kg/m2		222	29.3	29.4	
		6-Month behavioral Internet treatment	Kg/m2		224	29.4	28.8	
	Waist circumference	Usual care	Cm		222	94.2	93.4	
		6-Month behavioral Internet treatment	Cm		224	94.5	92.2	
	Body fat %	Usual care			222	34.2	34.7	
		6-Month behavioral Internet treatment			224	34.5	33.9	
	5% or more	Usual care	% yes, change		222			

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	weight loss	6-Month behavioral Internet treatment	% yes, change		224	23.6	19	
	% gained weight	Usual care	Change		222			
		6-Month behavioral Internet treatment	Change		224	35.1	32.3	
	Block dietary screener: Meat and snacks--Screener score	Usual care			222	24.2	20.8	
		6-Month behavioral Internet treatment			224	13.7	15.8	
	Block dietary screener: Meat and snacks--% of calories from fat	Usual care			222	35.5	33.4	
		6-Month behavioral Internet treatment			224	15.8	17.4	
	Fruit—vegetable-beans Screener score	Usual care			222	14.2	14.6	
		6-Month behavioral Internet treatment			224	2788	2765	
	Dietary fiber score	Usual care			222	16.1	16.5	
		6-Month behavioral Internet treatment			224			
	Ipaq (total met)	Usual care	Minutes/week		222			
		6-Month behavioral Internet treatment	Minutes/week		224			

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
Jan, 2007[34]	Nighttime symptom scores for asthma	Traditional asthma care plan (written asthma diary + instructions for self-management)	Baseline/week 12/change from baseline	76	71	0.05	0.05	0.998
		Internet-based monitoring of symptoms+ self-management plan	Baseline/ week12/ change from baseline	88	82	0.11	0.04	0.108
	Daytime symptom scores for asthma	Traditional asthma care plan (written asthma diary + instructions for self-management)	Baseline/ week12/ change from baseline	76	71	0.03	0.05	0.122/ 0.588
		Internet-based monitoring of symptoms+ self-management plan	Baseline/ week12/ change from baseline	88	82	0.14	0.07	
	Peak expiratory flow: Morning	Traditional asthma care plan (written asthma diary + instructions for self-management)	l/min, baseline/ week12/ change from baseline	76	71	219	230	0.07
		Internet-based monitoring of symptoms+ self-management plan	l/min, baseline/ week12/ change from baseline	88	82	223	242	0.017

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Peak expiratory flow: Night	Traditional asthma care plan (written asthma diary + instructions for self-management)	l/min, baseline/ week12/ change from baseline	76	71	225	236	0.07
		Internet-based monitoring of symptoms+ self-management plan	l/min, baseline/ week12/ change from baseline	88	82	233	256	0.01
	Peak expiratory flow: Daily variability	Traditional asthma care plan (written asthma diary + instructions for self-management)	l/min, baseline/ week12/ change from baseline	76	71	9.2	9.2	0.149/ 0.970
		Internet-based monitoring of symptoms+ self-management plan	l/min, baseline/ week12/ change from baseline	88	82	8.6	10.3	
Japuntich, 2006[35]	Cessation rates: 3/6 mos	Bupropion plus counseling alone	N		144			
		Bupropion and counseling + Web-based intervention	N		140	15	22.9	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Use of Web site	Bupropion and counseling + Web-based intervention	Times over the course of the intervention period				33.6	
Jerant, 2003[36]	CHF-related readmission costs	Usual care (home visit)			12			
		Telephone care			12			
		Telenursing care			12			
	CHF-related ED visits	Usual care (home visit)			12			
		Telephone care			12			
		Telenursing care			12			
	Mean direct patient care time per visit	Usual care (home visit)	Minutes		12		79	
		Telephone care			12		12	<0.0001
		Telenursing care			12		27	<0.0001
	Patient self-adherence	Usual care (home visit)			12			
		Telephone care			12			
		Telenursing care			12			
	Medication regimen	Usual care (home visit)			12			
		Telephone care			12			
		Telenursing care			12			
	Health status	Usual care (home visit)			12			
		Telephone care			12			
		Telenursing care			12			
	Satisfaction	Usual care (home visit)			12			
		Telenursing care			12			

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
Kaner, 2007[37]	Total consultation times	Paper-based guidelines for clinician-patient treatment decision	Minutes		10		21	
		Implicit computer-based decision aid, DARTS II used for clinician-patient treatment decision	Minutes		11		31	0.001
		Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision	Minutes		8		44	0.001
	Clinician verbal dominance in 10 minutes preceding decision	Paper-based guidelines for clinician-patient treatment decision	% of 10 minutes		10		60	
		Implicit computer-based decision aid, DARTS II used for clinician-patient treatment decision	% of 10 minutes		11		65	0.09
		Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision	% of 10 minutes		8		64	0.09
	Doctor's Information-seeking	Paper-based guidelines for clinician-patient treatment decision	Minutes		10		6	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Implicit computer-based decision aid, DARTS II used for clinician-patient treatment decision	Minutes		11		3	0.004
		Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision	Minutes		8		7	0.004
	Doctor's pause	Paper-based guidelines for clinician-patient treatment decision	Minutes		10		6	
		Implicit computer-based decision aid, DARTS II used for clinician-patient treatment decision	Minutes		11		4	0.04
		Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision	Minutes		8		1	0.04
	Patient's negative talk	Paper-based guidelines for clinician-patient treatment decision	Minutes		10		2	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Implicit computer-based decision aid, DARTS II used for clinician-patient treatment decision	Minutes		11		0	0.01
		Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision	Minutes		8		1	0.01
	Doctor's nodding	Paper-based guidelines for clinician-patient treatment decision	Minutes		10		17	
		Implicit computer-based decision aid, DARTS II used for clinician-patient treatment decision	Minutes		11		36	0.005
		Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision	Minutes		8		21	0.005
	Doctor's head shake	Paper-based guidelines for clinician-patient treatment decision	Minutes		10		4	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Implicit computer-based decision aid, DARTS II used for clinician-patient treatment decision	Minutes		11		2	0.006
		Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision	Minutes		8		0	0.006
	Doctor's smiling	Paper-based guidelines for clinician-patient treatment decision	Minutes		10		0	
		Implicit computer-based decision aid, DARTS II used for clinician-patient treatment decision	Minutes		11		1	0.04
		Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision	Minutes		8		2	0.04
	Doctor's pointing at patient	Paper-based guidelines for clinician-patient treatment decision	Minutes		10		1	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Implicit computer-based decision aid, DARTS II used for clinician-patient treatment decision	Minutes		11		0	0.01
		Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision	Minutes		8		0	0.01
	Doctor's touching/pointing at tool	Paper-based guidelines for clinician-patient treatment decision	Minutes		10		6	
		Implicit computer-based decision aid, DARTS II used for clinician-patient treatment decision	Minutes		11		1	0.007
		Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision	Minutes		8		6	0.007
	Doctor's eye-gaze toward tool	Paper-based guidelines for clinician-patient treatment decision	Minutes		10		5	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Implicit computer-based decision aid, DARTS II used for clinician-patient treatment decision	Minutes		11		15	0.001
		Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision	Minutes		8		16	0.001
	Patient's eye-gaze toward tool	Paper-based guidelines for clinician-patient treatment decision	Minutes		10		5	
		Implicit computer-based decision aid, DARTS II used for clinician-patient treatment decision	Minutes		11		16	0.0001
		Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision	Minutes		8		16	0.0001
	Triglyceride	Usual care	mmol/l		74	1.46	1.67	
		E-health application	mmol/l		101	1.49	1.44	<0.05
	Creatinine	Usual care	mmol/l		74	84	73	
Kim, 2004[38]								

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
Krishna, 2003[39]	Knowledge score among caregivers of children 0-6 yrs old	Control group received traditional patient education based on the National Asthma Education and Prevention Program		69	23	48.4	52.3	.0293
		Intervention group received traditional patient education based on the National Asthma Education and Prevention Program in addition self-management education through the Interactive Multimedia Program for Asthma Control and Tracking		62	24	47.9	55.7	<.0001
	Knowledge score among caregivers of children 7-17 yrs old	Control group received traditional patient education based on the National Asthma Education and Prevention Program		52	28	49.6	51.7	.0079

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Intervention group received traditional patient education based on the National Asthma Education and Prevention Program in addition self-management education through the Interactive Multimedia Program for Asthma Control and Tracking		45	26	50	55.4	<.0001
	Knowledge score among caregivers of Children 7-17 yrs old	Control group received traditional patient education based on the National Asthma Education and Prevention Program		52	28	43.4	47.5	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Knowledge score among caregivers of Children 7-17 yrs old	Intervention group received traditional patient education based on the National Asthma Education and Prevention Program in addition self-management education through the Interactive Multimedia Program for Asthma Control and Tracking		45	25	43.1	53.1	<.0001
	Change in knowledge, health outcome, resource utilization by children: Days of asthma symptoms	Control group received traditional patient education based on the National Asthma Education and Prevention Program		119	44	97.8	48.2	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Intervention group received traditional patient education based on the National Asthma Education and Prevention Program in addition self-management education through the Interactive Multimedia Program for Asthma Control and Tracking			42	105	23.9	<0001
	Change in knowledge, health outcome, resource utilization by children: Days	Control group received traditional patient education based on the National Asthma Education and Prevention Program			45	90.7	41	0.0004

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	of quick relief medicine	Intervention group received traditional patient education based on the National Asthma Education and Prevention Program in addition self-management education through the Interactive Multimedia Program for Asthma Control and Tracking			41	90	26.3	.0002
	Change in knowledge, health outcome, resource utilization by children: Days	Control group received traditional patient education based on the National Asthma Education and Prevention Program			45	35.5	13.5	0.951

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	of activity limitation	Intervention group received traditional patient education based on the National Asthma Education and Prevention Program in addition self-management education through the Interactive Multimedia Program for Asthma Control and Tracking			40	46.2	6.7	<.0001
	Change in knowledge, health outcome, resource utilization by children: Nights	Control group received traditional patient education based on the National Asthma Education and Prevention Program			45	62	17.1	<0.0001

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	of sleep disturbance	Intervention group received traditional patient education based on the National Asthma Education and Prevention Program in addition self-management education through the Interactive Multimedia Program for Asthma Control and Tracking			42	64.7	15.2	<.0001
	Change in knowledge, health outcome, resource utilization by children: Urgent	Control group received traditional patient education based on the National Asthma Education and Prevention Program			45	6.4	1.3	<0.0001

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	visit to physician	Intervention group received traditional patient education based on the National Asthma Education and Prevention Program in addition self-management education through the Interactive Multimedia Program for Asthma Control and Tracking			40	6.6	0.8	<0.0001
	Change in knowledge, health outcome, resource utilization by children	Control group received traditional patient education based on the National Asthma Education and Prevention Program			45	1.2	0.6	.0219

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	:Emergency room visits	Intervention group received traditional patient education based on the National Asthma Education and Prevention Program in addition self-management education through the Interactive Multimedia Program for Asthma Control and Tracking			42	2	0.1	.0024
	Change in knowledge, health outcome, resource utilization by children:	Control group received traditional patient education based on the National Asthma Education and Prevention Program			45	0.6	0.1	0.0313

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Hospitalizations	Intervention group received traditional patient education based on the National Asthma Education and Prevention Program in addition self-management education through the Interactive Multimedia Program for Asthma Control and Tracking			42	0.1	0.1	0.0625
	Change in knowledge, health outcome, resource utilization by children: Days	Control group received traditional patient education based on the National Asthma Education and Prevention Program			45	6.4	5.4	0.0781

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	of stay in hospital	Intervention group received traditional patient education based on the National Asthma Education and Prevention Program in addition self-management education through the Interactive Multimedia Program for Asthma Control and Tracking			42	2.7	0.6	0.1563
	Change in knowledge, health outcome, resource utilization by children: School	Control group received traditional patient education based on the National Asthma Education and Prevention Program			43	6.4	5.4	0.1479

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	days missed	Intervention group received traditional patient education based on the National Asthma Education and Prevention Program in addition self-management education through the Interactive Multimedia Program for Asthma Control and Tracking			40	7.9	1.4	0.0001
	Daily dose of inhaled corticosteroid	Control group received traditional patient education based on the National Asthma Education and Prevention Program			119	351	754	0.0364

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Intervention group received traditional patient education based on the National Asthma Education and Prevention Program in addition self-management education through the Interactive Multimedia Program for Asthma Control and Tracking		105	42	353	434	0.8327
Kukafka, 2002[40]	Self-efficacy of personal care	Tailored web-based	Self-efficacy scores (action)	31	6.24	17	8.35	P<0.05
		Non-tailored web-based		31	7.21	13	6	ns
		Non-tailored paper based		32	6.78	17	65	ns
Kuppermann, 2009[41]	Knowledge score (%) postviewing	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252	218		646.9	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244	202		79.578	<0.001
	Knowledge score (%) 1-2 weeks later	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252	218		65.5	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244	202		77.6	<0.001
	Correct procedure-related miscarriage risk estimate (%) postviewing	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252	218		48.1	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244	202		64.9	0.002
	Correct procedure-related miscarriage risk estimate (%) 1-2 weeks later	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252	218		51	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244	202		55.7	0.39
	Correct DS-affected fetus estimate (%) post viewing	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252	218		51.1	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Intervention group received computerized interactive prenatal testingdecision tool on prenatal testing decision making		244	202		63.5	<0.001
	Correct DS-affected fetus estimate (%) 1-2 weeks later	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252	218		15.7	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244	202		42.8	<0.001
	Intervention satisfaction-postreviewing	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252	218		7.5	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244	202		8.1	<0.001
	Intervention satisfaction 1-2 weeks later	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252	218		7.5	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244	202		8.2	<0.001
	Intervention satisfaction at 26-30 weeks gestation	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252	218		7.5	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking			202		8.2	<0.001
	Decisional conflict: Factors contributing to uncertainty 1-2 weeks later	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252	218		40.2	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244	202		32.1	<0.001
	Decisional conflict: Factors contributing to uncertainty 1-2 weeks later	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252	218		38.8	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244	202		32.3	0.005
	Decisional conflict: Factors contributing to uncertainty at 26-30 weeks of gestation	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252	218		26.2	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244	202		21.9	0.01
	Factors contributing to uncertainty 1-2 weeks later	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252	218		26.2	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244	202		19.2	<0.001
	Factors contributing to uncertainty at 26-30 weeks of gestation	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252	218		19.4	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244	202		15.2	<0.001
	Ineffective decision 1-2 weeks later	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252	218		17.7	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244	202		15.4	0.11
	Ineffective decision at 26-30 weeks of gestation	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252	218		32	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decision making		244	202		31.4	0.47
	Overall decisional conflict: 1-2 weeks later	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252	218		20.9	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244	202		19.1	0.21
	Overall decisional conflict: 26-30 weeks of gestation	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252	218		23.9	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244	202		20.6	0.001
	Decision regret (%) at 26-30 weeks of gestation	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252	218		12.8	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244	202		9.6	0.28
	Intervention affected prenatal testing plan (%) 1-2 weeks later	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252	218		27.5	
	Intervention affected prenatal testing plan (%) 1-2 weeks later	Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244	202		47.8	<.001
	Intervention affected prenatal testing plan (%) at 26-30 weeks of gestation	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252	218		36	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Intervention affected prenatal testing plan (%) at 26-30 weeks of gestation	Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244	202		38.2	0.85
	Satisfaction in decisionmaking (%): Information given by the provider at 26-30 weeks of gestation	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252	218		49.2	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244	202		44.8	0.40
	Satisfaction in decisionmaking (%): Way decision given by the provider at 26-30 weeks	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252			48.1	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	of gestation	Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244	202		44.3	0.45
	Satisfaction in decisionmaking (%): Degree of involvement of the provider at 26-30 weeks of gestation	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252	218		79.9	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking					72.6	0.10
Kypri, 2004[42]	Frequency of drinking	Leaflet-only control	Number of drinking days in last 2 weeks: median (range)		53			

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		10–15 minutes of Web-based assessment and personalized feedback	Number of drinking days in last 2 weeks: median (range)		51			
	Typical occasion: Quantity	Leaflet-only control	Number of drinks* per typical drinking occasion in last 4 weeks: median (range)		53			
		10–15 minutes of Web-based assessment and personalized feedback	Number of drinks* per typical drinking occasion in last 4 weeks: median (range)		51			
	Total consumption	Leaflet-only control	Number of drinks in last 2 weeks: median (range)		53			

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		10–15 minutes of Web-based assessment and personalized feedback	Number of drinks in last 2 weeks: median (range)		51			
	Frequency of very episodic heavy drinking	Leaflet-only control	Number of episodes of >80 g for women and 120 g for men in last 2 weeks: median (range)		53			
		10–15 minutes of Web-based assessment and personalized feedback	Number of episodes of >80 g for women and 120 g for men in last 2 weeks: median (range)		51			
	Personal, social, sexual, and legal consequences of episodic heavy	Leaflet-only control	Number of problems—APS: range 0–14; median (range)		53			

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	drinking	10–15 minutes of Web-based assessment and personalized feedback	Number of problems—APS: range 0–14; median (range)		51			
	Consequences related to tertiary student role expectations	Leaflet-only control	Score on AREAS: range 0–35; median (range)		53			
		10–15 minutes of Web-based assessment and personalized feedback	Score on AREAS: range 0–35		51			
Laffel, 2007[43]	Mean decrease in A1c	Paper log books	Logbook data and A1C	92	92		0.27	0.02
		Integrated glucose meters and electronic logbooks (Electronic Group)	Logbook data and A1C	113	113		0.35	0.02
Liaw, 1998[44]	Improved patient's knowledge of own health	Patients with one or more chronic health problem without PHR received		22	22			
		Patients with one or more chronic health problem without PHR received		29	29		56%	
		Post test group without PHR		NR	NR			

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Patients with one or more chronic health problem without PHR received		NR	NR			
		Patients with one or more chronic health problem without PHR received		NR	NR		52%	
		Post test group without PHR		NR	NR			
	Improved knowledge of health promotion tasks	Patients with one or more chronic health problem without PHR received		NR	NR			
		Patients with one or more chronic health problem without PHR received		NR	NR		41%	
		Post test group without PHR		NR	NR			
	Improved sharing of information with family	Patients with one or more chronic health problem without PHR received		NR	NR			
		Patients with one or more chronic health problem without PHR received		NR	NR		38%	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Post test group without PHR		NR	NR			
	Improved patient-doctor communication	Patients with one or more chronic health problem without PHR received		NR	NR			
		Patients with one or more chronic health problem without PHR received		NR	NR		32%	
		Post test group without PHR		NR	NR			
	Improved sharing of information with hospital	Patients with one or more chronic health problem without PHR received		NR	NR			
		Patients with one or more chronic health problem without PHR received		NR	NR			
		Post test group without PHR		NR	NR			
	Improved sharing of information with other	Patients with one or more chronic health problem without PHR received		NR	NR			

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	health care providers	Patients with one or more chronic health problem without PHR received		NR	NR			
		Post test group without PHR		NR	NR			
	Impact on systolic BP	Patients with one or more chronic health problem without PHR received		16	NR			
		Patients with one or more chronic health problem without PHR received		20	NR			0.04
		Post test group without PHR		NR	NR			
		Patients with one or more chronic health problem without PHR received		NR	NR			
		Patients with one or more chronic health problem without PHR received		NR	NR			Not significant
Lieberman, 2006[45]	Adherence	Text feedback on results of a questionnaire to evaluate problem drinking	r value					0.501

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Multimedia feedback on results of a questionnaire to evaluate problem drinking					0.040	
Lorig, 2006[46]	Health distress	Usual care	One-yr changes	501	426		-0.193	
		Internet-based CDSMP	One-yr changes	457	354		-0.377	
	Self-reported global health	Usual care	One-yr changes	501	426		-0.068	
		Internet-based CDSMP	One-yr changes	457	354		-0.102	
	Illness intrusiveness	Usual care	One-yr changes	501	426		-0.064	
		Internet-based CDSMP	One-yr changes	457	354		-0.150	
	Disability	Usual care	One-yr changes	501	426		-0.142	
		Internet-based CDSMP	One-yr changes	457	354		-0.166	
	Fatigue	Usual care	One-yr changes	501	426		-0.358	
		Internet-based CDSMP	One-yr changes	457	354		-0.720	
	Pain	Usual care	One-yr changes	501	426		-0.047	
		Internet-based CDSMP	One-yr changes	457	354		-0.367	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Shortness of breath	Usual care	One-yr changes	501	426		-0.216	
		Internet-based CDSMP	One-yr changes	457	354		-0.537	
	Aerobic exercise	Usual care	One-yr changes	501	426		7.99	
		Internet-based CDSMP	(min/wk) one-yr changes	457	354		12.1	
	Stretch/strength exercise	Usual care	(min/wk) one-yr changes	501	426		1.16	
		Internet-based CDSMP	(min/wk) one-yr changes	457	354		11.9	
	Communication with physician	Usual care	One-yr changes	501	426		0.221	
		Internet-based CDSMP	One-yr changes	457	354		0.268	
	Practice stress management (times/week)	Usual care	(times/wk) one-yr changes	501	426		0.200	
		Internet-based CDSMP	(times/wk) one-yr changes	457	354		0.647	
	Self-efficacy	Usual care	One-yr changes	501	426		0.200	
		Internet-based CDSMP	One-yr changes	457	354		0.406	
	Physician visits (past 6 mos)	Usual care	One-yr changes	501	426		-0.866	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Internet-based CDSMP	One-yr changes	457	354		-0.680	
	Emergency visits (past 6 mos)	Usual care	One-yr changes	501	426		-0.144	
		Internet-based CDSMP	One-yr changes	457	354		-0	
	Days in hospital (past 6 mos)	Usual care	One-yr changes	501	426		-0.243	
		Internet-based CDSMP	One-yr changes	457	354		-0.003	
Lowensteyn, 1998[47]	Likelihood of high-risk patients for a follow-up coronary risk assessment	The control group physicians received their profile only if the patient was clinically reevaluated during a 3-month follow-up visit		110				
		The profile group physicians received coronary risk profiles for their patients within 10 working days after the baseline patient assessment providing early feedback		494	494			

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		The control group physicians received their profile only if the patient was clinically reevaluated during a 3-month follow-up visit		66				
		The profile group physicians received coronary risk profiles for their patients within 10 working days after the baseline patient assessment providing early feedback		288	288			
	Impact of coronary risk profiles on CHD risk factors Total cholesterol (mmol/l)	The control group physicians received their profile only if the patient was clinically reevaluated during a 3-month follow-up visit		89			6.11	
		The profile group physicians received coronary risk profiles for their patients within 10 working days after the baseline patient assessment providing early feedback		202	202		6.55	0.05

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		The control group physicians received their profile only if the patient was clinically reevaluated during a 3-month follow-up visit		89			1.16	
		The profile group physicians received coronary risk profiles for their patients within 10 working days after the baseline patient assessment providing early feedback		202	202		1.13	0.55
		The control group physicians received their profile only if the patient was clinically reevaluated during a 3-month follow-up visit		89			3.88	
		The profile group physicians received coronary risk profiles for their patients within 10 working days after the baseline patient assessment providing early feedback		202	202		4.37	0.05

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		The control group physicians received their profile only if the patient was clinically reevaluated during a 3-month follow-up visit		89			5.7	
		The profile group physicians received coronary risk profiles for their patients within 10 working days after the baseline patient assessment providing early feedback		202	202		6.2	0.05
	Impact of coronary risk profiles on CHD risk factors: Systolic BP (mm Hg)	The control group physicians received their profile only if the patient was clinically reevaluated during a 3-month follow-up visit		89			129.2	
		The profile group physicians received coronary risk profiles for their patients within 10 working days after the baseline patient assessment providing early feedback		202	202		133	0.61

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		The control group physicians received their profile only if the patient was clinically reevaluated during a 3-month follow-up visit		89			79.8	
		The profile group physicians received coronary risk profiles for their patients within 10 working days after the baseline patient assessment providing early feedback		202	202		82.3	0.99
	Impact of coronary risk profiles on CHD risk factors: Body mass index (kg/m^2)	The control group physicians received their profile only if the patient was clinically reevaluated during a 3-month follow-up visit		89			27.8	
		The profile group physicians received coronary risk profiles for their patients within 10 working days after the baseline patient assessment providing early feedback		202	202		28.6	0.31

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Impact of coronary risk profiles on CHD risk factors: Smokers	The control group physicians received their profile only if the patient was clinically reevaluated during a 3-month follow-up visit		89			21	
		The profile group physicians received coronary risk profiles for their patients within 10 working days after the baseline patient assessment providing early feedback		202	202		42	0.64
	Impact of coronary risk profiles on CHD risk factors: 8-yr coronary risk %	The control group physicians received their profile only if the patient was clinically reevaluated during a 3-month follow-up visit		89			52	
		The profile group physicians received coronary risk profiles for their patients within 10 working days after the baseline patient assessment providing early feedback		202	202		12	<0.01

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Impact of coronary risk profiles on CHD risk factors Cardiovascular age (yrs)	The control group physicians received their profile only if the patient was clinically reevaluated during a 3-month follow-up visit		89			52	
		The profile group physicians received coronary risk profiles for their patients within 10 working days after the baseline patient assessment providing early feedback		202	202		54	<0.01
Matheny, 2007[48]	Patient satisfaction	Automated test results notification system: Results manager (RM)	Satisfaction with test results (%) Satisfaction with information (%) Satisfaction with provider listening skills (%) Satisfation with provider communication skills (%)	484	82.5 86.8 92.8 90.5	463	92.5 95.8 97.5 95.8	P=0.03 P=0.02
		Control		416	89.9 95.3 99.3 96.0	423	85.1 93.5 99.4 96.8	P=0.54 P=0.43

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
Marceau, 2007[49]	Provider asked me to keep this type of diary	Paper diary use	% yes				28	
		Electronic diary	% yes				6	0.003
	Tracking helps me to understand my pain	Paper diary use	% yes				39	
		Electronic diary	% yes				50	0.05
	Tracking changed an aspect of my life	Paper diary use	% yes				11	
		Electronic diary	% yes				25	NS
	Tracking changed my medication use	Paper diary use	% yes				8	
		Electronic diary	% yes				17	NS
	Provider suggested a change in daily routine	Paper diary use	% yes				8	
		Electronic diary	% yes				19	NS
	Provider suggested a change in my medication	Paper diary use					3	
		Electronic diary	% yes				22	0.02

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
Marcus, 2007[50]	Physical activity, minutes per week	Contact control	Total number of minutes reported in the moderate, hard, and very hard range, 6/12 mos		78	77.7	81.9	
		Telephone-based individualized feedback	Total number of minutes reported in the moderate, hard, and very hard range, 6/12 mos		80	123	101	
		Print-based individualized feedback	Total number of minutes reported in the moderate, hard, and very hard range, 6/12 mo		81	129	162	
	Behavioral processes	Contact control			78	2.41	2.41	
		Telephone-based individualized feedback			80	2.41	2.82	
		Print-based individualized feedback			81	2.36	2.91	
	Cognitive processes	Contact control			78	2.86	2.67	
		Telephone-based individualized feedback			80	2.91	2.99	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Print-based individualized feedback			81	2.92	3.12	
	Decisional balance	Contact control			78	1.29	-3.64	
		Telephone-based individualized feedback			80	-0.07	-0.75	
		Print-based individualized feedback			81	-0.45	1.34	
	Self-efficacy	Contact control			78	2.66	2.37	
		Telephone-based individualized feedback			80	2.72	2.86	
		Print-based individualized feedback			81	2.53	2.98	
	Exercise test minutes	Contact control			78	7.65	8.16	
		Telephone-based individualized feedback			80	7.54	8.64	
		Print-based individualized feedback			81	7.96	8.7	
	VO_2	Contact control	ml/kg/min		78	25.6	26.3	
		Telephone-based individualized feedback	ml/kg/min		80	25.3	27.2	
		Print-based individualized feedback	ml/kg/min		81	26	27.1	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
Marcus, 2007[50]	Physical activity, minutes per week	Contact control	Total number of minutes reported in the moderate, hard, and very hard range, 6/12 mos		78	77.7	81.9	
		Telephone-based individualized feedback	Total number of minutes reported in the moderate, hard, and very hard range, 6/12 mos		80	123	101	
		Print-based individualized feedback	Total number of minutes reported in the moderate, hard, and very hard range, 6/12 mo		81	129	162	
	Behavioral processes	Contact control			78	2.41	2.41	
		Telephone-based individualized feedback			80	2.41	2.82	
		Print-based individualized feedback			81	2.36	2.91	
	Cognitive processes	Contact control			78	2.86	2.67	
		Telephone-based individualized feedback			80	2.91	2.99	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Print-based individualized feedback			81	2.92	3.12	
	Decisional balance	Contact control			78	1.29	-3.64	
		Telephone-based individualized feedback			80	-0.07	-0.75	
		Print-based individualized feedback			81	-0.45	1.34	
	Self-efficacy	Contact control			78	2.66	2.37	
		Telephone-based individualized feedback			80	2.72	2.86	
		Print-based individualized feedback			81	2.53	2.98	
	Exercise test minutes	Contact control			78	7.65	8.16	
		Telephone-based individualized feedback			80	7.54	8.64	
		Print-based individualized feedback			81	7.96	8.7	
	VO_2	Contact control	ml/kg/min		78	25.6	26.3	
		Telephone-based individualized feedback	ml/kg/min		80	25.3	27.2	
		Print-based individualized feedback	ml/kg/min		81	26	27.1	
Marks, 2004[51]	Pretreatment: Self-rated-Main problem and goals	2F: Mainly stand-alone computer-guided self-exposure		20	19		7.4	
		2C: Entirely clinician-guided self-exposure given face-to-face		29	27		7.3	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		1R: Rainly stand-alone computer- and audio-tape-guided self-relaxation without exposure		16	14		7.1	
	Pretreatment: Self-rated--Goals	2F: Mainly stand-alone computer-guided self-exposure		20	19		7.1	
		2C: Entirely clinician-guided self-exposure given face-to-face		29	27		7	
		1R: Mainly stand-alone computer- and audio-tape-guided self - relaxation without exposure		16	14		7.1	
	Pretreatment: Self-rated--FQ Global Phobia	2F: Mainly stand-alone computer-guided self-exposure		20	19		6.1	
		2C: Entirely clinician-guided self-exposure given face-to-face		29	27		6.7	
		1R: Mainly stand-alone computer- and audio-tape-guided self-relaxation without exposure		16	14		6.6	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Pretreatment: Self-rated--WAS Total	2F: Mainly stand-alone computer-guided self-exposure		20	19		15.5	
		2C: Entirely clinician-guided self-exposure given face-to-face		29	27		17.6	
		1R: mainly stand-alone computer- and audio-tape-guided self-relaxation without exposure		16	14		15.4	
	Pretreatment: Blind assessors--Main problem	2F: Mainly stand-alone computer-guided self-exposure		20	19		NS	
		2C: Entirely clinician-guided self-exposure given face-to-face		29	27		NS	
		1R: Mainly stand-alone computer- and audio-tape-guided self-relaxation without exposure		16	14		NS	
	Pretreatment: Blind assessors--Goal	2F: Mainly stand-alone computer-guided self-exposure		20	19		NS	
		2C: Entirely clinician-guided self-exposure given face-to-face		29	27		NS	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		1:R mainly stand-alone computer- and audio-tape-guided self-relaxation without exposure		16	14		NS	
	Pretreatment: Blind assessors-FQ Global Phobia	2F: Mainly stand-alone computer-guided self-exposure		20	19		5.4	
		2C: Entirely clinician-guided self-exposure given face-to-face		29	27		5.7	
		1R: Mainly stand-alone computer- and audio-tape-guided self-relaxation without exposure		16	14		5.6	
	Pretreatment: Blind assessors--WAS Total	2F: Mainly stand-alone computer-guided self-exposure		20	19		14.6	
		2C: Entirely clinician-guided self-exposure given face-to-face		29	27		17.5	
		1R: Mainly stand-alone computer- and audio-tape-guided self-relaxation without exposure		16	14		15.9	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Posttreatment: Self-rated--Main problem and goals	2F: Mainly stand-alone computer-guided self-exposure					3.9	
		2C: Entirely clinician-guided self-exposure given face-to-face		29	27		3.6	
		1R: Mainly stand-alone computer- and audio-tape-guided self-relaxation without exposure		16	14		6.4	
	Posttreatment: Self-rated--Goals	2F: Mainly stand-alone computer-guided self-exposure					2.9	
		2C: Entirely clinician-guided self-exposure given face-to-face		29	27		3.1	
		1R: Mainly stand-alone computer- and audio-tape-guided self-relaxation without exposure		16	14		6.7	
	Post treatment: Self-rated--FQ Global Phobia	2F: Mainly stand-alone computer-guided self-exposure					3.8	
		2C: Entirely clinician-guided self-exposure given face-to-face		29	27		3.3	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		1R: Mainly stand-alone computer- and audio-tape-guided self-relaxation without exposure		16	14		5.7	
	Post treatment: Self-rated--WAS Total	2F: Mainly stand-alone computer-guided self-exposure					10	
		2C: Entirely clinician-guided self-exposure given face-to-face		29	27		11.8	
		1R: Mainly stand-alone computer- and audio-tape-guided self-relaxation without exposure		16	14		11.9	
	Post treatment Blind assessors: Main problem	2F: Mainly stand-alone computer-guided self-exposure					3.1	
		2C: Entirely clinician-guided self-exposure given face-to-face		29	27		3.6	
		1R: Mainly stand-alone computer- and audio-tape-guided self-relaxation without exposure		16	14		5.8	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Post treatment Blind assessors: Goal	2F: Mainly stand-alone computer-guided self-exposure					2.9	
		2C: Entirely clinician-guided self-exposure given face-to-face		29	27		3.1	
		1R:Mainly stand-alone computer- and audio-tape-guided self-relaxation without exposure		16	14		6.8	
	Post treatment Blind assessors: FQ Global Phobia	2F: Mainly standalone computer-guided self-exposure					3.1	
		2C: Entirely clinician-guided self-exposure given face-to-face		29	27		3.2	
		1R: Mainly stand-alone computer- and audio-tape-guided self-relaxation without exposure		16	14		5.3	
	Post treatment Blind assessors: WAS Total	2F: mMinly stand-alone computer-guided self-exposure					7.2	
		2C: Entirely clinician-guided selfexposure given face-to-face		29	27		10	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		1R: Mainly stand-alone computer- and audio-tape-guided self-relaxation without exposure		16	14		15.3	
Maslin, 1998[52]	Mental health score on SF-36 questionnaire	Control -- usual care from multidisciplinary team			NR	68	68	
		Intervention -- interactive video disk system + usual care from multidisciplinary team			NR	60	68	0.02
	Anxiety score on the hospital anxiety and depression scale	Control -- usual care from multidisciplinary team			NR			<0.001
		Intervention -- interactive video disk system + usual care from multidisciplinary team			NR			<0.001
	Viewing IVD had impact on surgical choice	Intervention -- interactive video disk system + usual care from multidisciplinary team			NR		12.5	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Intervention -- interactive video disk system + usual care from multidisciplinary team			NR		14.2	
McDonald, 2005[53]	Last observation carried forward to week 16	Participants assigned to weight loss manual			24		3.6	<0.05
		Participants assigned to commercial Internet weight loss program (e-Diet.com)			23		0.9	0.01
	Last observation carried forward to week 52	Participants assigned to weight loss manual			24		4	<0.05
		Participants assigned to commercial Internet weight loss program (e-Diet.com)			23		1.1	0.04
	Baseline carried forward to week16	Participants assigned to weight loss manual			24		3.2	
		Participants assigned to commercial Internet weight loss program (e-Diet.com)			23		0.9	0.01
	Baseline carried forward to week 52	Participants assigned to weight loss manual			24		3.1	
		Participants assigned to commercial Internet weight loss program (e-Diet.com)			23		1.3	0.04

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Completers only at week 16	Participants assigned to weight loss manual			31		4	Not significant
		Participants assigned to commercial Internet weight loss program (e-Diet.com)			31		1.3	0.01
	Completers only at week 52	Participants assigned to weight loss manual			31		4.4	Not significant
		Participants assigned to commercial Internet weight loss program (e-Diet.com)			31		2.1	0.04
Montgomery, 2000[54]	5-yr CV risk <10%	Usual care	%	130	130			
		CDSS plus risk chart	%	202	202			
		Risk chart alone	%	199	199	13	15	
	5-yr CV risk 10-19.9%	Usual care	%	130	130			
		CDSS plus risk chart	%	202	202			
		Risk chart alone	%	199	199	47	46	
	5-yr CV risk >20%	Usual care	%	130	130			
		CDSS plus risk chart	%	202	202	34	32	
		Risk chart alone	%	199	199	40	39	
	Mean 5-yr CV risk	Usual care	CV risk	130	130	17.3	17.8	
		CDSS plus risk chart	Mean CV risk	202	202	16	16.7	
		Risk chart alone	Mean CV risk	199	199	17.9	17.5	
	Mean systolic BP	Usual care	mm Hg	130	130	158	159	
		CDSS plus risk chart	mm Hg	202	202	153	153	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Risk chart alone	mm Hg	199	199	156	153	
	Mean diastolic BP	Usual care	mm Hg	130	130	86	84	
		CDSS plus risk chart	mm Hg	202	202	85	85	
		Risk chart alone	mm Hg	199	199	87	86	
	0-1 classes of drugs	Usual care	%	137	137			
		CDSS plus risk chart	%	207	207			
		Risk chart alone	%	208	208	47	33	
	2 classes of drugs	Usual care	%	137	137	33	34	
		CDSS plus risk chart	%	207	207	36	36	
		Risk chart alone	%	208	208	28	32	
	>=3 class of drugs	Usual care	%	137	137	25	29	
		CDSS plus risk chart	%	207	207	21	25	
		Risk chart alone	%	199	199	25	35	
	Mean difference in 5-yr CV risk	Usual care	CV risk	130	130		0.77	
		CDSS plus risk chart	C V risk	202	202		0.65	
		Risk chart alone	CV risk	199	199		-0.48	
	Mean difference in systolic BP	Usual care	mm Hg	130	130		-1.64	
		CDSS plus risk chart	mm Hg				-0.04	
		Risk chart alone	mm Hg	199	199		-2.66	
	Mean difference in diastolic BP	Usual care	mm Hg	130	130		-1.64	
		CDSS plus risk chart	mm Hg				0.36	
		Risk chart alone	mm Hg	199	199		-1.1	
Montgomery, 2007[55]	Decisional conflict scale (total)	Standard care	Score				27.8	
		Information program	Score				22.5	
		Decision analysis	Score				23.6	
	Mode of delivery: Elective	Standard care	N				50	
		Information program	N		117		49	
		Decision analysis	N				41	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Caesarean	Standard care	N				20	
		Information program	N		53		22	
		Decision analysis	N		50		21	
	Mode of delivery: Vaginal birth	Standard care	N				30	
		Information program	N				29	
		Decision analysis	N		88		37	
	Anxiety	Standard care					42.1	
		Information program					38.5	
		Decision analysis					38.7	
	Knowledge	Standard care					57.5	
		Information program					69.7	
		Decision analysis					68.0	
	Satisfaction with decision	Standard care					4.2	
		Information program					4.3	
		Decision analysis					4.4	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
Napolitano, 2003[56]	Physical activity (moderate): Iintervention outcome at baseline	Participants in the waiting list control group were told that they would have to wait 3 months to participate. They completed assessments at 1 and 3 months, similar to participants in the Internet condition. After their 3-month assessment, they were sent to the internet group		35	31		80.86	
		Participants in the Internet condition received access to the Web site for 3 months along with weekly e-mail tip sheets		30	21		68.79	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Physical activity (moderate): intervention outcome in 1 month	Participants in the waiting list control group were told that they would have to wait 3 months to participate. They completed assessments at 1 and 3 months, similar to participants in the Internet condition. After their 3-month assessment, they were sent to the internet group		35	31		96.82	
		Participants in the Internet condition received access to the Web site for 3 months along with weekly e-mail tip sheets		30	21		98.33	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Physical activity: (moderate): Intervention outcome in 3 months	Participants in the waiting list control group were told that they would have to wait 3 months to participate. They completed assessments at 1 and 3 months, similar to participants in the Internet condition. After their 3-month assessment, they were sent to the internet group		35	31		82	
		Participants in the Internet condition received access to the Web site for 3 months along with weekly e-mail tip sheets		30	21		112	Not significant

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Physical activity-(Walking) Intervention outcome in Baseline	Participants in the waiting list control group were told that they would have to wait 3 months to participate. They completed assessments at 1 and 3 months, similar to participants in the Internet condition. After their 3-month assessment, they were sent to the internet group		35	31		87.57	
		Participants in the Internet condition received access to the Web site for 3 months along with weekly e-mail tip sheets		30	21		57.24	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Physical activity (walking): Intervention outcome in 1 month	Participants in the waiting list control group were told that they would have to wait 3 months to participate. They completed assessments at 1 and 3 months, similar to participants in the Internet condition. After their 3-month assessment, they were sent to the internet group		35	31		83.79	
		Participants in the Internet condition received access to the Web site for 3 months along with weekly e-mail tip sheets		30	21		87.29	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Physical activity (walking): Intervention outcome in 3 month	Participants in the waiting list control group were told that they would have to wait 3 months to participate. They completed assessments at 1 and 3 months, similar to participants in the Internet condition. After their 3-month assessment, they were sent to the internet group		35	31		68.39	
		Participants in the Internet condition received access to the Web site for 3 months along with weekly e-mail tip sheets		30	21		99.75	
Neumann, 2006[57]	At-risk drinking/all patients	Control	% meeting BMA criteria		352		42.6	
		FRAMES computer-generated feedback	% meeting BMA criteria		561		37.3	0.168
	At risk drinking/precontemplation	Control	% meeting BMA criteria		352		30.5	
		FRAMES computer-generated feedback	% meeting BMA criteria		561		31.2	0.891

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	At risk drinking/contemplation	Control	% meeting BMA criteria		352		64.5	
		FRAMES computer-generated feedback	% meeting BMA criteria		561		51.1	0.066
	At risk drinking/action	Control	% meeting BMA criteria		352		45.7	
		FRAMES computer-generated feedback	% meeting BMA criteria		561		32.3	0.099
	Alcohol intake	Control	G/day		352		23	
		FRAMES computer-generated feedback	G/day		561		21	0.029
	% change from baseline	Control	% change		352		-10.9	
		FRAMES computer-generated feedback	% change		561		-22.8	0.023
	Remained low-risk drinker	Control	%		352		39.5	
		FRAMES computer-generated feedback	%		561		41.6	0.59
	Changed from low-risk to at-risk	Control	%		352		15.3	
		FRAMES computer-generated feedback	%		561		11.7	0.17
	Changed from at-risk to low-risk	Control			352		17.9	
		FRAMES computer-generated feedback	%		561		21.1	0.3
	Remained at-risk drinker	Control			352		27.3	
		FRAMES computer-generated feedback	%		561		25.6	0.64

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
Nguyen, 2008[58]	CRQ: Dyspnea with ADL	fDSMP (face-to-face)	Score 5-35	20	20	15.9	19.9	
		eDSMP (Internet-based)	Range 5-35	19	19	18.8	21.3	0.14
	Exercise stage of change: Action or maintenance	fDSMP (face-to-face)	%	20	20			
		eDSMP(Internet-based)	%	19	19			NA
	Endurance exercise	fDSMP (face-to-face)	Total min/week	20	20	77	121	
		eDSMP (Internet-based)	Total min/wk	19	19	89	128	0.22
	Strength exercise	fDSMP (face-to-face)	Total min/week	20	20	21	53	
		eDSMP (Internet-based)	Total min/wk	19	19	11	34	0.54
	6-minute walk test	fDSMP (face-to-face)	M	20	20	406	394	
		eDSMP (Internet-based)	M	19	19	436	456	0.22
	CRQ Fatigue	fDSMP (face-to-face)	Range 4-28	20	20	16.1	17.7	
		eDSMP (Internet-based)	Range 4-28	19	19	17.1	18.3	0.29
	CRQ: Mastery	fDSMP (face-to-face)	Range 4-28	20	20	20.4	22.4	
		eDSMP (Internet-based)	Range4-28	19	19	21.7	23.6	0.35
	CRQ: Emotional functioning	fDSMP (face-to-face)	Range 7-49	20	20	33.4	34.5	
		eDSMP (Internet-based)	Range 7-49	19	19	35.9	36.8	0.33
	CRQ: Ttotal	fDSMP (face-to-face)	Range 2--140	20	20	85.8	94.5	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	score	eDSMP (Internet-based)	Range 20-140	19	19	93.5	99.9	0.19
	SF-36: Physical composite	fDSMP (face-to-face)	Range 0-100	20	20	32	8	
		eDSMP (Internet-based)	Range 0-100	19	19	37.3	39.9	0.07
	SF-36: Mental composite	fDSMP (face-to-face)	Range 0-100	20	20	12.5	13.8	
		eDSMP (Internet-based)	Range 0-100	19	19	49.7	51.3	0.7
	Dyspnea knowledge	fDSMP (face-to-face)	Range 0-15	20	20	12.5	13.8	
		eDSMP (Internet-based)	Range 0-15	19	19	12.6	14.1	0.49
	Self-efficacy	fDSMP (face-to-face)	Range 0-10	20	20	4.6	5	
		eDSMP(Internet-based)	Range 0-10	19	19	4.7	6.7	0.18
	Perception of support	fDSMP (face-to-face)	Range 0-100	20	20	68.9	70.9	
		eDSMP (Internet-based)	Range 0-100	19	19	62.2	66.4	0.64
	Perception of exercise support/strongly agree	fDSMP (face-to-face)	%	20	20		80	
		eDSMP (Internet-based)	%	19	19		68	
	Perception of exercise support/agree	fDSMP (face-to-face)	%	20	20		10	
		eDSMP (Internet-based)	%				32	
	Satisfaction with program	fDSMP (face-to-face)	Scale 1-5	20	20		2.7	
		eDSMP (Internet-based)	Scale 1-5				2.6	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
Ojima, 2003[59]	Periodontal inflammation	Control (face-to-face toothbrushing instructions and telephone followup	Index of		NR			
		In addition to control activities, utilized a Web-based instructional system			NR			<0.05
	Plaque accumulation	Control (face-to-face toothbrushing instructions and telephone followup	Index of		NR			
		In addition to control activities, utilized a Web-based instructional system			NR			<0.05
	Gingival inflammation	Control (face-to-face toothbrushing instructions and telephone followup	Index of		NR			
		In addition to control activities, utilized a Web-based instructional system			NR			<0.05
	Oral hygiene	Control (face-to-face toothbrushing instructions and telephone followup	Index of		NR			

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		In addition to control activities utilized a Web-based instructional system			NR			<0.05
Parati, 2009[60]	% with daytime BP normalization	Usual care		111	111		50	
		Teletransmitted home BP		187	187		62	
	Frequency of treatment changes	Usual care		111	111		14	
		Teletransmitted home BP		187	187		9	
	Quality of life at end of study per QOL assessment in HTN patient's questionnaire	Usual care		111	111			
		Teletransmitted home BP		187	187		33.8-43.0	
	Health care costs	Usual care	US dollars	111	111			
		Teletransmitted home BP	US dollars	187	187		96.92-159.90	
Patten, 2006[61]	30-day, biochemically confirmed, point-	Clinic-based, brief office intervention	% not smoking, week 8/12/24/36		69			

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	prevalence abstinence rates	Internet, home-based smoking cessation intervention	% not smoking, week 8/12/24/36		70		1/3/6/6	
	Cigarettes smoked per day at week 24	Clinic-based, brief office intervention	% reductions from baseline		69		26.8	
		Internet, home-based smoking cessation intervention	% reductions from baseline		70		33.8	
	Days smoked at week 24	Clinic-based, brief office intervention	Days		69		14.6	
		Internet, home-based smoking cessation intervention	% reductions from baseline		70		19.6	
	Days smoked at week 24: Participants categorized as smokers	Clinic-based, brief office intervention	Days		69		3.4	
		Internet, home-based smoking cessation intervention	Days		70		14.7	
	Reductions in cigarettes smoked per day at week 24: Participants categorized as smokers	Clinic-based, brief office intervention	Cigarettes		69			
		Internet, home-based smoking cessation intervention	Cigarettes		70		29.7	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
Peters, 2006[62]	Global patient assessment of care index	Without computer-assisted decision support technology to assist with patient screening		309	331	25	21.2	
		Computer-assisted decision support technology to assist with patient screening		296	350	25	28.6	0.99/< 0.001
	Satisfaction with care index	Without computer-assisted decision support technology to assist with patient screening		309	331	13.4	8.9	
		Computer-assisted decision support technology to assist with patient screening		296	350	13.7	17.4	0.79/p-value=<0.001
	Technical quality of care index	Without computer-assisted decision support technology to assist with patient screening		309	331	28.3	22.2	
		Computer-assisted decision support technology to assist with patient screening		296	350	28.3	30.3	1.00/ <0.001

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Respect for patient index	Without computer-assisted decision support technology to assist with patient screening		309	331	26.7	18	
		Computer-assisted decision support technology to assist with patient screening		296	350	25.5	23.9	0.48/< 0.001
	Communication index	Without computer-assisted decision support technology to assist with patient screening		309	331	31.5	32.5	
		Computer-assisted decision support technology to assist with patient screening		296	350	32.1	44	0.75/< 0.001
	Financial aspect of care index	Without computer-assisted decision support technology to assist with patient screening		309	331	31.4	33.3	
		Computer-assisted decision support technology to assist with patient screening		296	350	30.6	40.1	0.72/< 0.001

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Access to care index	Without computer-assisted decision support technology to assist with patient screening		309	331	20.5	16.2	
		Computer-assisted decision support technology to assist with patient screening		296	350	21.2	20.7	0.66/0.008
	Health worker's attitude: Use computer for diagnosis and treatment	Without computer-assisted decision support technology to assist with patient screening		20	22	5.3	13.6	
		Computer-assisted decision support technology to assist with patient screening		17	23	11.1	39.1	0.51/0.05
	Health worker's attitude: Use equipment at work	Without computer-assisted decision support technology to assist with patient screening		20	22	5.3	22.7	
		Computer-assisted decision support technology to assist with patient screening		17	23	5.6	30.4	0.97/0.56

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Health worker's attitude: Learning new technology	Without computer-assisted decision support technology to assist with patient screening		20	22	94.7	90.9	
		Computer-assisted decision support technology to assist with patient screening		17	23	88.9	91.3	0.51/0.96
	Health worker's attitude: What technology needs to be used in the clinic	Without computer-assisted decision support technology to assist with patient screening		20	22	57.9	77.3	
		Computer-assisted decision support technology to assist with patient screening		17	23	72.2	95.7	0.36/0.07
	Health worker's attitude: Medical information readily available on a computer	Without computer-assisted decision support technology to assist with patient screening		20	22	0	18.2	
		Computer-assisted decision support technology to assist with patient screening		17	23	0	52.2	n/a/0.02

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Health worker's attitude: Patients' medical history available on a computer in the clinic	Without computer-assisted decision support technology to assist with patient screening		20	22	0	27.3	
		Computer-assisted decision support technology to assist with patient screening		17	23	11.1	69.6	0.23/0.005
	Health worker's attitude: Have computer in the clinic	Without computer-assisted decision support technology to assist with patient screening		20	22	15.8	36.4	
		Computer-assisted decision support technology to assist with patient screening		17	23	5.6	87	0.60/=<0.001
	Health worker's attitude: Use a computer in the clinic	Without computer-assisted decision support technology to assist with patient screening		20	22	0.013.6		
		Computer-assisted decision support technology to assist with patient screening		17	23	5.6	39.1	0.49/=0.05
Piette,	Depression	Usual care			NR		17.6	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
2000[63]		Biweekly ATDM calls with telephone follow-up	Score		NR		13.7	
	Anxiety	Usual care			NR		3.7	
		Biweekly ATDM calls with telephone follow-up			NR		3.8	
	Self-efficacy	Usual care			NR		4.2	
		Biweekly ATDM calls with telephone follow-up			NR		4.5	
	Days in bed because of illness	Usual care			NR		1	
		Biweekly ATDM calls with telephone follow-up			NR		0.5	
	Days cut down on activities because of illness	Usual care			NR		1.8	
		Biweekly ATDM calls with telephone follow-up			NR		1.5	
	Diabetes-specific HRQL: Summary scale	Usual care			NR		2.1	
		Biweekly ATDM calls with telephone follow-up			NR		2.1	
	Satisfaction with care: Summary scale	Usual care			NR		3.3	
		Biweekly ATDM calls with telephone follow-up			NR		3.5	
	General HRQL:	Usual care			NR		52.7	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Physical functioning	Biweekly ATDM calls with telephone follow-up			NR		58.5	
	General HRQL: Role limitations (physical)	Usual care			NR		49.3	
		Biweekly ATDM calls with telephone follow-up			NR		46	
	General HRQL: Social functioning	Usual care			NR		69.3	
		Biweekly ATDM calls with telephone follow-up			NR		76.2	
	General HRQL: Bodily pain	Usual care			NR		74.3	
		Biweekly ATDM calls with telephone follow-up			NR		60.2	
	General HRQL: Role limitations (mental)	Usual care			NR		74.3	
		Biweekly ATDM calls with telephone follow-up			NR		80.3	
	General HRQL: General health perceptions	Usual care			NR		42.4	
		Biweekly ATDM calls with telephone follow-up			NR		46.1	
Prieb, 2007[64]	Number of unmet needs and satisfaction	DIALOG	CSQ	241	25.96	241	25.99	P=0.01
		Usual care		207	25.04	207	25.15	
Quinn, 2008[65]	A1c	Control group		13	13	9.05	8.37	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	A1c mean	Well-Doc intervention		13	13	9.51	7.48	0.04
	Medication intensified	Control group	%	13	13		23.1	
		Well-Doc intervention	%	13	13		84.6	0.002
	Medication errors identified	Control group	%	13	13		0	
		Well-Doc intervention	%	13	13		53.38	0.002
	Physician received logbook	Control group	%	13	13		7.69	
		Well-Doc intervention	%	13	13		100	<0.001
	New diagnosis depression	Control group	%	13	13		20	
		Well-Doc intervention	%	13	13		9.09	0.37
	Diet diabetes self-care	Control group	Mean days per week	13	13	3.15	3.86	
		Well-Doc intervention	Mean number of days per week	13	13	3.15	5.5	0.036
	Medications diabetes self-care	Control group	Mean days per week	13	13	6.3	6.75	
		Well-Doc intervention	Mean number of days per week	13	13	5.92	6.64	0.495
	Exercise diabetes self-care	Control group	Mean days per week	13	13	1.23	1.57	
		Well-Doc intervention	Mean number of days per week	13	13	2.08	2.92	0.657

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Improved knowledge of food (self-reported)	Control group	%	13	13		50	
		Well-Doc intervention	%	13	13		90.91	0.062
	Provider management improved	Control group	%	13	13		37.5	
		Well-Doc intervention	%	13	13		100	0.004
	Patient confidence	Control group	%	13	13		75	
		Well-Doc intervention	%	13	13		100	0.167
	Prior to study, Patient remembers logbook or glucometers for physician visit	Control group	% yes		13		0	
		Well-Doc intervention	% yes		13		7.69	0.5
	Patient self-management skills improved	Control group	% yes		13		15.38	
		Well-Doc intervention	% yes		13		100	<0.001
	Physician received data	Control group	% yes		13		7.69	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Physician received data to manage patient's diabetes	Well-Doc intervention	% yes		13		100	<0.001
	Physician received more patient data	Control group	% yes		13		23.08	
		Well-Doc intervention	% yes		13		100	0.001
Rinfret, 2009[66]	Adherence	Usual care		112		112	There was also a trend toward improved drug adherence measured with pharmacy data (CMA) in intervention subjects (*P*_0.07)	
		Educational booklet and home BP monitor		111		111		
Rothert, 2006[67]	Materials were helpful	Information only	% agreement			279	56.7	0.0001
		Tailor expert Web-based weight management program in an integrated health care setting				306	74.6	
	Information easy to understand	Information only	% agreement			279	81.6	0.0001
		Tailor expert Web-based weight				306	92.8	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		management program in an integrated health care setting						
	Materials were personally relevant	Information only	% agreement			279	60.8	0.0001
		Tailor expert Web-based weight management program in an integrated health care setting				306	78.0	
	Would recommend the program to others	Information only	% agreement			279	58.7	0.0001
		Tailor expert Web-based weight management program in an integrated health care setting				306	74.9	
Roumie, 2006[68]	Systolic BP	Provider education providers	mm Hg		54		145	
		Provider education and alert	mm Hg		62		146	
		Provider education, alert, and patient education	mm Hg		66		138	
	Change in systolic BP from baseline	Provider education Providers	mm Hg		54		-12	
		Provider education and alert	mm Hg		62		-11	
		Provider education, alert, and patient education	mm Hg		66		-16	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Systolic BP <=140	Provider education providers	%		54		42	
		Provider education and alert	%		62		40.9	0.003
		Provider education, alert, and patient education	%		66		59.5	0.003
	Systolic BP <=140 assuming missing BP not controlled	Provider education providers	%		54		33	
		Provider education and alert	%		62		27.1	0.013
		Provider education, alert, and patient education	%		66		45.3	0.013
	Diastolic BP <90 mm Hg (assume missing BP is not controlled)	Provider education roviders	%		54		67.9	
		Provider education and alert	%		62		58.7	0.81
		Provider education, alert, and patient education	%		66		68.3	0.81
	Any changes in antihypertensive drugs	Provider education providers	%		54		32.4	
		Provider education and alert	%		62		28.7	0.33
		Provider education, alert, and patient education	%		66		29.1	0.33

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Dose increased	Provider education providers	%		54		13	
		Provider education and alert	%		62		9.1	0.07
		Provider education, alert, and patient education	%		66		8.7	0.07
	Drug added	Provider education providers	%		54		15.7	
		Provider education and alert	%		62		15.4	0.49
		Provider education, alert, and patient education	%		66		17.5	0.49
	Diruetic	Provider education Providers	%		54		9.3	
		Provider education and alert	%		62		9	0.41
		Provider education, alert, and patient education	%		66		11.3	0.41
	Ace/arb	Provider education providers	%		54		6.5	
		Provider education and alert	%		62		6.2	0.77
		Provider education, alert, and patient education	%		66		7	0.77

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Calcium-channel blocker	Provider education Providers	%		54		2.2	
		Provider education and alert	%		62		2.9	0.48
		Provider education, alert, and patient education	%		66		3	0.48
	Beta-blocker	Provider education providers	%		54		4.9	
		Provider education and alert	%		62		3.7	NA
		Provider education, alert, and patient education	%		66		3.8	NA
	Alpha-Adrenergic antagonist	Provider education Providers	%		54		2.5	
		Provider education and alert	%		62		2.6	0.5
		Provider education, alert, and patient education	%		66		1.7	0.5
	Both increased dose and drug added	Provider education providers	%		54		3.7	
		Provider education and alert	%		62		4	0.57
		Provider education, alert, and patient education	%		66		3	0.57

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Mean medication adherence	Provider education providers	Not specified		54			
		Provider education and alert	Not specified		62			
		Provider education, alert, and patient education	Not specified		66			
	Hospitalizations	Provider education providers	%		54		3.7	
		Provider education and alert	%		62		2.9	
		Provider education, alert, and patient education	%		66		5.3	
	Deaths	Provider education providers	%		54		2.5	
		Provider education and alert	%		62		0.6	
		Provider education, alert, and patient education	%		66		0.9	
Ruland, 2003[69]	Congruence between patient-reported symptoms and those addressed in consult visit	Usual care			NR		2.84	
		Used computerized system for SDM for cancer symptom care			NR		7.63	<0.01

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Ease of use	Used computerized system for SDM for cancer symptom care	Composite score (range -16 to +16)		NR		5.06	
Santamore, 2008[70]	Blood pressure monitoring	Usual care	% of patients with outcome	160			49	<0.0001
		Patients in the intervention group had blood pressure measurements transmitted through an Internet based-telemedicine system		161			92	
Saver, 2007[71]	Decisional satisfaction	Brochure	Quality scores		199	22.2	24.7	
		CHESS-MAB, Web-based decision support	Quality scores	173	144	22.2	24.5	
	Decisional conflict	Brochure	Quality scores		199	8.6	7.5	
		CHESS-MAB, Web-based decision support	Quality scores	173	144	8.4	7.7	
	Knowledge	Brochure	Quality scores		199	10.3	12.8	
		CHESS-MAB, Web-based decision support	Quality scores	173	144	10.5	14.3	
Schapira, 2007[72]	Knowledge	Control intervention consisting of a printed pamphlet		88	86		15.5	
		Computer-based HT decision aid		89	85		15.1	
	Satisfaction with decision	Control intervention consisting of a printed pamphlet		88	86		4.37	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Computer-based HT decision aid		89	85		4.37	
	Decision conflict: Total	Control intervention consisting of a printed pamphlet		88	86		1.78	
		Computer-based HT decision aid		89	85		1.74	
	Decision conflict: Decisional uncertainty subscale	Control intervention consisting of a printed pamphlet		88	86		1.9	
		Computer-based HT decision aid		89	85		1.88	
	Decision conflict: Factors of uncertainty subscale	Control intervention consisting of a printed pamphlet		88	86		1.78	
		Computer-based HT decision aid		89	85		1.73	
	Decision conflict: Effective decisionmaking subscale	Control intervention consisting of a printed pamphlet		88	86		1.7	
		Computer-based HT decision aid		89	85		1.64	
Schumann, 2008[73]	1st letter, normative feedback: Precontemplation--Theoretical number	Participants received only one computer-tailored feedback letter (normative comparisons only)			727			

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	2nd letter, normative and ipsative feedback: Precontemplation--Theoretical number	Participants, received two tailored feedback letters			471			
	3rd letter, normative and ipsative feedback: Precontemplation--Theoretical number	Participants received three tailored feedback letters			422		54.6	
	1st letter, normative feedback: Precontemplation--Empirical number	Participants received only one computer-tailored feedback letter (normative comparisons only)			727			
	2nd letter, normative and ipsative feedback: Precontemplation--Empirical number	Participants received two tailored feedback letters			471			

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	3rd letter, normative and ipsative feedback: Precontemplation--Empirical number	Participants received three tailored feedback letters			422		54.6	
	1st letter, normative feedback: Precontemplation--Empirical frequency	Participants received only one computer-tailored feedback letter (normative comparisons only)			727			
	2nd letter, normative and ipsative feedback: Precontemplation--Empirical frequency	Participants received two tailored feedback letters			471		57.5	
	3rd letter, normative and ipsative feedback: Precontemplation--Empirical frequency	Participants received three tailored feedback letters			422		54.6	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	1st letter, normative feedback: Contemplation--Theoretical number	Participants received only one computer-tailored feedback letter (normative comparisons only)			282			
	2nd letter, normative and ipsative feedback: Contemplation--Theoretical number	Participants received two tailored feedback letters			279		34.1	
	3rd letter, normative and ipsative feedback: Contemplation--Theoretical number	Participants received three tailored feedback letters			258		33.4	
	1st letter, normative feedback: Contemplation--Empirical number	Participants received only one computer-tailored feedback letter (normative comparisons only)			282			

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	2nd letter, normative and ipsative feedback: Contemplation--Empirical number	Participants, received two tailored feedback letters			279			
	3rd letter, normative and ipsative feedback: Contemplation--Empirical number	Participants received three tailored feedback letters			258		33.4	
	1st letter, normative feedback: Contemplation--Empirical frequency	Participants received only one computer-tailored feedback letter (normative comparisons only)			282			
	2nd letter, normative and ipsative feedback: Contemplation--- Empirical frequency	Participants received two tailored feedback letters			279			

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	3rd letter, normative and ipsative feedback: Contemplation--Empirical frequency	Participants received three tailored feedback letters			258		33.4	
	1st letter, normative feedback: Preparation--Theoretical number	Participants received only one computer-tailored feedback letter (normative comparisons only)			35			
	2nd letter, normative and ipsative feedback: Preparation--Theoretical number	Participants received two tailored feedback letters			41			
	3rd letter, normative and ipsative feedback: Preparation--Theoretical number	Participants received three tailored feedback letters			34		4.4	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	1st letter, normative feedback: Preparation--Empirical number	Participants received only one computer-tailored feedback letter (normative comparisons only)			35		3.4	
	2nd letter, normative and ipsative feedback: Preparation--Empirical number	Participants received two tailored feedback letters			41		5	
	3rd letter, normative and ipsative feedback: Preparation--Empirical number	Participants received three tailored feedback letters			34		4.4	
	1st letter, normative feedback: Preparation--Empirical frequency	Participants received only one computer-tailored feedback letter (normative comparisons only)			35		3.4	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	2nd letter, normative and ipsative feedback: Preparation--Empirical frequency	Participants received two tailored feedback letters			41		5	
	3rd letter, normative and ipsative feedback: Preparation--Empirical frequency	Participants received three tailored feedback letters			34		4.4	
	2nd letter, normative and ipsative feedback: Action--Theoretical number	Participants received two tailored feedback letter			28		3.4	
	3rd letter, normative and ipsative feedback: Action--Theoretical number	Participants received three tailored feedback letters			50		6.5	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	2nd letter, normative and ipsative feedback: Action--Empirical number	Participants received two tailored feedback letters			28		3.4	
	3rd letter, normative and ipsative feedback: Action--Empirical number	Participants received three tailored feedback letters			50		6.5	
	2nd letter, normative and ipsative feedback: Action--Empirical frequency	Participants received two tailored feedback letters			28		3.4	
	3rd letter, normative and ipsative feedback: Action--Empirical frequency	Participants received three tailored feedback letters			50		6.5	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	3rd letter, normative and ipsative feedback: Maintenance--Theoretical number	Participants received three tailored feedback letters			50		1.2	
	3rd letter, normative and ipsative feedback: Maintenance--Theoretical number	Participants received three tailored feedback letters			9		1.2	
	3rd letter, normative and ipsative feedback: Maintenance--Theoretical number	Participants received three tailored feedback letters			9		1.2	
Sequist,	Performance of	Usual care	% of patients	3319			14	**SN

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
2005[74]	recommended action for diabetes	Physicians in the intervention group received either evidence-based electronic reminders within their patients electronic medical record	with outcome	2924			19	R
	Performance of recommended action for coronary artery disease	Usual care	% of patients with outcome	3319			17	**SNR
		Physicians in the intervention group received either evidence-based electronic reminders within their patients electronic medical record		2924			22	
Sevick, 2008[75]	Understanding the usefulness	Usual care	% agree	77				
		Social cognitive theory paired with a personal digital assistant for self-monitoring diabetes		74		61	88	
	Ease of data entry	Usual care	% agree	77				
		Social cognitive theory paired with a personal digital assistant for self-monitoring diabetes		74		61	85	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Ease interpreting feedback	Usual care	% agree	77				
		Social cognitive theory paired with a personal digital assistant for self-monitoring diabetes		74		61	70	
	Would continue to use	Usual care	% agree	77				
		Social cognitive theory paired with a personal digital assistant for self-monitoring diabetes		74		61	82	
Smith, 2008[76]	ADA-NCQA provider score, median	Usual care	Score unit	277			58	0
		Patients in the intervention group received a virtual consultation		358			56	
	Estimated 10-yr coronary artery disease risk, median (range)	Usual care	Score unit	277	16		16	0
		Patients in the intervention group received a virtual consultation		358	18		15	
	Minnesota community aggregate optimal diabetes score, number (%)	Usual care	Percent with outcome	277			18	0
		Patients in the intervention group received a virtual consultation		358			30	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Mean total cost	Usual care	US dollars	277			8564	0.02
		Patients in the intervention group received a virtual consultation		358			6252	
	Mean outpatient cost	Usual care	US dollars	277			2129	0.04
Stevens, 2008[77]	Physicians perceptions of youth's behavioral concerns (suicide)	Control					63%	P<0.01
		Health eTouch system: collects self-report data from patients					53%	
Subramanian, 2004[78]	Patient satisfaction with most recent primary care visit (change enrollment to	Physicians in the control group received care suggestions generated with electronic medical record data alone	Score unit	365			-0.2	0.01

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	12 months)	Physicians in the intervention group received care suggestions generated with electronic medical record data and symptom data obtained from questionnaires mailed to patients within 2 weeks of scheduled outpatient visits		355			0	
	Mean all-cause hospitalizations	Physicians in the control group received care suggestions generated with electronic medical record data alone	Hospitalizations	365			1.7	0.05

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Physicians in the intervention group received care suggestions generated with electronic medical record data and symptom data obtained from questionnaires mailed to patients within 2 weeks of scheduled outpatient visits		355			2.3	
	Mean admissions for heart failure	Physicians in the control group received care suggestions generated with electronic medical record data alone	Hospitalizations	365			0.4	0

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Physicians in the intervention group received care suggestions generated with electronic medical record data and symptom data obtained from questionnaires mailed to patients within 2 weeks of scheduled outpatient visits		355			0.3	
Taenzer, 2000[79]	Physical functioning (higher indicates better function)	Lung cancer patients whose physicians and nurses did not received Quality-of-Life training	Scale units	26	26		76.9	
		Lung cancer patients whose physicians and nurses received Quality-of-Life training	Scale units	27	27		60	<0.05
	Role functioning (higher indicates better function)	Lung cancer patients whose physicians and nurses did not received Quality-of--Life training	Scale units	26	26		84.6	
		Lung cancer patients whose physicians and nurses received Quality-of-Life training	Scale units	27	27		55.6	<0.01

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Emotional functioning (higher indicates better function)	Lung cancer patients whose physicians and nurses did not received Quality-of-Life training	Scale units	26	26		76.3	
		Lung cancer patients whose physicians and nurses received Quality-of-Life training	Scale units	27	27		75.9	
	Cognitive functioning (higher indicates better function)	Lung cancer patients whose physicians and nurses did not received Quality-of-Life training	Scale units	26	26		81.4	
		Lung cancer patients whose physicians and nurses received Quality-of-Life training	Scale units	27	27		80.3	
	Social functioning (higher indicates better function)	Lung cancer patients whose physicians and nurses did not received Quality-of-Life training	Scale units	26	26		78.9	
		Lung cancer patients whose physicians and nurses received Quality-of-Life training	Scale units	27	27		74	
	Global functioning (higher indicates better	Lung cancer patients whose physicians and nurses did not received Quality-of-Life training	Scale units	26	26		64.7	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	function)	Lung cancer patients whose physicians and nurses received Quality-of-Life training	Scale units	27	27		52.8	
	Number of functional scales indicating compromised function	Lung cancer patients whose physicians and nurses did not received Quality-of-Life training	Number of scales	26	26		3	
		Lung cancer patients whose physicians and nurses received Quality-of-Life training	Number of scales	27	27		3.6	
	Fatigue (higher scores indicate more symptomatology)	Lung cancer patients whose physicians and nurses did not received Quality-of-Life training	Scale units	26	26		28.6	
		Lung cancer patients whose physicians and nurses received Quality-of-Life training	Scale units	27	27		41.2	
	Nausea and vomiting (higher scores indicate more symptomatology)	Lung cancer patients whose physicians and nurses did not received Quality-of-Life training	Scale units	26	26		9	
		Lung cancer patients whose physicians and nurses received Quality-of-Life training	Scale units	27	27		8.6	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Pain (higher scores indicate more symptomatology)	Lung cancer patients whose physicians and nurses did not received Quality-of-Life training	Scale units	26	26		15.4	
		Lung cancer patients whose physicians and nurses received Quality-of-Life training	Scale units	27	27		26.5	<0.05
	Dyspnea (higher scores indicate more symptomatology)	Lung cancer patients whose physicians and nurses did not received Quality-of-Life training	Scale units	26	26		24.4	
		Lung cancer patients whose physicians and nurses received Quality-of-Life training	Scale units	27	27		51.9	
	Sleep disturbance (higher scores indicate more symptomatology)	Lung cancer patients whose physicians and nurses did not received Quality-of-Life training	Scale units	26	26		24.4	
		Lung cancer patients whose physicians and nurses received Quality-of-Life training	Scale units	27	27		29.6	
	Appetite (higher scores indicate more symptomatolog	Lung cancer patients whose physicians and nurses did not received Quality-of-Life training	Scale units	26	26		19.2	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	y)	Lung cancer patients whose physicians and nurses received Quality-of-Life training	Scale units	27	27		25.9	
	Constipation (higher scores indicate more symptomatology)	Lung cancer patients whose physicians and nurses did not received Quality-of-Life training	Scale units	26	26		18	
		Lung cancer patients whose physicians and nurses received Quality-of-Life training	Scale units	27	27		19.8	
	Diarrhea (higher scores indicate more symptomatology)	Lung cancer patients whose physicians and nurses did not received Quality-of-Life training	Scale units	26	26		5.1	
		Lung cancer patients whose physicians and nurses received Quality-of-Life training	Scale units	27	27		2.5	
	Financial difficulties (higher scores indicate more symptomatology)	Lung cancer patients whose physicians and nurses did not received Quality-of-Life training	Scale units	26	26		18	
		Lung cancer patients whose physicians and nurses received Quality-of-Life training	Scale units	27	27		12.4	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Number of symptom scales indicating compromised functioning	Lung cancer patients whose physicians and nurses did not received Quality-of-Life training	Number of scales	26	26		4	
		Lung cancer patients whose physicians and nurses received Quality-of-Life training	Number of scales	27	27		4.6	
	Number of functional and symptom scales indicating compromised function	Lung cancer patients whose physicians and nurses did not received Quality-of-Life training	Number of scales	26	26		7.1	
		Lung cancer patients whose physicians and nurses received Quality-of-Life training	Number of scales	27	27		8.2	
	Total number of items endorsed	Lung cancer patients whose physicians and nurses did not received Quality-of-Life training	Number of items	26	26		10.6	
		Lung cancer patients whose physicians and nurses received Quality-of-Life training	Number of items	27	27		13.1	
	% of items endorsed on patient questionnaire	Lung cancer patients whose physicians and nurses did not received Quality-of-Life training	%	26	26		23.6	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	that were addressed during appointment/patient	Lung cancer patients whose physicians and nurses received Quality-of-Life training	%	27	27		48.9	<0.05
	EORTC questionnaire items addressed during the clinic appointment	Lung cancer patients whose physicians and nurses did not received Quality-of-Life training	Number of items	26	26		2.5	
		Lung cancer patients whose physicians and nurses received Quality-of-Life training	Number of items	27	27		6.4	<0.01
	EORTC questionnaire categories charted/patient	Lung cancer patients whose physicians and nurses did not received Quality-of-Life training	Number of categories	26	26		0.7	
		Lung cancer patients whose physicians and nurses received Quality-of-Life training	Number of categories	27	27		1.1	<0.10
	Actions taken/patient	Lung cancer patients whose physicians and nurses did not received Quality-of-Life training	Number of actions	26	26		0.5	
		Lung cancer patients whose physicians and nurses received Quality-of-Life training	Number of actions	27	27		0.8	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	% of categories identified that were acted upon	Lung cancer patients whose physicians and nurses did not received Quality-of-Life training	%	26	26		64.7	
		Lung cancer patients whose physicians and nurses received Quality-of-Life training	%	27	27		73	
Tate, 2006[80]	Dietary intake	Web site+ no counseling	kcal/day, baseline/3mo/ 6mo	67	59	1870	1604	
		Web site+ e-mail counseling	kcal/day, baseline/3mo/ 6mo	64	52	2043	1484	
		Web site+ computer-automated tailored counseling	kcal/day, baseline/3mo/ 6mo	61	44	1912	1489	
	Fat intake	Web site+ no counseling	%/day, baseline/3mo/ 6mo	67	59	38.4	37.3	
		Web site+ e-mail counseling	%/day, baseline/3mo/ 6mo	64	52	38.8	33.1	
		Web site+ computer-automated tailored counseling	%/day, baseline/3mo/ 6mo	61	44	37.5	34	
	Physical activity	Web site+ no counseling	kcal/week, baseline/3mo/ 6mo	67	59	1189	1064	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Web site+ e-mail counseling	kcal/week, baseline/3mo/ 6mo	64	52	1284	1377	
		Web site+ computer-automated tTailored counseling	kcal/week, baseline/3mo/ 6mo	61	44	1211	1335	
Taylor, 2008[81]	Quality of asthma documentation: Chest auscultation	PD	Measures were scored yes or no		26		96	
		Electronic interface	Measures were scored yes or no		23		100	0.35
	Quality of asthma documentation: Peak expiratory flow	PD	Measures were scored yes or no		14		52	
		Electronic interface	Measures were scored yes or no		19		82	0.02
	Quality of asthma documentation: Ability to verbalize	PD	Measures were scored yes or no		16		59	
		Electronic interface	Measures were scored yes or no		22		95	0.03
	Quality of asthma documentation:	PD	Measures were scored yes or no		17		63	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Asthma severity	Electronic interface	Measures were scored yes or no		23		100	<0.01
	Quality of asthma documentation: Smoking cessation advice	PD	Measures were scored yes or no		8		29	
		Electronic interface	Measures were scored yes or no		22		95	<0.01
	Quality of asthma documentation: Asthma management plan	PD			15		55	
		Electronic interface	Measures were scored yes or no		23		100	<0.01
	Quality of asthma documentation: Oral corticosteroid prescription	PD			16		59	
		Electronic interface	Measures were scored yes or no		20		87	0.03
	Quality of asthma documentation: Precipitating factors	PD			26		96	
		Electronic interface	Measures were scored yes or no		23		100	0.35

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Quality of asthma documentation: Previous intensive care admissions	PD			16		59	
		Electronic interface	Measures were scored yes or no		23		100	0.01
	Quality of asthma documentation: Oxygen saturations	PD			22		81	
		Electronic interface	Measures were scored yes or no		21		91	0.32
	Consultation times	PD						
		Electronic Interface	Median times in minutes					0.04
Thomas, 2004[82]	GHQ-12 score analyzed as a continuous variable or GHQ score	Control patients were treated as usual with access to locally agreed guidelines		397	301	21.6	14.5	
		Computer generated patient-specific guidelines group		365	244	21.1	14.2	p=0.61
	Patient satisfaction	Control patients were treated as usual with access to locally agreed guidelines		387	299	4.7	6.2	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Computer generated patient-specific guidelines group		358	243	4.8	6.4	0.52
Tierney, 2003[83]	Patients with any cardiac care suggestion	No intervention	% of suggestions that were complied with		163		22	
		Physician intervention	% of suggestions that were complied with		174		23	
	Patients with suggestions regarding starting or increasing an ACE inhibitor	No intervention	% of suggestions that were complied with		107		36	
		Physician intervention	% of suggestions that were complied with		109		38	
	Patients with suggestions regarding a pneumococcal vaccination	No intervention	% of suggestions that were complied with		82		1	
		Physician intervention	% of suggestions that were complied with		104		10	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Patients with suggestions regarding starting or increasing a beta blocker	No intervention	% of suggestions that were complied with		83		12	
		Physician intervention	% of suggestions that were complied with		96		16	
	Patients with suggestions regarding starting low-dose aspirin	No intervention	% of suggestions that were complied with		81		28	
		Physician intervention	% of suggestions that were complied with		74		24	
	Patients with suggestions regarding starting or increasing a diuretic	No intervention	% of suggestions that were complied with		73		27	
		Physician intervention	% of suggestions that were complied with		71		24	
	Patients with suggestions regarding starting or	No intervention	% of suggestions that were complied with		25		12	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	increasing a long-acting nitrate	Physician intervention	% of suggestions that were complied with		30		20	
	Patients with suggestions regarding starting an antihyperlipidemic drug	No intervention	% of suggestions that were complied with		22		36	
		Physician intervention	% of suggestions that were complied with		22		32	
	Patients with suggestions regarding starting or increasing a calcium blocker	No intervention	% of suggestions that were complied with		17		59	
		Physician intervention	% of suggestions that were complied with		21		33	
	Physical function	No intervention	Short Form-36 subscale score		119		42	
		Physician intervention	Short Form-36 subscale score		142		36	
	Role: Physical	No intervention	Short Form-36 subscale score		119		53	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Physician intervention	Short Form-36 subscale score		142		35	
	Pain	No intervention	Short Form-36 subscale score		119		53	
		Physician intervention	Short Form-36 subscale score		142		47	
	General health	No intervention	Short Form-36 subscale score		119		42	
		Physician intervention	Short Form-36 subscale score		142		38	
	Vitality	No intervention	Short Form-36 subscale score		119		44	
		Physician intervention	Short Form-36 subscale score		142		40	
	Social function	No intervention	Short Form-36 subscale score		119		69	
		Physician intervention	Short Form-36 subscale score		142		65	
	Role: Emotional	No intervention	Short-form 36 subscale score		119		61	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Physician intervention	Short Form-36 subscale score		142		61	
	Mental health	No intervention	Short Form-36 subscale score		119		63	
		Physician intervention	Short Form-36 subscale score		142		64	
	Overall health status	No intervention	Chronic heart disease questionnaire score		119		4.6	
		Physician intervention	Chronic heart disease questionnaire score		142		4.5	
	Dyspnea	No intervention	Chronic heart disease questionnaire score		119		5.2	
		Physician intervention	Chronic heart disease questionnaire score		142		5	
	Fatigue	No intervention	Chronic heart disease questionnaire score		119		4	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Physician intervention	Chronic heart disease questionnaire score		142		3.8	
	Emotion	No intervention	Chronic heart disease questionnaire score		119		4.6	
		Physician intervention	Chronic heart disease questionnaire score		142		4.5	
	Number of all emergency department visits	No intervention	Number of all emergency department visits		181		1	
		Physician intervention	Number of all emergency department visits		197		1.1	
	Number of heart disease-specific emergency department visits	No intervention	Number of heart disease specific emergency department visits		181		0.2	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Physician intervention	Number of heart disease specific emergency department visits		197		0.2	
	Number of all hospitalizations	No intervention	Number of all hospitalizations		181		0.5	
		Physician intervention	Number of all hospitalizations		197		0.4	
	Number of heart disease-specific hospitalizations	No intervention	Number of heart disease specific hospitalizations		181		0.2	
		Physician intervention	Number of heart disease specific hospitalizations		197		0.2	
Tierney, 2005[84]	Quality of life: Physical function	Control (no intervention)			169		37	
		Pharmacist intervention			161		38	
		Physician intervention			194		38	
		Physician + pharmacist intervention			182		36	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Quality of life: Role physical	Control (no intervention)			169		32	
		Pharmacist intervention			161		33	
		Physician intervention			194		32	
		Physician + pharmacist intervention			182		38	
	Quality of life: Pain	Control (no intervention)			169		44	
		Pharmacist intervention			161		47	
		Physician intervention			194		49	
		Physician + pharmacist intervention	US dollare		182		48	
	Quality of life: General health	Control (no intervention)			169		34	
		Pharmacist intervention			161		29	
		Physician intervention			194		37	
		Physician + pharmacist intervention	US dollars		182		35	
	Quality of life: Vitality	Control (no intervention)			169		36	
		Pharmacist intervention			161		39	
		Physician intervention			194		37	
		Physician + pharmacist intervention			182		36	
	Quality of life: Social function	Control (no intervention)			169		63	
		Pharmacist intervention			161		63	
		Physician intervention			194		69	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Physician + pharmacist intervention			182		61	
	Quality of life: Role emotional	Control (no intervention)			169		60	
		Pharmacist intervention			161		60	
		Physician intervention			194		65	
		Physician + pharmacist intervention			182		59	
	Quality of life: Mental health	Control (no intervention)			169		61	
		Pharmacist intervention			161		62	
		Physician intervention			194		62	
		Physician + pharmacist intervention			182		50	
	Asthma quality-of-life questionnaire subscales: Overall health status	Control (no intervention)			169		3.7	
		Pharmacist intervention			161		4.2	
		Physician intervention			194		4	
		Physician + pharmacist intervention			182		4.2	
	Asthma quality-of-life questionnaire subscales: Activity	Control (no intervention)			169		3.9	
		Pharmacist intervention			161		4.6	
		Physician intervention			194		4.5	
		Physician + pharmacist intervention			182		4.4	
	Asthma quality-of-life	Control (no intervention)			169		3.6	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	questionnaire subscales: Symptoms	Pharmacist intervention			161		4	
		Physician intervention			194		4	
		Physician + pharmacist intervention			182		4.2	
	Asthma quality-of-life questionnaire subscales: Emotion	Control (no intervention)			169		3.6	
		Pharmacist intervention			161		4.3	
		Physician intervention			194		3.8	
		Physician + pharmacist intervention			182		4.4	
	Asthma quality-of-life questionnaire subscales: Environment	Control (no intervention)			169		3.7	
		Pharmacist intervention			161		4.2	
		Physician intervention			194		3.9	
		Physician + pharmacist intervention			182		4	
	Medication adherence scores: Mean compliance score (Inui measure)	Control (no intervention)	%		169		80	
		Pharmacist intervention			161		80	
		Physician intervention			194		81	
		Physician + pharmacist intervention			182		82	
	Medication adherence scores: Mean compliance score (Morisky measure)	Control (no intervention)			169		0.88	
		Pharmacist intervention			161		0.85	
		Physician intervention			194		0.95	
		Physician + pharmacist intervention			182		0.89	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Medication adherence scores: N (%) of subjects with >= 2 prescription refills	Control (no intervention)	N (%)		96		87	
		Pharmacist intervention			89		81	
		Physician intervention			128		95	
		Physician + pharmacist intervention			109			
	Medication adherence scores: Medication possession ratio	Control (no intervention)	Mean ± SD		169		0.92	
		Pharmacist intervention			161		1	
		Physician intervention			194		0.98	
		Physician + pharmacist intervention			182		1.1	
	Patient satisfaction: Satisfaction with physician	Control (no intervention)			169		2.1	
		Pharmacist intervention			161		2	
		Physician intervention			194		1.9	
		Physician + pharmacist intervention			182		2.1	
	Patient satisfaction: Satisfaction with pharmacist	Control (no intervention)			169		2.1	
		Pharmacist intervention			161		2.1	
		Physician intervention			194		2.1	
		Physician + pharmacist intervention			182		2	
	Number of emergency department	Control (no intervention)			169		1.4	
		Pharmacist intervention			161		1.5	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	visits: All visits	Physician intervention			194		1.4	
		Physician + pharmacist intervention			182		1.4	
	Number of emergency department visits: For reactive airways disease	Control (no intervention)			96		0.3	
		Pharmacist intervention			89		0.4	
		Physician intervention			128		0.3	
		Physician + pharmacist intervention			109		0.4	
	Number of hospitalizations: All hospitalizations	Control (no intervention)			169		0.4	
		Pharmacist intervention			161		0.5	
		Physician intervention			194		0.5	
		Physician + pharmacist intervention			182		0.4	
	Number of hospitalizations: For reactive airways disease	Control (no intervention)			169		0.1	
		Pharmacist intervention			161		0.1	
		Physician intervention			194		0.1	
					182		0.1	
	Direct health care charges: Outpatient charges	Control (no intervention)	US dollars		169		3,129	
		Pharmacist intervention	US dollars		161		2,814	
		Physician intervention	US dollars		194		3,142	
		Physician + pharmacist intervention			182		3,177	
	Direct health care charges:	Control (no intervention)	US dollars		169		2,671	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Inpatient charges	Pharmacist intervention	US dollars		161		2,519	
		Physician intervention	US dollars		194		4,864	
		Physician + pharmacist intervention			182		2,475	
	Direct health care charges: Total health care charges	Control (no intervention)	US dollars		96		5,800	
		Pharmacist intervention	US dollars		89		5,333	
		Physician intervention	US dollars		128		8,006	
		Physician + pharmacist intervention	US dollars		109		5,652	
Trautmann, 2008[85]	Frequency of headache	Internet-based psycho education intervention (EDU)		17	17	13.8	12.3	>0.05/ >0.05
		Internet-based self-help treatment for headache, including chat communication		17	10	15.2	8	>0.05/ <0.05
	Duration of headache	Internet-based psycho education intervention (EDU)		17	17	6	5.1	>0.05/ >0.05
		Internet-based self-help treatment for headache, including chat communication		17	10	3.8	3.3	>0.05/ >0.05
	Intensity of headache	Internet-based psycho education intervention (EDU)		17	17	5.8	5	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Internet-based self-help treatment for headache, including chat communication		17	10	4.7	4.2	>0.05/ >0.05
	Pain-catastrophizing effect	Internet-based psycho education intervention (EDU)		17	17	36.4	37.3	
		Internet-based self-help treatment for headache, including chat communication		17	10	33	30	>0.05/ <0.05
	Satisfaction	Internet-based psycho education intervention (EDU)		17	17			>0.05
		Internet-based self-help treatment for headache, including chat communication.		17	10			>0.05
		Patients in the intervention group received a virtual consultation		358			1842	
Tuil, 2007[86]	Male: Involvement in the decision process	Usual care	Patient empowerment scores	96	78			0.791

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		An Internet-based personal health record that provided patients with general and personal information concerning their given treatment and that also provided facilities for communication with fellow patients and physicians	Patient empowerment scores	108	102			0.791
	Female:Involvement in the decision process	Usual care	Patient empowerment scores	96	78			0.794
		An Internet-based personal health record that provided patients with general and personal information concerning their given treatment and that also provided facilities for communication with fellow patients and physicians	Patient empowerment scores	108	102			0.794
	Male: Self-efficacy specific	Usual care	Patient empowerment scores	96	78			0.94

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		An Internet-based personal health record that provided patients with general and personal information concerning their given treatment and that also provided facilities for communication with fellow patients and physicians	Patient empowerment scores	108	102			0.943
	Female: Self-efficacy specific	Usual care	Patient empowerment scores	96	78			0.65
		An Internet-based personal health record that provided patients with general and personal information concerning their given treatment and that also provided facilities for communication with fellow patients and physicians	Patient empowerment scores	108	102			0.646
	Male: Subjective knowledge	Usual care	Patient empowerment scores	96	78			0.472

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		An Internet-based personal health record that provided patients with general and personal information concerning their given treatment and that also provided facilities for communication with fellow patients and physicians	Patient empowerment scores	108	102			0.472
	Female: Subjective knowledge	Usual care	Patient empowerment scores	96	78			0.51
		An Internet-based personal health record that provided patients with general and personal information concerning their given treatment and that also provided facilities for communication with fellow patients and physicians	Patient empowerment scores	108	102			0.51
	Male: Objective knowledge	Usual care	Patient empowerment scores	96	78			0.789

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		An Internet-based personal health record that provided patients with general and personal information concerning their given treatment and that also provided facilities for communication with fellow patients and physicians	Patient empowerment scores	108	102			0.789
	Female: Objective knowledge	Usual care	Patient empowerment scores	96	78			0.612
		An Internet-based personal health record that provided patients with general and personal information concerning their given treatment and that also provided facilities for communication with fellow patients and physicians	Patient empowerment scores	108	102			0.612
		E-health application	mmol/l		101	86	75	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
Wakefield, 2008[87]	Nurse data-gathering communications	Telephone	# of utterances in 3 nurse-patient sessions	14	14		45.6	0.92
		Videophone	# of utterances in 3 nurse-patient sessions	14	14		45.2	0.92
	Nurse giving information	Telephone	# of utterances in 3 nurse-patient sessions	14	14		71.3	0.75
		Videophone	# of utterances in 3 nurse-patient sessions	14	14		68.2	0.75
	Nurse building relationship	Telephone	# of utterances in 3 nurse-patient sessions	14	14		136.3	0.13
		Videophone	# of utterances in 3 nurse-patient sessions	14	14		117.2	0.13
	Nurse activating/partnership building	Telephone	# of utterances in 3 nurse-patient sessions	14	14		15.3	0.11

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Videophone	# of utterances in 3 nurse-patient sessions	14	14		12.3	0.11
	Patient data gathering communications	Telephone	# of utterances in 3 nurse-patient sessions	14	14		5.9	0.72
		Videophone	# of utterances in 3 nurse-patient sessions	14	14		5.4	0.72
	Patient giving information	Telephone	# of utterances in 3 nurse-patient sessions	14	14		163	0.14
		Videophone	# of utterances in 3 nurse-patient sessions	14	14		140.5	0.14
	Patient building relationship	Telephone	# of utterances in 3 nurse-patient sessions	14	14		72.1	0.29
		Videophone	# of utterances in 3 nurse-patient sessions	14	14		61.8	0.29

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Patient activating/partnership building	Telephone	# of utterances in 3 nurse-patient sessions	14	14		3.8	0.09
		Videophone	# of utterances in 3 nurse-patient sessions	14	14		2.5	0.09
Williamson, 2006[88]	Weight (kg) for Adolescents	Internet-based control intervention			NR		6.3	
		Internet-based behavioral intervention program			NR		4.4	<0.001
	BMI (kg/m²) for Adolescents	Internet-based control iIntervention			NR		1.2	
		Internet-based behavioral intervention program			NR		0.73	<0.04
	Body fat DXA (%) for Adolescents	Internet-based control intervention			NR		0.84	
		Internet-based behavioral intervention program			NR		-0.08	
	BMI %ile for Adolescents	Internet-based control intervention			NR		-0.001	
		Internet-based behavioral intervention program			NR		-0.004	<0.02

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Weight loss behavior for Adolescents	Internet-based control intervention			NR			
		Internet-based behavioral intervention program			NR			<0.0001
	Weight (kg) for Parent	Internet-b control intervention			NR		-0.6	
		Internet-based behavioral intervention program			NR		-1.1	<0.0001
	BMI (kg/m²) for Parent	Internet-based control intervention			NR		0.04	
		Internet-based behavioral intervention program			NR		-0.55	<0.04
	BMI %ile for Parent	Internet-based control intervention			NR		0.51	
		Internet-based behavioral intervention program			NR		0.36	
	BMI %ile for Parent	Internet-based control intervention			NR		N/A	
		Internet-based behavioral intervention program			NR		N/A	<0.0001
	Weight loss behavior for	Internet-based control intervention			NR			

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	Parent	Internet-based behavioral intervention program			NR			<0.0001
Williams, 2007[89]	Baseline-to-12-month change in provider autonomy support	Usual care			NR		5.89	
		Computer-assisted diabetes care intervention			NR		6.05	
	Baseline-to-12-month change in perceived competence	Usual care			NR		5.75	
		Computer-assisted diabetes care intervention			NR		5.9	
Winzelberg, 2000[90]	Body shape questionnaire (BSQ)	Control group: did not complete the computer-assisted health education			20	104	101	
		Intervention group: completed the Computer-Assisted Health Education (CAHE)			24	118	93	00.021
	Eating disorder inventory (EDI): Bulimia	Control group: did not complete the computer-assisted health education			20	14	13.8	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Intervention group: completed the Computer-Assisted Health Education (CAHE)			24	15.9	12.6	
	Eating Disorder Inventory (EDI): Drive for Thinness	Control group: did not complete the Computer-Assisted Health Education			20	24	24.8	
		Intervention group: completed the Computer-Assisted Health Education (CAHE)			24	27.6	23.3	0.045
	Eating disorder examination questionnaire (EDEQ): Weight	Control group: did not complete the computer-assisted health education			20	2.5	2.5	
		Intervention group: completed the Computer-Assisted Health Education (CAHE)			24	2.8	2.3	
	Eating disorder examination questionnaire (EDEQ): Shape	Control group: did not complete the computer-assisted health education			20	2.7	2.6	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
		Intervention group: completed the Computer-Assisted Health Education (CAHE)			24	3.3	2.5	
	Body Shape Questionnaire (BSQ): High-risk participants	Control group: did not complete the Computer-Assisted Health Education			20	143	137	
		Intervention group: completed the Computer-Assisted Health Education (CAHE)			24	138	104	
	Eating Disorder Inventory (EDI): Bulimia--ihgh-risk participants	Control group: did not complete the Computer-Assisted Health Education			20	17.6	17.9	
		Intervention group: completed the Computer-Assisted Health Education (CAHE)			24	18.1	14.4	
	Eating Disorder Inventory (EDI): Drive for thinness--high-	Control group: did not complete the Computer-Assisted Health Education			20	30.9	31	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
	risk participants	Intervention group: completed the Computer-Assisted Health Education (CAHE)			24	31.8	27.1	
	Eating Disorder Examination Questionnaire (EDE-Q): Weight- high-risk participants	Control group: did not complete the Computer-Assisted Health Education			20	3.6	3.7	
		Intervention group: completed the Computer-Assisted Health Education (CAHE)			24	3.5	2.8	
	Eating Disorder Examination Questionnaire (EDE-Q): Shape—high-risk participants	Control group: did not complete the Computer-Assisted Health Education			20	4.3	3.9	
		Intervention group: completed the Computer-Assisted Health Education (CAHE)			24			
Woods, 1999[91]	CSQ-8 total	Standard encounters			60		29.32	
		Telemedicine encounters			60		28.82	
	Mean CSQ-8 adjusted scores	Standard encounters			60		30.10	
		Telemedicine encounters			60		29.66	

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline measure	Final n (n After Withdrawals)	Final Measure	P-value
Yardley, 2007[92]	Intention to carry out recommended activities	Generic advice	Scale 1-6		136		4.65	
		Tailored message			144		4.86	
	Personal relevance	Generic advice	Scale 1-6		136		4.6	
		Tailored message			144		4.83	
	Interest	Generic advice	Scale 1-6		136		5.08	
		Tailored message			144		5.03	
	Suitability	Generic advice	Scale 1-6		136		4.8	
		Tailored message			144		4.95	
	Self-efficacy	Generic advice	Scale 1-6		136		4.35	
		Tailored message			144		4.61	
	Outcome expectancy	Generic advice	Scale 1-6		136		4.79	
		Tailored message			144		4.78	

ATDM: Automated telephone disease management, BMD: Bone mineral density, BP, blood pressure, CC: Coached care, CDSMP: Chronic disease self-management Program, CDSS: Clinical decision support system, CDT: Chronic disease trajectory group, CHD: Coronary heard disease, CHF: Congestive heart failure, CR: Clinical reminder, CSQ: Client Satisfaction Questionnaire, CV: Cardiovascular, DA: Decision aid, EORTC: European Organization for Research and Treatment of Cancer, FFB: Fat and Fiber Behavior Scale, FFQ: Food Frequency Questionnaire, FQ: Fear Questionnaire, HDL: High density lipoprotein, HF: Heart failure, HT: Hormone therapy, IVD: Interactive video disk system, KCCQ: Kansas City Cardiomyopathy Questionnaire, PD: Paper documentation, PHR: Patient-held health record, SF: Store and forward, SMS: Short message service, TDA: Traditional decision aid, TTYD: TalkToYourDoc

Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

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Evidence Table 17. All outcomes of studies addressing intermediate outcomes.

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Evidence Table 18. Outcomes related to diabetes mellitus in studies addressing intermediate outcomes.

Study, Year	Outcomes measure	Unit	Description of intervention	n Ninal Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
Benhamou, 2007[1]	Adherence of patients in performing self-monitored blood glucose (SMBG)	Glucose values transmitted	Patients receiving weekly medical support through SMS based upon weekly review of glucose values vs. Patients downloading self-monitored blood glucose (SMBG) values on a weekly basis without receiving SMS	30 30 68	4.79 4.85	4.63 4.74 2.6	-0.16 -0.11	0.05 0.11 0.00	0.054
Glasgow, 2006[2]	Fruit and vegetable screener (NCI All Day Screener)	Score unit	Tailored self-management vs. Computer-aided enhanced usual care	153 148	5.1 5.5	5 5.7	-0.1 0.2	0.3 0.70	0
	Daily fat intake: Block Fat Screener (mean)	Score unit	Tailored self-management vs. Computer-aided enhanced usual care	153 148	32.4 27.6	28.5 22.4	-3.9 -5.2	-1.3 -6.10	0.006
	Diabetes Distress Scale (mean)	Score unit	Tailored self-management vs. Computer-aided enhanced usual care	153 148	41.5 40.1	36.2 33.6	-5.3 -6.5	-1.2 -2.60	0
Gomez, 2002[3]	Median HbA1c	% of	Group using	10	8.10	8.15	0.05	-0.55	0.053

Evidence Table 18. Outcomes related to diabetes mellitus in studies addressing intermediate outcomes (continued)

Study, Year	Outcomes measure level	Unit glycated hemoglobin	Description of intervention DIABTel telemedicine system vs. Usual care	n Ninal Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
				10	8.4	7.9	-0.5	-0.25	
	Mean therapeutic medication prescriptions increased	Number of medication prescriptions	Group using DIABTel telemedicine system vs. Usual care Group.	10 10		0.2 2.9		2.7	**SNR
	Mean therapy changes	Number of therapy changes	Group using DIABTel telemedicine system vs. Usual care Group.	10 10		0.5 1		0.5	**SNR
Grant, 2008[4]	Proportion of	Proportion	Web-based	118		15			<0.001

Evidence Table 18. Outcomes related to diabetes mellitus in studies addressing intermediate outcomes (continued)

Study, Year	Outcomes measure	Unit	Description of intervention	n Ninal Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	follow-up visits with diabetes mellitus–related medication changes among patients who submitted personal health record journals to their physician's electronic medical record	of follow-up visits	personal health records (PHRS) that imported clinical and medications data, provided patient-tailored decision support, and enabled the patient to author a "diabetes care plan" for electronic submission to their physician prior to upcoming appointments vs. Personal health records to update and submit family history and health maintenance information	126		53		-38	
Harno, 2006[5]	Average	Visits	E-health	74		5.2			**SNR

Evidence Table 18. Outcomes related to diabetes mellitus in studies addressing intermediate outcomes (continued)

Study, Year	Outcomes measure	Unit	Description of intervention	n Ninal Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	number of physician and nurse visits		application with a diabetes management system and a home care link vs. Usual care that did not involve e-health	101		4.2		-1	
	Average number of physician and nurse telephone calls	Telephone calls	E-health application with a diabetes management system and a home care link vs. Usual care that did not involve e-health	74 101		0.5 1.5		 1	**SNR
	Average number of physician and nurse home care links	Home care links	E-health application with a diabetes management system and a home care link vs. Usual care that did not involve e-health	74 101		0 3.9		 3.9	**SNR
Homko, 2007[6]	Feelings of	Score unit	Internet group	25		4			0.053

Evidence Table 18. Outcomes related to diabetes mellitus in studies addressing intermediate outcomes (continued)

Study, Year	Outcomes measure	Unit	Description of intervention	n Ninal Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	diabetes psychosocial self-efficacy (mean)		patients in the Internet group were provided with computer and Internet access. Women send blood glucose and other health data directly to their care providers via the internet and received information and advice from their health care provider vs. Women in the control group were asked to record their information in a logbook, which was reviewed by the medical team at prenatal visit	32		4.4		0.40	
Laffel, 2007[f]	Self-monitoring	% of patients with	Integrated glucose meters	92 113	58 59	30 48	-28 -11	17 18.00	0.03

Evidence Table 18. Outcomes related to diabetes mellitus in studies addressing intermediate outcomes (continued)

Study, Year	Outcomes measure blood glucose frequency >4 times per day	Unit outcome	Description of intervention and electronic logbooks (electronic group) vs. Paper log books (control group)	n Ninal Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
				76		43		13.00	
Quinn, 2008[8]	Diet diabetes self-care	Mean days per week	Well-doc intervention vs. Control group. The intervention group received cell phone-based software designed by endocrinologists and CDEs. Patients randomized to the control group received One Touch Ultra™ BG meters (Milpitas, CA) and adequate BG testing strips and lancets for the duration of the trial	13 13	3.15 3.15	3.86 5.5	0.71 2.35	1.64 1.64	0
	Medications	Mean days	Well-doc	13	6.3	6.75	0.45	0.27	0

Evidence Table 18. Outcomes related to diabetes mellitus in studies addressing intermediate outcomes (continued)

Study, Year	Outcomes measure	Unit	Description of intervention	n Ninal Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	diabetes self-care	per week	intervention vs. Control group. The intervention group received cell phone-based software designed by endocrinologists and CDEs. Patients randomized to the control group received One Touch Ultra™ BG meters (Milpitas, CA) and adequate BG testing strips and lancets for the duration of the trial	13	5.92	6.64	0.72	-0.11	
	Exercise	Mean days	Well-doc	13	1.23	1.57	0.34	0.5	0

Evidence Table 18. Outcomes related to diabetes mellitus in studies addressing intermediate outcomes (continued)

Study, Year	Outcomes measure	Unit	Description of intervention	n Ninal Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	diabetes self-care	per week	intervention vs. Control group. The intervention group received cell phone-based software designed by endocrinologists and CDEs. Patients randomized to the control group received One Touch Ultra™ BG meters (Milpitas, CA) and adequate BG testing strips and lancets for the duration of the trial	13	2.08	2.92	0.84	1.35	
	Improved	% of	Well-doc	13		50			0.062

Evidence Table 18. Outcomes related to diabetes mellitus in studies addressing intermediate outcomes (continued)

Study, Year	Outcomes measure	Unit	Description of intervention	n Ninal Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	knowledge of food (self-reported)	patients with outcome	intervention vs. Control group. The intervention group received cell phone-based software designed by endocrinologists and CDEs. Patients randomized to the control group received One Touch Ultra™ BG meters (Milpitas, CA) and adequate BG testing strips and lancets for the duration of the trial	13		90.91		40.91	
	Patient confidence	% of patients with outcome	Intervention group received cell phone based software designed by endocrinologist vs. Control group (usual health care provider's care)	13 13		75 100		25.00	0
	Patient self-	% of	Well-doc	13		15.38			<0.001

Evidence Table 18. Outcomes related to diabetes mellitus in studies addressing intermediate outcomes (continued)

Study, Year	Outcomes measure	Unit	Description of intervention	n Ninal Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	management skills improved	patients with outcome	intervention vs. Control group. The intervention group received cell phone-based software designed by endocrinologists and CDEs. Patients randomized to the control group received One Touch Ultra™ BG meters (Milpitas, CA) and adequate BG testing strips and lancets for the duration of the trial.	13		100		84.62	
Sevick, 2008[9]	Understanding the usefulness	% agree	Usual care	77					0
			Social cognitive theory paired with a personal digital assistant for self-monitoring diabetes	74		61	88		
	Ease of data entry	% agree	Usual care	77					
			Social cognitive theory paired	74		61	85		

Evidence Table 18. Outcomes related to diabetes mellitus in studies addressing intermediate outcomes (continued)

Study, Year	Outcomes measure	Unit	Description of intervention	n Ninal Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
			with a personal digital assistant for self-monitoring diabetes						
	Ease interpreting feedback	% agree	Usual care	77					
			Social cognitive theory paired with a personal digital assistant for self-monitoring diabetes	74		61	70		
	Would continue to use	% agree	Usual care	77					
			Social cognitive theory paired with a personal digital assistant for self-monitoring diabetes	74		61	82		
Sequist, 2005[10]	Performance of recommended action for diabetes	% of patients with outcome	Physicians received either evidence-based electronic reminders within their patients electronic medical record vs. Usual care	3319 2924		14 19		5.00	**SNR
	Performance	% of	Physicians	3319		17			**SNR

Evidence Table 18. Outcomes related to diabetes mellitus in studies addressing intermediate outcomes (continued)

Study, Year	Outcomes measure	Unit	Description of intervention	n Ninal Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	of recommended action for coronary artery disease	patients with outcome	received either evidence-based electronic reminders within their patients electronic medical record vs. Usual care	2924		22		5.00	
Smith, 2008[11]	ADA-NCQA provider score, median	Score unit	Virtual consultation vs. No virtual consultation	277 358		58 56		 -2	0
	Estimated 10-yr coronary artery disease risk, median (range)	Score unit	Virtual consultation vs. No virtual consultation	277 358	16 18	16 15	0 -3	-3 -1	0
	Minnesota community aggregate optimal diabetes score, number (%)	Percent with outcome	Virtual consultation vs. No virtual consultation	277 358		18 30		 12	0
	Mean total cost	US dollars	Virtual consultation vs. No virtual consultation	277 358		8564 6252		 -2312	0.02
	Mean	US dollars	Virtual	277		2129			0.04

Evidence Table 18. Outcomes related to diabetes mellitus in studies addressing intermediate outcomes (continued)

Study, Year	Outcomes measure	Unit	Description of intervention	n Ninal Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	outpatient cost		consultation vs. No virtual consultation	358		1842		-287	
Tjam, 2006 [12]	Satisfaction scale (3-month follow-up)	Score unit	Interactive diabetes internet program vs. Diabetes education centers	10	3.517	3.650	0.133	0.25	0.015
				27	3.191	3.574	0.383	0.326	
	Satisfaction scale (6-month follow-up)	Score unit	Interactive diabetes internet program vs. Diabetes education centers	13	3.423	3.731	0.214	0.294	
				22	3.174	3.682	0.508	0.249	0.0138
Williams, 2007[13]	Perceived competence	% of patients with outcome	Computer-assisted diabetes care intervention vs. Usual care (did not set self-management goals, meet with a care manager, or receive follow-up phone calls)	417		5.75			0
				469		5.9		0.15	

**SNR: Significance not reported

P-value of 0 = p-value > 0.10

ATDM: Automated telephone disease management, BG: Blood glucose, CDEs: Certified diabetes educators, HbA1c: Glycated hemoglobin, NCI: National Cancer Institute, PHRs: Personal health records, SMBG: self-monitored blood glucose.

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Evidence Table 19. Outcomes related to heart disease in studies addressing intermediate outcomes.

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	n Final Control n Final Intervention	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
Dansky, 2008, [1]	Hospitalizations	% of patients with outcome	Telehomecare monitor and video vs. Control (routine home visit only)	112 45		59.5 64.4		 4.9	0
	Emergency department visits	% of patients with outcome	Telehomecare monitor and video vs. Control (routine home visit only)	112 45		35.7 68.9		 33.2	<0.05
	Hospitalizations	% of patients with outcome	Telehomecare monitor vs. Control (routine home visit only)	112 127		59.5 62.2		 2.7	0
	Emergency department visits	% of patients with outcome	Telehomecare monitor vs. Control (routine home visit only)	112 127		35.7 70.1		 34.4	0
Feldman, 2005[2]	Patient skips medicine	% of patients with outcome	Heart failure patients whose nurses received e-mail recommendations (basic intervention) vs. Heart failure patients receiving usual care	227 199		27.6 27.7		 0.1	0
	Patient is sure	% of	Heart failure	227		67.4			0

Evidence Table 19. Outcomes related to heart disease in studies addressing intermediate outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	n Final Control n Final Intervention	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	about when to take heart failure medicine	patients with outcome	patients whose nurses received e-mail recommendations (basic intervention) vs. Heart failure patients receiving usual care	199		70.3		2.9	
	Patient recognition of own heart failure medicines	% of patients with outcome	Heart failure patients whose nurses received e-mail recommendations (basic intervention) vs. Heart failure patients receiving usual care	227 199					0.02
	Patient does not recognize any of own heart failure medicines	% of patients with outcome	Heart failure patients whose nurses received e-mail recommendations (basic intervention) vs. Heart failure patients receiving usual care	227 199		43.9 31.1		 -12.8	**SNR
	Patient recognizes	% of	Heart failure	227		29.8			**SNR

Evidence Table 19. Outcomes related to heart disease in studies addressing intermediate outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	n Final Control n Final Intervention	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	up to half of own heart failure medicines	patients with outcome	patients whose nurses received e-mail recommendations (basic intervention) vs. Heart failure patients receiving usual care	199		30.5		0.7	
	Patient recognizes more than half of own heart failure medicines	% of patients with outcome	Heart failure patients whose nurses received e-mail recommendations (basic intervention) vs. Heart failure patients receiving usual care	227		26.3			**SNR
				199		38.4		12.1	
	Patient salts food	% of patients with outcome	Heart failure patients whose nurses received e-mail recommendations (basic intervention) vs. Heart failure patients receiving usual care	227		30.7			0
				199		27.6		-3.1	
	Patient's weighing	% of	Heart failure	227					0

Evidence Table 19. Outcomes related to heart disease in studies addressing intermediate outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	n Final Control n Final Intervention	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	behavior	patients with outcome	patients whose nurses received e-mail recommendations (basic intervention) vs. Heart failure patients receiving usual care	199				0	
	Patient has no scale	% of patients with outcome	Heart failure patients whose nurses received e-mail recommendations (basic intervention) vs. Heart failure patients receiving usual care	227 199		34.6 38.3		 3.7	**SNR
	Patient weighs self but not daily	% of patients with outcome	Heart failure patients whose nurses received e-mail recommendations (basic intervention) vs. Heart failure patients receiving usual care	227 199		44 43		 -1	**SNR
	Patient weights	% of	Heart failure	227		21.4			**SNR

Evidence Table 19. Outcomes related to heart disease in studies addressing intermediate outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	n Final Control n Final Intervention	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	self daily	patients with outcome	patients whose nurses received e-mail recommendations (basic intervention) vs. Heart failure patients receiving usual care	199		18.7		-2.7	
	Patient skips medicine	% of patients with outcome	Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention) vs. Heart failure patients receiving usual care	227 202		27.6 25.4		 -2.2	0
	Patient is sure about when to take heart failure medicine	% of patients with outcome	Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention) vs. Heart failure patients receiving usual care	227 202		67.4 69.6		 2.2	0
	Patient recognizes	% of	Heart failure	227					0.023

Evidence Table 19. Outcomes related to heart disease in studies addressing intermediate outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	n Final Control n Final Intervention	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	own heart failure medicines	patients with outcome	patients whose nurses received e-mail recommendations and additional resources (augmented intervention) vs. Heart failure patients receiving usual care	202					
	Patient does not recognize any of own heart failure medicines	% of patients with outcome	Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention) vs. Heart failure patients receiving usual care	227 202		43.9 34.3		 -9.6	**SNR
	Patient recognizes up to half of own heart failure medicines	% of patients with outcome	Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention) vs. Heart failure patients receiving usual care	227 202		29.8 30.6		 0.8	**SNR
	Patient recognizes	% of	Heart failure	227		26.3			**SNR

Evidence Table 19. Outcomes related to heart disease in studies addressing intermediate outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	n Final Control n Final Intervention	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	more than half of own heart failure medicines	patients with outcome	patients whose nurses received e-mail recommendations and additional resources (augmented intervention) vs. Heart failure patients receiving usual care	202		35		8.7	
	Patient salts food	% of patients with outcome	Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention) vs. Heart failure patients receiving usual care	227 202		30.7 23.3		 -7.4	0.095
	Patient's weighing behavior	% of patients with outcome	Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention) vs. Heart failure patients receiving usual care	227 202					0.082
	Patient has no	% of	Heart failure	227		34.6			**SNR

Evidence Table 19. Outcomes related to heart disease in studies addressing intermediate outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	n Final Control n Final Intervention	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	scale	patients with outcome	patients whose nurses received e-mail recommendations and additional resources (augmented intervention) vs. Heart failure patients receiving usual care	202		27.9		-6.7	
	Patient weighs self but not daily	% of patients with outcome	Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention) vs. Heart failure patients receiving usual care	227 202		44 44.7		 0.7	**SNR
	Patient weights self daily	% of patients with outcome	Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention) vs. Heart failure patients receiving usual care	227 202		21.4 27.4		 6	**SNR
Jerant, 2003 [3]	Medication use:	Score unit	Telephone vs.	12	67	67	0	4	**SNR

Evidence Table 19. Outcomes related to heart disease in studies addressing intermediate outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	n Final Control n Final Intervention	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	ACE inhibitor		Usual care	12	50	54	4	-13.00	
	Medication use: Beta-blocker	% of patients with outcome	Telephone vs. Usual care	12 12	25 42	25 45	0 3	3 20.00	**SNR
	Medication use: Calcium channel	% of patients with outcome	Telephone vs. Usual care	12 12	42 67	33 9	-9 -58	-49 -24.00	**SNR
	Digoxin	% of patients with outcome	Telephone vs. Usual care	12 12	0 8	42 45	42 37	-5 3.00	**SNR
	Diuretic loop	% of patients with outcome	Telephone vs. Usual care	12 12	92 100	75 91	-17 -9	8 16.00	**SNR
	Diuretic, K+-sparing	% of patients with outcome	Telephone vs. Usual care	12 12	17 67	17 27	0 -40	-40 10.00	**SNR
	Nitrate-long acting	% of patients with outcome	Telephone vs. Usual care	12 12	25 58	42 18	17 -40	-57 -24.00	**SNR
	Medication	% of	Telephone vs.	12	75	83	8	-9	**SNR

Evidence Table 19. Outcomes related to heart disease in studies addressing intermediate outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	n Final Control n Final Intervention	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	compliance, self-report: >75% doses taken	patients with outcome	Usual care	12	92	91	-1	8.00	
	Medication compliance, self-report: <=75% doses taken	% of patients with outcome	Telephone vs. Usual care	12 12	25 8	17 9	-8 1	9 -8.00	**SNR
	CSQ (Satisfaction) sore	Score unit	Telephone vs. Usual care	12 12	26.6 28.5	27.8 29.4	1.2 0.9	-0.3 1.60	**SNR
	Medication use: ACE inhibitor	% of atients with outcome	Telecare vs. Usual care	13	67 77	67 69	0 -8	-8 2.00	**SNR
	Medication use: Beta-blocker	% of patients with outcome	Telecare vs. Usual care	13 12	25 46	25 54	0 8	8 29.00	**SNR
	Medication use: Calcium channel	% of patients with outcome	Telecare vs. usual care	13 12	42 31	33 23	-9 -8	1 -10.00	**SNR
	Digoxin	% of patients with outcome	Telecare vs. usual care	13 12	0 0	42 38	42 38	-4 -4.00	**SNR
	Diuretic loop	% of patients with outcome	Telecare vs. usual care	13 12	92 85	75 85	-17 0	17 10.00	**SNR
	Diuretic, K+-	% of	Telecare vs. usual	13	17	17	0	-16	**SNR

Evidence Table 19. Outcomes related to heart disease in studies addressing intermediate outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	n Final Control n Final Intervention	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	sparing	patients with outcome	care	12	31	15	-16	-2.00	
	Nitrate, long-acting	% of patients with outcome	Telecare vs. usual care	13 12	25 38	42 54	17 16	-1 12.00	**SNR
	Medication compliance, self-report: <=75% doses taken	% of patients with outcome	Telecare vs. usual care	13 12	25 23	17 8	-8 -15	-7 -9.00	**SNR
	CSQ (Satisfaction score)	Score unit	Telecare vs. usual care	13 12	26.6 28.3	27.8 29.8	1.2 1.5	0.3 2.00	**SNR
Lowensteyn, 1998[4]	Ratio of high-risk/low-risk patients returning for followup	Ratio of patients	Coronary risk profile to physician vs. No profile risk to physician	782 176		0.77 1.23		 0.46	<0.05
Subramanian	Patient satisfaction	Score unit	Physicians were	365		-0.2			0.01

Evidence Table 19. Outcomes related to heart disease in studies addressing intermediate outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	n Final Control n Final Intervention	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
, 2004[5]	with most recent primary care visit (change enrollment to 12 months)		randomly assigned to receive either care suggestions generated with electronic medical record data and symptom data obtained from questionnaires mailed to patients within 2 weeks of scheduled outpatient visits (intervention group) vs. Physicians whose suggestions generated with electronic medical record data alone (control group)	355		0		0.2	
	Mean all-cause	Hospitalizat	Physicians were	365		1.7			0.05

Evidence Table 19. Outcomes related to heart disease in studies addressing intermediate outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	n Final Control n Final Intervention	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	hospitalizations	ions	randomly assigned to receive either care suggestions generated with electronic medical record data and symptom data obtained from questionnaires mailed to patients within 2 weeks of scheduled outpatient visits (intervention group) vs. Physicians whose suggestions generated with electronic medical record data alone (control group)	355		2.3		0.6	
	Mean admissions	Hospitalizat	Physicians were	365		0.4			0

Evidence Table 19. Outcomes related to heart disease in studies addressing intermediate outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	n Final Control n Final Intervention	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	for heart failure	ions	randomly assigned to receive either care suggestions generated with electronic medical record data and symptom data obtained from questionnaires mailed to patients within 2 weeks of scheduled outpatient visits (intervention group) vs. Physicians whose suggestions generated with electronic medical record data alone (control group)	355		0.3		-0.1	
Tierney,	Mean number of all	Visits	Evidence-based	119		1			**SNR

Evidence Table 19. Outcomes related to heart disease in studies addressing intermediate outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	n Final Control n Final Intervention	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
2003[6]	emergency department visits		cardiac care suggestions, approved by a panel of local cardiologists and general internists, were displayed to physicians and pharmacists as they cared for enrolled patients vs. Control group where suggestions were withheld	142		1.1		0.1	
	Mean number of heart disease-specific emergency department visits	Visits	Evidence-based cardiac care suggestions, approved by a panel of local cardiologists and general internists, were displayed to physicians and pharmacists as they cared for enrolled patients vs. Control group where suggestions were withheld	119		0.2			**SNR
				142		0.2		0	
	Mean number of all	Hospitalizat	Evidence-based	119		0.5			**SNR

Evidence Table 19. Outcomes related to heart disease in studies addressing intermediate outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	n Final Control n Final Intervention	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	hospitalizations	ions	cardiac care suggestions, approved by a panel of local cardiologists and general internists, were displayed to physicians and pharmacists as they cared for enrolled patients vs. Control group where suggestions were withheld	142		0.4		-0.1	
	Mean number of heart disease-specific hospitalizations	Hospitalizations	Evidence-based cardiac care suggestions, approved by a panel of local cardiologists and general internists, were displayed to physicians and pharmacists as they cared for enrolled patients vs. Control group where suggestions were withheld	119		0.2			**SNR
				142		0.2		0	
	Mean number of all	Visits	Printed note	119		1			**SNR

Evidence Table 19. Outcomes related to heart disease in studies addressing intermediate outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	n Final Control n Final Intervention	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	emergency department visits		(rather than bottle labels) instructing the pharmacist to view the care suggestions in Pharmacist Intervention Recording System. vs. Control group where suggestions were withheld	106		1.1		0.1	
	Mean number of heart disease-specific emergency department visits	Visits	Printed note (rather than bottle labels) instructing the pharmacist to view the care suggestions in Pharmacist Intervention Recording System. vs. Control group where suggestions were withheld	119 106		0.2 2.2		 2	**SNR
	Mean number of all	Hospitalizat	Printed note	119		0.5			**SNR

Evidence Table 19. Outcomes related to heart disease in studies addressing intermediate outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	n Final Control n Final Intervention	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	hospitalizations	ions	(rather than bottle labels) instructing the pharmacist to view the care suggestions in Pharmacist Intervention Recording System. vs. Control group where suggestions were withheld	106		0.5		0	
	Mean number of heart disease-specific hospitalizations	Hospitalizations	Printed note (rather than bottle labels) instructing the pharmacist to view the care suggestions in Pharmacist Intervention Recording System. vs. Control group where suggestions were withheld	119		0.2			**SNR
				106		0.2		0	
	Mean number of all	Visits	Evidence-based	119		1			**SNR

Evidence Table 19. Outcomes related to heart disease in studies addressing intermediate outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	n Final Control n Final Intervention	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	emergency department visits		cardiac care suggestions, approved by a panel of local cardiologists and general internists, displayed to physicians and pharmacists as they cared for enrolled patients and a printed note (rather than bottle labels) instructing the pharmacist to view the care suggestions in Pharmacist Intervention Recording System. vs. Control group where suggestions were withheld	113		1.1		0.1	
	Mean number of	Visits	Evidence-based	119		0.2			**SNR

Evidence Table 19. Outcomes related to heart disease in studies addressing intermediate outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	n Final Control n Final Intervention	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	heart disease-specific emergency department visits		cardiac care suggestions, approved by a panel of local cardiologists and general internists, displayed to physicians and pharmacists as they cared for enrolled patients and a printed note (rather than bottle labels) instructing the pharmacist to view the care suggestions in Pharmacist Intervention Recording System. Vs. Control group where suggestions were withheld	113		0.1		-0.1	
	Mean number of all	Hospitalizat	Evidence-based	119		0.5			**SNR

Evidence Table 19. Outcomes related to heart disease in studies addressing intermediate outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	n Final Control n Final Intervention	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	hospitalizations	ions	cardiac care suggestions, approved by a panel of local cardiologists and general internists, displayed to physicians and pharmacists as they cared for enrolled patients and a printed note (rather than bottle labels) instructing the pharmacist to view the care suggestions in Pharmacist Intervention Recording System. vs. Control group where suggestions were withheld	113		0.5		0	
	Mean number of	Hospitalizat	Evidence-based	119		0.2			**SNR

Evidence Table 19. Outcomes related to heart disease in studies addressing intermediate outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	n Final Control n Final Intervention	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	heart disease specific hospitalizations	ions	cardiac care suggestions, approved by a panel of local cardiologists and general internists, displayed to physicians and pharmacists as they cared for enrolled patients and a printed note (rather than bottle labels) instructing the pharmacist to view the care suggestions in Pharmacist Intervention Recording System. Vs. Control group where suggestions were withheld	113		0.2		0	

**SNR: Significance not reported

P-value of 0 = p-value > 0.10
ACE: Angiotensin-converting enzyme, CSQ: Client Satisfaction Questionnaire.

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Evidence Table 20. Outcomes related to cancer in studies addressing intermediate outcomes

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
Frosch, 2008[1]	Total knowledge score/imputed data	Score unit	Traditional didactic decision aid providing information about prostate-specific antigen (PSA) screening options and outcomes vs. Links to public prostate cancer–specific Web sites from credible sources	116 155		7.24 8.14		 0.9	0.005
	Total knowledge score/complete cases only	Score unit	Traditional didactic decision aid providing information about prostate-specific antigen (PSA) screening options and outcomes vs. Links to public prostate cancer–specific Web sites from credible sources	99 119		7.49 8.65		 1.16	0.001
	Total knowledge	Score unit	Chronic disease	116		7.24			0.005

Evidence Table 20. Outcomes related to cancer in studies addressing intermediate outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	score/imputed data		trajectory model for prostate cancer followed by a time–trade-off exercise vs. Links to public prostate cancer–specific Web sites from credible sources	153		7.69		0.45	
	Total knowledge score/complete cases only	Score unit	Chronic disease trajectory model for prostate cancer followed by a time–trade-off exercise vs. Links to public prostate cancer–specific Web sites from credible sources	99		7.49			0.001
				115		8.03		0.54	
	Total knowledge score/imputed data	Score unit	Both the didactic decision aid and the chronic disease trajectory model vs. Links to public prostate cancer–specific Web sites from credible sources	116		7.24			0.005
				152		7.71		0.47	
	Total knowledge	Score unit	Both the didactic	99		7.49			0.001

Evidence Table 20. Outcomes related to cancer in studies addressing intermediate outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	score/complete cases only		decision aid and the chronic disease trajectory model vs. Links to public prostate cancer–specific Web sites from credible sources	117		8.03		0.54	
	PSA screening: Pretest choice	%% of patients with outcome	Traditional didactic decision aid providing information about prostate-specific antigen (PSA) screening options and outcomes vs. Links to public prostate cancer–specific Web sites from credible sources	116 155		96 95.5		 -0.5	**SNR
	PSA screening: Reduction	% of patients with outcome	Traditional didactic decision aid providing information about prostate-specific antigen (PSA) screening options and outcomes vs. Links to public prostate cancer–specific Web sites from credible sources	116 155		3.3 9.1		 5.8	0.047
	Watchful waiting	% of	Traditional	116		34.4			0

Evidence Table 20. Outcomes related to cancer in studies addressing intermediate outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	at pretest	patients with outcome	didactic decision aid providing information about prostate-specific antigen (PSA) screening options and outcomes vs. Links to public prostate cancer–specific Web sites from credible sources	155		34.2		-0.2	
	PSA screening: Pretest choice	% of patients with outcome	Chronic disease trajectory model for prostate cancer followed by a time–trade-off exercise vs. Links to public prostate cancer–specific Web sites from credible sources	116 153		96 96.7		 0.7	**SNR
	PSA screening: Reduction	% of patients with outcome	Chronic disease trajectory model for prostate cancer followed by a time–trade-off exercise vs. Links to public prostate cancer–specific Web sites from credible sources	116 153		3.3 8.7		 5.4	0.047
	Watchful waiting	% of	Chronic disease	116		34.4			0

Evidence Table 20. Outcomes related to cancer in studies addressing intermediate outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	at pretest	patients with outcome	trajectory model for prostate cancer followed by a time–trade-off exercise vs. Links to public prostate cancer–specific Web sites from credible sources	153		34		-0.4	
	PSA screening: Pretest choice	% of patients with outcome	Both the didactic decision aid and the chronic disease trajectory model vs. Links to public prostate cancer–specific Web sites from credible sources	116 152		96 96.7		 0.7	**SNR
	PSA screening: Reduction	% of patients with outcome	Both the didactic decision aid and the chronic disease trajectory model vs. Links to public prostate cancer–specific Web sites from credible sources	116 152		3.3 5.3		 2	0
	Watchful waiting	% of	Both the didactic	116		34.4			0

Evidence Table 20. Outcomes related to cancer in studies addressing intermediate outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	at pretest	patients with outcome	decision aid and the chronic disease trajectory model vs. Links to public prostate cancer–specific Web sites from credible sources	152		40.8		6.4	
Gaertner,2004[2]	Patient satisfaction	Score unit	Use of electronic pain diary vs. Paper diary	24		8			
				24		10		2	
	Patient preference for electronic diary (%)	% of patients with outcome	Use of electronic pain diary vs. Paper diary	24		17			
				24		83		56	
	Health care support	% of patients with outcome	Use of electronic pain diary vs. Paper diary	24		17			
				24		62		45	
Glazebrook, 2006[3]	Melanoma knowledge score (0-12)	Score unit	Skinsafe multimedia intervention (for melanoma knowledge protective skin behaviors) vs. No intervention	245	2.75	3.03	0.28	0.53	<0.001
				214	2.9	3.71	0.81	0.68	
	Skin protective behavior score (0-12)	Score unit	Skinsafe multimedia intervention (for melanoma knowledge protective skin behaviors) vs. No intervention	245	4.66	5.06	0.4	0.36	<0.004
				214	4.6	5.36	0.76	0.3	

Evidence Table 20. Outcomes related to cancer in studies addressing intermediate outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	Number of participants checking moles	% of patients with outcome	Skinsafe multimedia intervention (for melanoma knowledge protective skin behaviors) vs. No intervention	245 214		65.7 61.9		 -3.8	0.035
Maslin, 1998[4]	Viewing interactive video disk had impact on surgical choice	% of patients with outcome	Intervention -- interactive video disk system + usual care from multidisciplinary team vs. Usual care from multidisciplinary team	49 51		no Data 12.5		 *insufficient data	0
	Viewing interactive video disk had impact on adjuvant therapy choice	% of patients with outcome	Intervention -- interactive video disk system + usual care from multidisciplinary team vs. Usual care from multidisciplinary team	49 51		no Data 14.2		 *insufficient data	0
Ruland, 2003[5]	Congruence between patient-reported symptoms and those addressed in consult visit	% of patients with outcome	Used computerized system for shared decision making for cancer symptoms care vs. Usual care	25 27		2.84 7.63		 4.79	<0.01

Evidence Table 20. Outcomes related to cancer in studies addressing intermediate outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	Importance-weighted congruence between patient-reported symptoms and those addressed in consult visit	Congruence	Used computerized system for shared decision making for cancer symptoms care vs. Usual care	25 27		12.8 33		20.2	<0.01
Taenzer, 2000[6]	Actions taken/-patient	Actions	Lung cancer patients whose physicians and nurses received Quality-of-Life training and patients completed the computerized European Organization For Research And Treatment Of Cancer QLQ-C30 vs. Patients completed a paper-and pencil version of the European Organization For Research And Treatment Of Cancer QLQ-C30 only	26 27		0.5 0.8		0.3	0
	% of categories	% of	Lung cancer	26		64.7			0

Evidence Table 20. Outcomes related to cancer in studies addressing intermediate outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	identified that were acted upon	categories	patients whose physicians and nurses received Quality-of-Life training and patients completed the computerized European Organization For Research And Treatment Of Cancer QLQ-C30 vs. Patients completed a paper-and pencil version of the European Organization For Research And Treatment Of Cancer QLQ-C30 only	27		73		8.3	

**SNR: Significance not reported

P-value of 0 = p-value > 0.10

EORTC QLQ: European Organization for Research and Treatment of Cancer Quality of Life Questionnaire, PSA: Prostate-specific antigen.

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Evidence Table 21. Outcomes related to hypertension in studies addressing intermediate outcomes.

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	n Final Control n Final Intervention	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
Bosworth, 2009[1]	Estimated % in blood pressure control	% of patients	Patient behavioral intervention group vs. Control group (hypertension reminder) whose providers did not receive decision support system	143 144	32 44.2	43.9 59.5	11.9 15.3	3.4 15.60	0
	Estimated % in blood pressure control	% of patients	Provider decision support system group vs. Control group (hypertension reminder) who providers did not receive decision support system	143 151	32 44.9	43.9 43.7	11.9 -1.2	-13.1 -0.20	0
	Estimated % in blood pressure control	% of patients	Combined patient and provider intervention vs. Control group (hypertension reminder) who providers did not receive decision support system	143	32	43.9	11.9	0	0
Green, 2008[2]	Mean increase in patient-initiated threads	Communication threads	BP monitoring and patient Web services vs. Usual care	247 246		1.8 2.7		0.9	0.01
	Mean increase in patient-initiated threads	Communication threads	BP monitoring and patient Web services and pharmacist care vs. Usual care	247 237		1.8 4.2		2.40	<0.01
	Telephone	Telephone	BP monitoring	247		4			<0.001

Evidence Table 21. Outcomes related to hypertension in studies addressing intermediate outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	n Final Control n Final Intervention	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	encounters	encounters	and patient Web services vs. Usual care	246		7.5		3.5	
	Telephone encounters	Telephone encounters	BP monitoring and patient Web services and pharmacist care vs. Usual care	247 237		4 3.8		 -0.20	**SNR
	Primary care visits	Visits	BP monitoring and patient Web services vs. Usual care	247 246		3.2 3		 -0.2	0
	Primary care visits	Visits	BP monitoring and patient Web services and pharmacist care vs. Usual care	247 237		3.2 3.2		 0	0
Parati, 2009[3]	Frequency of treatment changes	Treatment changes	Teletransmitted home blood pressure vs. Usual care	113 216		14 9		 -5	<0.05
	Quality of life at end of study per quality of life assessment in hyprtension patients' questionnaire	Score unit	Teletransmitted home blood pressure vs. Usual care	113	38.2	38.3	0.1	0.6	0
	% with daytime blood pressure normalization	% of patients	Teletransmitted home blood pressure vs. Patients who received usual care	113 216		50 62	50 62	12 12.00	<0.05

Evidence Table 21. Outcomes related to hypertension in studies addressing intermediate outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
Rinfret, 2009[4]	Change in mean SBP	mmHg	(IT)-supported management program to facilitate BP, plus education booklet, plus log book v control	112 111	112 111			-11.9 -7.1	<0.001
	Change in mean DBP		(IT)-supported management program to facilitate BP, plus education booklet, plus log book v control	112 111	112 111			-6.6 -4.5	=0.007
Roumie, 2006[5]	Medication adherence	% adherence	Provider education and alert vs. Provider education. Provider education involved receiving an e-mail with a Web-based link to the Seventh Report of the Joint National Committee on the Prevention, Detection, Evaluation and Treatment of High Blood Pressure guidelines (provider education)	255 362		0.89 0.89		 0	**SNR
	Medication	additional	Provider	255		0.89			**SNR

Evidence Table 21. Outcomes related to hypertension in studies addressing intermediate outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	adherence		education, alert and patient education vs. Provider education. Provider education involved receiving an e-mail with a Web-based link to the Seventh Report of the Joint National Committee on the Prevention, Detection, Evaluation and Treatment of High Blood Pressure guidelines (provider education). Patient education meant patients received a letter advocating drug adherence, lifestyle modification, and additional conversations with providers	358		0.88		-0.01	
Santamore,	Blood pressure	% of patients	Blood pressure	160		49			<0.000

Evidence Table 21. Outcomes related to hypertension in studies addressing intermediate outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
2008[6]	monitoring	with outcome	measurements transmitted through am Internet-based telemedicine system vs. Not through a telemedicine system	161		92		43	1

**SNR: Significance not reported

P-value of 0 = p-value > 0.10
ACE: Angiotensin-converting enzyme, CSQ: Client Satisfaction Questionnaire.

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Evidence Table 22. Study characteristics of studies addressing improving responsiveness to the needs and preferences of individual patients.

Author, Year	Condition	Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
Barnabei, 2008[1]	Menopause/HRT	RCT	NS	Clinician, Patient	Outpatient clinic	Woman born between 1930 and 1960, Appointment scheduled between November 9, 2004, and December 2, 2005	Appointment related to current pregnancy or cancer	1
Beale, 2006[2]	Cancer (other)	RCT	(At least 3 months)	Patient	Patient	13-29 yrs old, Cancer diagnosis	History of photo seizures, Inability to communicate in English, Spanish or French, Incapable of following study schedule	0
Chu, 2009[3]	None: Psychosocial influences of computer anxiety, computer confidence, and computer self-efficacy in older adults	RCT, Pre-post measures	2007 (9)	Patient	Community centers	More than 65 yrs old, Attended a community center, Could read and understand English, Able to identify the on-switch button on the computer and hold a mouse to navigate the arrow on the screen, Self-identified the ability to do simple typing on a keyboard, Enrolled at congregate meal sites of the YWCA		-1
Feldman, 2005[4]	Heart failure : E-mail reminder to nurses	RCT	(45 days)	Clinician	Home health care			-2
Feldstein, 2006[5]	Osteoporosis	RCT	1999 (NS)	Clinician, Patient	Nonprofit, group-model HMO in the Pacific Northwest	50-89 yrs old, Female, HMO member for at least the 12 months before the start of the study, Sustained a study-defined fracture (any clinical fracture except skull, facial, finger, toe, ankle, or any open fracture	Male, Pharmacological treatment for osteoporosis, Exclusionary medical condition (n5193), including malignancies (except	1

Evidence Table 22. Study characteristics of studies addressing improving responsiveness to the needs and preferences of individual patients (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
						suggestive of high force)	nonmelanoma skin cancers), Chronic renal failure, dementia, drgan transplant, or cirrhosis in the 12 months before the start of the study, Without a primary care provider, In osteoporosis clinical trials, Nursing home resident, Without an address, Research center employee, Received a BMD measurement	
Frosch, 2008[6]	Prostate cancer	RCT, Fully crossed 2x2 factorial design	200 (15 months)	Patient	Outpatient clinic, Health Appraisal Clinic of Kaiser Permanente, San Diego, California	More than 50 years old, Male, Having broadband Internet access at home or at work		2
Gielen, 2007[7]	Safety knowledge	RCT	2004 (17)	Parent	Medical system (network of hospitals and/or clinics), Pediatric emergency department	Parent of child 4-66 months old in Emergency department, English-speaking parent or older sibling, Lived in Baltimore	Child suspected of abuse, Critically ill child	0
Glasgow, 2000[8]	Diabetes	RCT	(6)	Patient	Outpatient clinic	More than 40 years old, Meeting the Wellborn criteria 28 for type 2 diabetes on the basis of age at diagnosis, body mass index, and when insulin was begun, Living		-1

Evidence Table 22. Study characteristics of studies addressing improving responsiveness to the needs and preferences of individual patients (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
						independently, Having a telephone, Not planning to move out of the area		
Jones, 1999[9]	Cancer	RCT	1996	System, Patient	Oncology center	Patient with breast, cervical, prostate, or laryngeal cancer	Patient receiving palliative treatment, No knowledge of their diagnosis, Visual or mental handicap, Severe pain or symptoms	1
Kaufman, 2006[10]	Diabetes	RCT, Qualitative	NS	Patient	Patient home	Senior, Hispanic		-1
Kim, 2004[11]	Wounds	Prospective cohort design	1999 (18 months)	Clinician, patient	Outpatient clinic	Chronic stage 2, 3, or 4 pressure sores, Postoperative wounds having undergone a tissue flap procedure for a grade 3 or 4 pressure ulcer, or diabetic ulcer, Hospital inpatient, outpatient, or nursing home resident, Informed consent	Mentally incompetent	
Kuppermann, 2009[12]	Pregnancy	RCT	2001 (24 months)	Patient		Pregnant female of any age, 20 weeks gestation or less, Having not yet undergone any prenatal testing, Ability to speak English or Spanish	Women who were carrying more than one fetus Had become pregnant using in vitro fertilization, Candidate for prenatal diagnosis because of family history	0
Maslin, 1998[13]	Cancer (breast)	Quasi-experimental: Experime	(24)	Patient	Medical system (network of hospitals and/or clinics) not		Pregnancy, Evidence of bilateral or multifocal breast	-1

Evidence Table 22. Study characteristics of studies addressing improving responsiveness to the needs and preferences of individual patients (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
		ntal random design, not blinded			specified		cancer, Large tumor, Paget's diagnosis or inflammatory breast cancer, Evidence of extension or metastasis of breast cancer, Contraindication to mastectomy, Contradiction to radiation, Hearing visual or cognitive impairment	
McCrossan, 2007[14]	Congenital heart disease	RCT		Patient	Hospital	Less than 3 yrs old, New diagnosis of congenital heart disease	No fixed address, Unsuitable home environment	-1
McDonald, 2005[15]	Cancer pain management	RCT	(45 days)	Clinician	Non-profit home care organization	18 or older, Primary diagnosis of cancer (ICD9-CM140-239), Self-reported frequency of daily or constant pain at admission	Not cognitively able to give informed consent, Non-English/Spanish-speaking subject	1
Nguyen, 2008[16]	COPD	RCT	(6 mo intended but study stopped)	Patient	Pilot study: one group in face-to-face self-management program; the other in online program	Diagnosis of COPD and being clinically stable for at least 1 month, Spirometry results showing at least mild obstructive disease defined as post-bronchodilator forced expiratory volume in 1 s (FEV1) to forced vital capacity (FVC) ratio 80% predicted, ADL Limited by dyspnea, Use of the Internet and/or checking email at least once per	Any active symptomatic illness (i.e., cancer, heart failure, ischemic heart disease with known coronary artery or valvular heart disease, psychiatric illness, or neuromuscular disease), Participated in a pulmonary rehabilitation	2

Evidence Table 22. Study characteristics of studies addressing improving responsiveness to the needs and preferences of individual patients (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
						week with a Windows operating system, Oxygen saturation > 85% on room air or less than 6 l/min of nasal oxygen at the end of a 6-minute walk test	program in the last 12 months, Were currently participating in > 2 days of supervised maintenance exercise	
Peters, 2006[17]	Primary care primary health centers in Salem district	Quasi-experimental: Before/after patients/ physicians	2002 (6)	Clinician, Patient, Cluster randomized	Outpatient clinic, Medical system (network of hospitals and/or clinics)			-2
Raebel, 2007[18]	Mental health (depression): Depression and anxiety patient medication safety intervention	RCT	2005 (12)	Clinician, Patient, Pharmacist	Outpatient clinic, Medical system (network of hospitals and/or clinics), Kaiser Permanente pharmacies	More than 65 yrs old, Prescribed a potentially inappropriate medication (list of 11 medications)		-2
Rothert, 2006[19]	Obesity	RCT	2002 (6)	Patient	Outpatient clinic, Home	More than 18 yrs old, Patient of Kaiser Permanente, Web access, E-mail address, BMI 27-40 kg/m^2, Willing to complete followup questionnaires	Surgical management of obesity, Pregnant, Considering pregnancy	1
Ruland, 2003[20]	Cancer	RCT, Usability: cluster randomization at level of clinician	(2 Months)	Clinician, Patient	Outpatient clinic	More than 21 yrs old, Able to read, write, and speak English, No cognitive impairment, Able to provide informed consent, Did not feel too fatigued, Participation approved by patients' physicians	New patient coming for their first consultation	-1
Schapira,	Post-menopausal	RCT	2002	Patient	Medical system	45-74 yrs, Female, Post-	Non-English-	0

Evidence Table 22. Study characteristics of studies addressing improving responsiveness to the needs and preferences of individual patients (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
2007[21]	women who needed to decide about hormone therapy		(enrollment: 18 months)		(network of hospitals and/or clinics)	menopausal defined as amenorrheic for 12 months or a documented FSH > 25IU/l.	speaking, Cognitive dysfunction defined by a score of <23 on the Folstein Mini Mental State exam, Absolute contraindication to the use of HT	
Schumann, 2008[22]	Smoking	Not a clinical study yet. Study of theoretical and empirical variability	NS	Patient	Outpatient clinic			-2
Taenzer, 2000[23]	Cancer (other)	RCT	(NS)	Patient	Outpatient clinic	Diagnosis of lung cancer, Attendance at TBCC outpatient clinic, Fluent in English language, Eyesight sufficient to use computer		2
Tierney, 2005[24]	Asthma COPD	RCT	1994 (12)	Clinician	Research hospital network	18 yrs or older, Had previously visited the study practices, Diagnosis of asthma or COPD recorded during any inpatient visit, Emphysema recorded as a reading on any prior chest radiograph, or two or more prescriptions for inhaled beta-agonists, corticosteroids, ipratropium, or cromolyn, or oral beta-agonists or		-1

Evidence Table 22. Study characteristics of studies addressing improving responsiveness to the needs and preferences of individual patients (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
						theophylline		
Trief, 2006[25]	Diabetes	RCT, Qualitative Was not an RCT but a barrier study on computer-guided disease	(12)	Patient	Outpatient clinic, Home	Diabetes, Married or cohabitating	Refusal, Too sick, Changed mind	2
Wakefield, 2008[26]	Heart failure	RCT		Patient		Mini Mental Status Exam score of > 22, Phone line at home, Diagnosis of heart failure, Hospital admission for heart failure exacerbation	Assigned to control group of larger study (no recordings available), Not all 3 interactions successfully recorded, Patient died or dropped out of study	1

HRT: Hormone replacement therapy, ICD9-CM140-239: Primary diagnosis of cancer, ADL: Activities of daily living, BMI: Body mass index, RCT: Randomized controlled trial, FSH: Follicle stimulating hormone, YWCA: Young Women's Christian Association.

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Evidence Table 23. Participant characteristics of studies addressing improving responsiveness to the needs and preferences of individual patients.

Author, Year	Control Intervention	Mean, Median, Range, SD	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
Barnabei, 2008[1]	Control	Mean: 52.5, SD: 5.6	147 (100)	White: 130 (90) Other: Non-white 15 (10)	NS	High school grad or less: 18 (12), Trade school, some college or more: 127 (88)	Current HT use – Yes 43 (29), No 104 (71)
	TalkToYourDoc (TTYD) tool	Mean: 52.5, SD: 5.3	141 (100)	White: 126 (92) Other: Non-white 11 (8)	NS	High school grad or less: 19 (14) Trade school, some college or more: 119 (86)	Current HT use – Yes 39 (28), No 102 (72)

Evidence Table 23. Participant characteristics of studies addressing improving responsiveness to the needs and preferences of individual patients.

Author, Year	Control Intervention	Mean, Median, Range, SD	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
Beale, 2006[2]	Control						
	Video game			NS	NS	NS	Did not report on control group or those recruited; 197 were randomly assigned to receive access to Re-Mission, and 195 actually received the intervention. There were 5 participants whose assigned condition was crossed over (n=3 treatment to control, n=2 control to treatment); 176 patients received access only to an alternative videogame.
Chu, 2009[3]	Control						
	Partnering with Seniors for Better Health: Computer use and Internet health information retrieval among older adults in a low socioeconomic community	Mean: 74	(72)		Income1: < $10,000 (64)	8-12 yrs: 21.4 12-16 yrs: (50)	Previous computer use (29.5); Previous Internet access (18.8)

Evidence Table 23. Participant characteristics of studies addressing improving responsiveness to the needs and preferences of individual patients.

Author, Year	Control Intervention	Mean, Median, Range, SD	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
Feldstein, 2006[4]	Control	Range: 50-89			<=$20,000: 20 (19.8) >$20,000: 21 (20.8) Unknown:60(59.4)	<=High school: 32 (31.7) >=Some college: 23 (22.8), Unknown: 46 (45.5)	Fracture type – Hip 9 (8.9), Vertebra 9 (8.9), Wrist 15 (14.9), Other 68 (67.3); Current smoker – No 92 (91.1), Yes 9 (8.9); Weight =3 12 (11.9); Adequate calcium intake – No 32 (31.7), Yes 16 (15.8), Unknown 53; (52.5) Regular activity – No 40 (39.6), Yes 14 (13.9), Unknown 47 (46.5)
Feldman, 2005[5]	Control	Mean: 71.2, SD: 12.2	(76.7)	White: (23.4), Black: (41.9), Latino: (30.0), Other: (4.9)	Income <$10,000: (51.5)	<12 yrs: (54.2)	Usual care 227
	E-mail reminder	Mean: 72.4, SD: 12.1	(64.8)	White: (23.6), Black: (42.7), Latino: (31.2), Other: (2.5)	Income <$10,000: (43.7)	<12 yrs: (56.8)	199
	E-mail reminder and a laminated card	Mean: 71.8, SD: 12.0	(65.4)	White: (28.2), Black: (35.6), Latino: (33.2), Other: (3.0)	Income<$10,000: (40.1)	<12 yrs: (54.0)	Augmented 202

Evidence Table 23. Participant characteristics of studies addressing improving responsiveness to the needs and preferences of individual patients.

Author, Year	Control Intervention	Mean, Median, Range, SD	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
Frosch, 2008[6]	Control	Mean: 59.0, SD: 5.1	0	White: 133 (88.1), Black: 4 (2.6), Latino: 6 (4.0), Asian: 6 (4.0), Other 2 (1.3)	NS	8-12 yrs: 6 (4.0) 12-16 yrs: 86 (56.9) >16 yrs: 59 (39.1) Some grad school: 10 (6.6) Completed postgraduate: 49 (32.5)	Marital status – Married 123 (81.5), Other 28 (18.5); History of cancer – Self 18 (11.9), Family 104 (68.9), Friends 112 (74.2); Concern about prostate cancer – Not at all 15 (9.9), A little 39 (25.8), Somewhat 63 (41.7), Considerable 25 (16.1), Extreme 9 (6.0); Number of previous PSA tests, mean 2.6, SD: 2.9; Pretest choice of PSA 145 (96.0); Who should make medical decisions – Physician only 10 (6.6), Mostly physician 12 (7.9), Physician and patient together 109 (72.9), Mostly patient 16 (10.6), Patient only 4 (2.6); Pretest treatment preference – Intervention 99 (65.6), Watchful waiting 52 (34.4); [also Internet access at home and work]

Evidence Table 23. Participant characteristics of studies addressing improving responsiveness to the needs and preferences of individual patients.

Author, Year	Control Intervention	Mean, Median, Range, SD	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
	Traditional didactic decision aid providing information about prostate specific antigen (PSA) screening options and outcomes	Mean: 58.5, SD: 5.5	0	White: 133 (85.8), Black: 6 (3.9), Latino: 7 (4.5), Asian: 4 (2.6), Other: 5 (3.2)	NS	8-12 yrs: 8 (5.2) 12-16 yrs: 83 (53,.6) >16 yrs: 64 (41.3)	Marital status – Married 119 (76.8), Other 36 (23.2); History of cancer – Self 18 (11.6), Family 102 (65.8), Friends 120 (77.4); Concern about prostate cancer – Not at all 14 (9.0), A little 42 (27.1), Somewhat 63 (40.6), Considerable 26 (16.8), Extreme 10 (6.5); Number of previous PSA tests, mean 3.0, SD: 4.8; Pretest choice of PSA 148 (95.5); Who should make medical decisions – Physician only 4 (2.6), Mostly physician 19 (12.3), Physician and patient together 120 (77.4), Mostly patient 11 (7.1), Patient only 1(0.6); Pretest treatment preference – Intervention 102 (65.8), Watchful waiting 53 (34.2); [also Internet access at home and work]

Evidence Table 23. Participant characteristics of studies addressing improving responsiveness to the needs and preferences of individual patients.

Author, Year	Control Intervention	Mean, Median, Range, SD	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
	Chronic disease trajectory model for prostate cancer followed by a time-trade-off exercise	Mean: 58.4, SD: 5.6	0	White: 127 (83.0), Black: 2 (1.3), Latino: 15 (9.8), Asian: 7 (4.6), Other1: 2 (1.3)	NS	8-12 yrs: 6 (3.9) 12-16 yrs: 75 (49.0) >16 yrs: 72 (47.0)	Marital status – Married 114 (74.5), Other 39 (25.5); History of cancer – Self 12 (7.8), Family 101 (66.0), Friends 114 (74.5); Concern about prostate cancer – Not at all 15 (9.8), A little 49 (32.0), Somewhat 56 (36.6), Considerable 26 (17.0), Extreme 7 (4.6); Number of previous PSA tests, mean 2.1, SD: 2.6; Pretest choice of PSA 148 (96.7); Who should make medical decisions – Physician only 3 (2.0), Mostly physician 20 (13.1), Physician and patient together 119 (77.8), Mostly patient 9 (5.9), Patient only 2 (1.3); Pretest treatment preference – Intervention 101 (66.0), Watchful waiting 52 (34.0); [also Internet access at home and work]
	Both the didactic decision aid and the chronic disease trajectory model	Mean: 58.8, SD: 5.4	0	White: 133 (87.5), Black: 5 (3.3), Latino: 4 (2.6), Asian: 7 (4.6), Other: 3 (2.0)	NS	8-12 yrs: 7 (4.6), 12-16 yrs: 66 (43.4) >16 yrs: 79 (52.0)	

Evidence Table 23. Participant characteristics of studies addressing improving responsiveness to the needs and preferences of individual patients.

Author, Year	Control Intervention	Mean, Median, Range, SD	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
Gielen, 2007[7]	Control	Range—Child: 4-66 months, Parent: 14-30	Mother (90.4)	Black (94.1) Other (5.8)	<$5,000 (66.5) >$5,000 (33.5)	<8 yrs: (11.1), 8-12 yars: (73.2), 12-16 yrs: (15.7)	
	The intervention group received a personalized report containing tailored, stage-based safety messages based on the precaution adoption process model. The control group received a report on other child health topics.	Range--Child: 4-66 months Parent: 14-30	Mother (90.6)	Black (92.2), Other (7.8)	<$5,000 (60.9) >$5,000 (39.0)	<8 yrs: (9.2) 8-12 yrs: (75.8) 12-16 yrs: (15.0)	
Glasgow, 2000[8]	Control	Mean: 60.6, SD: (9.5	66.3	White: 90	NS	Some college or more: 46.3	Retired (45.0), Lived alone (51.2)
	Basic and community resource condition	Mean: 60.5, SD: 8.6	47.4(57)	White: 90.9	NS	Some college or more: (59.7)	Retired (28.6) Live alone (58.4)
	Basic and telephone followup conditions	Mean: 59.0, SD: 9.6	57	White: 88.6	NS	Some college or more: 63.0	Retired (31.6), Lived alone (44.3)
	Combined condition	Mean: 57.4, SD: 9.4	56.3	White: 91.4	NS	Some college or more: 58.0	
Hassol, 2004[9]	Control	NS	NS	NS	NS	12-16 yrs: (40) of 1421	
	Online survey (and focus group information)	Range: > 18 years	(60) of 1421	White: (98) of 1421	NS	>16 yrs: (27) of 1421, High school or less: (33) of 1421	Duration of MyChart Use, Use of MyChart
Jones, 1999[10]	Control				NS		
	Personal computer information				NS		

Evidence Table 23. Participant characteristics of studies addressing improving responsiveness to the needs and preferences of individual patients.

Author, Year	Control Intervention	Mean, Median, Range, SD	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
	General computer information			NS	NS	NS	
Kaufman, 2006[11]	Control						
	Telehealth diabetes management program			NS	NS	NS	
Kim, 2004[12]	Control	NS	NS	NS	NS	NS	NS
Kuppermann, 2009[13]	Control	Mean: 32.5, SD: 6.0	252 (100)	White: 111(44.8), Black: 42 (16.9), Latino: 40 (16.1) Asian:39 (15.7), Other: 16 (6.5)	<$50,000: 80 (34.2), $50,000–100,000: 85 (36.3), >=$100,000L 69 (29.5)	8-12 yrs: 45 (18.1), 12-16 yrs: 56 (22.5), College graduate: 148 (59.4)	Religion – Catholic 76 (30.5), Other Christian 64 (25.7), Other religion 27 (10.8), No religious affiliation 82 (32.9); Desire for shared decisionmaking – Me alone/mostly me 104 (42.8), Shared equally 123 (50.6), Health care provider alone/mostly provider 16 (6.6)
	Prenatal testing decision- assisting tool	Mean: 32.2, SD: 5.9	244(100)	White: 120 (49.6), Black: 35 (14.5), Latino: 48 (19.8), Asian: 27 (11.2), Other1: 12 (5.0)	<$50,000: 68 (30.0), $50,000–100,000: 73 (32.2), >=$100,000: 86 (37.9)	8-12 yrs: 39 (16.0), 12-16 yrs: 57 (23.5), College graduate: 147 (60.5)	Religion: Catholic 75 (31.1), Other Christian 64 (26.6), Other religion 42 (17), No religious affiliation 60 (24.9); Desire for shared decisionmaking – Me alone/mostly me 100 (43.3), Shared equally 108 (46.8), Health care provider alone/mostly provider 23 (10.0)

Evidence Table 23. Participant characteristics of studies addressing improving responsiveness to the needs and preferences of individual patients.

Author, Year	Control Intervention	Mean, Median, Range, SD	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
Maslin, 1998[14]	Control	Mean: 52.1Range: 28-73	49 (100)				
	Interactive video disk system (IVD) using a shared decisionmaking program (SDP)	Mean: 52.1, Range: 28-73	51 (100)	NS	NS	NS	
McCrossan, 2007[15]	Control	Mean: 66	11	NS	NS	NS	
	Videoconferencing	Mean: 61	11	NS	NS	NS	
	Telephone	Mean: 65.4	13	NS	NS	NS	
McDonald, 2005[16]	Control	Mean: 62.9, SD: 13.3	(64.5)	White: (29.9), Black: (30.8), Latino: (33.3), Other: (6.0)	NS	NS	234
	E-mail reminders: One patient-specific message was sent to nurse about patient--basic intervention	Mean: 63.2, SD: 13.0	(68.6)	White: (34.7), Black: (26.5), Latino: (34.3), Other: (4.6)	NS	NS	242
	E-mail reminders with provider prompts, patient education material, and clinical nurse specialist outreach--Augmented basic intervention	Mean: 63.4, SD: 12.4	(65.5)	White: (32.0) Black: (31.5) Latino: (31.0) Other: (5.6)	NS	NS	197

Evidence Table 23. Participant characteristics of studies addressing improving responsiveness to the needs and preferences of individual patients.

Author, Year	Control Intervention	Mean, Median, Range, SD	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
	Diagnostic evaluations of a wound were made both by a treating physician in person as well as by a remote physician using the telemedicine system	Mean: 59 Range: 24-83	NS	NS	NS	NS	Married or had a live-in partner (35.3) [24/68]; Lived at home, rather than in a nursing home (97.1) [67/69]; Living situation –Living without assistance (41.3) [26/63], Receiving some kind of assistance or care at home (58.7); Had a full- or part-time caregiver (39.7); Had some assistance (12.7); Used a full-time nurse (6.3); Considered their overall health to be – "Good or very good" (63.3), "Fair" (23.3), "Poor" (13.3). There were no significant differences between the two participating sites in the demographic composition of the sample.
Nguyen, 2008[17]	Control				NS	12-16 yrs: 8 (40)	

Evidence Table 23. Participant characteristics of studies addressing improving responsiveness to the needs and preferences of individual patients.

Author, Year	Control Intervention	Mean, Median, Range, SD	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
	fDSMP	Mean: 70.9,SD: 8.6	9 (45)	White: 20 (100)	NS	>16 yrs: 12 (60)	Not currently employed, or currently disabled or retired 15 (75); Living situation with spouse or other 13 (65); Currently smoking 1 (5); Distance to clinical site (km) 13.1, SD:15.7; BMI (kg/m^2) 27.7 SD:, 6.4; [several disease severity measures]; [several computer/Internet skills]
	eDSMP	Mean: 68.0, SD: 8.3	8 (39)	White: 18 (95)	NS	12-16 yrs: 10 (50) >16 yrs: 9 (50)	Not currently employed, or currently disabled or retired 13(72); Living situation with spouse or other 12 (63); Currently smoking 2 (11); Distance to clinical site (km) 20.4, SD:18; BMI (kg/m^2 29.4, SD: 5.9; [several disease severity measures]; [several computer/Internet skills]
Peters, 2006[18]	Control	Mean: 32.9	(50.5)	NS	NS	<8 yrs: 309 (100)	Household size 4.6

Evidence Table 23. Participant characteristics of studies addressing improving responsiveness to the needs and preferences of individual patients.

Author, Year	Control Intervention	Mean, Median, Range, SD	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
	A computer-assisted decision support technology was introduced to assist with patient screening	Mean: 38.1	(56.8)	NS	NS	<8 yrs: 296 (100)	Household size 4.4
Raebel, 2007[19]	Control	Median: 73	449 (70)	NS	NS	NS	Number of medication in last 6 months, median: 7
	Pharmacist alert and physician consultation	Median: 72	362 (67)	NS	NS	NS	Number of medication in last 6 months, median: 7
	EMR reminder to primary care physician	Range: 50-89	NS	NS	<=$20,000: 27 (26.7) >$20,000: 13 (12.9) Unknown: 61 (60.4)	<=High school: 31 (30.7), >=Some college: 25 (24.8), Unknown: 45 (44.6)	Fracture Type – Hip 12 (11.9), Vertebra 10 (9.9), Wrist 17 (16.8), Other 62 (61.4); Current smoker – No 90 (89.1), Yes 11 (10.9); Weight =3 18 (17.8); Adequate calcium intake – No 36 (35.6), Yes 14 (13.9), Unknown 51 (50.5); Regular activity – No 44 (43.6), Yes 13 (12.9), Unknown 44 (43.6)

Evidence Table 23. Participant characteristics of studies addressing improving responsiveness to the needs and preferences of individual patients.

Author, Year	Control Intervention	Mean, Median, Range, SD	Female, n (%)	Race, n (%)	Income Ranges, n (%)	Education, n (%)	Other Categories, n (%)
	EMR reminder to primary care physician plus mailed patient reminder letter	Range: 50-89	NS	NS	<=$20,000: 28 (25.7) >$20,000: 17 (15.6) Unknown: 64 (58.7)	<=High school: 39 (35.8), >=Some college: 28 (25.7), Unknown: 42 (38.5)	Fracture Type – Hip 16 (14.7), Vertebra 2 (1.8), Wrist 17 (15.6), Other 74 (67.9); Current smoker – No 100 (91.7), Yes 9 (8.3); Weight =3 12 (11.0); Adequate calcium intake – No 40 (36.7), Yes 17 (15.6), Unknown 52 (47.7); Regular activity – No 52 (47.7), Yes 13 (11.9), Unknown 44 (40.4)

Evidence Table 23. Participant characteristics of studies addressing improving responsiveness to the needs and preferences of individual patients.

Rothert, 2006[20]	Control	NS	NS	NS	NS	NS	
	Tailored expert system condition: This study examined the outcomes of an Internet-based expert system vs. a user-navigated, information-only program for weight management	Mean: 45.6, SD: 12.1	(82.9)	White: (56.8), Black: (35.4), Latino: (3.4), Other (4.4)	NS	NS	BMI (kg/m2) 33.0 (3.8); Motivation (0-10 scale) 7.2 (2.0); Self-efficacy (1-5 scale) 2.5 (0.8); Weight (kg) 92.2 (14.4)
	Information only condition	Mean: 45.2 SD: 12.0	(82.7)	White: (56.3), Black: (35.8), Latino: (3.1), Other(4.8)	NS	NS	BMI (kg/m2) 31.0 (3.9); Motivation (0–10 scale) 7.3 (2.1); Self-efficacy (1–5 scale) 2.5 (0.8); Weight (kg) 92.5 (14.3)
Ruland, 2003[21]	Control				NS		25 patients, 5 MDs
	Computerized support system				NS		27 patients, 9 MDs
Schapira, 2007[22]	Control	Mean: 57.8, Range: 7.5	89 (100)	White: 64 (73), Black: 22 (25), Other: 2(2)	<$19,999: 25 (28), $20,000–34,999: 32 (36), $35,000–49,999: 17 (19), $50,000+: 17 (16)	<8 yrs: 2 (2%) 8-12 yrs: 17 (19%), 12-16 yrs: 57 (65%), >16 yrs: 12 (14%)	Prior HT use – Current user 34 (39), Former user 35 (40), Never user 19 (22); Prior hysterectomy 44 (50); Baseline menopausal attitudes – Problem (1-5 range) 3.2, SD: 0.69, Control (1-5 range) 2.3, SD: 0.57

Evidence Table 23. Participant characteristics of studies addressing improving responsiveness to the needs and preferences of individual patients.

	Computer-based decision-aid: easy to use and retained risk information incorporated from emerging scientific data	Mean: 57.8, SD=7.2	88 (100)	White: 64 (72), Black: 24 (27), Other: 1(1)	<$19,999: 31 (35), $20,000–34,999: 22 (25), $35,000–49,999: 19 (21), $50,000+: 17 (19)	<8 yrs: 4 (5), 8-12 yrs: 20 (23),12-16 yrs: 56 (64), >16yrs: 9 (10)	Prior HT use – Current user 2 (33), Former user 37 (42), Never user 23 (25); Prior hysterectomy 42 (47); Baseline menopausal attitudes – Problem (1-5 range) 3.1, SD: 0.78, Control (1-5 range) 2.4, SD: 0.53
Schumann, 2008[23]	Control	NS	NS	NS	NS	NS	NS
	Processing a smoker through the tailored, TTM-based intervention to measure the stage of change with a 19-, 17-,10-, and 9-item questionnaire, advisingd on the use of self-change strategies reports about the awareness of negative aspects of smoking and self-efficacy	NS	NS	Study 1: (50.7) Study 2: (43.1)	NS	Study 1: <10 yrs: (31.4), 10 yrs: (52.4), >10 yrs: 16.2; Study 2: <10 yrs: (32.9),10 yrs: (50.9), >10 yrs: (16.2)	The study did not investigate whether greater variability in tailoring meant greater effectiveness. It highlighted a discrepancy between the conceptual aim of the TTM to intervene with precontemplators and the insufficient realization of the aim of this intervention
Taenzer, 2000[24]	Control	Mean: 64.4	9 of 26	NS	NS	NS	

Evidence Table 23. Participant characteristics of studies addressing improving responsiveness to the needs and preferences of individual patients.

	Patients completed a computerized version of the European Organization for Research and Treatment of Cancer (EORTC) QLQ-C30 questionnaire in order to provide the clinic staff with QL information prior to the clinic appointment	Mean: 65.6	10 of 27	NS	NS	NS	
Tierney, 2005[25]	Control	Mean: 52, SD: 13	71	White: 61	NS	Mean yrs: 9.9, SD: 3.0	COPD (74)
	Physician Intervention	Mean: 50, SD: 14	77	White: 55	NS	Mean yrs: 10.1, SD: 2.9	COPD (70)
	Pharmacist Intervention	Mean: 51, SD: 14	68	White: 56	NS	Mean yrs: 10.8, SD: 2.7	COPD (63)
	Both Interventions	Mean: 51, SD: 14	71	White: 59	NS	Mean yrs: 10.4, SD: 2.9	NS
Trief, 2006[26]	Control	Mean: 69.5	(38.71)	White: 58 (93.55), Black: 2 (3.23), Other: 2 (3.23)	$2,580.01 per month	Mean yrs: 12.33	
	Informatics for Diabetes Education and Telemedicine project (IDEATel)	Mean: 70.64	(45.83)	White: 68 (94.44) Black: 2 (2.78) Other: 2 (2.78)	$2,306.47 per month	Mean yrs: 12.69	
Wakefield,	Control						

Evidence Table 23. Participant characteristics of studies addressing improving responsiveness to the needs and preferences of individual patients.

2008[27]	Telephone	Mean: 72, SD: 9.2	0	White: 12 (86) Black: 2 (14)	NS	<8 yrs: 0 8-<12 yrs: 29 (4), High school or equivalent: 29, (4), >Some college: 43 (6)	Mini Mental Status Exam (MMSE) 27.1, SD: 2.1; Marital status – Married 7 (50), Divorced 2 (14), Other 5 (35)
	Videophone	Mean: 68.1, SD: 8.3	0	White: 14 (100)	NS	<8 yrs: 7 (1) 8-<12 yrs: 14 (2), High school or equivalent: 57 (8) >Some college: 21 (3)	Mini Mental Status Exam (MMSE) 28.5, SD: 1.8; Marital status – Married 11 (79), Divorced 2 (14), Other 1 (7)

HT = hormone therapy; NS = not specified; TTYD = TalkToYourDoc; SD = standard deviation; BMI = body mass index; SD = standard deviation; EMR = electronic medical record

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Evidence Table 23. Participant characteristics of studies addressing improving responsiveness to the needs and preferences of individual patients.

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Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients.

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (n After Withdrawals)	Final Measure	P-value
Barnabei, 2008[1]	Providers able to convey HT information to patients	Patients undergoing menopausal HT who did not have access to TTYD Web site	Number of patients	154		147		
		Patients undergoing menopausal HT who had access to TTYD Web site	Number of patients	151		141		0.12
	Level of relevance of patients' questions	Patients undergoing menopausal HT who did not have access to TTYD Web site	Ordinal scale units (1 to 5 with "5" the highest response)	154		147	3.5	
		Patients undergoing menopausal HT who had access to TTYD Web site	Ordinal scale units (1 to 5 with "5" the highest response)	151		141	3.8	0.03
	Level of patients' engagement regarding discussion of HT	Patients undergoing menopausal HT who did not have access to TTYD Web site	Ordinal scale units (1 to 5 with "5" the highest response)	154		147	3.7	
		Patients undergoing menopausal HT who had access to TTYD Web site	Ordinal scale units (1 to 5 with "5" the highest response)	151		141	3.7	0.05
	Level of appropriateness of medical history convey by patient	Patients undergoing menopausal HT whom did not have access to TTYD Web site	Ordinal scale units (1 to 5 with "5" the highest response)	154		147	3.8	
		Patients undergoing menopausal HT who had access to TTYD Web site	Ordinal scale units (1 to 5 with "5" the highest response)	151		141	3.8	0.03
	Level of satisfaction of discussion with patient	Patients undergoing menopausal HT who did not have access to TTYD Web site	Ordinal scale units (1 to 5 with "5" the highest response)	154		147	3.7	
		Patients undergoing menopausal HT who had access to TTYD Web site	Ordinal scale units (1 to 5 with "5" the highest response)	151		141	3.7	0.01
	Efficiency of visit compared with other visits	Patients undergoing menopausal HT who did not have access to TTYD Web site	Ordinal scale units (1 to 5 with "5" the highest response)	154		147	3.1	

Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients (continued).

		Patients undergoing menopausal HT who had access to TTYD Web site	Ordinal scale units (1 to 5 with "5" the highest response)	151		141	3.1	0.04
	Time to complete appointment	Patients undergoing menopausal HT who did not have access to TTYD Web site	Minutes	154		147	20.3	
		Patients undergoing menopausal HT who had access to TTYD Web site	Minutes	151		141	20.3	0.78
	Number of patients who came to appointment with questions	Patients undergoing menopausal HT who did not have access to TTYD Web site	Number of patients	154		147	80	
		Patients undergoing menopausal HT who had access to TTYD Web site	Number of patients	151		141	96	<0.01
	Patient previously seen this provider	Patients undergoing menopausal HT who did not have access to TTYD Web site	Number of patients	154		147	78	
		Patients undergoing menopausal HT who had access to TTYD Web site	Number of patients	151		141	81	0.5
	Decisions regarding HT	Patients undergoing menopausal HT who did not have access to TTYD Web site	Number of patients	154		147	43	
		Patients undergoing menopausal HT who had access to TTYD Web site	Decisions regarding HT	151		141	28/69/3	0.78
	Patients' feelings about amount of time with provider	Patients undergoing menopausal HT who did not have access to TTYD Web site	Number of patients	154		147	1/76/24	
		Patients undergoing menopausal HT who had access to TTYD Web site	Number of patients	151		141	1/69/31	0.43
	Patients' feelings about level of encouragement of provider	Patients undergoing menopausal HT who did not have access to TTYD Web site	Ordinal scale units (1 to 5 with "5" the highest response)	154		147	4.2	
		Patients undergoing menopausal HT whom had	Ordinal scale units (1 to 5 with "5" the	151		141	4.3	0.3

Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients (continued).

		access to TTYD Web site	highest response)					
	Patients' feelings about level satisfaction with answers to questions	Patients undergoing menopausal HT who did not have access to TTYD Web site	Ordinal scale units (1 to 5 with "5" the highest response)	154		147	4.6	
		Patients undergoing menopausal HT who had access to TTYD Web site	Ordinal scale units (1 to 5 with "5" the highest response)	151		141	4.7	0.68
	Patients' feelings about level of positively of interaction with provider	Patients undergoing menopausal HT who did not have access to TTYD Web site	Ordinal scale units (1 to 5 with "5" the highest response)	154		147	4.5	
		Patients undergoing menopausal HT who had access to TTYD Web site	Ordinal scale units (1 to 5 with "5" the highest response)	151		141	4.6	0.23
	Patients' feelings about level of comfort in making decisions about HT	Patients undergoing menopausal HT who did not have access to TTYD Web site	Ordinal scale units (1 to 5 with "5" the highest response)	154		147	4.2	
		Patients undergoing menopausal HT who had access to TTYD Web site	Ordinal scale units (1 to 5 with "5" the highest response)	151		141	4.3	0.19
Chu, 2009[2]	Lower computer anxiety	Wait-list control group did not receive a 2-hr training session, once a week for 5 weeks			26	NR	25	
		Participants in the intervention group received a 2-hr training session, once a week for 5 weeks			26.13	NR	35.05	<0.001
	Computer confidence	Wait-list control group did not receive a 2-hr training session, once a week for 5 weeks			28	NR	28	
		Participants in the intervention group received a 2-hr training session, once a week for 5 weeks			28.26	NR	36.1	<0.001
	Computer self-efficacy	Wait-list control group did not receive a 2-hr training session, once a week for 5 weeks			14	NR	14.5	
		Participants in the intervention group received			13.9	NR	17.87	<0.001

Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients (continued).

		a 2-hr training session, once a week for 5 weeks						
Feldstein, 2006[3]	Proportion of study population with bone mineral density evaluation (BMD) only	Usual care				101	0.9	
		Patient-specific clinical guideline advice to the primary care provider delivered through an EMR message (EMR reminder)				101	23.8	<0.01 compared to Arm A
		An EMR reminder to the primary care provider plus an advisory letter with educational materials mailed to the patient (patient reminder)				109	22.9	0.43 compared to Arm B
	Proportion of study population with osteoporosis medication only	Usual care				101	4	
		Patient-specific clinical guideline advice to the primary care provider delivered through an EMR message (EMR reminder)				101	11.9	<0.01 compared to Arm A
		An EMR reminder to the primary care provider plus an advisory letter with educational materials mailed to the patient (patient reminder)				109	10.1	0.54 compared to Arm B
	Proportion of study population with both BMD and osteoporosis medication	Usual care				101	1	
		Patient-specific clinical guideline advice to the primary care provider delivered through an EMR message (EMR reminder)				101	15.8	<0.01 compared to Arm A
		An EMR reminder to the primary care provider plus an advisory letter with educational materials mailed to the patient (patient reminder)				109	10.1	
	Proportion of study population with BMD or osteoporosis medication	Usual care				101	5.9	
		Patient-specific clinical guideline advice to the primary care provider delivered through an EMR message (EMR reminder)				101	51.5	<0.01 compared to Arm A

Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients (continued).

		An EMR reminder to the primary care provider plus an advisory letter with educational materials mailed to the patient (patient reminder)				109		0.88 compared to Arm B
	Total calcium intake (n=22)	Usual care	mg/day		1308.6	22	851.2	
	Total calcium intake (n=33)	Patient-specific clinical guideline advice to the primary care provider delivered through an EMR message (EMR reminder)	mg/day		1116.5	33	1311.4	0.02 compared to Arm A
	Total calcium intake (n=37)	An EMR reminder to the primary care provider plus an advisory letter with educational materials mailed to the patient (patient reminder)	mg/day		1221.5	32	1224.7	0.05 compared to Arm A
	Regular activity (n=33)	Usual care			7	22	10	
	Regular activity (n=41)	Patient-specific clinical guideline advice to the primary care provider delivered through an EMR message (EMR reminder)			9	33	8	0.17 compared to Arm A
	Regular activity (n=42)	An EMR reminder to the primary care provider plus an advisory letter with educational materials mailed to the patient (patient reminder)			11	32	12	0.55 compared to Arm A
	Caloric expenditure per week (n=32)	Usual care			2325.7	22	1980.9	
	Caloric expenditure per week (n=38)	Patient-specific clinical guideline advice to the primary care provider delivered through an EMR message (EMR reminder)			3082.9	33	2312.7	0.96 compared to Arm A
	Caloric expenditure per week (n=38)	An EMR reminder to the primary care provider plus an advisory letter with educational materials			2614.4	32	2525.9	0.32 compared to Arm A

Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients (continued).

		mailed to the patient (patient reminder)						
	Patient skips medicine	Heart failure patients receiving usual care	Adjusted probability	227		227	27.6	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted probability	199		199	27.7	0.99
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted probability	202		202	25.4	0.604
	Patient is sure about when to take HF medicine	Heart failure patients receiving usual care	Adjusted probability	227		227	67.4	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted probability	199		199	70.3	0.494
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted probability	202		202	69.6	0.613
	Patient recognition of own HF medicines	Heart failure patients receiving usual care	Adjusted probability	227		227		
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted probability	199		199	No Data	0.002
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted probability	202		202	No Data	0.023
	Patient does not recognize any of own HF medicines	Heart failure patients receiving usual care	Adjusted probability	227		227	43.9	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted probability	199		199	31.1	
		Heart failure patients whose nurses received e-mail recommendations and	Adjusted probability	202		202	34.3	

Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients (continued).

		additional resources (augmented intervention)						
	Patient recognizes up to half of own HF medicines	Heart failure patients receiving usual care	Adjusted probability	227		227	29.8	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted probability	199		199	30.5	
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted probability	202		202	30.6	
	Patient recognizes more than half of own HF medicines	Heart failure patients receiving usual care	Adjusted probability	227		227	26.3	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted probability	199		199	38.4	
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted probability	202		202	35	
	Patient salts food	Heart failure patients receiving usual care	Adjusted probability	227		227	30.7	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted probability	199		199	27.6	0.49
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted probability	202		202	23.3	0.095
	Patient's weighing behavior	Heart failure patients receiving usual care	Adjusted probability	227		227	No data	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted probability	199		199	No data	0.352
		Heart failure patients whose nurses received e-mail recommendations and	Adjusted probability	202		202	No data	0.082

Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients (continued).

		additional resources (augmented intervention)						
	Patient has no scale	Heart failure patients receiving usual care	Adjusted probability	227		227	34.6	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted probability	199		199	38.3	
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted probability	202		202	27.9	
	Patient weighs self but not daily	Heart failure patients receiving usual care	Adjusted probability	227		227	44	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted probability	199		199	43	
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted probability	202		202	44.7	
	Patient weights self daily	Heart failure patients receiving usual care	Adjusted probability	227		227	21.4	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted probability	199		199	18.7	
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted probability	202		202	27.4	
	KCCQ: Summary score	Heart failure patients receiving usual care	Adjusted score (higher score = better outcome)	227		227	40.4	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted score (higher score = better outcome)	199		199	46.6	0.013
		Heart failure patients whose nurses received e-	Adjusted score (higher score =	202		202	45.6	0.048

Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients (continued).

		mail recommendations and additional resources (augmented intervention)	better outcome)					
	KCCQ: Physical limitation domain score	Heart failure patients receiving usual care	Adjusted score (higher score = better outcome)	227		227	37.8	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted score (higher score = better outcome)	199		199	42.5	0.333
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted score (higher score = better outcome)	202		202	43	0.231
	KCCQ: Symptom domain score	Heart failure patients receiving usual care	Adjusted score (higher score = better outcome)	227		227	48.6	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted score (higher score = better outcome)	199			55.6	0.091
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted score (higher score = better outcome)	202		202	53.6	0.277
	KCCQ: % w/quality-of-life domain score >=50	Heart failure patients receiving usual care	%	227		227	44.6	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	%	199		199	48	0.407
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	%	202		202	53.3	0.042
	KCCQ: % w/social limitation domain score >= 50	Heart failure patients receiving usual care	%	227		227	27.8	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	%	199		199	34.8	0.09

Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients (continued).

		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	%	202		202	35.2	0.064
	KCCQ: % w/ self-efficacy domain score >=50	Heart failure patients receiving usual care	%	227		227	85.8	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	%	199		199	86.8	0.756
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	%	202		202	86.3	0.88
	Depression	Heart failure patients receiving usual care	Adjusted score (higher score = presence of depression)	227		227	36.3	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted score (higher score = presence of depression)	199		199	37.4	0.802
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted score (higher score = presence of depression)	202		202	36.9	0.888
	Euroqol health-related quality of life	Heart failure patients receiving usual care	Adjusted score (higher score = better outcome)	227		227	39.3	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	Adjusted score (higher score = better outcome)	199		199	48.9	0.003
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	Adjusted score (higher score = better outcome)	202		202	40.2	0.777
	Home care-related costs/patient	Heart failure patients receiving usual care	US dollars	227		227	2814	
		Heart failure patients	US dollars	199		199	3371	0.062

Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients (continued).

		whose nurses received e-mail recommendations (basic intervention)						
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	US dollars	202		202	3425	0.058
	Overall costs/patient	Heart failure patients receiving usual care	US dollars	227		227	4996	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	US dollars	199		199	5869	0.084
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	US dollars	202		202	6330	0.02
	Home care-related costs in order to produce a 5% improvement in KCCQ summary score	Heart failure patients receiving usual care	US dollars	227		227	No data	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	US dollars	199		199	183	
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	US dollars	202		202	235	
	Overall costs in order to produce a 5% improvement in KCCQ summary score	Heart failure patients receiving usual care	US dollars	227		227	No data	
		Heart failure patients whose nurses received e-mail recommendations (basic intervention)	US dollars	199		199	246	
		Heart failure patients whose nurses received e-mail recommendations and additional resources (augmented intervention)	US dollars	202		202	513	
Frosch, 2008[4]	Clicked on assigned link	Internet links	%	151			77	
		CDT	%	153			87	
		TDA	%	155			85	

Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients (continued).

		Combination CDT and TDA	%	152			77	
	PSA screening: Pretest choice	Internet links	%	151			96	
		CDT	%	153			96.7	
		TDA	%	155			95.5	
		Combination CDT and TDA	%	152			96.7	
	PSA screening: Reduction	Internet links	Change in %					
		CDT	Change in %					<0.001
		TDA	Change in %					<0.001
		Combination CDT and TDA						<0.001
	Watchful waiting at pretest	Internet links	%	151			34.4	
		CDT	%	153			34	
		TDA	%	155			34.2	
		Combination CDT and TDA		152			40.8	
	Total knowledge score/imputed data	Internet links	10 items	151			7.24	
		CDT	10 items	153			7.69	0.005
		TDA	10 items	155			8.14	0.005
		Combination CDT and TDA	Change in %	152			7.71	0.005
	Total knowledge score/complete cases only	Internet links	10 items			99	7.49	
		CDT	10 items			115	8.03	0.001
		TDA	10 items			119	8.65	0.001
		Combination CDT and TDA	%			120	8.03	0.001
Glasgow, 2000[5]	Behavioral outcomes: Block Fat Screener--mo TF, no CR	Brief intervention across multiple offices and interventionists (Basic Condition)			48.6	80	24.7	Not significant
	Behavioral outcomes: Kristal FFB fat composite	Brief intervention across multiple offices and interventionists (Basic Condition)			1.9	80	1.6	0.017
	Behavioral outcomes: Kristal FFB fruit and vegetable	Brief intervention across multiple offices and interventionists (Basic Condition)			1.9	80	1.7	
	Physiologic outcomes: HBA1c	Brief intervention across multiple offices and interventionists (Basic Condition)			7.6	80	7.4	
	Physiologic outcomes: Total cholesterol	Brief intervention across multiple offices and interventionists (Basic			210	80	206	0.010

Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients (continued).

		Condition)						
	Physiologic outcomes: Weight	Brief intervention across multiple offices and interventionists (Basic Condition)			199	80	197	Not significant
	Physiologic outcomes: Lipid ratio--Total/HDL	Brief intervention across multiple offices and interventionists (Basic Condition)			5.1	80	4.9	Not significant
	Quality-of life /satisfaction outcomes: Diabetes intrusiveness	Brief intervention across multiple offices and interventionists (Basic Condition)			25.7	80	26	0.014
	Quality-of life: Satisfaction with program	Brief intervention across multiple offices and interventionists (Basic Condition)			36	80		Not significant
	Quality-of life /satisfaction outcomes: Process variable results--Self-efficacy	Brief intervention across multiple offices and interventionists (Basic Condition)			3.9	80	4	Not significant
	Quality-of life /satisfaction outcomes: Chronic illness resources survey	Brief intervention across multiple offices and interventionists (Basic Condition)				80		Not significant
Gielen, 2007[6]	Knowledge of child safety seats, smoke alarms, poison storage	General information	Total proportion correct, meanSD, %	453		375	66.4	0
		Computer Kiosk to promote hild safety	Total proportion correct, meanSD, %	448		384	72.6	0
Jones, 1999[7]	Satisfaction score	Booklet information	Number (%) of patients	180		154	40	
		Personal computer information	Number (%) of patients	193		156	46	
		General computer information	Number (%) of patients	167		128	34	
	Prefer computer to 10-	Booklet information		180		154	10	
		Personal computer		193		156	29	

Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients (continued).

	minute consultation with professional	information						
		General computer information		167		128	20	
	Doctors' assessment: Patients above average in knowledge	Booklet information	%	180		154	20	
		Personal computer information	%	193		156	25	
		General computer information		167		128	35	
	Use of printed material at home	Booklet information	% of patients	180		154	83	
		Personal computer information	% of patients	193		156	70	
		General computer information	% of patients	167		128	57	
Kuppermann, 2009[8]	Knowledge score (%) postviewing	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	64.9	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	79.5	<0.001
	Knowledge score (%) 1-2 weeks later	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	65.5	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	77.6	<0.001
	Correct procedure-related miscarriage risk estimate (%) postviewing	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	48.1	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	64.9	0.002

Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients (continued).

	Correct procedure-related miscarriage risk estimate (%) 1-2 weeks later	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	51	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	55.7	0.39
	Correct DS-affected fetus estimate (%) postviewing	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	51.1	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	63.5	<0.001
	Correct DS-affected fetus estimate (%) 1-2 weeks later	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	15.7	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	42.8	<0.001
	Intervention satisfaction postreviewing	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	7.5	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	8.1	<0.001
	Intervention satisfaction1-2 weeks later	Control group did not receive computerized interactive prenatal testing decision tool on prenatal		252		218	7.5	

Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients (continued).

		testing decisionmaking						
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	8.2	<0.001
	Intervention satisfaction at 26-30 weeks gestation	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	7.5	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking				202	8.2	<0.001
	Decisional conflict: Factors contributing to uncertainty 1-2 weeks later	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	40.2	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	32.1	<0.001
	Decisional conflict: Factors contributing to uncertainty 1-2 weeks later	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	38.8	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	32.3	0.005
	Decisional conflict: Factors contributing to uncertainty –at 26-30 weeks of gestation	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	26.2	
		Intervention group received computerized interactive prenatal testing decision		244		202	21.9	0.01

Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients (continued).

		tool on prenatal testing decisionmaking						
	Factors contributing to uncertainty 1-2 weeks later	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	26.2	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	19.2	<0.001
	Factors contributing to uncertainty at 26-30 weeks of gestation	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	19.4	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	15.2	<0.001
	Ineffective decision 1-2 weeks later	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	17.7	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	15.4	0.11
	Ineffective decision at 26-30 weeks of gestation	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	32	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	31.4	0.47
	Overall decisional	Control group did not receive computerized		252		218	20.9	

Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients (continued).

	conflict 1-2 weeks later	interactive prenatal testing decision tool on prenatal testing decisionmaking						
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	19.1	0.21
	Overall decisional conflict at 26-30 weeks of gestation	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	23.9	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	20.6	0.001
	Decision regret (%) at 26-30 weeks of gestation	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	12.8	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	9.6	0.28
	Intervention affected prenatal testing plan (%) 1-2 weeks later	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	27.5	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	47.8	<.001
	Intervention affected prenatal testing plan (%) 1-2 weeks later	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	36	
		Intervention group received		244		202	38.2	0.85

Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients (continued).

		computerized interactive prenatal testing decision tool on prenatal testing decisionmaking						
	Satisfaction in decisionmaking (%): Information given by the provider at 26-30 weeks of gestation	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	49.2	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	44.8	0.40
	Satisfaction in decisionmaking (%): Way decision was given by the provider at 26-30 weeks of gestation	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252			48.1	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	44.3	0.45
	Satisfaction in decisionmaking (%): Degree of involvement of the provider at 26-30 weeks of gestation	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	79.9	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking					72.6	0.10
Maslin, 1998[9]	Mental health score on SF-36 questionnaire	Control -- usual care from multidisciplinary team			68	NR	68	
		Intervention -- interactive video disk system + usual care from multidisciplinary team			60	NR	68	0.02
	Anxiety score on the Hospital Anxiety and Depression	Control -- usual care from multidisciplinary team				NR		<0.001
		Intervention -- interactive video disk system + usual				NR		<0.001

Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients (continued).

	Scale	care from multidisciplinary team						
	Viewing IVD had impact on surgical choice	Intervention -- interactive video disk system + usual care from multidisciplinary team				NR	12.5	
		Intervention -- interactive video disk system + usual care from multidisciplinary team				NR	14.2	
McCrossan, 2007[10]	Specific concern raised by parent	Videoconference	%			22	62	
		Telephone	%			25	58	
	No medical attention needed	Videoconference	%			22	76	
		Telephone	%			25	64	
	Nurse informs medical consultant	Videoconference	%			22	20	
		Telephone	%			25	14	
	Nurse advises to take NHS action	Videoconference	%			22	4	
		Telephone	%			25	22	
McDonald, 2005[11]	Presence of pain assessed by nurse	Usual care	Adjusted probability			234	86.9	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	Adjusted probability			242	89.3	
		E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach	Adjusted probability			197	88	
	Medication assessment	Usual care	Adjusted probability			234	44.5	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	Adjusted probability			242	45.6	
		E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach	Adjusted probability			197	50.4	
	Mood assessment by nurse	Usual care	Adjusted probability			234	85.5	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	Adjusted probability			242	92.7	
		E-mail reminder + provider prompts + patient	Adjusted probability			197	88.9	

Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients (continued).

		education + clinical nurse specialist outreach						
	Educational materials delivered by nurse	Usual care	Adjusted probability			234	1.3	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	Adjusted probability			242	2.4	
		E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach	Adjusted probability			197	7.3	
	Pain at its worst (range: 0–10)	Usual care	Adjusted probability/Score			234	4.5	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	Adjusted probability/Score			242	3.6	
		E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach	Adjusted probability/Score			197	3.3	
	Pain on average (range: 0–10)	Usual care	Adjusted probability/Score			234	3.7	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	Adjusted probability/Score			242	2.2	
		E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach	Adjusted probability/Score			197	3.1	
	Pain interference scale (range: 0–10)	Usual care	Adjusted probability/Score			234	5.3	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	Adjusted probability/Score			242	5.8	
		E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach	Adjusted probability/Score			197	5.2	
	Best quality of life	Usual care	Adjusted probability/Score			234	16.1	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	Adjusted probability/Score			242	16.9	
		E-mail reminder + provider prompts + patient	Adjusted probability/Score			197	15.2	

Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients (continued).

		education + clinical nurse specialist outreach						
	Severe pain	Usual care	Adjusted probability/Score			234	28.4	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	Adjusted probability/Score			242	32	
		E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach	Adjusted probability/Score			197	25.8	
	Severe insomnia	Usual care	Adjusted probability/Score			234	40.9	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	Adjusted probability/Score			242	39.5	
		E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach	Adjusted probability/Score			197	32.8	
	Severe constipation	Usual care	Adjusted probability/Score			234	18.9	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	Adjusted probability/Score			242	14.8	
		E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach	Adjusted probability/Score			197	12	
	Inadequate pain management	Usual care	Adjusted probability/Score			234	68.5	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	Adjusted probability/Score			242	69.9	
		E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach	Adjusted probability/Score			197	64	
	Barriers summary score	Usual care	Score			234	37.7	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	Score			242	37.6	
		E-mail reminder + provider prompts +patient education	Score			197		

Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients (continued).

		+ clinical nurse specialist outreach						
	Use of alternative treatments	Usual care	Adjusted probability/Score			234	26.9	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	Adjusted probability/Score			242	22.6	
		E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach	Adjusted probability/Score			197	15.9	
	Probability of hospitalization	Usual care	Adjusted probability			234	22.2	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	Adjusted probability			242	22.1	
		E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach	Adjusted probability			197	16.6	
	Probability of ED use	Usual care	Adjusted probability			234	36.6	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	Adjusted probability			242	37.8	
		E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach	Adjusted probability			197	33.5	
	Home care-related costs	Usual care	US dollars			234	2642	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	US dollars			242	2789	
		E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach	US dollars			197	2903	
	Overall costs	Usual care	US dollars			234	5687	
		Patient-specific, one-time e-mail reminder with pain-specific recommendations	US dollars			242	5966	
		E-mail reminder + provider prompts + patient education + clinical nurse specialist outreach	US dollars			197	5611	

Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients (continued).

Nguyen, 2008[12]	CRQ: Dyspnea with ADL	fDSMP (face-to-face)	Score 5-35	20	15.9	20	19.9	
		eDSMP Internet-based	Range 5-35	19	18.8	19	21.3	0.14
	Exercise stage of change: Action or maintenance	fDSMP (face-to-face)	%	20		20		
		eDSMP Internet-based	%	19		19		NA
	Endurance exercise	fDSMP (face-to-face)	Total min/week	20	77	20	121	
		eDSMP Internet-based	Total min/wk	19	89	19	128	0.22
	Strength exercise	fDSMP (face-to-face)	Total min/week	20	21	20	53	
		eDSMP Internet-based	Total min/wk	19	11	19	34	0.54
	6-minute walk test	fDSMP (face-to-face)	M	20	406	20	394	
		eDSMP Internet-based	M	19	436	19	456	0.22
	CRQ: Fatigue	fDSMP (face-to-face)	Range 4-28	20	16.1	20	17.7	
		eDSMP Internet-based	Range 4-28	19	17.1	19	18.3	0.29
	CRQ: Mastery	fDSMP (face-to-face)	Range 4-28	20	20.4	20	22.4	
		eDSMP Internet-based	Range4-28	19	21.7	19	23.6	0.35
	CRQ: Emotional functioning	fDSMP (face-to-face)	Range 7-49	20	33.4	20	34.5	
		eDSMP Internet-based	Range 7-49	19	35.9	19	36.8	0.33
	CRQ: Total score	fDSMP (face-to-face)	Range 20-140	20	85.8	20	94.5	
		eDSMP Internet-based	Range 20-140	19	93.5	19	99.9	0.19
	SF-36: Physical composite	fDSMP (face-to-face)	Range 0-100	20	32	20	8	
		eDSMP Internet-based	Range 0-100	19	37.3	19	39.9	0.07
	SF-36: Mental composite	fDSMP (face-to-face)	Range 0-100	20	12.5	20	13.8	
		eDSMP Internet-based	Range 0-100	19	49.7	19	51.3	0.7
	Dyspnea knowledge	fDSMP (face-to-face)	Range 0-15	20	12.5	20	13.8	
		eDSMP Internet-based	Range 0-15	19	12.6	19	14.1	0.49
	Self-efficacy	fDSMP (face-to-face)	Range 0-10	20	4.6	20	5	
		eDSMP Internet-based	Range 0-10	19	4.7	19	6.7	0.18
	Perception of support	fDSMP (face-to-face)	Range 0-100	20	68.9	20	70.9	
		eDSMP Internet-based	Range 0-100	19	62.2	19	66.4	0.64
	Perception of exercise support/strongly agree	fDSMP (face-to-face)	%	20		20	80	
		eDSMP Internet-based	%	19		19	68	
	Perception of exercise support/agree	fDSMP (face-to-face)	%	20		20	10	
		eDSMP Internet-based	%				32	
	Satisfaction with program	fDSMP (face-to-face)	1-5 scale	20		20	2.7	
		eDSMP Internet-based	1-5 scale				2.6	

Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients (continued).

Peters, 2006[13]	Global patient assessment of care index	Without computer-assisted decision support technology to assist with patient screening		309	25	331	21.2	
		Computer-assisted decision support technology to assist with patient screening		296	25	350	28.6	0.99/<0.001
	Satisfaction with care index	Without computer-assisted decision support technology to assist with patient screening		309	13.4	331	8.9	
		Computer-assisted decision support technology to assist with patient screening		296	13.7	350	17.4	0.79/ <0.001
	Technical quality of care index	Without computer-assisted decision support technology to assist with patient screening		309	28.3	331	22.2	
		Computer-assisted decision support technology to assist with patient screening		296	28.3	350	30.3	1.00/ 0.001
	Respect for patient index	Without computer-assisted decision support technology to assist with patient screening		309	26.7	331	18	
		Computer-assisted decision support technology to assist with patient screening		296	25.5	350	23.9	0.48/<0.001
	Communication index	Without computer-assisted decision support technology to assist with patient screening		309	31.5	331	32.5	
		Computer-assisted decision support technology to assist with patient screening		296	32.1	350	44	0.75/<0.001
	Financial aspect of care index	Without computer-assisted decision support technology to assist with patient screening		309	31.4	331	33.3	

Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients (continued).

		Computer-assisted decision support technology to assist with patient screening		296	30.6	350	40.1	0.72/<0.001
	Access to care index	Without computer-assisted decision support technology to assist with patient screening		309	20.5	331	16.2	
		Computer-assisted decision support technology to assist with patient screening		296	21.2	350	20.7	0.66/0.008
	Health workers' attitude: Use computer for diagnosis and treatment	Without computer-assisted decision support technology to assist with patient screening		20	5.3	22	13.6	
		Computer-assisted decision support technology to assist with patient screening		17	11.1	23	39.1	0.51/0.05
	Health workers' attitude: Use equipment at work	Without computer-assisted decision support technology to assist with patient screening		20	5.3	22	22.7	
		Computer-assisted decision support technology to assist with patient screening		17	5.6	23	30.4	0.97/0.56
	Health workers' attitude: Learning new technology	Without computer-assisted decision support technology to assist with patient screening		20	94.7	22	90.9	
		Computer-assisted decision support technology to assist with patient screening		17	88.9	23	91.3	0.51/0.96
	Health workers' attitude: What technology needed to use in the clinic	Without computer-assisted decision support technology to assist with patient screening		20	57.9	22	77.3	
		Computer-assisted decision support technology to assist with patient screening		17	72.2	23	95.7	0.36/0.07

Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients (continued).

	Health workers' attitude: Medical information readily available on a computer	Without computer-assisted decision support technology to assist with patient screening		20	0	22	18.2	
		Computer-assisted decision support technology to assist with patient screening		17	0	23	52.2	n/a/0.02
	Health workers' attitude: Patients' medical history available on a computer in the clinic	Without computer-assisted decision support technology to assist with patient screening		20	0	22	27.3	
		Computer-assisted decision support technology to assist with patient screening		17	11.1	23	69.6	0.23/0.005
	Health workers' attitude: Have computer in the clinic	Without computer-assisted decision support technology to assist with patient screening		20	15.8	22	36.4	
		Computer-assisted decision support technology to assist with patient screening		17	5.6	23	87	0.60/<0.001
	Health workers attitude: Use a computer in the clinic	Without computer-assisted decision support technology to assist with patient screening		20	0.013.6	22		
		Computer-assisted decision support technology to assist with patient screening		17	5.6	23	39.1	0.49/0.05
Raebel, 2007[14]	Total dispensed: Amitriptyline	Usual care	%			29840	0.61	
		Intervention group--electronic alerts	%			29840	0.38	<0.001
	Total dispensed: Chlordiazepoxide	Usual care	%			29840	0.05	
		Intervention group--electronic alerts	%			29840	0.04	0.55
	Total	Usual care	%			29840	1.38	

Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients (continued).

dispensed: Diazepam							
	Intervention group--electronic alerts	%			29840	1.28	0.32
Total dispensed: Doxepin	Usual care	%			29840	0.14	
	Intervention group--electronic alerts	%			29840	0.11	0.24
Total dispensed: Flurazepam	Usual care	%			29840	0.01	
	Intervention group--electronic alerts	%			29840	0.01	0.69
Total dispensed: Ketorolac	Usual care	%			29840	0	
	Intervention group--electronic alerts	%			29840	0.01	0.5
Total dispensed: Meperidine (oral)	Usual care	%			29840	0.01	
	Intervention group--electronic alerts	%			29840	0.01	
Total dispensed: Oxycodone/aspirin	Usual care	%			29840	0	
	Intervention group--electronic alerts	%			29840	0	
Dispensings only for indications included in intervention: Amitirptyline	Usual care	%			29840	0.59	
	Intervention group--electronic alerts	%			29840	0.37	<0.001
Dispensings only for indications included in intervention:	Usual care	%			29840	0.05	

Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients (continued).

Chlorodiazepoxide							
	Intervention group--electronic alerts	%			29840	0.04	0.55
Dispensings only for indications included in intervention: Diazepam	Usual care	%			29840	0.71	
	Intervention group--electronic alerts	%			29840	0.56	0.02
Dispensings only for indications included in intervention: Doxepin	Usual care	%			29840	0.13	
	Intervention group--electronic alerts	%			29840	0.09	0.17
Dispensings only for indications included in intervention: Flurazepam	Usual care	%			29840	0.01	
	Intervention group--electronic alerts	%			29840	0.01	0.69
Dispensings only for indications included in intervention: Ketorolac	Usual care	%			29840	0	
	Intervention group--electronic alerts	%			29840	0.01	0.5
Dispensings only for indications included in intervention: Meperidine (oral)	Usual care	%			29840	0.01	
	Intervention group--	%			29840	0.01	

Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients (continued).

		electronic alerts						
	Dispensings only for indications included in intervention: Oxycodone/aspirin	Usual care	%			29840	0	
		Intervention group--electronic alerts	%			29840	0	
Rothert[15]	Weight management	Web-based information-only weight management Web-based tailored behavioral weight management program						
Ruland, 2003[16]	Congruence between patient's reported symptoms and those addressed in consult visit	Usual care				NR	2.84	
		Used computerized system for SDM for cancer symptoms care				NR	7.63	<0.01
	Ease of use	Used computerized system for SDM for cancer symptoms care	Composite score (range -16 to +16)			NR	5.06	
Schapira, 2007[17]	Knowledge	Control intervention consisting of a printed pamphlet		88		86	15.5	
		Computer-based HT decision aid		89		85	15.1	
	Satisfaction with decision	Control intervention consisting of a printed pamphlet		88		86	4.37	
		Computer-based HT decision aid		89		85	4.37	
	Decision conflict: Total	Control intervention consisting of a printed pamphlet		88		86	1.78	
		Computer-based HT		89		85	1.74	

Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients (continued).

		decision aid						
	Decision conflict: Decisional uncertainty subscale	Control intervention consisting of a printed pamphlet		88		86	1.9	
		Computer-based HT decision aid		89		85	1.88	
	Decision conflict: Factors of uncertainty subscale	Control intervention consisting of a printed pamphlet		88		86	1.78	
		Computer-based HT decision aid		89		85	1.73	
	Decision conflict: Effective decisionmaking subscale	Control intervention consisting of a printed pamphlet		88		86	1.7	
		Computer-based HT decision aid		89		85	1.64	
Schumann, 2008[18]	1st letter, normative feedback: Precontemplation--Theoretical number	Participants received only one computer tailored feedback letter only (normative comparisons only)				727		
	2nd letter, normative and impassive feedback: Precontemplation--Theoretical number	Participants received two tailored feedback letters				471		
	3rd letter, normative and impassive feedback: Precontemplation--Theoretical number	Participants received three tailored feedback letters				422	54.6	
	1st letter, normative feedback: Precontemplation--Empirical number	Participants received only one computer--tailored feedback letter only (normative comparisons only)				727		
	2nd letter, normative and	Participants received two tailored feedback letters				471		

Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients (continued).

	impassive feedback: Precontemplation--Empirical number							
	3rd letter, normative and impassive feedback: Precontemplation--Empirical number	Participants received three tailored feedback letters				422	54.6	
	1st letter, normative feedback: Precontemplation--Empirical frequency	Participants received only one computer-tailored feedback letter only (normative comparisons only)				727		
	2nd letter, normative and impassive feedback: Precontemplation--Empirical frequency	Participants received two tailored feedback letters				471	57.5	
	3rd letter, normative and impassive feedback: Precontemplation--Empirical frequency	Participants received three tailored feedback letters				422	54.6	
	1st letter, normative feedback: Contemplation--Theoretical number	Participants received only one computer-tailored feedback letter only (normative comparisons only)				282		
	2nd letter, normative and impassive feedback: Contemplation--Theoretical	Participants received two tailored feedback letters				279	34.1	

Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients (continued).

	number							
	3rd letter, normative and impassive feedback: Contemplation--Theoretical number	Participants received three tailored feedback letters				258	33.4	
	1st letter, normative feedback: Contemplation--Empirical number	Participants received only one computer-tailored feedback letter only (normative comparisons only)				282		
	2nd letter, normative and impassive feedback: Contemplation--Empirical number	Participants received two tailored feedback letters				279		
	3rd letter, normative and impassive feedback: Contemplation--Empirical number	Participants received three tailored feedback letters				258	33.4	
	1st letter, normative feedback: Contemplation-Empirical frequency	Participants received only one computer-tailored feedback letter only (normative comparisons only)				282		
	2nd letter, normative and impassive feedback: Contemplation--Empirical frequency	Participants received two tailored feedback letters				279		
	3rd letter, normative and impassive	Participants received three tailored feedback letters				258	33.4	

Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients (continued).

	feedback: Contemplation--Empirical frequency							
	1st letter, normative feedback: Preparation--Theoretical number	Participants received only one computer-tailored feedback letter only (normative comparisons only)				35		
	2nd letter, normative and impassive feedback: Preparation--Theoretical number	Participants received two tailored feedback letters				41		
	3rd letter, normative and impassive feedback: Preparation--Theoretical number	Participants received three tailored feedback letters				34	4.4	
	1st letter, normative feedback: Preparation--Empirical number	Participants received only one computer-tailored feedback letter only (normative comparisons only)				35	3.4	
	2nd letter, normative and impassive feedback: Preparation--Empirical number	Participants received two tailored feedback letters				41	5	
	3rd letter, normative and impassive feedback: Preparation--Empirical number	Participants received three tailored feedback letters				34	4.4	

Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients (continued).

	1st letter, normative feedback: Preparation--Empirical frequency	Participants received only one computer-tailored feedback letter only (normative comparisons only)				35	3.4	
	2nd letter, normative and impassive feedback: Preparation--Empirical frequency	Participants received two tailored feedback letters				41	5	
	3rd letter, normative and impassive feedback: Preparation--Empirical frequency	Participants received three tailored feedback letters				34	4.4	
	2nd letter, normative and impassive feedback: Action--Theoretical number	Participants received two tailored feedback letters				28	3.4	
	3rd letter, normative and impassive feedback: Action--Theoretical number	Participants received three tailored feedback letters				50	6.5	
	2nd letter, normative and impassive feedback: Action--Empirical number	Participants received two tailored feedback letters				28	3.4	
	3rd letter, normative and impassive	Participants received three tailored feedback letters				50	6.5	

Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients (continued).

	feedback: Action--Empirical number							
	2nd letter, normative and impassive feedback: Action--Empirical frequency	Participants received two tailored feedback letters				28	3.4	
	3rd letter, normative and impassive feedback: Action--Empirical frequency	Participants received three tailored feedback letters				50	6.5	
	3rd letter, normative and impassive feedback: Maintenance--Theoretical number	Participants received three tailored feedback letters				50	1.2	
	3rd letter, normative and impassive feedback: Maintenance--Theoretical number	Participants received three tailored feedback letters				9	1.2	
	3rd letter, normative and impassive feedback: Maintenance--Theoretical number	Participants received three tailored feedback letters				9	1.2	
Taenzer, 2000[19]	Physical functioning (higher scores indicate better function)	Lung cancer patients whose physicians and nurses did not received quality-of-life training	Scale units	26		26	76.9	
		Lung cancer patients	Scale units	27		27	60	<0.05

Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients (continued).

		whose physicians and nurses received quality-of-life training						
	Role functioning (higher indicate better function)	Lung cancer patients whose physicians and nurses did not received quality-of-life training	Scale units	26		26	84.6	
		Lung cancer patients whose physicians and nurses received quality-of-life training	Scale units	27		27	55.6	<0.01
	Emotional functioning (higher scores indicate better function)	Lung cancer patients whose physicians and nurses did not received quality-of-life training	Scale units	26		26	76.3	
		Lung cancer patients whose physicians and nurses received quality-of-life training	Scale units	27		27	75.9	
	Cognitive functioning (higher scores indicate better function)	Lung cancer patients whose physicians and nurses did not received quality-of-life training	Scale units	26		26	81.4	
		Lung cancer patients whose physicians and nurses received quality-of-life training	Scale units	27		27	80.3	
	Social functioning (higher scores indicate better function)	Lung cancer patients whose physicians and nurses did not received quality-of-life training	Scale units	26		26	78.9	
		Lung cancer patients whose physicians and nurses received quality-of-life training	Scale units	27		27	74	
	Global functioning (higher scores indicate better function)	Lung cancer patients whose physicians and nurses did not received quality-of-life training	Scale units	26		26	64.7	
		Lung cancer patients whose physicians and nurses received quality-of-life training	Scale units	27		27	52.8	
	Number of	Lung cancer patients	Number of scales	26		26	3	

Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients (continued).

	functional scales indicating compromised function	whose physicians and nurses did not received quality-of-life training						
		Lung cancer patients whose physicians and nurses received quality-of-life training	Number of scales	27		27	3.6	
	Fatigue (higher scores indicate more symptomatology)	Lung cancer patients whose physicians and nurses did not received quality-of-life training	Scale units	26		26	28.6	
		Lung cancer patients whose physicians and nurses received quality-of-life training	Scale units	27		27	41.2	
	Nausea and vomiting (higher scores indicate more symptomatology)	Lung cancer patients whose physicians and nurses did not received quality-of-life training	Scale units	26		26	9	
		Lung cancer patients whose physicians and nurses received quality-of-life training	Scale units	27		27	8.6	
	Pain (higher scores indicate more symptomatology)	Lung cancer patients whose physicians and nurses did not received quality-of-life training	Scale units	26		26	15.4	
		Lung cancer patients whose physicians and nurses received quality-of-life training	Scale units	27		27	26.5	<0.05
	Dyspnea (higher scores indicate more symptomatology)	Lung cancer patients whose physicians and nurses did not received quality-of-life training	Scale units	26		26	24.4	
		Lung cancer patients whose physicians and nurses received quality-of-life training	Scale units	27		27	51.9	
	Sleep disturbance (higher scores indicate more symptomatolog	Lung cancer patients whose physicians and nurses did not received quality-of-life training	Scale units	26		26	24.4	
		Lung cancer patients	Scale units	27		27	29.6	

Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients (continued).

	y)	whose physicians and nurses received quality-of-life training						
	Appetite (higher scores indicate more symptomatology)	Lung cancer patients whose physicians and nurses did not received quality-of-life training	Scale units	26		26	19.2	
		Lung cancer patients whose physicians and nurses received quality-of-life training	Scale units	27		27	25.9	
	Constipation (higher scores indicate more symptomatology)	Lung cancer patients whose physicians and nurses did not received quality-of-life training	Scale units	26		26	18	
		Lung cancer patients whose physicians and nurses received quality-of-life training	Scale units	27		27	19.8	
	Diarrhea (higher scores indicate more symptomatology)	Lung cancer patients whose physicians and nurses did not received quality-of-life training	Scale units	26		26	5.1	
		Lung cancer patients whose physicians and nurses received quality-of-life training	Scale units	27		27	2.5	
	Financial difficulties (higher scores indicate more symptomatology)	Lung cancer patients whose physicians and nurses did not received quality-of-life training	Scale units	26		26	18	
		Lung cancer patients whose physicians and nurses received quality-of-life training	Scale units	27		27	12.4	
	Number of symptom scales indicating compromised functioning	Lung cancer patients whose physicians and nurses did not received quality-of-Life training	Number of scales	26		26	4	
		Lung cancer patients whose physicians and nurses received quality-of-life training	Number of scales	27		27	4.6	
	Number of	Lung cancer patients	Number of scales	26		26	7.1	

Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients (continued).

	functional and symptom scales indicating compromised function	whose physicians and nurses did not received quality-of-life training						
		Lung cancer patients whose physicians and nurses received quality-of-life training	Number of scales	27		27	8.2	
	Total number of items endorsed	Lung cancer patients whose physicians and nurses did not received quality-of-life training	Number of items	26		26	10.6	
		Lung cancer patients whose physicians and nurses received quality-of-life training	Number of items	27		27	13.1	
	% of items endorsed on patient questionnaire that were addressed during appointment/patient	Lung cancer patients whose physicians and nurses did not received quality-of-life training	%	26		26	23.6	
		Lung cancer patients whose physicians and nurses received quality-of-life training	%	27		27	48.9	<0.05
	EORTC questionnaire items addressed during the clinic appointment	Lung cancer patients whose physicians and nurses did not received quality-of-life training	Number of items	26		26	2.5	
		Lung cancer patients whose physicians and nurses received quality-of-life training	Number of items	27		27	6.4	<0.01
	EORTC questionnaire categories charted / patient	Lung cancer patients whose physicians and nurses did not received quality-of-life training	Number of categories	26		26	0.7	
		Lung cancer patients whose physicians and nurses received quality-of-life training	Number of categories	27		27	1.1	<0.10
	Actions taken / patient	Lung cancer patients whose physicians and nurses did not received quality-of-life training	Number of actions	26		26	0.5	

Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients (continued).

		Lung cancer patients whose physicians and nurses received quality-of-life training	Number of actions	27		27	0.8	
	% of categories identified that were acted upon	Lung cancer patients whose physicians and nurses did not received quality-of-life training	%	26		26	64.7	
		Lung cancer patients whose physicians and nurses received quality-of-life training	%	27		27	73	
Tierney, 2005[20]	Quality of life-Physical function	Control (no intervention)				169	37	
		Pharmacist intervention				161	38	
		Physician intervention				194	38	
		Physician + pharmacist intervention				182	36	
	Quality of life: Role Physical	Control (no intervention)				169	32	
		Pharmacist intervention				161	33	
		Physician intervention				194	32	
		Physician + pharmacist intervention				182	38	
	Quality of life: Pain	Control (no intervention)				169	44	
		Pharmacist intervention				161	47	
		Physician intervention				194	49	
		Physician + pharmacist intervention	US dollars			182	48	
	Quality of life: General health	Control (no intervention)				169	34	
		Pharmacist intervention				161	29	
		Physician intervention				194	37	
		Physician + pharmacist intervention	US dollars			182	35	
	Quality of life: Vitality	Control (no intervention)				169	36	
		Pharmacist intervention				161	39	
		Physician intervention				194	37	
		Physician + pharmacist intervention				182	36	

Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients (continued).

Quality of life: Social function	Control (no intervention)				169	63	
	Pharmacist intervention				161	63	
	Physician intervention				194	69	
	Physician + pharmacist intervention				182	61	
Quality of life: Role--emotional	Control (no intervention)				169	60	
	Pharmacist intervention				161	60	
	Physician intervention				194	65	
	Physician + pharmacist intervention				182	59	
Quality of life: Mental health	Control (no intervention)				169	61	
	Pharmacist intervention				161	62	
	Physician intervention				194	62	
	Physician + pharmacist intervention				182	50	
Asthma qualify-of-life questionnaire subscales: Overall health status	Control (no intervention)				169	3.7	
	Pharmacist intervention				161	4.2	
	Physician intervention				194	4	
	Physician + pharmacist intervention				182	4.2	
Asthma qualify-of-life questionnaire subscales: Activity	Control (no intervention)				169	3.9	
	Pharmacist intervention				161	4.6	
	Physician intervention				194	4.5	
	Physician + pharmacist intervention				182	4.4	
Asthma qualify-of-life questionnaire subscales: Symptoms	Control (no intervention)				169	3.6	

Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients (continued).

	Pharmacist intervention				161	4	
	Physician intervention				194	4	
	Physician + pharmacist intervention				182	4.2	
Asthma qualify-of-life questionnaire subscales: Emotion	Control (no intervention)				169	3.6	
	Pharmacist intervention				161	4.3	
	Physician intervention				194	3.8	
	Physician + pharmacist intervention				182	4.4	
Asthma qualify-of-life questionnaire subscales: Environment	Control (no intervention)				169	3.7	
	Pharmacist intervention				161	4.2	
	Physician intervention				194	3.9	
	Physician + pharmacist intervention				182	4	
Medication adherence scores: Mean compliance score (Inui measure)	Control (no intervention)	%%			169	80	
	Pharmacist intervention				161	80	
	Physician intervention				194	81	
	Physician + pharmacist intervention				182	82	
Medication adherence scores: Mean compliance score (Morisky measure)	Control (no intervention)				169	0.88	
	Pharmacist intervention				161	0.85	
	Physician intervention				194	0.95	
	Physician + pharmacist intervention				182	0.89	
Medication	Control (no intervention)	N (%)			96	87	

Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients (continued).

adherence scores: N (%) of subjects with 2 prescription refills							
	Pharmacist intervention				89	81	
	Physician intervention				128	95	
	Physician + pharmacist intervention				109		
Medication adherence scores: Medication possession ratio	Control (no intervention)	Mean ± SD			169	0.92	
	Pharmacist intervention				161	1	
	Physician intervention				194	0.98	
	Physician + pharmacist intervention				182	1.1	
Patient satisfaction: Satisfaction with physician	Control (no intervention)				169	2.1	
	Pharmacist intervention				161	2	
	Physician intervention				194	1.9	
	Physician + pharmacist intervention				182	2.1	
Patient satisfaction: Satisfaction with pharmacist	Control (no intervention)				169	2.1	
	Pharmacist intervention				161	2.1	
	Physician intervention				194	2.1	
	Physician + pharmacist intervention				182	2	
Number of emergency department visits: All visits	Control (no intervention)				169	1.4	
	Pharmacist intervention				161	1.5	
	Physician intervention				194	1.4	
	Physician + pharmacist intervention				182	1.4	

Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients (continued).

Number of emergency department visits: For reactive airways disease	Control (no intervention)				96	0.3	
	Pharmacist intervention				89	0.4	
	Physician intervention				128	0.3	
	Physician + pharmacist intervention				109	0.4	
Number of hospitalizations: All hospitalizations	Control (no intervention)				169	0.4	
	Pharmacist intervention				161	0.5	
	Physician intervention				194	0.5	
	Physician + pharmacist intervention				182	0.4	
Number of hospitalizations: For reactive airways disease	Control (no intervention)				169	0.1	
	Pharmacist intervention				161	0.1	
	Physician intervention				194	0.1	
					182	0.1	
Direct health care charges: Outpatient charges	Control (no intervention)	US dollars			169	3,129	
	Pharmacist intervention	US dollars			161	2,814	
	Physician intervention	US dollars			194	3,142	
	Physician + pharmacist intervention				182	3,177	
Direct health care charges: Inpatient charges	Control (no intervention)	US dollars			169	2,671	
	Pharmacist intervention	US dollars			161	2,519	
	Physician intervention	US dollars			194	4,864	
	Physician + pharmacist intervention				182	2,475	

Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients (continued).

	Direct health care charges: Total health care charges	Control (no intervention)	US dollars			96	5,800	
		Pharmacist intervention	US dollars			89	5,333	
		Physician intervention	US dollars			128	8,006	
		Physician + pharmacist intervention	US dollars			109	5,652	
Wakefield, 2008[21]	Nurse data-gathering communications	Telephone	# of utterances in 3 nurse-patient sessions	14		14	45.6	0.92
		Videophone	# of utterances in 3 nurse-patient sessions	14		14	45.2	0.92
	Nurse giving information	Telephone	# of utterances in 3 nurse-patient sessions	14		14	71.3	0.75
		Videophone	# of utterances in 3 nurse-patient sessions	14		14	68.2	0.75
	Nurse building relationship	Telephone	# of utterances in 3 nurse-patient sessions	14		14	136.3	0.13
		Videophone	# of utterances in 3 nurse-patient sessions	14		14	117.2	0.13
	Nurse activating/partnership building	Telephone	# of utterances in 3 nurse-patient sessions	14		14	15.3	0.11
		Videophone	# of utterances in 3 nurse-patient sessions	14		14	12.3	0.11
	Patient data gathering communications	Telephone	# of utterances in 3 nurse-patient sessions	14		14	5.9	0.72
		Videophone	# of utterances in 3 nurse-patient sessions	14		14	5.4	0.72
	Patient giving information	Telephone	# of utterances in 3 nurse-patient sessions	14		14	163	0.14
		Videophone	# of utterances in 3	14		14	140.5	0.14

Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients (continued).

			nurse-patient sessions					
	Patient building relationship	Telephone	# of utterances in 3 nurse-patient sessions	14		14	72.1	0.29
		Videophone	# of utterances in 3 nurse-patient sessions	14		14	61.8	0.29
	Patient activating/partnership building	Telephone	# of utterances in 3 nurse-patient sessions	14		14	3.8	0.09
		Videophone	# of utterances in 3 nurse-patient sessions	14		14	2.5	0.09

BMD: Bone mineral density, CDT: Chronic disease trajectory group, CHF: Congestive heart failure, CRQ: Chronic Respiratory Questionnaire, EMR: Electronic medical record, EORTC: European Organization for Research and Treatment of Cancer, HT: Hormone therapy, KCCQ: Kansas City Cardiomyopathy Questionnaire, NA: Not applicable, NR: Not reported, TDA: Traditional decision aid, TTYD: TalkToYourDoc.

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Evidence Table 24. All outcomes of studies addressing the responsiveness to the needs and preferences of individual patients (continued).

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Evidence Table 25. Outcomes related to cancer in studies addressing improving responsiveness to the needs and preferences of individual patients

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
Frosch, 2008[1]	Total knowledge score/imputed data	Score unit	Traditional didactic decision aid providing information about prostate-specific antigen (PSA) screening options and outcomes vs. Links to public prostate cancer–specific Web sites from credible sources	116 155		7.24 8.14		 0.9	0.005
	Total knowledge score/complete cases only	Score unit	Traditional didactic decision aid providing information about prostate specific antigen (PSA) screening options and outcomes vs. Links to public prostate cancer–specific Web sites from credible sources	99 119		7.49 8.65		 1.16	0.001
	Total knowledge score/imputed data	Score unit	Chronic disease trajectory model for prostate cancer followed by a time-trade-off exercise vs. Links to public prostate cancer-specific Web sites from credible sources	116 153		7.24 7.69		 0.45	0.005
	Total	Score unit	Chronic disease	99		7.49			0.001

Evidence Table 25. Outcomes related to cancer in studies addressing improving responsiveness to the needs and preferences of individual patients (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	knowledge score/complete cases only		trajectory model for prostate cancer followed by a time-trade-off exercise vs. Links to public prostate cancer-specific Web sites from credible sources	115		8.03		0.54	
	Total knowledge score/imputed data	Score unit	Both the didactic decision aid and the chronic disease trajectory model vs. Links to public prostate cancer-specific Web sites from credible sources	116 152		7.24 7.71		 0.47	0.005
	Total knowledge score/complete cases only	Score unit	Both the didactic decision aid and the chronic disease trajectory model vs. Links to public prostate cancer-specific Web sites from credible sources	99 117		7.49 8.03		 0.54	0.001
	PSA screening: Pretest choice	% of patients with outcome	Traditional didactic decision aid providing information about prostate specific antigen (PSA) screening options and outcomes vs. Links to public prostate cancer-specific Web sites from credible sources	116 155		96 95.5		 -0.5	**SNR
	PSA	% of	Traditional didactic	116		3.3			0.047

Evidence Table 25. Outcomes related to cancer in studies addressing improving responsiveness to the needs and preferences of individual patients (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	screening: Reduction	patients with outcome	decision aid providing information about prostate specific antigen (PSA) screening options and outcomes vs. Links to public prostate cancer-specific Web sites from credible sources	155		9.1		5.8	
	Watchful waiting at pretest	% of patients with outcome	Traditional didactic decision aid providing information about prostate specific antigen (PSA) screening options and outcomes vs. Links to public prostate cancer-specific Web sites from credible sources	116 155		34.4 34.2		 -0.2	0
	PSA screening: Pretest choice	% of patients with outcome	Chronic disease trajectory model for prostate cancer followed by a time-trade-off exercise vs. Links to public prostate cancer-specific Web sites from credible sources	116 153		96 96.7		 0.7	**SNR
	PSA	% of	Chronic disease	116		3.3			0.047

Evidence Table 25. Outcomes related to cancer in studies addressing improving responsiveness to the needs and preferences of individual patients (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	screening: Reduction	patients with outcome	trajectory model for prostate cancer followed by a time-trade-off exercise vs. Links to public prostate cancer-specific Web sites from credible sources	153		8.7		5.4	
	Watchful waiting at pretest	% of patients with outcome	Chronic disease trajectory model for prostate cancer followed by a time-trade-off exercise vs. Links to public prostate cancer-specific Web sites from credible sources	116 153		34.4 34		 -0.4	0
	PSA screening: Pretest choice	% of patients with outcome	Both the didactic decision aid and the chronic disease trajectory model vs. Links to public prostate cancer-specific Web sites from credible sources	116 152		96 96.7		 0.7	**SNR
	PSA screening: Reduction	% of patients with outcome	Both the didactic decision aid and the chronic disease trajectory model vs. Links to public prostate cancer-specific Web sites from credible sources	116 152		3.3 5.3		 2	0
	Watchful	% of	Both the didactic	116		34.4			0

Evidence Table 25. Outcomes related to cancer in studies addressing improving responsiveness to the needs and preferences of individual patients (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	waiting at pretest	patients with outcome	decision aid and the chronic disease trajectory model vs. Links to public prostate cancer-specific Web sites from credible sources	152		40.8		6.4	
	Total knowledge score/imputed data	Score unit	Chronic disease trajectory model for prostate cancer followed by a time-trade-off exercise vs. Links to public prostate cancer-specific Web sites from credible sources	116 153		7.24 7.69		 0.45	0.005
	Total knowledge score/complete cases only	Score unit	Chronic disease trajectory model for prostate cancer followed by a time-trade-off exercise vs. Links to public prostate cancer-specific Web sites from credible sources	99 115		7.49 8.03		 0.54	0.001
	Total knowledge score/imputed data	Score unit	Both the didactic decision aid and the chronic disease trajectory model vs. Links to public prostate cancer-specific Web sites from credible sources	116 152		7.24 7.71		 0.47	0.005
	Total	Score unit	Both the didactic	99		7.49			0.001

Evidence Table 25. Outcomes related to cancer in studies addressing improving responsiveness to the needs and preferences of individual patients (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	knowledge score/complete cases only		decision aid and the chronic disease trajectory model vs. Links to public prostate cancer-specific Web sites from credible sources	117		8.03		0.54	
Ruland, 2003[2]	Congruence between patient-reported symptoms and those addressed in consult visit	% congruence	Used computerized system for shared decisionmaking for cancer symptoms care vs. Usual care	25 27		2.84 7.63		 4.79	<0.01
	Importance-weighted congruence between patient reported symptoms and those addressed in consult visit	% congruence	Used computerized system for shared decisionmaking for cancer symptoms care vs. Usual care	25 27		12.8 33		 20.2	<0.01
	Number of reported symptoms (0-10)	Number of symptoms	Used computerized system for shared decisionmaking for cancer symptoms care vs. Usual care	25 27		2.25 2.73		 0.48	0
	Number of	Number of	Used computerized	25		2.25			0.032

Evidence Table 25. Outcomes related to cancer in studies addressing improving responsiveness to the needs and preferences of individual patients (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	reported symptoms (0-15)	symptoms	system for shared decisionmaking for cancer symptoms care vs. Usual care	27		3.77		1.52	
	Number of reported symptoms (0-20)	Number of symptoms	Used computerized system for shared decisionmaking for cancer symptoms care vs. Usual care	25		2.18			0.016
				27		4.5		2.32	
	Number of reported symptoms (0-25)	Number of symptoms	Used computerized system for shared decisionmaking for cancer symptoms care vs. Usual care	25		2.17			0.004
				27		5.28		3.11	
	Number of reported symptoms (0-30)	Number of symptoms	Used computerized system for shared decisionmaking for cancer symptoms care vs. Usual care	25		2.17			0.017
				27		5.25		3.08	
	Number of reported symptoms (0-40)	Number of symptoms	Used computerized system for shared decisionmaking for cancer symptoms care vs. Usual care	25		2.63			0
				27		6.56		3.93	
	Number of reported symptoms (0-50)	Number of symptoms	Used computerized system for shared decisionmaking for cancer symptoms care vs. Usual care	25		2.84			0.042
Taenzer,	Physical	Score unit	Lung cancer patients	26		76.9			<0.05

Evidence Table 25. Outcomes related to cancer in studies addressing improving responsiveness to the needs and preferences of individual patients (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
2000[3]	functioning (higher scores indicate better function)		whose physicians and nurses received quality-of-life training and patients completed the computerized European Organization for Research and Treatment of Cancer Questionnaire vs. Patients who completed a paper-and pencil version of the European Organization for Research and Treatment of Cancer Questionnaire only	27		60		-16.9	
	Role	Score unit	Lung cancer patients	26		84.6			<0.01

Evidence Table 25. Outcomes related to cancer in studies addressing improving responsiveness to the needs and preferences of individual patients (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	functioning (higher scores indicate better function)		whose physicians and nurses received quality-of-life training and patients completed the computerized European Organization for Research and Treatment of Cancer Questionnaire vs. Patients who completed a paper-and pencil version of the European Organization for Research and Treatment of Cancer Questionnaire only	27		55.6		-29	
	Emotional	Score unit	Lung cancer patients	26		76.3			0

Evidence Table 25. Outcomes related to cancer in studies addressing improving responsiveness to the needs and preferences of individual patients (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	functioning (higher scores indicate better function)		whose physicians and nurses received quality-of-life training and patients completed the computerized European Organization for Research and Treatment of Cancer Questionnaire vs. Patients who completed a paper-and pencil version of the European Organization for Research and Treatment of Cancer Questionnaire only	27		75.9		-0.4	
	Cognitive	Score unit	Lung cancer patients	26		81.4			0

Evidence Table 25. Outcomes related to cancer in studies addressing improving responsiveness to the needs and preferences of individual patients (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	functioning (higher scores indicate better function)		whose physicians and nurses received quality-of-life training and patients completed the computerized European Organization for Research and Treatment of Cancer Questionnaire vs. Patients who completed a paper-and pencil version of the European Organization for Research and Treatment of Cancer Questionnaire only	27		80.3		-1.1	
	Social	Score unit	Lung cancer patients	26		78.9			0

Evidence Table 25. Outcomes related to cancer in studies addressing improving responsiveness to the needs and preferences of individual patients (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	functioning (higher scores indicate better function)		whose physicians and nurses received quality-of-life training and patients completed the computerized European Organization for Research and Treatment of Cancer Questionnaire vs. Patients who completed a paper-and pencil version of the European Organization for Research and Treatment of Cancer Questionnaire only	27		74		-4.9	
	Global	Score unit	Lung cancer patients	26		64.7			0

Evidence Table 25. Outcomes related to cancer in studies addressing improving responsiveness to the needs and preferences of individual patients (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	functioning (higher scores indicate better function)		whose physicians and nurses received quality-of-life training and patients completed the computerized European Organization for Research and Treatment of Cancer Questionnaire vs. Patients who completed a paper-and pencil version of the European Organization for Research and Treatment of Cancer Questionnaire only	27		52.8		-11.9	
	Number of	Number of	Lung cancer patients	26		3			0

Evidence Table 25. Outcomes related to cancer in studies addressing improving responsiveness to the needs and preferences of individual patients (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	functional scales indicating compromised function (mean)	scales	whose physicians and nurses received quality-of-life training and patients completed the computerized European Organization for Research and Treatment of Cancer Questionnaire vs. Patients who completed a paper-and pencil version of the European Organization for Research and Treatment of Cancer Questionnaire only	27		3.6		0.6	
	Fatigue	Score unit	Lung cancer patients	26		28.6			0

Evidence Table 25. Outcomes related to cancer in studies addressing improving responsiveness to the needs and preferences of individual patients (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	(higher scores indicate more symptomatology--mean)		whose physicians and nurses received quality-of-life training and patients completed the computerized EORTC QLQ-C30 vs. Patients who completed a paper-and pencil version of the European Organization for Research and Treatment of Cancer Questionnaire only	27		41.2		12.6	

Evidence Table 25. Outcomes related to cancer in studies addressing improving responsiveness to the needs and preferences of individual patients (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	Nausea and vomiting (higher scores indicate more symptomatology--mean)	Score unit	Lung cancer patients whose physicians and nurses received quality-of-life training and patients completed the computerized European Organization for Research and Treatment of Cancer Questionnaire vs. Patients who completed a paper-and pencil version of the European Organization for Research and Treatment of Cancer Questionnaire only	26		9			0
				27		8.6		-0.4	
	Pain (higher	Score unit	Lung cancer patients	26		15.4			0

Evidence Table 25. Outcomes related to cancer in studies addressing improving responsiveness to the needs and preferences of individual patients (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	scores indicate more symptomatology--mean)		whose physicians and nurses received quality-of-life training and patients completed the computerized European Organization for Research and Treatment of Cancer Questionnaire vs. Patients who completed a paper-and pencil version of the European Organization for Research and Treatment of Cancer Questionnaire only	27		26.5		11.1	
	Dyspnea	Score unit	Lung cancer patients	26		34.6			<0.05

Evidence Table 25. Outcomes related to cancer in studies addressing improving responsiveness to the needs and preferences of individual patients (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	(higher scores indicate more symptomatology--mean)		whose physicians and nurses received quality-of-life training and patients completed the computerized European Organization for Research and Treatment of Cancer Questionnaire vs. Patients who completed a paper-and pencil version of the European Organization for Research and Treatment of Cancer Questionnaire only	27		51.9		17.3	
	Sleep	Score unit	Lung cancer patients	26		24.4			0

Evidence Table 25. Outcomes related to cancer in studies addressing improving responsiveness to the needs and preferences of individual patients (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	disturbance (higher scores indicate more symptomatology)		whose physicians and nurses received quality-of-life training and patients completed the computerized European Organization for Research and Treatment of Cancer Questionnaire vs. Patients who completed a paper-and pencil version of the European Organization for Research and Treatment of Cancer Questionnaire only	27		29.6		5.2	
	Appetite	Score unit	Lung cancer patients	26		19.2			0

Evidence Table 25. Outcomes related to cancer in studies addressing improving responsiveness to the needs and preferences of individual patients (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	(higher scores indicate more symptomatology)		whose physicians and nurses received quality-of-life training and patients completed the computerized European Organization for Research and Treatment of Cancer Questionnaire vs. Patients who completed a paper-and pencil version of the European Organization for Research and Treatment of Cancer Questionnaire only	27		25.9		6.7	
	Constipation	Score unit	Lung cancer patients	26		18			0

Evidence Table 25. Outcomes related to cancer in studies addressing improving responsiveness to the needs and preferences of individual patients (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	(higher scores indicate more symptomatology)		whose physicians and nurses received quality-of-life training and patients completed the computerized European Organization for Research and Treatment of Cancer Questionnaire vs. Patients who completed a paper-and pencil version of the European Organization for Research and Treatment of Cancer Questionnaire only	27		19.8		1.8	
	Diarrhea	Score unit	Lung cancer patients	26		5.1			0

Evidence Table 25. Outcomes related to cancer in studies addressing improving responsiveness to the needs and preferences of individual patients (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	(higher scores indicate more symptomatology)		whose physicians and nurses received quality-of-life training and patients completed the computerized European Organization for Research and Treatment of Cancer Questionnaire vs. Patients who completed a paper-and pencil version of the European Organization for Research and Treatment of Cancer Questionnaire only	27		2.5		-2.6	
	Financial	Score unit	Lung cancer patients	26		18			0

Evidence Table 25. Outcomes related to cancer in studies addressing improving responsiveness to the needs and preferences of individual patients (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	difficulties (higher scores indicate more symptomatology)		whose physicians and nurses received quality-of-life training and patients completed the computerized European Organization for Research and Treatment of Cancer Questionnaire vs. Patients who completed a paper-and pencil version of the European Organization for Research and Treatment of Cancer Questionnaire only	27		12.4		-5.6	
	Number of	Number of	Lung cancer patients	26		4			0

Evidence Table 25. Outcomes related to cancer in studies addressing improving responsiveness to the needs and preferences of individual patients (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	symptom scales indicating compromised functioning	scales	whose physicians and nurses received quality-of-life training and patients completed the computerized European Organization for Research and Treatment of Cancer Questionnaire vs. Patients who completed a paper-and pencil version of the European Organization for Research and Treatment of Cancer Questionnaire only	27		4.6		0.6	
	Number of	Number of	Lung cancer patients	26		7.1			0

Evidence Table 25. Outcomes related to cancer in studies addressing improving responsiveness to the needs and preferences of individual patients (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	functional and symptom scales indicating compromised function	scales	whose physicians and nurses received quality-of-life training and patients completed the computerized European Organization for Research and Treatment of Cancer Questionnaire vs. Patients who completed a paper-and pencil version of the European Organization for Research and Treatment of Cancer Questionnaire only	27		8.2		1.1	

Evidence Table 25. Outcomes related to cancer in studies addressing improving responsiveness to the needs and preferences of individual patients (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	Total number of items endorsed	Number of items	Lung cancer patients whose physicians and nurses received quality-of-life training and patients completed the computerized European Organization for Research and Treatment of Cancer Questionnaire vs. Patients who completed a paper-and pencil version of the European Organization for Research and Treatment of Cancer Questionnaire only	26		10.6			0
	Actions	Actions	Lung cancer patients	26		0.5			0

Evidence Table 25. Outcomes related to cancer in studies addressing improving responsiveness to the needs and preferences of individual patients (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	taken/patient		whose physicians and nurses received quality-of-life training and patients completed the computerized European Organization For Research And Treatment Of Cancer QLQ-C30 vs. Patients who completed a paper-and pencil version of the European Organization For Research And Treatment Of Cancer QLQ-C30 only	27		0.8		0.3	
	% of	% of	Lung cancer patients	26		64.7			0

Evidence Table 25. Outcomes related to cancer in studies addressing improving responsiveness to the needs and preferences of individual patients (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	categories identified that were acted upon	categories	whose physicians and nurses received quality-of-life training and patients completed the computerized European Organization For Research And Treatment Of Cancer QLQ-C30 vs. Patients who completed a paper-and pencil version of the European Organization For Research And Treatment Of Cancer QLQ-C30 only	27		73		8.3	

**SNR: Significance not reported

P-value of 0 = p-value > 0.10

PSA = Prostate-specific antigen; QLQ = quality of life questionnaire

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Evidence Table 26. Study characteristics of studies addressing provider patient communication

Author, Year	Condition	Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
Barnabei, 2008[1]	Menopause/HRT	RCT	NS	Clinician, Patient	Outpatient clinic	Female, Born between 1930 and 1960, Appointment scheduled between November 9, 2004, and December 2, 2005	Appointment related to current pregnancy or cancer	+1
Chan, 2008[2]	Cancer)colon)	Contorlled trial	2004-2005	Patient	Outpatient clinic	age 50 or older, have at least a 6th grade level of education, have attended the outpatient general internal medicine clinic at the University of Texas-Houston clinic for at least a year, have no prior history of colorectal cancer or surgery, be due for CRCS, have a telephone, have private access to e-mail and the internet or have an interest in access through the public library system, and have their own transportation or be able to access public transportation	NS	1
Delichatsios, 2001[3]	Obesity	RCT	(> 6 months) (NS)	Patient	Outpatient clinic	25 yrs,Sedentary, Suboptimal diet	Debilitating medical condition, Regularly exercise	1
Dobke, 2008[4]	Wound care	RCT	2003 (36)	Clinician, Patient	Hospital, Field wound care nurse	Problem wounds, Alert and intellectually interactive		-1

Evidence Table 26. Study characteristics of studies addressing provider patient communication (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
Fretheim, 2006[5]	Diabetes	RCT		Clinician, Patient	146 general practices in two geographical areas in Norway	Hypertension (blood pressure, >= 140/90 mm Hg), Hypercholesterolemia (total cholesterol, >5 mmol/l [190 mg/dl] or LDL cholesterol, <3 mmol/l [115 mg/dl]), No prescription for the corresponding medication had been recorded for 24 months preceding the outreach visit, Patients started on medication for hypertension or hypercholesterolemia during the study period, All patients already on treatment who t consulted their physician during the trial	Patients with established cardiovascular disease were excluded, with the exception of the outcomes related to treatment goals for lipid-lowering therapy, Thyrotoxicosis and migraine, Prescription for nitroglycerin, Established cardiovascular disease	+2
Frosch, 2008[6]	Cancer (other) Prostate cancer	RCT, Fully crossed 2x2 factorial design	200 (15)	Patient	Outpatient clinic, Health Appraisal Clinic of Kaiser Permanente, San Diego, California	> 50 yrs old, Male, Had broadband Internet access at home or at work	NS	2
Gomez, 2002[7]	Diabetes	Pilot cross-over	(a 6-month cross-over)	Patient	Hospital	Inadequate metabolic control and DM duration of over 5 yrs		-2
Green, 2005[8]	Genetic counseling	RCT	2000	Patient	Medical system (network of hospitals and/or clinics)	18 yrs or older, Female, Could read, write, and speak English, Scheduled a genetic counseling	Previously underwent genetic counseling or testing for inherited breast cancer susceptibility	0

Evidence Table 26. Study characteristics of studies addressing provider patient communication (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
						appointment to evaluate personal and/or family histories of breast cancer, Able to give informed consent		
Green, 2008[9]	Hypertension	RCT	2005 (18)	Patient	Medical system (network of hospitals and/or clinics), Large, nonprofit, integrated group practice (Group Health)	25-75 yrs old, With controlled HTN, Taking anti-HTN meds, Ability to use a computer, Regular access to the Web, An e-mail address, Willingness to attend screening visits, Obtained all antihypertensive medications at Group Health–owned pharmacies	No diagnoses of diabetes, Cardiovascular or renal disease, or other serious conditions	+1
Kaner, 2007[10]	Atrial fibrillation and anticoagulation	Quasi-experimental: Qualitative	2003	Clinician, Patient	Outpatient clinic	General practitioners		-1
Kim, 2004[11]	Wounds	Prospective cohort design	1999 (18)	Clinician, Patient	Outpatient clinic	Chronic stage 2, 3, or 4 pressure sores, Postoperative wounds having undergone a tissue flap procedure for a grade 3 or 4 pressure ulcer, Diabetic ulcer, Hospital inpatient, outpatient, or nursing home resident, Informed consent	Mentally incompetent	
Kuppermann,	Pregnancy	RCT	2001 (24 months)	Patient		Pregnant woman of	Carrying more than one	0

Evidence Table 26. Study characteristics of studies addressing provider patient communication (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
2009[12]						any age, 20 weeks gestation or less, Having not yet undergone any prenatal testing, Ability to speak English or Spanish	fetus, Had become pregnant using in vitro fertilization, Candidate for prenatal diagnosis because of family history	
Lorig, 2006[13]	Chronic condition/health problem	RCT	(18 months recruiting)	Patient	Online/ research site	18 yrs or older, Physician's diagnosis of heart disease, chronic lung disease or type 2 DM, Access to computer, Internet and e-mail, Agreed to 1-2 hours per week of logon time spread over at least 3 sessions/wk for 6 weeks, Able to complete online questionnaire	Active treatment of cancer for 1 year, anticipated previously in the small-group Chronic Disease Self-Management Program	0
Maslin, 1998[14]	Cancer (breast)	Quasi-experimental: Experimental random design, not blinded	(24)	Patient	Medical system (network of hospitals and/or clinics) NS		Pregnancy, Evidence of bilateral or multifocal breast cancer, Large tumor, Paget's disease or inflammatory breast cancer, Evidence of extension or metastasis of breast cancer, Contraindication to mastectomy, Contradiction to radiation, Hearing visual or cognitive impairment	-1
McCrossan, 2007[15]	Congenital heart disease	RCT		Patient	Hospital	Less than 3 yrs old, New diagnosis of congenital heart disease	No fixed address, Unsuitable home environment	-1
Montgomery, 2007[16]	Pregnant women with a	RCT	May 2004	Patient	Medical system	Pregnant woman with one previous	Limited ability to speak or understand English,	-1

Evidence Table 26. Study characteristics of studies addressing provider patient communication (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
	previous caesarian section				(network of hospitals and/or clinics)	lower segment Caesarean section, No current obstetric problems, Delivery expected at 37 weeks or more	Most recent delivery was not a Caesarean section	
Lowensteyn, 1998[17]	Coronary health assessment (primary prevention of CHD)	RCT	(3)	Clinician, Patient	Outpatient clinic	30-74 yrs old, No diagnosis of CVD, Physicians were invited to select patients from their practice to participate in the study. They were told to enroll patients for whom they thought a risk profile would be clinically useful	NS	0
Peters, 2006[18]	Primary care primary health centers in Salem district	Quasi-experimental: Before/after patients/ physicians	2002 (6)	Clinician, Patient, Cluster randomized	Outpatient clinic, Medical system (network of hospitals and/or clinics)			-2
Rinfret, 2009[19]	Hypertension	RCT	NS	Patients	Outpatient	diagnosis of hypertension according American and Canadian guidelines diagnosis of hypertension according American and Canadian guidelines	chronic atrial fibrillation, pregnant, or those participating in another trial	1
Saver, 2007[20]	Menopause	RCT	8 months in 2001	Patient	Multi-site	NS	NS	0
Schapira, 2007[21]	Post-menopausal women who	RCT	2002 (18)	Patient	Medical system (network of	45-74 yrs old, Female, Post-menopausal defined	Non-English-speaking, Cognitive dysfunction defined by a score of	0

Evidence Table 26. Study characteristics of studies addressing provider patient communication (continued)

Author, Year	Condition	Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria	Jadad Score
	needed to decide about hormone therapy				hospitals and/or clinics)	as amenorrheic for 12 months or a documented FSH > 25IU/l.	<23 on the Folstein MiniMental State exam, Absolute contraindication to the use of HT	
Schifferdecker, 2008[22]	Primary care practices	Controlled trial	2004	Provider	Primary care practices in NH	NS	NS	0
Schumann, 2008[23]	Smoking	Not a clinical study: Study of theoretical and empirical variability	NS	Patient	Outpatient clinic	NS	NS	-2
Sciamanna, 2006[24]	Migraine headache	RCT	2003	Patient	BCBS Rhode Island	NS	(1) did not meet the International Headache Society (IHS) diagnostic criteria for migraine,21 (2) they were younger than 18, (3) they did not have access to the Internet at home or work, or (4) they did not have an upcoming visit with a doctor for their headaches within a 3-month time frame.	0
Whited, 2002-[25]	Skin lesions	RCT	NS	Clinician	Hospital	Referred to the Dermatology Consult Service from the Primary Care Clinics at the Durham, North Carolina Department of Veterans Affairs Medical Center	Only if the condition was considered emergent and required prompt attention	-1

ADL: Activity of daily living, ARDS: Acute respiratory distress syndrome, BG: Blood glucose, BMI: Body mass index, BP: Blood pressure, CAD: Coronary artery disease, CHF: Congestive heart failure, COPD: Chronic obstructive pulmonary disease, CPAP: Continuous Positive Airway Pressure, CPRS: Computerized Patient Record System, CVD: Cardiovascular disease, DM: Diabetes mellitus, DSM: Diagnostic and statistical manual of mental disorders, DVT: Deep vein thrombosis, ED: Emergency department, FEV1: Forced expiratory volume in one second, FFS: Fee-for-service family physicians, FP: Family physician, FVC: Forced vital capacity, GD: General diabetes, GDS: Geriatric Depression Scale, GHP: Geisinger Health Plan, GHQ: General Health Questionnaire, GIMC: General Internal Medicine Clinic, GP: General physician, HMO: Health maintenance organization, HSD: Health Search Database, HTN: Hypertension, ICD9: International Statistical Classification of Diseases and Related Health Problems, ICVAMC: Iowa City Veterans Affairs Medical Center, IM: Internal Medicine, LDL: Low-density lipoprotein, MD: Doctor, MMSE: Mini Mental Status Examination, NS: Not Specified, NSAID: Non-steroidal anti-inflammatory drug, OAB: Overactive Bladder, OSAS: Obstructive sleep apnea syndrome, PAG: Principal investigator, PCP: Primary care provider, primary care physicians, PEEP: Positive end-expiratory pressure, PEFR: Peak expiratory flow rate, PHR: Patient health record, Pt: Patient, PTSD: Post traumatic stress disorder, RCT: Randomized controlled trial, Rx: Prescription, SDMT: Symbol Digit Modalities Test, UCD: University of California, Davis, URI: Upper respiratory infection, VA: Veteran's Affairs

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Evidence Table 27. Participant characteristics of studies related to shared decision-making between patients, their families, and providers, clinician communication, or providing patients and clinicians access to medical information

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income-Ranges, n (%)	Education, n (%)	Other Characteristics, n (%)
Apkon, 2005[1]	Control	Mean: 35.3, SD:11.0	587 (60.8)	NS	NS	NS	Military status – Active duty 425 (44.0), Beneficiary 490 (50.7), Reserve 0, Retired 51 (5.3); Visit type – Acute 416 (43.1), Established 27 (2.8), Routine 375 (38.8), Wellness 139 (14.4), Other 9 (0.9); Health care opportunities –Screening/prevention 662 (68.5), Acute/chronic 239 (24.7)
	Coupler group	Mean: 34.4, SD: 10.4	593 (63.4)	NS	NS	NS	Military status – Active duty 361 (38.6), Beneficiary 527 (56.3), Reserve 1 (0.1), Retired 47 (5.0); Visit type – Acute 383 (40.9), Established 47 (5.0), Routine 365 (39.0), Wellness 126 (13.5), Other 15 (1.6); Health care opportunities – Screening/prevention 687 (73.4), Acute/chronic 244 (26.1)
Barnabei, 2008[2]	Control	Mean: 52.5 (5.6)	147 (100)	White: 130 (90), Non-white: 15 (10)	NS	High school grad or less: 18 (12), Trade school, some college or more: 127 (88)	Current HT use – Yes 43 (29), No 104 (71)
	Talk to Your Doc (TTYD) tool	Mean: 52.5 (5.3)	141 (100)	White: 126 (92), Non-white: 11 (8)	NS	High school grad or less: 19 (14), other: 2, Trade school, some college or more: 119 (86)	Current HT use – Yes 39 (28), No 102 (72)
Chan, 2008[3]	Control	NS	NS	NS	NS	NS	

Evidence Table 27. Participant characteristics of studies related to shared decision-making between patients, their families, and providers, clinician communication, or providing patients and clinicians access to medical information (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income-Ranges, n (%)	Education, n (%)	Other Characteristics, n (%)
	Private access (e-mail at work or home)	Mean: 58.8	(54.6)	White: (59.7), African American: (31.2), Other: (9.1)	<$30,000: (14.3), >=$30,000: (76.6), Missing: (9.1)	<=High school: (5.2), Any college: (94.8)	
	Public access (e-mail at public library)	Mean: 65.8	(75.0)	White: (10.0), African American: (85.0), Other: (5.0)	<$30,000: (90.0), >=$30,000: (5.0), Missing: (5.0)	<=High school: (65.0), Any college: (35.0)	
Chu, 2009[4]	Control	NS	NS	NS	NS	NS	
	"Partnering with Seniors for Better Health" computer literacy and health information retrieval on the Internet	Mean: 74	(72)	NS	<$10,000: (64)	8-12 yrs: (21.4), 12-16 yrs: (50)	Previous computer use (29.5); Previous Internet access (18.8)
	Delayed: Training to implement Web-resources (this was the control group for the data at followup 1, which was after the initial training but before the 2nd training)	Mean: 43.6, SD: 11.1	17 (85)	NS	NS	NS	Role in practice – Provider 8 (40), Clinical staff 6 (30), Administrator 2 (10), Other: 4 (20) Years in practice: 6.3, SD: 6.9; Hours per week: 37.9, SD: 9.7; Computer with Web access available at work (1-5 scale) 4.5, SD: 1.1; Computer at work has fast Internet (1-5 scale) 4.1, SD: 1.4; Frequency of Web use at work (1-5 scale) 4.8, SD:1.4
Delichatsios, 2001[5]	Control	Mean: 45.7	72	White: 43.3, Black: 46	>$2,000 per month: (58.2)	12-16 yrs: (46.0), >16 yrs: (24.0), 12-16 yrs: (48.3)	BMI 28.7

Evidence Table 27. Participant characteristics of studies related to shared decision-making between patients, their families, and providers, clinician communication, or providing patients and clinicians access to medical information (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income-Ranges, n (%)	Education, n (%)	Other Characteristics, n (%)
	Computer monitor of daily diet, educational feedback, advice, counseling	Mean: 46.2	72.3	White: 46.6, Black: 43.2	>$2,000 per month: (57.4)	>16 yrs: (24.5)	BMI 28.7
	BP monitoring and patient Web services training + Pharmacist care	Mean: 59.3, SD: 8.6	146 (55.6)	White: 207 (79.3), Black: 21 (8), Asian: 12 (4.6), NS: 21 (8)		8-12 yrs: 130 (50.2) Some college: 97 (37.2), College grad: 75 (28.7), >16 yrs: 68 (26.1)	Employed: Full-time 147 (56.3), Retired 92 (35.2), Part-time 14 (5.4), Other 8 (3.1); Anti-HTN medication class: None 10 (3.8), One 119 (45.6), Two 86 (33.2), Three or more 46 (17.6); Current smoker 18 (6.9); BMI – Normal 24 (9.5), Overweight 81 (32.1), Obese 147 (58.3); Have home BP monitor 140 (53.6); BP – Systolic, mean 152.2, SD: 10; Diastolic, mean 88.9, SD: 8.1
Dobke, 2008[6]	Control	Mean: 53.9, SD: 10.4	8	NS	NS	NS	Nature of wound – Pressure sore 8, Venostasis ulcers 1, Arterial ulcers, no diabetes 1, Diabetic foot 5
	Telemedicine consult on patients with chronic wounds	Mean: 54.9, SD: 10.8	8	NS	NS	NS	Nature of wound – Pressure sore 10, Venostasis ulcers 1, Arterial ulcers, no diabetes 0, Diabetic foot 4
Fretheim, 2006[7]	Control	Mean: 60.5	51.7	NS	NS	NS	

Evidence Table 27. Participant characteristics of studies related to shared decision-making between patients, their families, and providers, clinician communication, or providing patients and clinicians access to medical information (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income-Ranges, n (%)	Education, n (%)	Other Characteristics, n (%)
	Educational outreach visit, audit and feedback at outreach visit, computerized reminders, risk assessment tools (software and charts), patient information material	Mean: 61.2	54.2	NS	NS	NS	
Frosch, 2008[8]	Control	Mean: 59.0 (5.1)	0	White: 133 (88.1), Black: 4 (2.6), Latino: 6 (4.0), Asian: 6 (4.0), Other: 2 (1.3)	NS	8-12 yrs: 6(4.0), 12-16 yrs: 86 (56.9), >16 yrs: 59 (39.1), Some grad school: 10 (6.6), Completed postgraduate: 49 (32.5)	Marital status – Married 123 (81.5), Other 28 (18.5); History of cancer – Self 18 (11.9), Family 104 (68.9), Friends 112 (74.2); Concern about prostate cancer – Not at all 15 (9.9), A little 39 (25.8), Somewhat 63 (41.7), Considerable 25 (16.1), Extreme 9 (6.0);

Evidence Table 27. Participant characteristics of studies related to shared decision-making between patients, their families, and providers, clinician communication, or providing patients and clinicians access to medical information (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income-Ranges, n (%)	Education, n (%)	Other Characteristics, n (%)
	Traditional didactic decision aid providing information about prostate-specific antigen (PSA) screening options and outcomes	Mean: 58.5 (5.5)	0	White: 133 (85.8), Black: 6 (3.9), Latino: 7 (4.5), Asian: 4 (2.6), Other1: 5 (3.2)	NS	8-12 yrs: 8 (5.2), 12-16 yrs: 83 (53.6), >16 yrs: 64 (41.3)	Number of previous PSA tests, mean 2.6, SD: 2.9; Pretest choice of PSA 145 (96.0); Who should make medical decisions – Physician only 10 (6.6), Mostly physician 12 (7.9), Physician and patient together 109 (72.9), Mostly patient 16 (10.6), Patient only 4 (2.6); Pretest treatment preference – Intervention 99 (65.6), Watchful waiting 52 (34.4); [also Internet access at home and work] Marital status – Married 119 (76.8), Other 36 (23.2); History of cancer – Self 18 (11.6), Family 102 (65.8), Friends 120 (77.4); Concern about prostate cancer – Not at all 14 (9.0), A little 42 (27.1), Somewhat 63 (40.6), Considerable 26 (16.8), Extreme 10 (6.5); Number of previous PSA tests, mean 3.0, SD: 4.8; Pretest choice of PSA 148 (95.5); Who should make medical decisions – Physician only 4 (2.6), Mostly physician 19 (12.3), Physician and patient together 120 (77.4), Mostly patient 11(7.1), Patient only 1(0.6); Pretest treatment preference – Intervention 102 (65.8), Watchful waiting 53 (34.2); [also Internet access at home and work]

Evidence Table 27. Participant characteristics of studies related to shared decision-making between patients, their families, and providers, clinician communication, or providing patients and clinicians access to medical information (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income-Ranges, n (%)	Education, n (%)	Other Characteristics, n (%)
	Chronic disease trajectory model for prostate cancer followed by a time-trade-off exercise	Mean: 58.4 (5.6)	0	White: 127 (83.0), Black: 2 (1.3), Latino: 15 (9.8), Asian: 7 (4.6), Other: 2	NS	8-12 yrs: 6 (3.9), 12-16 yrs: 75 (49.0), >16 yrs: 72 (47.0)	Marital status – Married 114 (74.5), Other 39 (25.5); History of cancer – Self 12 (7.8), Family 101 (66.0), Friends 114 (74.5); Concern about prostate cancer – Not at all 15 (9.8), A little 49 (32.0), Somewhat 56 (36.6), Considerable 26 (17.0), Extreme 7 (4.6); Number of previous PSA tests, mean 2.1, SD: 2.6; Pretest choice of PSA 148 (96.7); Who should make medical decisions – Physician only 3 (2.0), Mostly physician 20 (13.1), Physician and patient together 119 (77.8), Mostly patient 9 (5.9), Patient only 2 (1.3); Pretest treatment preference – Intervention 101 (66.0), Watchful waiting 52 (34.0); [also Internet access at home and work]
	Both the didactic decision aid and the chronic disease trajectory model	Mean: 58.8 (5.4)	0	White: 133 (87.5), Black: 5 (3.3), Latino: 4 (2.6), Asian: 7 (4.6), Other: 3 (2.0)	NS	8-12 yrs: 7 (4.6), 12-16 yrs: 66 (43.4), >16 yrs: 79 (52.0)	
	Patients had an intervention but took post- test only	Range: 5-24: (0), 25-64: (43), 65-74: (14), >75: (43)	8 (60)	NS	NS	NS	
Maslin, 1998[9]	Control	Mean: 52.1, Range: 28-73	49 (100)	NS	NS	NS	

Evidence Table 27. Participant characteristics of studies related to shared decision-making between patients, their families, and providers, clinician communication, or providing patients and clinicians access to medical information (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income-Ranges, n (%)	Education, n (%)	Other Characteristics, n (%)
	Shared-decision program on interactive video disk (IVD)	Mean: 52.1, Range: 28-73	51 (100)	NS	NS	NS	
	Telephone	Mean: 65.4	13	NS	NS	NS	
	Early diagnosis and prevention system	Mean: 38.1	(56.8)	NS	NS	<8 yrs: 296 (100)	Household size 4.4
Montgomery, 2007[10]	Control	Mean: 32.4, Range: 4.6	247 (100)	NS	<£20: 42 (18), £20-30: 53 (23), £30-40: 51 (22), >£40: 89 (38)	Degree: 92 (38), GCSE/NVQ1-3: 99 (40), A level/ HND: 42 (17)	
	Information program with descriptions and probabilities re vaginal or Caesarean birth	Mean: 32.8, Range: 4.7	250 (100)	NS	<£20: 44 (19), £20-30: 57 (24), £30-40:46 (19), >£40: 89 (38)	Degree: 97 (39), A level/HND: 47 (19), GCSE/NVQ1-3: 92 (37)	
	Decision analysis in which mode of delivery was recommended based on concealed decision tree	Mean: 32.5, Range: 4.8	245 (100)	NS	<£20: 48 (20), £20-30: 49 (21), £30-40: 44 (19), >£40: 96 (40)	Degree: 103 (42), A level/ HND: 36 (15), GCSE/NVQ1-3: 97 (40)	

Evidence Table 27. Participant characteristics of studies related to shared decision-making between patients, their families, and providers, clinician communication, or providing patients and clinicians access to medical information (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income-Ranges, n (%)	Education, n (%)	Other Characteristics, n (%)
Schapira, 2007[11]	Control	Mean: 57.8, SD: 7.5	88 (100)	White: 64 (73), Black: 22 (25), Other/unknown: 2 (2)	<$19,999: 25 (28), $20,000–34,999: 32 (36), $35,000–49,999: 17 (19), $50,000+: 17 (16)	<8 yrs: 2 (2), 8-12 yrs: 17 (19), 12-16 yrs: 57 (65), >16 yrs: 12 (14)	Prior HT use – Current user 34(39), Former user 35 (40), Never user 19 (22); Prior hysterectomy 44 (50); Baseline menopausal attitudes – Problem (1-5 range) 3.2, SD: 0.69, Control (1-5 range) 2.3, SD: 0.57
	Computer-based decision aid that was easy to use and retained risk information incorporated from emerging scientific data	Mean: 57.8, SD: 7.2	89 (100)	White: 64 (72), Black: 24 (27), Other/unknown: 1 (1)	<$19,999: 31 (35), $20,000–34,999: 22 (25), $35,000–49,999: 19 (21), $50,000+: 17 (19)	<8 yrs: 4 (5), 8-12 yrs: 20 (23), 12-16 yrs: 56 (64), >16 yrs: 9 (10)	Prior HT use – Current user 2 (33), Former user 37 (42), Never user 23 (25); Prior hysterectomy 42 (47); Baseline menopausal attitudes – Problem (1-5 range) 3.1, SD: 0.78, Control (1-5 range) 2.4, SD: 0.53
Sciamanna, 2006[12]	Control	Mean: 41.1	(87.5)	White: 22 (100), Latino: (4.5)		>16 yrs: (50)	Satisfaction with medical care (3.1); Internet use for health, at least several times each month (33.3); My headache is – Mild (4.2), Moderate (60.0), Severe (32.0); I have a headache – 1 to 4 times per month (20.8), More than 1 per week (79.2); Headache Disability Inventory – Emotion subscale 33.8 Function subscale 27.1, Saw a specialist during study 68.2

Evidence Table 27. Participant characteristics of studies related to shared decision-making between patients, their families, and providers, clinician communication, or providing patients and clinicians access to medical information (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income-Ranges, n (%)	Education, n (%)	Other Characteristics, n (%)
	Web-based personalized feedback to migraine patients	Mean: 41.9	(85.7)	White: 28 (100)		>16 yrs: (46.4)	Satisfaction with medical care (3.2); Internet use for health, at least several times each month (42.9); My headache is – Mild (3.6) , Moderate (35.7), Severe (60.7); I have a headache – 1 to 4 times per month (28.6), More than 1 per week (71.4); Headache Disability Inventory – Emotion subscale 25.2, Function subscale 23.8; Saw a specialist during study 50.0
Whited, 2002-[13]	Control	Mean: 61.6	NS	White: 77.9	NS	NS	
	Teledermatology consultation	Mean: 60.9	NS	White: 80	NS	NS	

BMI: Body mass index, BP: Blood pressure, CHESS-MAB: Comprehensive Health Enhancement Support System-Menopause and Beyond, FT: Full-time, HS: High school, HT: Hormone therapy, NS: Not specified, PT: Part time, SD: Standard deviation, yrs: years

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Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
Apkon, 2005[1]	Healthcare opportunities fulfilled	Usual care				704	30.7	
		Coupler				721	33.9	0.12 as compared to Arm A
	Screening/prevention opportunities fulfilled	Usual care				704	30.4	
		Coupler				721	34.8	0.02 as compared to Arm A
	Acute/chronic opportunities fulfilled	Usual care				704	32.6	
		Coupler				721	27.7	
	Total costs/resource consumption	Usual care	US dollars			704	698	
		Coupler	US dollars			721	789	0.05 as compared to Arm A
	Costs ambulatory visits	Usual care	Dollar			704	292	
		Coupler	US dollars			721	307	0.17 as compared to Arm A
	Costs laboratory testing	Usual care	US dollars			704	31	
		Coupler	US dollars			721	43	0.04 as compared to Arm A
	Costs diagnostic imaging	Usual care	US dollars			704	29	
		Coupler	US dollars			721	31	0.26 as compared to Arm A
	Costs pharmacy use	Usual care	US dollars			704	164	
		Coupler	US dollars			721	203	0.03 as compared to Arm A
	Speed, efficiency, courtesy during visit	Usual care	Score			792	4.19	
		Coupler	Score			781	4.17	0.23 as compared to Arm A
	Satisfaction with health care provider	Usual care				792	4.37	
		Coupler	Score			781	4.4	0.82 as compared to Arm A

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
	Overall visit assessment	Usual care				792		
		Coupler	Score			781	4.27	0.74 as compared to Arm A
Barnabei, 2008[2]	Providers able to convey HT information to patients	Patients undergoing menopausal HT who did not have access to TTYD Web site	Number of patients	154		147		
		Patients undergoing menopausal HT who had access to TTYD Web site	Number of patients	151		141		0.12
	Level of relevance of patients' questions	Patients undergoing menopausal HT who did not have access to TTYD Web site	Ordinal scale units (1 to 5 with 5 the highest response)	154		147	3.5	
		Patients undergoing menopausal HT who had access to TTYD Web site	Ordinal scale units (1 to 5 with 5 the highest response)	151		141	3.8	0.03
	Level of patients' engagement regarding discussion of HT	Patients undergoing menopausal HT who did not have access to TTYD Web site	Ordinal scale units (1 to 5 with 5 the highest response)	154		147	3.7	
		Patients undergoing menopausal HT who had access to TTYD Web site	Ordinal scale units (1 to 5 with 5 the highest response)	151		141	3.7	0.05
	Level of appropriateness of medical history conveyed by patient	Patients undergoing menopausal HT who did not have access to TTYD Web site	Ordinal scale units (1 to 5 with 5 the highest response)	154		147	3.8	

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
		Patients undergoing menopausal HT who had access to TTYD Web site	Ordinal scale units (1 to 5 with 5 the highest response)	151		141	3.8	0.03
	Level of satisfaction of discussion with patient	Patients undergoing menopausal HT who did not have access to TTYD Web site	Ordinal scale units (1 to 5 with 5 the highest response)	154		147	3.7	
		Patients undergoing menopausal HT who had access to TTYD Web site	Ordinal scale units (1 to 5 with 5 the highest response)	151		141	3.7	0.01
	Efficiency of visit as compared with other visits	Patients undergoing menopausal HT who did not have access to TTYD Web site	Ordinal scale units (1 to 5 with 5 the highest response)	154		147	3.1	
		Patients undergoing menopausal HT who had access to TTYD Web site	Ordinal scale units (1 to 5 with 5 the highest response)	151		141	3.1	0.04
	Time to complete appointment	Patients undergoing menopausal HT who did not have access to TTYD Web site	Minutes	154		147	20.3	
		Patients undergoing menopausal HT who had access to TTYD Web site	Minutes	151		141	20.3	0.78
	Number of patients that came to appointment with questions	Patients undergoing menopausal HT who did not have access to TTYD Web site	Number of patients	154		147	80	
		Patients undergoing menopausal HT who had access to TTYD Web site	Number of patients	151		141	96	<0.01

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
	Patient previously seen this provider	Patients undergoing menopausal HT who did not have access to TTYD Web site	Number of patients	154		147	78	
		Patients undergoing menopausal HT who had access to TTYD Web site	Number of patients	151		141	81	0.5
	Decisions regarding HT	Patients undergoing menopausal HT who did not have access to TTYD Web site	Number of patients	154		147	43	
		Patients undergoing menopausal HT who had access to TTYD Web site	Decisions regarding HT	151		141	28/69/3	0.78
	Patients' feelings about amount of time with provider	Patients undergoing menopausal HT who did not have access to TTYD Web site	Number of patients	154		147	1/76/24	
		Patients undergoing menopausal HT who had access to TTYD Web site	Number of patients	151		141	1/69/31	0.43
	Patients' feelings about level of encouragement of provider	Patients undergoing menopausal HT who did not have access to TTYD Web site	Ordinal scale units (1 to 5 with 5 the highest response)	154		147	4.2	
		Patients undergoing menopausal HT who had access to TTYD Web site	Ordinal scale units (1 to 5 with 5 the highest response)	151		141	4.3	0.3
	Patients' feelings about level satisfaction with answers to questions	Patients undergoing menopausal HT who did not have access to TTYD Web site	Ordinal scale units (1 to 5 with 5 the highest response)	154		147	4.6	

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
		Patients undergoing menopausal HT who had access to TTYD Web site	Ordinal scale units (1 to 5 with 5 the highest response)	151		141	4.7	0.68
	Patients' feelings about level of positively of interaction with provider	Patients undergoing menopausal HT who did not have access to TTYD Web site	Ordinal scale units (1 to 5 with 5 the highest response)	154	147	4.5		
		Patients undergoing menopausal HT who had access to TTYD Web site	Ordinal scale units (1 to 5 with 5 the highest response)	151		141	4.6	0.23
	Patients' feelings about level of comfort in making decisions about HT	Patients undergoing menopausal HT who did not have access to TTYD Web site	Ordinal scale units (1 to 5 with 5 the highest response)	154		147	4.2	
		Patients undergoing menopausal HT who had access to TTYD Web site	Ordinal scale units (1 to 5 with 5 the highest response)	151		141	4.3	0.19
Chan, 2008[3]	Prefer learning about health topics by reading a brochure	Private access to computer	Rating score 1-5			77		
		Public access to computer	Rating score 1-5			20		
	Prefer learning about health topics by talking with a nurse	Private access to computer	Rating score 1-5			77		
		Public access to computer	Rating score 1-5			20		
	Prefer learning about health topics by talking with a doctor	Private access to computer	Rating score 1-5			77		
		Public access to computer	Rating score 1-5			20		
	Prefer learning about health topics by watching video cassette	Private access to computer	Rating score 1-5			77		
		Public access to computer	Rating score 1-5			20		

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
	Prefer learning about health topics by using computer/internet	Private access to computer	Rating score 1-5			77		
		Public access to computer	Rating score 1-5			20		
	Plan to make appointment with doctor for screening in the next 6 months – Strongly agree	Private access to computer	%			77	23.4	
		Public access to computer	%			20	25	
	Plan to make appointment with doctor for screening in the next 6 months – Agree	Private access to computer	%			77	35.1	
		Public access to computer	%			20	30	
	Plan to make appointment with doctor for screening in the next 6 months – Disagree	Private access to computer	%			77	16.9	
		Public access to computer	%			20	5	
	Plan to make appointment with doctor for screening in the next 6 months – Strongly disagree	Private access to computer	%			77	1.3	
		Public access to computer	%			20	5	
	Plan to make appointment with doctor for screening in the next 6 months – Do not know	Private access to computer	%			77	22.1	
		Public access to computer	%			20	35	
	Plan to make appointment with doctor for screening in the next 6 months – Missing	Private access to computer	%			77	1.3	
		Public access to computer	%			20	0	
Chu, 2009[4]	Lower computer anxiety	Wait-list control group did not receive a 2-hour training session, once a week for 5 weeks			26	NR	25	

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
		Intervention group received a 2-hour training session, once a week for 5 weeks			26.13	NR	35.05	<0.001
	Computer confidence	Wait-list control group did not receive a 2-hour training session, once a week for 5 weeks			28	NR	28	
		Participants in the intervention group received a 2-hour training session, once a week for 5 weeks			28.26	NR	36.1	<0.001
	Computer self-efficacy	Wait-list control group did not receive a 2-hour training session, once a week for 5weeks			14	NR	14.5	
		Participants in the intervention group received a 2-hour training session, once a week for 5 weeks			13.9	NR	17.87	<0.001
Delichatsios, 2001[5]	Mean intake of fruit using FFQ	Control – Computer-mediated telephone education program about physical activity	Servings per day		2.4	53	2	
		Intervention – Computer-mediated telephone education program about nutrition	Servings per day		2.8	61	3.2	<0.05
	Mean intake of vegetables using FFQ	Control – Computer-mediated telephone education program about physical activity	Servings per day		3.5	53	3.6	
		Intervention – Computer-mediated telephone education program about nutrition	Servings per day		3.8	61	4.5	

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
	Mean intake of red/processed meats using FFQ	Control – Computer-mediated telephone education program about physical activity	Servings per day		0.7	53	0.6	
		Intervention – Computer-mediated telephone education program about nutrition	Servings per day		0.7	61	0.5	
	Mean intake of whole-fat dairy foods using FFQ	Control – Computer-mediated telephone education program about physical activity	Servings per day		1.4	53	1.1	
		Intervention – Computer-mediated telephone education program about nutrition	Servings per day		1.6	61	1	
	Mean intake of whole-grain foods using FFQ	Control – Computer-mediated telephone education program about physical activity	Servings per day		0.6	53	0.7	
		Intervention – Computer-mediated telephone education program about nutrition	Servings per day		0.7	61	0.7	
	Global diet quality using FFQ	Control – Computer-mediated telephone education program about physical activity	Score		55	53	55.4	
		Intervention – Computer-mediated telephone education program about nutrition	Score		54.7	61	64	<0.05
	Mean intake of dietary fiber using FFQ	Control – Computer-mediated telephone education program about physical activity	g		20	53	18	
		Intervention – Computer-mediated telephone education program about nutrition	g		21	61	22	<0.05

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
	Mean intake of saturated fat using FFQ	Control – Computer-mediated telephone education program about physical activity	% energy		10.3	53	10.5	
		Intervention – Computer-mediated telephone education program about nutrition	% energy		10.1	61	8.8	<0.05
	Mean intake of folate using FFQ	Control – Computer-mediated telephone education program about physical activity	µg		316	53	29	
		Intervention – Computer-mediated telephone education program about nutrition	µg		339	61	34	
	Mean intake of calcium using FFQ	Control – Computer-mediated telephone education program about physical activity	mg		795	53	68	
		Intervention – Computer-mediated telephone education program about nutrition	mg		806	61	648	
	Mean intake of iron using FFQ	Control – Computer-mediated telephone education program about physical activity	mg		2020	53	1619	
		Intervention – Computer-mediated telephone education program about nutrition	mg		14.4	61	13.6	
	Mean intake of vitamin A using FFQ	Control – Computer-mediated telephone education program about physical activity	Retinol equivalents		2020	53	1619	
		Intervention – Computer-mediated telephone education program about nutrition	Retinol equivalents		1917	61	1811	

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
	Mean intake of vitamin C using FFQ	Control – Computer-mediated telephone education program about physical activity	mg		156	53	142	
		Intervention – Computer-mediated telephone education program about nutrition	mg		183	61	183	
	Mean intake of beta-carotene using FFQ	Control – Computer-mediated telephone education program about physical activity	µg		#####	53	#####	
		Intervention – Computer-mediated telephone education program about nutrition	µg		#####	61	#####	
	Mean intake of fruit using Primescreen	Control – Computer-mediated telephone education program about physical activity	Servings per day		1.2	150	1.5	
		Intervention – Computer-mediated telephone education program about nutrition	Servings per day		1.1	148	1.5	<0.05
	Mean intake of vegetables using Primescreen	Control – Computer-mediated telephone education program about physical activity	Servings per day		1.2	150	1.4	
		Intervention – Computer-mediated telephone education program about nutrition	Servings per day		1.3	148	1.5	
	Mean intake of red/processed meats using Primescreen	Control – Computer-mediated telephone education program about physical activity	Servings per day		0.4	150	0.4	
		Intervention – Computer-mediated telephone education program about nutrition	Servings per day		0.4	148	0.4	

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
	Mean intake of whole-fat dairy foods using Primescreen	Control – Computer-mediated telephone education program about physical activity	Servings per day		0.5	150	0.4	
		Intervention – Computer-mediated telephone education program about nutrition	Servings per day		0.6	148	0.4	
	Mean intake of whole-grain foods using Primescreen	Control – Computer-mediated telephone education program about physical activity	Servings per day		0.4	150	0.4	
		Intervention – Computer-mediated telephone education program about nutrition	Servings per day		0.4	148	0.5	
	Mean intake of dietary fiber using Primescreen	Control – Computer-mediated telephone education program about physical activity	g		6	150	6.2	
		Intervention – Computer-mediated telephone education program about nutrition	g		6.2	148	7.3	<0.05
	Mean intake of saturated fat using Primescreen	Control – Computer-mediated telephone education program about physical activity	% energy		12.2	150	11.8	
		Intervention – Computer-mediated telephone education program about nutrition	% energy		12.6	148	10.7	<0.05
	Mean intake of folate using Primescreen	Control – Computer-mediated telephone education program about physical activity	µg		123	150	127	
		Intervention – Computer-mediated telephone education program about nutrition	µg		125	148	144	<0.05

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
	Mean intake of calcium using Primescreen	Control – Computer-mediated telephone education program about physical activity	mg		315	150	336	
		Intervention – Computer-mediated telephone education program about nutrition	mg		295	148	318	
	Mean intake of iron using Primescreen	Control – Computer-mediated telephone education program about physical activity	mg		3.8	150	3.8	
		Intervention – Computer-mediated telephone education program about nutrition	mg		4.2	148	4.2	
	Mean intake of Vitamin A using Primescreen	Control Computer-mediated telephone education program about physical activity	Retinol equivalents		644	150	648	
		Intervention – Computer-mediated telephone education program about nutrition	Retinol equivalents		621	148	776	<0.05
	Mean intake of Vitamin C using Primescreen	Control – Computer-mediated telephone education program about physical activity	mg		78	150	75	
		Intervention – Computer-mediated telephone education program about nutrition	mg		74	148	92	<0.05
Fretheim, 2006[b]	Thiazides prescription	Passive dissemination of guidelines	Proportion of patients	2365	209	1968	218	
	First-time prescriptions for hypertension where thiazides were prescribed	Educational outreach visit with audit and feedback, and computerized reminders linked to the medical record system	Proportion of patients	2784	161	2184	378	

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
	Patients assessed for CVD risk before prescribing anti-HTN or cholesterol-lowering drugs	Passive dissemination of guidelines	Proportion of patients			786	112	
		Educational outreach visit with audit and feedback, and computerized reminders linked to the medical record system	Proportion of patients			854	147	
	Treatment goal achieved	Passive dissemination of guidelines	Proportion of patients	15411	5174	16598	6056	
		Educational outreach visit with audit and feedback, and computerized reminders linked to the medical record system	Proportion of patients	15914	4669	17213	5502	
Frosch, 2008[7]	Clicked on assigned link	Internet links	%	151			77	
		CDT	%	153			87	
		TDA traditional decision aid group	%	155			85	
		Combination CDT and TDA	%	152			77	
	PSA screening – Pretest choice	Internet links	%	151			96	
		CDT	%	153			96.7	
		TDA traditional decision aid group	%	155			95.5	
		Combination CDT and TDA	%	152			96.7	
	PSA screening – Reduction	Internet links	Change in %					
		CDT	Change in %					<0.001
		TDA traditional decision aid group	Change in %					<0.001
		Combination CDT and TDA						<0.001
	Watchful waiting at pre-test	Internet links	%	151			34.4	
		CDT	%	153			34	
		TDA traditional decision aid group	%	155			34.2	
		Combination CDT and TDA		152			40.8	

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
	Total knowledge score/Imputed data	Internet links	10 items	151			7.24	
		CDT	10 items	153			7.69	0.005
		TDA traditional decision aid group	10 items	155			8.14	0.005
		Combination CDT and TDA	Change in %	152			7.71	0.005
	Total knowledge score/Complete cases only	Internet links	10 items			99	7.49	
		CDT	10 items			115	8.03	0.001
		TDA traditional decision aid group	10 items			119	8.65	0.001
		Combination CDT and TDA	%			120	8.03	0.001
Gomez, 2002[8]	Hba1c	Group not using DIABTel system	Percentage	10	8.1	10	8.15	
		Group using DIABTel system	Percentage	10	8.4	10	7.9	0.053
Green, 2005[9]	Effectiveness of counseling session by clients	Counselor group – Standard genetic counseling				105	6.6	
		Computer group – Used the interactive computer program before counseling				106	6.6	
	Effectiveness of counseling session by counselors	Counselor group – Standard genetic counseling				105	5.8	
		Computer group – Used the interactive computer program before counseling				106	5.9	
	Clients' perception – Client's willingness to share worries and fears	Counselor group – Standard genetic counseling				105	3.6	
		Computer group – Used the interactive computer program before counseling				106	3.6	
	Clients' perception – Client's understanding of	Counselor group – standard genetic counseling				105	3.4	

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
	breast cancer	Computer group – Used the interactive computer program before counseling				106	3.4	
	Clients' perception – Client's understanding of heredity	Counselor group – standard genetic counseling				105	3.4	
		Computer group – Used the interactive computer program before counseling				106	3.3	
	Clients' perception – Client's understanding of the pros and cons of genetic testing	Counselor group – Standard genetic counseling				105	3.5	
		Computer group – Used the interactive computer program before counseling				106	3.5	
	Clients' perception – Client's preparedness for making a decision about genetic testing	Counselor group – Standard genetic counseling				105	3.4	
		Computer group – Used the interactive computer program before counseling				106	3.4	
	Clients' perception – The quality of the questions that client asked	Counselor group – Standard genetic counseling				105	3.1	
		Computer group – Used the interactive computer program before counseling				106	3.2	
	Clients' perception – The level of rapport established with the genetic counselor	Counselor group – Standard genetic counseling				105	3.7	
		Computer group – Used the interactive computer program before counseling				106	3.6	

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
	Clients' perception – Able to meet client's need for factual information	Counselor group – Standard genetic counseling				105	3.8	
		Computer group – Used the interactive computer program before counseling				106	3.8	
	Clients' perception – The extent to which client's emotional concerns were addressed	Counselor group – Standard genetic counseling				105	3.6	
		Computer group – Used the interactive computer program before counseling				106	3.5	
	Clients' perception – Ascertain what was most important to client	Counselor group – Standard genetic counseling				105	3.6	
		Computer group – Used the interactive computer program before counseling				106	3.7	
	Clients' perception – tailor the discussion to client's specific concerns	Counselor group – Standard genetic counseling				105	3.8	
		Computer group – Used the interactive computer program before counseling				106	3.7	
	Clients' perception – Level of personal satisfaction with this session	Counselor group – Standard genetic counseling				105	3.8	
		Computer group – Used the interactive computer program before counseling				106	3.8	
	Counselors' perception – Client's willingness	Counselor group – Standard genetic counseling				105	3.3	

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
	to share worries and fears	Computer group – Used the interactive computer program before counseling				106	3.2	
	Counselors' perception – Client's understanding of breast cancer	Counselor group – Standard genetic counseling				105	3	
		Computer group – Used the interactive computer program before counseling				106	3	
	Counselors' perception – Client's understanding of heredity	Counselor group – Standard genetic counseling				105	2.7	
		Computer group – Used the interactive computer program before counseling				106	2.9	
	Counselors' perception – Client's understanding of the pros and cons of genetic testing	Counselor group – Standard genetic counseling				105	2.9	
		Computer group – Used the interactive computer program before counseling				106	3.1	
	Counselors' perception – Client's preparedness for making a decision about genetic testing	Counselor group – Standard genetic counseling				105	2.9	
		Computer group – Used the interactive computer program before counseling				106	3	
	Counselors' perception – The quality of the questions that client asked	Counselor group – Standard genetic counseling				105	3.3	
		Computer group – Used the interactive computer program before counseling				106	3.3	

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
	Counselors' perception – The level of rapport established with the genetic counselor	Counselor group – Standard genetic counseling				105	3.2	
		Computer group – Used the interactive computer program before counseling				106	3.2	
	Counselors' perception – Able to meet client's need for factual information	Counselor group – Standard genetic counseling				105	3.3	
		Computer group – Used the interactive computer program before counseling				106	3.3	
	Counselors' perception – The extent to which client's emotional concerns were addressed	Counselor group – Standard genetic counseling				105	3	
		Computer group – Used the interactive computer program before counseling				106	3	
	Counselors' perception – Able to ascertain what was most important to client	Counselor group – Standard genetic counseling				105	3.3	
		Computer group – Used the interactive computer program before counseling				106	3.3	
	Counselors' perception –Able to tailor the discussion to client's specific concern	Counselor group – Standard genetic counseling				105	3.3	
		Computer group – Used the interactive computer program before counseling				106	3.3	
	Counselors' perception – Level of personal	Counselor group – Standard genetic counseling				105	3.2	

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
	satisfaction with this session	Computer group – Used the interactive computer program before counseling				106	3.2	
Green, 2008[10]	% controlled BP at 12 months	Usual care		258		247	31	
		BP monitoring and patient Web services		258		247	36	0.21
		BP monitoring, patient Web services, and pharmacist care		258		247	56	<0.001
	Adjusted change in SBP at 12 months	Usual care	mm Hg	258		247	- 5.3	
		BP monitoring and patient Web services		258		247	-8.2	<0.001
		BP monitoring, patient Web services, and pharmacist care		258		247	-13.2	<0.001
	Adjusted change in DBP at 12 months	Usual care	mm Hg	258		247	-3.5	
		BP monitoring and patient Web services		258		247	-4.4	<0.001
		BP monitoring, patient Web services, and pharmacist care		258		247	- 4.6	<0.001
	Satisfaction scores	No telemedicine	Satisfaction and Decisional Conflict Scale scores	15		15	2.53	0.004
		Telemedicine	Satisfaction and Decisional Conflict Scale scores	15		15	1.13	0.004
	Decisional conflict scores	No telemedicine	Satisfaction and Decisional Conflict Scale scores	15		15	35	<0.001
		Telemedicine	Satisfaction and Decisional Conflict Scale scores	15		15	14	<0.001
	Mean consultation duration	No telemedicine	Minutes	15		15	50	
		Telemedicine	Minutes	15		15	35	<0.01

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
Kaner, 2007[11]	Total consultation times	Paper-based guidelines for clinician-patient treatment decision	Minutes			10	21	
		Implicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision	Minutes			11	31	0.001
		Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision	Minutes			8	44	0.001
	Clinician verbal dominance in 10 minutes preceding decision	Paper-based guidelines for clinician-patient treatment decision	% of 10 minutes			10	60	
		Implicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision	% of 10 minutes			11	65	0.09
		Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision	% of 10 minutes			8	64	0.09
	Doctor's Information-seeking	Paper-based guidelines for clinician-patient treatment decision	Minutes			10	6	
		Implicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision	Minutes			11	3	0.004

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
		Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision	Minutes			8	7	0.004
	Doctor's pause	Paper-based guidelines for clinician-patient treatment decision	Minutes			10	6	
		Implicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision	Minutes			11	4	0.04
		Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision	Minutes			8	1	0.04
	Patient's negative talk	Paper-based guidelines for clinician-patient treatment decision	Minutes			10	2	
		Implicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision	Minutes			11	0	0.01
		Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision	Minutes			8	1	0.01
	Doctor's nodding	Paper-based guidelines for clinician-patient treatment decision	Minutes			10	17	

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
		Implicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision	Minutes			11	36	0.005
		Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision	Minutes			8	21	0.005
	Doctor's head shake	Paper-based guidelines for clinician-patient treatment decision	Minutes			10	4	
		Implicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision	Minutes			11	2	0.006
		Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision	Minutes			8	0	0.006
	Doctor's smiling	Paper-based guidelines for clinician-patient treatment decision	Minutes			10	0	
		Implicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision	Minutes			11	1	0.04
		Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision	Minutes			8	2	0.04

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
	Doctor's pointing at patients	Paper-based guidelines for clinician-patient treatment decision	Minutes			10	1	
		Implicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision	Minutes			11	0	0.01
		Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision	Minutes			8	0	0.01
	Doctor's touching/pointing at tool	Paper-based guidelines for clinician-patient treatment decision	Minutes			10	6	
		Implicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision	Minutes			11	1	0.007
		Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision	Minutes			8	6	0.007
	Doctor's eye-gaze toward tool	Paper-based guidelines for clinician-patient treatment decision	Minutes			10	5	
		Implicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision	Minutes			11	15	0.001

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
		Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision	Minutes			8	16	0.001
	Patient's eye-gaze toward tool	Paper-based guidelines for clinician-patient treatment decision	Minutes			10	5	
		Implicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision	Minutes			11	16	0.0001
		Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision	Minutes			8	16	0.0001
Liaw, 1998[12]	Improved patient's knowledge of own health	Patients with one or more chronic health problems, without PHR received		22		22		
		Patients with one or more chronic health problems, without PHR received		29		29	56%	
		Post-test group, without PHR		NR		NR		
	Patient felt more responsible for own health	Patients with one or more chronic health problems, without PHR received		NR		NR		
		Patients with one or more chronic health problems, without PHR received		NR		NR	52%	
		Post-test group, without PHR		NR		NR		

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
	Improved knowledge of health promotion tasks	Patients with one or more chronic health problems, without PHR received		NR		NR		
		Patients with one or more chronic health problems, without PHR received		NR		NR	41%	
		Post-test group, without PHR		NR		NR		
	Improved sharing of information with family	Patients with one or more chronic health problems, without PHR received		NR		NR		
		Patients with one or more chronic health problems, without PHR received		NR		NR	38%	
		Post-test group, without PHR		NR		NR		
	Improved patient-doctor communication	Patients with one or more chronic health problems, without PHR received		NR		NR		
		Patients with one or more chronic health problems, without PHR received		NR		NR	32%	
		Post-test group, without PHR		NR		NR		
	Improved sharing of information with hospital	Patients with one or more chronic health problems, without PHR received		NR		NR		
		Patients with one or more chronic health problems, without PHR received		NR		NR		
		Post-test group, without PHR		NR		NR		

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
	Improved sharing of information with other health care providers	Patients with one or more chronic health problems, without PHR received		NR		NR		
		Patients with one or more chronic health problems, without PHR received		NR		NR		
		Post-test group, without PHR		NR		NR		
	Impact on systolic BP	Patients with one or more chronic health problems, without PHR received		16		NR		
		Patients with one or more chronic health problems, without PHR received		20		NR		0.04
		Post-test group, without PHR		NR		NR		
	Impact on diastolic BP	Patients with one or more chronic health problems, without PHR received		NR		NR		
		Patients with one or more chronic health problems, without PHR received		NR		NR		Not significant
Kuppermann, 2009[13]	Knowledge score (%) post-viewing	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	64.9	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	79.5	<0.001

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
	Knowledge score (%) 1-2 weeks later	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	65.5	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	77.6	<0.001
	Correct procedure-related miscarriage risk estimate (%) post-viewing	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	48.1	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	64.9	0.002
	Correct procedure-related miscarriage risk estimate (%) 1-2 weeks later	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	51	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	55.7	0.39

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
	Correct DS-affected fetus estimate (%) post-viewing	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	51.1	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	63.5	<0.001
	Correct DS-affected fetus estimate (%) 1-2 weeks later	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	15.7	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	42.8	<0.001
	Intervention satisfaction – Post-reviewing	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	7.5	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	8.1	<0.001

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
	Intervention satisfaction 1-2 weeks later	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	7.5	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	8.2	<0.001
	Intervention satisfaction at 26-30 weeks of gestation	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	7.5	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking				202	8.2	<0.001
	Decisional conflict – Factors contributing to uncertainty 1-2 weeks later	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	40.2	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	32.1	<0.001

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
	Decisional conflict – Factors contributing to uncertainty 1-2 weeks later	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	38.8	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	32.3	0.005
	Decisional conflict – factors contributing to uncertainty at 26-30 weeks of gestation	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	26.2	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	21.9	0.01
	Factors contributing to uncertainty 1-2 weeks later	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	26.2	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	19.2	<0.001

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
	Factors contributing to uncertainty at 26-30 weeks of gestation	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	19.4	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	15.2	<0.001
	Ineffective decision 1-2 weeks later	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	17.7	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	15.4	0.11
	Ineffective decision at 26-30 weeks of gestation	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	32	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	31.4	0.47

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
	Overall decisional conflict 1-2 weeks later	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	20.9	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	19.1	0.21
	Overall decisional conflict at 26-30 weeks of gestation	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	23.9	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	20.6	0.001
	Decision regret (%) at 26-30 weeks of gestation	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	12.8	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	9.6	0.28

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
	Intervention affected prenatal testing plan (%) 1-2 weeks later	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	27.5	
		Intervention group receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	47.8	<0.001
	Intervention affected prenatal testing plan (%) 1-2 weeks later	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	36	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	38.2	0.85
	Satisfaction in decision making (%) – Information given by the provider at 26-30 weeks of gestation	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	49.2	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	44.8	0.40

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
	Satisfaction in decisionmaking (%) – Way of decision given by the provider at 26-30 weeks of gestation	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252			48.1	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		244		202	44.3	0.45
	Satisfaction in decision making (%) – Degree of involvement of the provider at 26-30 weeks of gestation	Control group did not receive computerized interactive prenatal testing decision tool on prenatal testing decisionmaking		252		218	79.9	
		Intervention group received computerized interactive prenatal testing decision tool on prenatal testing decisionmaking					72.6	0.10
Lorig, 2006[14]	Health distress	Usual care	1-yr changes	501		426	-0.193	
		Internet-based CDSMP	1-yr changes	457		354	-0.377	
	Self-reported global health	Usual care	1-yr changes	501		426	-0.068	
		Internet-based CDSMP	1-yr changes	457		354	-0.102	
	Illness intrusiveness	Usual care	1-yr changes	501		426	-0.064	
		Internet-based CDSMP	1-yr changes	457		354	-0.150	
	Disability	Usual care	1-yr changes	501		426	-0.142	
		Internet-based CDSMP	1-yr changes	457		354	-0.166	
	Fatigue	Usual care	1-yr changes	501		426	-0.358	
		Internet-based CDSMP	1-yr changes	457		354	-0.720	
	Pain	Usual care	1-yr changes	501		426	-0.047	
		Internet-based CDSMP	1-yr changes	457		354	-0.367	
	Shortness of breath	Usual care	1-yr changes	501		426	-0.216	
		Internet-based CDSMP	1-yr changes	457		354	-0.537	

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
	Aerobic exercise	Usual care	1-yr changes	501		426	7.99	
		Internet-based CDSMP	(min/wk) 1-yr changes	457		354	12.1	
	Stretch/strength exercise	Usual care	(min/wk) 1-yyr changes	501		426	1.16	
		Internet-based CDSMP	(min/wk) 1-yr changes	457		354	11.9	
	Communication with physician	Usual care	1-yr changes	501		426	0.221	
		Internet-based CDSMP	1-yr changes	457		354	0.268	
	Practice stress management (times/week)	Usual care	(times/wk) 1-yr changes	501		426	0.200	
		Internet-based CDSMP	(times/wk) 1-yr changes	457		354	0.647	
	Self-efficacy	Usual care	1-yr changes	501		426	0.200	
		Internet-based CDSMP	1-yr changes	457		354	0.406	
	Physician visits (past 6 mo)	Usual care	1-yr changes	501		426	-0.866	
		Internet-based CDSMP	1-yr changes	457		354	-0.680	
	Emergency visits (past 6 months)	Usual care	1-yr changes	501		426	-0.144	
		Internet-based CDSMP	1-yr changes	457		354	-0	
	Days in hospital (past 6 months)	Usual care	1-yr changes	501		426	-0.243	
		Internet-based CDSMP	1-yr changes	457		354	-0.003	
Lowensteyn, 1998[15]	Likelihood of high-risk Patients for a followup coronary risk assessment	The control group physician received their profile only if the patient was clinically reevaluated during a 3-month followup visit		110				
		The profile group physician received coronary risk profiles for their patients within 10 working days after the baseline patient assessment, providing early feedback		494		494		

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
	Likelihood of low-risk patients for a followup coronary risk assessment	The control group physician received their profile only if the patient was clinically reevaluated during a 3-month followup visit		66				
		The profile group physician received coronary risk profiles for their patients within 10 working days after the baseline patient assessment, providing early feedback		288		288		
	Impact of coronary risk profiles on CHD risk factors –Total cholesterol (mmol/l)	The control group physician received their profile only if the patient was clinically reevaluated during a 3-month followup visit		89			6.11	
		The profile group physician received coronary risk profiles for their patients within 10 working days after the baseline patient assessment, providing early feedback		202		202	6.55	0.05
	Impact of coronary risk profiles on CHD risk factors – HDL cholesterol (mmol/l)	The control group physician received their profile only if the patient was clinically reevaluated during a 3-month followup visit		89			1.16	

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
		The profile group physician received coronary risk profiles for their patients within 10 working days after the baseline patient assessment, providing early feedback		202		202	1.13	0.55
	Impact of coronary risk profiles on CHD risk factors – LDL cholesterol (mmol/l)	The control group physician received their profile only if the patient was clinically reevaluated during a 3-month followup visit		89			3.88	
		The profile group physician received coronary risk profiles for their patients within 10 working days after the baseline patient assessment, providing early feedback		202		202	4.37	0.05
	Impact of coronary risk profiles on CHD risk factors – Total/HDL ratio cholesterol (mmol/l)	The control group physician received their profile only if the patient was clinically reevaluated during a 3-month followup visit		89			5.7	
		The profile group physician received coronary risk profiles for their patients within 10 working days after the baseline patient assessment, providing early feedback		202		202	6.2	0.05

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
	Impact of coronary risk profiles on CHD risk factors – Systolic BP (mm Hg)	The control group physician received their profile only if the patient was clinically reevaluated during a 3-month followup visit		89			129.2	
		The profile group physician received coronary risk profiles for their patients within 10 working days after the baseline patient assessment, providing early feedback		202		202	133	0.61
	Impact of coronary risk profiles on CHD risk factors – Diastolic BP (mm Hg)	The control group physician received their profile only if the patient was clinically reevaluated during a 3-month followup visit		89			79.8	
		The profile group physician received coronary risk profiles for their patients within 10 working days after the baseline patient assessment, providing early feedback		202		202	82.3	0.99
	Impact of coronary risk profiles on CHD risk factors – Body mass index (kg/m^2)	The control group physician received their profile only if the patient was clinically reevaluated during a 3-month followup visit		89			27.8	

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
		The profile group physician received coronary risk profiles for their patients within 10 working days after the baseline patient assessment, providing early feedback		202		202	28.6	0.31
	Impact of coronary risk profiles on CHD risk factors – Smokers	The control group physician received their profile only if the patient was clinically reevaluated during a 3-month followup visit		89			21	
		The profile group physician received coronary risk profiles for their patients within 10 working days after the baseline patient assessment, providing early feedback		202		202	42	0.64
	Impact of coronary risk profiles on CHD risk factors – 8-yr coronary risk %	The control group physician received their profile only if the patient was clinically reevaluated during a 3-month followup visit		89			52	
		The profile group physician received coronary risk profiles for their patients within 10 working days after the baseline patient assessment, providing early feedback		202		202	12	<0.01

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
	Impact of coronary risk profiles on CHD risk factors – Cardiovascular age (yrs)	The control group physician received their profile only if the patient was clinically reevaluated during a 3-month followup visit		89			52	
		The profile group physician received coronary risk profiles for their patients within 10 working days after the baseline patient assessment, providing early feedback		202		202	54	<0.01
Maslin, 1998[16]	Mental health score on SF-36 questionnaire	Control – Usual care from multidisciplinary team			68	NR	68	
		Intervention – Interactive video disk system + usual care from multidisciplinary team			60	NR	68	0.02
	Anxiety score on the Hospital Anxiety and Depression Scale	Control – Usual care from multidisciplinary team				NR		<0.001
		Intervention – Interactive video disk system + usual care from multidisciplinary team				NR		<0.001
	Viewing IVD had impact on surgical choice	Intervention – Interactive video disk system + usual care from multidisciplinary team				NR	12.5	
		Intervention – Interactive video disk system + usual care from multidisciplinary team				NR	14.2	
McCrossan,	Specific concern	Videoconference	%			22	62	

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
2007[17]	raised by parent	Telephone	%			25	58	
	No medical attention needed	Videoconference	%			22	76	
		Telephone	%			25	64	
	Nurse informs medical consultant	Videoconference	%			22	20	
		Telephone	%			25	14	
	Nurse advises to take NHS action	Videoconference	%			22	4	
		Telephone	%			25	22	
Montgomery, 2007[18]	Decisional conflict scale (total)	Standard care	Score				27.8	
		Information program	Score				22.5	
		Decision analysis	Score				23.6	
	Mode of delivery – Elective caesarean	Standard care	N				50	
		Information program	N			117	49	
		Decision analysis	N				41	
	Mode of delivery – Emergency Caesarean	Standard care	N				20	
		Information program	N			53	22	
		Decision analysis	N			50	21	
	Mode of delivery – Vaginal birth	Standard care	N				30	
		Information program	N				29	
		Decision analysis	N			88	37	
	Anxiety	Standard care					42.1	
		Information program					38.5	
		Decision analysis					38.7	
	Knowledge	Standard care					57.5	
		Information program					69.7	
		Decision analysis					68.0	
	Satisfaction with decision	Standard care					4.2	
		Information program					4.3	
		Decision analysis					4.4	
Peters, 2006[19]	Global Patient Assessment of Care Index	Without computer-assisted decision support technology to assist with patient screening		309	25	331	21.2	
		Computer-assisted decision support technology to assist with patient screening		296	25	350	28.6	0.99/<0.001

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
	Satisfaction With Care Index	Without computer-assisted decision support technology to assist with patient screening		309	13.4	331	8.9	
		Computer-assisted decision support technology to assist with patient screening		296	13.7	350	17.4	0.79/<0.001
	Technical Quality of Care Index	Without computer-assisted decision support technology to assist with patient screening		309	28.3	331	22.2	
		Computer-assisted decision support technology to assist with patient screening		296	28.3	350	30.3	1.00/<0.001
	Respect for Patient Index	Without computer-assisted decision support technology to assist with patient screening		309	26.7	331	18	
		Computer-assisted decision support technology to assist with patient screening		296	25.5	350	23.9	0.48/<0.001
	Communication Index	Without computer-assisted decision support technology to assist with patient screening		309	31.5	331	32.5	
		Computer-assisted decision support technology to assist with patient screening		296	32.1	350	44	0.75/<0.001
	Financial Aspect of Care Index	Without computer-assisted decision support technology to assist with patient screening		309	31.4	331	33.3	

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
		Computer-assisted decision support technology to assist with patient screening		296	30.6	350	40.1	0.72/<0.001
	Access to Care Index	Without computer-assisted decision support technology to assist with patient screening		309	20.5	331	16.2	
		Computer-assisted decision support technology to assist with patient screening		296	21.2	350	20.7	0.66/0.008
	Health worker's attitude – Use computer for diagnosis and treatment	Without computer-assisted decision support technology to assist with patient screening		20	5.3	22	13.6	
		Computer-assisted decision support technology to assist with patient screening		17	11.1	23	39.1	0.51/0.05
	Health worker's attitude – Use equipment at work	Without computer-assisted decision support technology to assist with patient screening		20	5.3	22	22.7	
		Computer-assisted decision support technology to assist with patient screening		17	5.6	23	30.4	0.97/0.56
	Health worker's attitude – Learning new technology	Without computer-assisted decision support technology to assist with patient screening		20	94.7	22	90.9	
		Computer-assisted decision support technology to assist with patient screening		17	88.9	23	91.3	0.51/0.96

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
	Health worker's attitude – What technology needs to use in the clinic	Without computer-assisted decision support technology to assist with patient screening		20	57.9	22	77.3	
		Computer-assisted decision support technology to assist with patient screening		17	72.2	23	95.7	0.36/0.07
	Health worker's attitude – Medical information readily available on a computer	Without computer-assisted decision support technology to assist with patient screening		20	0	22	18.2	
		Computer-assisted decision support technology to assist with patient screening		17	0	23	52.2	na/0.02
	Health worker's attitude – Patients' medical history available on a computer in the clinic	Without computer-assisted decision support technology to assist with patient screening		20	0	22	27.3	
		Computer-assisted decision support technology to assist with patient screening		17	11.1	23	69.6	0.23/0.005
	Health worker's attitude – Have computer in the clinic	Without computer-assisted decision support technology to assist with patient screening		20	15.8	22	36.4	
		Computer-assisted decision support technology to assist with patient screening		17	5.6	23	87	0.60/<0.001
	Health worker's attitude – Use a computer in the clinic	Without computer-assisted decision support technology to assist with patient screening		20	0.013.6	22		

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
		Computer-assisted decision support technology to assist with patient screening		17	5.6	23	39.1	0.49/0.05
Saver, 2007[20]	Decisional satisfaction	Brochure	Quality scores		22.2	199	24.7	
		CHESS-MAB, Web-based decision support	Quality scores	173	22.2	144	24.5	
	Decisional conflict	Brochure	Quality scores		8.6	199	7.5	
		CHESS-MAB, Web-based decision support	Quality scores	173	8.4	144	7.7	
	Knowledge	Brochure	Quality scores		10.3	199	12.8	
		CHESS-MAB, Web-based decision support	Quality scores	173	10.5	144	14.3	
Schapira, 2007[21]	Knowledge	Control intervention consisting of a printed pamphlet		88		86	15.5	
		Computer-based HT decision aid		89		85	15.1	
	Satisfaction with decision	Control intervention consisting of a printed pamphlet		88		86	4.37	
		Computer-based HT decision aid		89		85	4.37	
	Decision conflict – Total	Control intervention consisting of a printed pamphlet		88		86	1.78	
		Computer-based HT decision aid		89		85	1.74	
	Decision conflict – Decisional uncertainty subscale	Control intervention consisting of a printed pamphlet		88		86	1.9	
		Computer-based HT decision aid		89		85	1.88	
	Decision conflict – Factors of uncertainty subscale	Control intervention consisting of a printed pamphlet		88		86	1.78	
		Computer-based HT decision aid		89		85	1.73	

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
	Decision conflict – Effective decisionmaking subscale	Control intervention consisting of a printed pamphlet		88		86	1.7	
		Computer-based HT decision aid		89		85	1.64	
Schifferdecker, 2008[22]	Ability to find information on the Web	Delayed intervention group (RCT control group at followup 1 only)	Scale 1-5	20	3.4	20	3.5	
		Practitioners trained in information management	Scale 1-5	25	3.1	25	3.8	<=0.05
	Ability to find educational materials on the Web for patients	Delayed intervention group (RCT control group at followup 1 only)	Scale 1-5	20	2.4	20	2.4	
		Practitioners trained in information management	Scale 1-5	25	2.1	25	3.1	<=0.05
	Skills for finding information on the Web for patients	Delayed intervention group (RCT control group at followup 1 only)	Scale 4-20	20	10.6	20	10.4	
		Practitioners trained in information management	Scale 4-20	25	7.6	25	11	<=0.05
	Skills in using a variety of Web-based resources	Delayed intervention group (RCT control group at followup 1 only)	Scale 8-40	20	13.9	20	13.9	
		Practitioners trained in information management	Scale 8-40	25	10	25	21.2	<=0.05
	Provider uses Web for patient care decisions	Delayed intervention group (RCT control group at followup 1 only)	Scale 7-28	20	10.1	20	8.9	
		Practitioners trained in information management	Scale 7-28	25	7.8	25	10	<=0.05

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
	Like patients to bring information from the Web	Delayed intervention group (RCT control group at followup 1 only)	Scale 1-5	20	3.4	20	3.5	
		Practitioners trained in information management	Scale 1-5	25	3.2	25	3.8	<=0.05
	Leadership encourages using Web for patient education	Delayed intervention group (RCT control group at followup 1 only)	Scale 1-5	20	2.9	20	2.9	
		Practitioners trained in information management	Scale 1-5	25	2.6	25	3.5	<=0.05
Schumann, 2008[23]	1st letter, normative feedback: Precontemplation – Theoretical number	Participants received only one computer-tailored feedback letter (normative comparisons only)				727		
	2nd letter, normative and ipsative feedback: Precontemplation – Theoretical number	Participants received two tailored feedback letters				471		
	3rd letter, normative and ipsative feedback: Precontemplation – Theoretical number	Participants received three tailored feedback letters				422	54.6	
	1st letter, normative feed back: Precontemplation – Empirical number	Participants received only one computer-tailored feedback letter (normative comparisons only)				727		
	2nd letter, normative and ipsative feedback: Precontemplation – Empirical number	Participants received two tailored feedback letters				471		

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
	3rd letter, normative and ipsative feedback: Precontemplation – Empirical number	Participants received three tailored feedback letters				422	54.6	
	1st letter, normative feedback: Precontemplation – Empirical frequency	Participants received only one computer-tailored feedback letter (normative comparisons only)				727		
	2nd letter, normative and ipsative feedback: Precontemplation – Empirical frequency	Participants received two tailored feedback letters				471	57.5	
	3rd letter, normative and ipsative feedback: Precontemplation – Empirical frequency	Participants received three tailored feedback letters				422	54.6	
	1st letter, normative feedback: Contemplation – Theoretical number	Participants received only one computer-tailored feedback letter (normative comparisons only)				282		
	2nd letter, normative and ipsative feedback: Contemplation – Theoretical number	Participants received two tailored feedback letters				279	34.1	
	3rd letter, normative and ipsative feedback: Contemplation – Theoretical number	Participants received three tailored feedback letters				258	33.4	
	1st letter, normative feedback: Contemplation – Empirical number	Participants received only one computer-tailored feedback letter (normative comparisons only)				282		

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
	2nd letter, normative and ipsative feedback: Contemplation – Empirical number	Participants received two tailored feedback letters				279		
	3rd letter, normative and ipsative feedback: Contemplation – Empirical number	Participants received three tailored feedback letters				258	33.4	
	1st letter, normative feedback: Contemplation – Empirical frequency	Participants received only one computer-tailored feedback letter (normative comparisons only)				282		
	2nd letter, normative and ipsative feedback: Contemplation – Empirical frequency	Participants received two tailored feedback letters				279		
	3rd letter, normative and ipsative feedback: Contemplation – Empirical frequency	Participants received three tailored feedback letters				258	33.4	
	1st letter, normative feedback: Preparation – Theoretical number	Participants received only one computer-tailored feedback letter (normative comparisons only)				35		
	2nd letter, normative and ipsative feedback: Preparation – Theoretical number	Participants received two tailored feedback letters				41		
	3rd letter, normative and ipsative feedback: Preparation – Theoretical number	Participants received three tailored feedback letters				34	4.4	

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
	1st letter, normative feedback: Preparation – Empirical number	Participants received only one computer-tailored feedback letter (normative comparisons only)				35	3.4	
	2nd letter, normative and ipsative feedback: Preparation – Empirical number	Participants received two tailored feedback letters				41	5	
	3rd letter, normative and ipsative feedback: Preparation – Empirical number	Participants received three tailored feedback letters				34	4.4	
	1st letter, normative feedback: Preparation – Empirical frequency	Participants received only one computer-tailored feedback letter (normative comparisons only)				35	3.4	
	2nd letter, normative and ipsative feedback: Preparation – Empirical frequency	Participants received two tailored feedback letters				41	5	
	3rd letter, normative and ipsative feedback: Preparation – Empirical frequency	Participants received three tailored feedback letters				34	4.4	
	2nd letter, normative and ipsative feedback:Action – Theoretical number	Participants received two tailored feedback letters				28	3.4	
	3rd letter, normative and ipsative feedback: Action – Theoretical number	Participants received three tailored feedback letters				50	6.5	

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
	2nd letter, normative and ipsative feedback: Action – Empirical number	Participants received two tailored feedback letters				28	3.4	
	3rd letter, normative and ipsative feedback: Action – Empirical number	Participants received three tailored feedback letters				50	6.5	
	2nd letter, normative and ipsative feedback: Action – Empirical frequency	Participants received two tailored feedback letters				28	3.4	
	3rd letter, normative and ipsative feedback: Action – Empirical frequency	Participants received three tailored feedback letters				50	6.5	
	3rd letter, normative and ipsative feedback- Maintenance - Theoretical number	Participants received three tailored feedback letters				50	1.2	
	3rd letter, normative and ipsative feedback: Maintenance – Theoretical number	Participants received three tailored feedback letters				9	1.2	
	3rd letter, normative and ipsative feedback: - Maintenance – Theoretical number	Participants received three tailored feedback letters				9	1.2	
Sciamanna, 2006[24]	Question on history of migraine headaches or some other type of headaches	Group did not use the Web site before a doctor visit				22	54.5	
		Group used the Web site before a doctor visit				28	89.3	<0.01

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
	Question on cause of headaches	Group did not use the Web site before a doctor visit				22	13.6	
		Group used the Web site before a doctor visit				28	50	<0.01
	Question on taking nausea medication	Group did not use the Web site before a doctor visit				22	4.5	
		Group used the Web site before a doctor visit				28	21.4	
	Question on migraine-specific medication	Group did not use the Web site before a doctor visit				22	54.5	
		Group used the Web site before a doctor visit				28	53.6	
	Question on "triptan" medication	Group did not use the Web site before a doctor visit				22	22.7	
		Group used the Web site before a doctor visit				28	14.3	
	Question on medication to prevent headaches	Group did not use the Web site before a doctor visit				22	63.6	
		Group used the Web site before a doctor visit				28	67.9	
	Question on different medication to prevent headaches	Group did not use the Web site before a doctor visit				22	50	
		Group used the Web site before a doctor visit				28	39.3	
	Question on headache treatment such as relaxation	Group did not use the Web site before a doctor visit				22	40	

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
		Group used the Web site before a doctor visit				28	42.9	
	Question on headache caused by medicine	Group did not use the Web site before a doctor visit				22	13.6	
		Group used the Web site before a doctor visit				28	28.6	
	Question on how to avoid headache triggers	Group did not use the website before a doctor visit				22	31.8	
		Group used the Website before a doctor visit				28	50	
	Question on benefits from seeing a headache specialist	Group did not use the Web site before a doctor visit				22	3.8	
		Group used the Web site before a doctor visit				28	32.1	
	Question on satisfaction with visit	Group did not use the Web site before a doctor visit				22	3.8	
		Group used the Web site before a doctor visit				28	4	0.51
	Question on printing any information from the website	Group did not use the Web site before a doctor visit				22	n/a	
		Group used the Web site before a doctor visit				28	78.6	
	Question on bringing printout to the doctor	Group did not use the Web site before a doctor visit				22	n/a	
		Group used the Web site before a doctor visit				28	28.6	

Evidence Table 28. All outcomes of studies addressing improving shared decision-making between the patient and clinician (continued)

Author, Year	Outcome	Control Intervention	Units	Baseline n	Baseline Measure	Final n (or n After Withdrawals)	Final Measure	P-value
	Question on Web site suggestion	Group did not use the Web site before a doctor visit				22	n/a	
		Group used the Web site before a doctor visit				28	64.3	
	Question on how many days of the week taking medication	Group did not use the Web site before a doctor visit				22	68.2	
		Group used the Web site before a doctor visit				28	64.3	
	Question on overall number of topics discussed	Group did not use the Web site before a doctor visit				22	4.3	
		Group used the Web site before a doctor visit				28	5.5	0.83
Whited, 2002-[25]	Time to initial definitive intervention	Text-based electronic consult form	Days			140	127	
		Telederm consult with digital images and standardized history	(i.e., time to setting consult appointment or providing consult answers if visit unneeded			135	41	<0.001

BP: Blood pressure, CDSMP: Chronic Disease Self-Management Program, CDT: Chronic disease trajectory group, CVD: Cardiovascular disease, DBP: Diastolic blood pressure, FFQ: Food frequency questionnaire, HDL: High density lipoprotein, HT: Hormone therapy, HTN: Hypertension, IVD: Interactive video disk system, LDL: Low density lipoprotein, RCT: Randomized controlled trial, SBP: Systolic blood pressure, TDA: Traditional decision aid, TTYD: Talk to Your Doc

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Evidence Table 29. Outcomes related to diabetes mellitus in studies related to shared decision-making between patients, their families, and providers, clinician communication, or providing patients and clinicians access to medical information.

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
Gomez, 2002[1]	Median HbA1c level	% of glycated hemoglobin	Group using Idabel telemedicine system vs. Usual care group	10	8.10	8.15	0.05	-0.55	0.053
				10	8.4	7.9	-0.5	-0.25	
	Mean therapeutic medication prescriptions increased	Number of medication prescriptions	Group using DIABTel telemedicine system vs. Usual care group	10		0.2			**SNR
				10		2.9		2.7	

**SNR: Significance not reported

P-value of 0 = p-value > 0.10
HbA1c: Glycated hemoglobin

Reference List

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Evidence Table 30. Outcomes related to heart disease in studies related to shared decision-making between patients, their families, and providers, clinician communication, or providing patients and clinicians access to medical information.

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
Fretheim, 2006[1]	Thiazides prescription (%)	% of patients	Educational outreach visit with audit and feedback, and computerized reminders linked to the medical record system vs. Passive dissemination of guidelines	446	8.8	11.1	2.3	9.2	<0.001
				516	5.8	17.3	11.5	6.2	
	Cardiovascular risk among patients started on treatment	Cardiovascular risk score	Educational outreach visit with audit and feedback, and computerized reminders linked to the medical record system vs. Passive dissemination of guidelines	446	14.5	14	-0.5	-0.3	0
				516	15.1	14.3	-0.8	0.3	
	Patients with cardiovascular risk above 20%	% of patients with outcome	Educational outreach visit with audit and feedback, and computerized reminders linked to the medical record system vs. Passive dissemination of guidelines	446	23.4	22	-1.4	-1.5	0
				516	25.8	22.9	-2.9	0.9	

Evidence Table 30. Outcomes related to heart disease in studies related to shared decision-making between patients, their families, and providers, clinician communication, or providing patients and clinicians access to medical information (continued)

	Treatment goal achieved among diabetes patients	% of patients with outcome	Educational outreach visit with audit and feedback, and computerized reminders linked to the medical record system vs. Passive dissemination of guidelines	446	30.6	33.7	3.1	-2.2	0
				516	30.6	31.5	0.9	-2.2	
	Treatment goal for hypertension achieved	% of patients with outcome	Educational outreach visit with audit and feedback, and computerized reminders linked to the medical record system vs. Passive dissemination of guidelines	446	29.7	31.3	1.6	0.8	0
				516	24.8	27.2	2.4	-4.1	
Green, 2008[2]	Mean increase in patient-initiated threads	Communication threads	BP monitoring and patient Web services vs. Usual care	247		1.8			0.01
				246		2.7		0.9	
	Mean increase in patient-initiated threads	Communication threads	BP monitoring and patient Web services and pharmacist care vs. Usual care	247		1.8			<0.01
				237		4.2		2.40	
	Telephone encounters	Telephone encounters	BP monitoring and patient Web services vs. Usual care	247		4			<0.001
				246		7.5		3.5	
	Telephone	Telephone	BP monitoring	247		4			**SNR

Evidence Table 30. Outcomes related to heart disease in studies related to shared decision-making between patients, their families, and providers, clinician communication, or providing patients and clinicians access to medical information (continued)

	encounters	encounters	and patient Web services and pharmacist care vs. Usual care	237		3.8		-0.20	
	Primary care visits	Visits	BP monitoring and patient Web services vs. Usual care	247		3.2			0
				246		3		-0.2	
	Primary care visits	Visits	BP monitoring and patient Web services and pharmacist care vs. Usual care	247		3.2			0
Kaner, 2007[3]	Median consultation times	Minutes	Implicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision vs. Paper-based guidelines for clinician-patient treatment decision	10		21			0.001
				11		31		10	
	Median	%	Implicit	10		60			0.09

Evidence Table 30. Outcomes related to heart disease in studies related to shared decision-making between patients, their families, and providers, clinician communication, or providing patients and clinicians access to medical information (continued)

	clinician's verbal dominance in 10 minutes preceding decision		computer-based decision aid, DARTS II, used for clinician-patient treatment decision vs. Paper-based guidelines for clinician-patient treatment decision	11		65		5	
	Median Doctor's information-seeking	Minutes	Implicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision vs. Paper-based guidelines for clinician-patient treatment decision	10		6			<0.004
				11		3		-3	
	Median doctor's pause	Minutes	Implicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision vs. Paper-based guidelines for clinician-patient treatment decision	10		6			<0.04
				11		4		-2	

Evidence Table 30. Outcomes related to heart disease in studies related to shared decision-making between patients, their families, and providers, clinician communication, or providing patients and clinicians access to medical information (continued)

	Median patient's negative talk	Minutes	Implicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision vs. Paper-based guidelines for clinician-patient treatment decision	10		2			<0.01
				11		0		-2	
	Median doctor's nodding	Minutes	Implicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision vs. Paper-based guidelines for clinician-patient treatment decision	10		17			0.005
				11		36		19	
	Median	Minutes	Implicit	10		4			0.006

Evidence Table 30. Outcomes related to heart disease in studies related to shared decision-making between patients, their families, and providers, clinician communication, or providing patients and clinicians access to medical information (continued)

	doctor's head shake		computer-based decision aid, DARTS II, used for clinician-patient treatment decision vs. Paper-based guidelines for clinician-patient treatment decision	11		2		-2	
	Median doctor's smiling	Minutes	Implicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision vs. Paper-based guidelines for clinician-patient treatment decision	10		0			0.04
				11		1		1	
	Median doctor's pointing at the patient	Minutes	Implicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision vs. Paper-based guidelines for clinician-patient treatment decision	10		1			0.01
				11		0		-1	

Evidence Table 30. Outcomes related to heart disease in studies related to shared decision-making between patients, their families, and providers, clinician communication, or providing patients and clinicians access to medical information (continued)

	Median doctor's touching/pointing at tool	Minutes	Implicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision vs. Paper-based guidelines for clinician-patient treatment decision	10		6			0.007
				11		1		-5	
	Median doctor's eye-gaze toward tool	Minutes	Implicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision vs. Paper-based guidelines for clinician-patient treatment decision	10		5			0.001
				11		15		10	
	Median	Minutes	Implicit	10		5			0.0001

Evidence Table 30. Outcomes related to heart disease in studies related to shared decision-making between patients, their families, and providers, clinician communication, or providing patients and clinicians access to medical information (continued)

	patient's eye-gaze toward tool		computer-based decision aid, DARTS II, used for clinician-patient treatment decision vs. Paper-based guidelines for clinician-patient treatment decision	11		16		11	
	Median consultation times	Minutes	Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision vs. Paper-based guidelines for clinician-patient treatment decision	10		21			0.001
				8		44		23	
	Median Clinician's verbal dominance in 10 minutes preceding decision (%)	%	Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision vs. Paper-based guidelines for clinician-patient treatment decision	10		60			0.09
				8		64		4	

Evidence Table 30. Outcomes related to heart disease in studies related to shared decision-making between patients, their families, and providers, clinician communication, or providing patients and clinicians access to medical information (continued)

	Median doctor's information-seeking	Minutes	Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision vs. Paper-based guidelines for clinician-patient treatment decision	10		6			0.004
				8		7		1	
	Median doctor's pause	Minutes	Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision vs. Paper-based guidelines for clinician-patient treatment decision	10		6			0.04
				8		1		-5	
	Median	Minutes	Explicit	10		2			0.01

Evidence Table 30. Outcomes related to heart disease in studies related to shared decision-making between patients, their families, and providers, clinician communication, or providing patients and clinicians access to medical information (continued)

	patient's negative talk		computer-based decision aid, DARTS II, used for clinician-patient treatment decision vs. Paper-based guidelines for clinician-patient treatment decision	8		1		-1	
	Median doctor's nodding	Minutes	Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision vs. Paper-based guidelines for clinician-patient treatment decision	10		17			<0.005
				8		21		4	
	Median doctor's head shake	Minutes	Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision vs. Paper-based guidelines for clinician-patient treatment decision	10		4			<0.006
				8		0		-4	

Evidence Table 30. Outcomes related to heart disease in studies related to shared decision-making between patients, their families, and providers, clinician communication, or providing patients and clinicians access to medical information (continued)

	Median doctor's smiling	Minutes	Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision vs. Paper-based guidelines for clinician-patient treatment decision	10		0			0.04
				8		2		2	
	Median doctor's pointing at the patient	Minutes	Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision vs. Paper-based guidelines for clinician-patient treatment decision	10		1			0.01
				8		0		-1	
	Median	Minutes	Explicit	10		6			0.007

Evidence Table 30. Outcomes related to heart disease in studies related to shared decision-making between patients, their families, and providers, clinician communication, or providing patients and clinicians access to medical information (continued)

	doctor's touching/pointing at tool		computer-based decision aid, DARTS II, used for clinician-patient treatment decision vs. Paper-based guidelines for clinician-patient treatment decision	8		6		0	
	Median doctor's eye-gaze toward tool	Minutes	Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision vs. Paper-based guidelines for clinician-patient treatment decision	10		5			<0.001
				8		16		11	
	Median patient's eye-gaze toward tool	Minutes	Explicit computer-based decision aid, DARTS II, used for clinician-patient treatment decision vs. Paper-based guidelines for clinician-patient treatment decision	10		5			<0.0001
				8		16			

Evidence Table 30. Outcomes related to heart disease in studies related to shared decision-making between patients, their families, and providers, clinician communication, or providing patients and clinicians access to medical information (continued)

Lowensteyn, 1998[4]	Ratio of high-risk/low-risk patients returning for follow up	Ratio of patients	Coronary risk profile to physician vs. No risk profile to physician	782		0.77			<0.05
				176		1.23		0.46	
	Total cholesterol	mmol/l	Coronary risk profile to physician vs. No risk profile to physician	782	6.11	6.02	-0.09	-0.4	0.05
				176	6.55	6.06	-0.49	0.04	
	HDL cholesterol	mmol/l	Coronary risk profile to physician vs. No risk profile to physician	782	1.16	1.16	0	0.02	0
				176	1.13	1.15	0.02	-0.01	
	LDL-c (mmol/l)	mmol/l	Coronary risk profile to physician vs. No risk profile to physician	782	3.88	3.87	-0.01	-0.39	0.05
				176	4.37	3.97	-0.4	0.10	
	Total cholesterol/HDL cholesterol ratio	No units	Coronary risk profile to physician vs. No risk profile to physician	782	5.7	5.5	-0.2	-0.4	0.05
				176	6.2	5.6	-0.6	0.10	
	Systolic BP	mmHg	Coronary risk profile to physician vs. No risk profile to physician	782	129.2	128	-1.2	-0.8	0
				176	133	131	-2	3.00	
	Diastolic BP	mmHg	Coronary risk profile to physician vs. No risk profile to physician	782	79.8	79.9	0.1	-1	0
				176	82.3	81.4	-0.9	1.50	
	Body mass index	kg/m^2	Coronary risk profile to physician vs. No risk profile to physician	782	27.8	27.5	-0.3	0.1	0
				176	28.6	28.4	-0.2	0.90	
	8-yr coronary	% of patients	Coronary risk	782	9.6	9.3	-0.3	-1.5	<0.01

Evidence Table 30. Outcomes related to heart disease in studies related to shared decision-making between patients, their families, and providers, clinician communication, or providing patients and clinicians access to medical information (continued)

	risk		profile to physician vs. No risk profile to physician	176	12	10.2	-1.8	0.90	
	Cardiovascular age	Years	Coronary risk profile to physician vs. No risk profile to physician	782	52	51.9	-0.1	-0.5	<0.01
				176	54	53.4	-0.6	1.50	
	Total cholesterol	mmol/l	Coronary risk profile to physician vs. No risk profile to physician	782	6.11	6.02	-0.09	-0.4	0.05
McCrossan, 2007[5]	Proportion: Concern by parents	% of patients	Videoconferencing for children with congenital heart disease vs. Teleconferencing	22		58			**SNR
				25		62		4	
	Proportion: No action needed	% of patients	Videoconferencing for children with congenital heart disease vs. Teleconferencing	22		64			**SNR
				22		76		12	
	Proportion: Inform consultant	% of patients	Videoconferencing for children with congenital heart disease vs. Teleconferencing	22		14			**SNR
				25		20		6	
	Proportion:	% of patients	Videoconferen	22		22			**SNR

Evidence Table 30. Outcomes related to heart disease in studies related to shared decision-making between patients, their families, and providers, clinician communication, or providing patients and clinicians access to medical information (continued)

	Advised NHS action		cing for children with congenital heart disease vs. Teleconferencing	25		4		-18	

**SNR: Significance not reported

P-value of 0 = p-value > 0.10

BP: Blood pressure, HDL-c; High-density lipoprotein cholesterol, kg: Kilograms, LDL-c: Low-density lipoprotein cholesterol, l: Liters, mmol: millimoles, mmHg: millimeters of mercury.

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Evidence Table 31. Outcomes related to cancer in studies related to shared decision-making between patients, their families, and providers, clinician communication, or providing patients and clinicians access to medical information.

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
Chan, 2008 [1]	Fecal occult blood tests returned	% of patients with outcome	e-mailed NetLET vs. NetLET sent through regular mail	35		8			**SNR
				42		11			
	Colon cancer screening appointments made	% of patients with outcome	e-mailed NetLET vs. NetLET sent through regular mail	35		50			**SNR
				42		50			
Frosch, 2008[2]	Total knowledge score/Imputed data	Score unit	Traditional didactic decision aid providing information about prostate-specific antigen (PSA) screening options and outcomes vs. Links to public prostate cancer-specific Web sites from credible sources	116		7.24			0.005
				155		8.14		0.9	
	Total knowledge score/Complete cases only	Score unit	Traditional didactic decision aid providing information about prostate-specific antigen (PSA) screening options and outcomes vs. Links to public prostate cancer-specific Web sites from credible sources	99		7.49			0.001
				119		8.65		1.16	
	Total knowledge score/Imputed data	Score unit	Chronic disease trajectory model for prostate cancer followed by a time-trade-off exercise vs. Links to public prostate cancer-specific Web sites from credible sources	116		7.24			0.005
				153		7.69		0.45	
	Total	Score unit	Chronic disease trajectory	99		7.49			0.001

Evidence Table 31. Outcomes related to cancer in studies related to shared decision-making between patients, their families, and providers, clinician communication, or providing patients and clinicians access to medical information (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	knowledge score/Complete cases only		model for prostate cancer followed by a time-trade-off exercise vs. Links to public prostate cancer-specific Web sites from credible sources	115		8.03		0.54	
	Total knowledge score/Imputed data	Score unit	Both the didactic decision aid and the chronic disease trajectory model vs. Links to public prostate cancer-specific Web sites from credible sources	116 152		7.24 7.71		 0.47	0.005
	Total knowledge score/Complete cases only	Score unit	Both the didactic decision aid and the chronic disease trajectory model vs. Links to public prostate cancer-specific Web sites from credible sources	99 117		7.49 8.03		 0.54	0.001
	PSA screening –Pre-test choice	% of patients with outcome	Traditional didactic decision aid providing information about prostate-specific antigen (PSA) screening options and outcomes vs. Links to public prostate cancer-specific Web sites from credible sources	116 155		96 95.5		 -0.5	**SNR
	PSA screening – Reduction	% of patients with outcome	Traditional didactic decision aid providing information about prostate-specific antigen (PSA) screening options and outcomes vs. Links to public prostate cancer-specific Web sites from credible sources	116 155		3.3 9.1		 5.8	0.047
	Watchful	% of patients	Traditional didactic decision	116		34.4			0

Evidence Table 31. Outcomes related to cancer in studies related to shared decision-making between patients, their families, and providers, clinician communication, or providing patients and clinicians access to medical information (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control / n Final Intervention	Control Outcome Measure at Baseline / Intervention Outcome Measure at Baseline	Control Outcome Measure at Final / Intervention Outcome Measure at Final	Control Change / Intervention Change	Change Difference / Final Difference	P-Value
	waiting at pre-test	with outcome	aid providing information about prostate-specific antigen (PSA) screening options and outcomes vs. Links to public prostate cancer-specific Web sites from credible sources	155		34.2		-0.2	
	PSA screening – Pretest choice	% of patients with outcome	Chronic disease trajectory model for prostate cancer followed by a time-trade-off exercise vs. Links to public prostate cancer-specific Web sites from credible sources	116 / 153		96 / 96.7		/ 0.7	**SNR
	PSA screening – Reduction	% of patients with outcome	Chronic disease trajectory model for prostate cancer followed by a time-trade-off exercise vs. Links to public prostate cancer-specific Web sites from credible sources	116 / 153		3.3 / 8.7		/ 5.4	0.047
	Watchful waiting at pre-test	% of patients with outcome	Chronic disease trajectory model for prostate cancer followed by a time-trade-off exercise vs. Links to public prostate cancer-specific Web sites from credible sources	116 / 153		34.4 / 34		/ -0.4	0
	PSA screening – Pre-test choice	% of patients with outcome	Both the didactic decision aid and the chronic disease trajectory model vs. Links to public prostate cancer-specific Web sites from credible sources	116 / 152		96 / 96.7		/ 0.7	**SNR
	PSA screening	% of patients	Both the didactic decision	116		3.3			0

Evidence Table 31. Outcomes related to cancer in studies related to shared decision-making between patients, their families, and providers, clinician communication, or providing patients and clinicians access to medical information (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	n Final Control n Final Intervention	Control Outcome Measure at Baseline Intervention Outcome Measure at Baseline	Control Outcome Measure at Final Intervention Outcome Measure at Final	Control Change Intervention Change	Change Difference Final Difference	P-Value
	– Reduction	with outcome	aid and the chronic disease trajectory model vs. Links to public prostate cancer-specific Web sites from credible sources	152		5.3		2	
	Watchful waiting at pre-test	% of patients with outcome	Both the didactic decision aid and the chronic disease trajectory model vs. Links to public prostate cancer-specific Web sites from credible sources	116 152		34.4 40.8		 6.4	0
Maslin, 1998[3]	Mental health score on Short Form-36 questionnaire	Score unit	Interactive video disk system + usual care from multidisciplinary team vs. Usual care from multidisciplinary team	49 51	68 60	68 68	0 8	8 0	0
	Anxiety score on the Hospital Anxiety and Depression Scale	Score unit	Interactive video disk system + usual care from multidisciplinary team vs. Usual care from multidisciplinary team	49 51				 0	<0.001
	Viewing interactive video disk had impact on surgical choice	% of patients with outcome	Intervention: Interactive video disk system + usual care from multidisciplinary team vs. Usual care from multidisciplinary team	49 51		No data 12.5		 *Insufficient data	0

P-value of 0 = p-value > 0.10

NetLET = Internet letter; PSA = Prostate-specific antigen; SNR = significance not reported

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Evidence Table 32. Characteristics of studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care

Author, Year	Condition	Study Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria
Abdullah, 2005[1]	Cancer	Survey	2003 (2 months)	Patient	Outpatient clinic, Reference to home	18 yrs or older, Can read, Had a malignancy, Attending the clinic	Illiterate, No malignancy, Refusal
Abraham, 2008[2]	Diabetes, hypertension, a diagnosis of chronic and/or congestive heart failure, chronic obstructive pulmonary disease, and/or surgical, pressure, or vascular wound care management	Qualitative Interview data were collected from the VA medical facility personnel	2006 (3-week intervals from January 2006 through May 2006)	Clinician	Medical system (network of hospitals and/or clinics)	VA medical facility personnel involved in the home telehealth program	NS
Ammenwerth, 2000[3]	Improving communication in clinical care using mobile communication tools	Usability, simulation study	1997(1 week)		Simulation test	NS	NS
Andreassen, 2006[4]	Not specified, Determinants of use of IT systems by patients	Qualitative interviews with patients	(Interviews were conducted 3 to 5 months before the 1-year intervention period ended)	Patient	A medical practice consisting of six GPs	Active user of PasientLink	NS
Ash, 2003[5]	Patterns and themes concerning perceptions of POE	Qualitative, Usability	NS	System	Medical system (network of hospitals and/or clinics)	NS	NS
Audet, 2004[6]		Self-administered mail surveys	2003 (3 months)	Clinician	Medical system	Physicians involved in direct patient care of	Specialists unlikely to be involved in patient

Evidence Table 32. Characteristics of studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Condition	Study Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria
					(network of hospitals and/or clinics)	adults, In practice at least 3 yrs postresidency	care long term (e.g., radiologists, anesthesiologists, pathologists, and dermatologists)
Avery, 2007[7]	Improving general practice computer systems to enhance safety in primary care	Qualitative semi-structured interviews	2003	Professionals with a range of experiences of using clinical computer systems	Medical system (network of hospitals and/or clinics)	General practitioners and other professionals known to have a range of experiences of using clinical computer systems	NS
Barak, 2006[8]	Intervention helpfulness	Qualitative	NS	Clients seeking support through online support chat and professional therapists who evaluated the discussions	Pool of archived conversations	NS	NS
Bar-Lev, 2006[9]	EMR	Qualitative interviews	2001(2001-2003)	System, Clinician	Hospital	NS	NS
Beale, 2006[10]	Cancer (other)	RCT	(At least 3 months), NS	Patient	Patient	Age 13-29, Cancer diagnosis	History of photo seizures, Inability to communicate in English, Spanish, or French, Incapable of following study schedule
Benaroia, 2007-[11]	No specified condition in general group of 67 patients; 15 patients in substudy had	Quasi-experimental: 15 patients whose history obtained by computer and by physician were	NS	Patient	Hospital, Specifically ED	>18 yrs of age, Nonemergent	NS

Author, Year	Condition	Study Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria
	CC of abdominal pain	compared; Usability: 67 patients asked to provide history by computer; Feasibility pilot study					
Bernhardt, 2002[12]	Human genetics health communication	Focus groups, Interview	2000 (winter and spring)	Patient	Non-medical	NS	NS
Bernheim, 2006[13]	Cardiac patients	Survey	(12 months)	Patient	Hospitalized in short-term clinic for cardiac investigation	All patients who had been hospitalized in the clinic, Consented to the study, Received a CardioCare card	NS
Blanchfield, 2006[14]	Diabetes	Qualitative	2000	Health care system	NS	NS	NS
Bobrie, 2007[15]	Hypertension	Prospective, open-label, single-group pilot study	NS	System, Patient	Outpatient clinic, Medical system (network of hospitals and/or clinics)	Hypertensive patients 18 yrs or older treated by monotherapy, with either uncontrolled hypertension (SBP >=140, or DBP >=90 mm Hg) or treatment-related side effects	Severe hypertension (SBP >180, or DBP >110 mm Hg), A known or suspected allergy to diuretics, angiotensin-converting enzyme-inhibitors, or angiotensin receptor blockers, Hyponatremia or hypovolemia, Secondary hypertension, Uncontrolled hypertension after the administration of two antihypertensive drugs, Diabetes mellitus, Renal impairment (serum creatinine, 150 mol/L),

Evidence Table 32. Characteristics of studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Condition	Study Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria
							Obesity (with which the HBPM device is not validated)
Bowns, 2006[16]	SF: various dermatology issues	RCT, Qualitative, Patient survey, Patient interview, Provider survey, Provider interview	1998 (NS)	System	Hospital, Outpatient clinic	16 yrs or older, SF study: Requiring a new (not seen by a hospital dermatologist within the past year) consultant opinion	NS
Bratton, 2001-[17]	Telemedicine among geriatric patients	Two studies: Satisfaction Surveys	1998 and 2001	Patient	Outpatient clinic, Rural Retirement Community	NS	NS
Brebner, 2005[18]	Telemedicine	Qualitative, interviews, Retrospective outcome review	NS	NS	Scottish telemedicine services	NS	NS
Brooks, 2006[19]	General e-mail communication across practices	Cross-sectional survey (March-May, 2005) of all primary care physicians (n = 10253	2005 (3 months)	Clinician	Outpatient clinic	NS	Practice address outside of Florida, Did not traditionally practice in the ambulatory setting (e.g., radiologists, pathologists, anesthesiologists and emergency physicians)
Campbell, 2006[20]	All hospital patients	Field data collection (participant observation, semistructured interviews), Expert panel, Card sort	2004 (9 months)	Clinician	Hospital	Clinicians, hospital administrators or IT administrators (interviews)	NS
Carroll, 2002[21]	Diabetes	Usability	NS	Clinician, Patient	Outpatient clinic	Clinicians working at Hope Hospital Diabetes Centre or patients with type 2 diabetes mellitus	NS
Carroll, 2004[22]	PDA use in pediatricians	Usability, Survey	2002	Clinician	NS	NS	NS
Carroll,	Diabetes	Qualitative, Focus	NS (3 months)	Patient	Outpatient	13-18 yrs old, Normal	NS

Author, Year	Condition	Study Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria
2007[23]		groups, Usability: A pilot study was initiated to evaluate user satisfaction with the integrated system, including the potential of the device to transmit self-monitoring data to a Web site for review and analysis			clinic, Pediatric diabetes clinic	cognitive development, Type 1 diabetes	
Chen, 2008[24]	Not specified	RCT	2007 (2 months)	Patient	Outpatient clinic, Affiliated with Sir Run Shaw Hospital, School of Medicine, Zhejiang University, China	Had scheduled appointment in health promotion center	NS
Chinman, 2007[25]	Mental health (depression)	Qualitative surveys and focus groups	2004 (12 months)	Patient	Medical system (network of hospitals and/or clinics)	18 yrs or older, Clinical diagnosis in medical records of SMI (MDD, schizophrenia, schizoaffective, bipolar), Able to read English, Able to use a touchscreen computer monitor and follow instructions to complete the computerized interviews and written questionnaires, Did not have an LPS conservator, Did not rely on a family member for care	NS
Christensen,		Qualitative, Time spent with patient	2002, 2003, 2005	Clinician	Outpatient clinic	Norwegian GPs	NS

Evidence Table 32. Characteristics of studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Condition	Study Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria
2008[26]							
Chu, 2009[27]	None	RCT, Pre-/post-measures	2007 (9 months)	Patient	Community centers	> 65 yrs old, Attended community center, Could read and understand English, Able to identify the on switch button on the computer and hold a mouse to navigate the arrow on the screen, Self-identified the ability to do simple typing on a keyboard, Enrolled at congregate meal site of the YWCA	NS
Citerio, 2000[28]	Head injury	Usability	NS	System, Clinician	Hospital, Medical system (network of hospitals and/or clinics)	NS	NS
Crosson, 2005[29]	Electronic medical record	Qualitative case study	(1 yr)	Clinician	Outpatient clinic	NS	NS
Cruz-Correia, 2007[30]	Asthma	RCT	NS	System	Outpatient clinic	16-65 yrs old, Diagnosis of asthma for >6 months, Use of inhaled budesonide/formoterol, Pre-bronchodilator FEV1 >50% predicted	Severe psychiatric, neurological, oncologic or immunologic disease, Unable to access Internet during study period
Dansky, 2008[31]	Heart failure	RCT	March 2004 – December 31, 2005)	Patient	Community, Residents served by home health agency	Patient with heart failure, Ability to communicate in conversational English, Cognitively intact, Able to see and hear the equipment, Had a phone line in the	NS

Evidence Table 32. Characteristics of studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Condition	Study Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria
						home	
Day, 2007[32]	Videophone use	Qualitative technology acceptance model-based interviews	(2 months)	Clinician	2 hospices	Employed >6 months	NS
de Toledo, 2006[33]	COPD	RCT, Questionnaire	2002 (12 months)	Patient	Hospital, Outpatient clinic	COPD patient (admitted to the hospital for an acute episode)	NS
Delichatsios, 2001[34]	Obesity	RCT	(>6 months), NS	Patient	Outpatient clinic	More than 25 yrs old, Sedentary, Suboptimal diet	Debilitating medical condition, Regularly exercise
Demakis, 2000[35]	Clinical trial comparing the performance of residents receiving CRS with the performance of residents not receiving CRS	RCT, Usability	1995(5months)	Clinician	Hospital, Medical system (network of hospitals and/or clinics)	Resident physicians were chosen for participation because they were the VA physicians who were most involved in patient primary care at the time of the study	NS
Demiris, 2004-[36]	Telemedicine involving multiple clinical specialties, including radiology, psychiatry, behavioral health, dermatology, cardiology, endocrinology, child health, physical medicine and rehabilitation, adolescent	Qualitative semi-structured interview	NS	Telehealth professionals, including care providers (physicians, nurses, medical assistants, psychologists) who utilized the network to interact with patients, Administrators or	Public-private partnerships in telehealth: Missouri Telehealth Network (MTN)	Sample of telehealth professionals of the MTN was selected to include 80% of the professionals who were registered users of the MTN facilities and equipment	NS

Author, Year	Condition	Study Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria
	medicine, orthopedics, neurology, surgery			educators who interacted with other professionals			
Deutscher, 2008[37]	Physical therapy for neuromusculoskeletal disorders	Quasi-experimental, prospective observational cohort study, Qualitative	2005	Clinician, Patient	Outpatient clinic: the physical therapy service of Maccabi Healthcare Services, a public health maintenance organization	All patients18 yrs or older who were admitted during 2005 for physical therapy intervention, secondary to a neuromusculoskeletal diagnosis	NS
Dombkowski, 2007[38]	Asthma: The attitudes of pediatric primary care providers regarding the implementation of this system were assessed	Survey	2006	Clinician	Individual providers	Office-based general pediatricians (n = 300) and family physicians (n = 300) in Michigan	Respondent not providing outpatient primary care to children
Earnest, 2004[39]	Congestive heart failure	Qualitative, Individual interviews and focus groups	2001	Clinician, Patient	Hospital	18 yrs or older, Followed up in the clinic, Spoke English, Used a Web browser before	NS
Eminovic, 2004[40]	Any non-urgent health concern brought to a GP	Pilot test (Questionnaire, Log, Compared RN and MD recommendations)	(0.2 months 6 days)	Clinician, Patient, nurse	Outpatient clinic	Patient of GP who had a non-urgent appointment	NS
Ertmer, 2005[41]	Electronic health record (EHR) akteonline.de A self-online	Retrospective, quantitative study	(36 days)	Patient	Patient's home	NS	NS

Author, Year	Condition	Study Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria
	questionnaire						
Farmer, 2005[42]	Diabetes	Usability	NS	Patient	Patient's home	Young adult, With type I diabetes mellitus	NS
Feil, 2000[43]	Diabetes	Survey	NS	System, Patient	Outpatient clinic	40-75 yrs old, Had a telephone, Able to read and write English, From the local area, Novice computer user, Had type 2 DM for at least 1 yr	Could not be contacted, Declined to participate, Found ineligible, Current internet access, Not type 2 diabetes, Incapacitated or too ill, Moving or not in area
Feldman, 2004[44]	Methodologic problem in e-mail reminder by homecare nurses for patients with congestive heart failure or cancer	Case study	NS	Clinician, Patient	Home health	Nurses who deliver home health care services, Patients diagnosed with heart failure, Patients diagnosed with cancer who report pain issues	NS
Finch, 2005[45]	Telecare	Qualitative semistructured interviews	(Sep 2002 - May 2004)	Key informants from the UK known to have involvement or interest in telecare: Policy-makers, clinicians, technologists, health service managers, researchers and patient advocates	NS	Key informants from UK, Known to have involvement or interest in telecare	NS
Frank, 2004[46]	Smoking, Diabetes,	RCT	1998(12months)	Clinician	Outpatient clinic	NS	NS

Author, Year	Condition	Study Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria
	Hypertension, Cancer (other), Cervical cancer, Recording of allergies, Recording of weight, Hyperlipidemia, Cancer (breast), Immunizations						
Gagnon, 2004[47]		NS	NS	NS	NS	NS	NS
Gagnon, 2005[48]		Qualitative, 32 medical directors of healthcare centers, Multiple case study: exploratory survey	2002 (12 months)	System	Hospital	NS	NS
Garcia-Sanchez, 2008[49]	Not specified	Survey of patients	NS	Patient	Mailed surveys	16-75 yrs old, Male or female	Terminal illness, Mental disorder, Moderately or severely disabled Temporary resident, In residential institution, On antipsychotic, cytotoxic, or immunosuppressant drug
Gardiner, 2006[50]	Adults on warfarin therapy	Usability/Feasibility study	(5 months)		Outpatient clinic, Home	18 yrs or older, On oral anticoagulation medication > 9 months, Telephone line	Poor compliance, Addiction, Major surgery, In other study
Gielen, 2007[51]	Safety knowledge	RCT	2004 (17 months)	Parent	Medical system (network of hospitals and/or clinics),	Parents of child 4-66 months old in ED, English-speaking parent or older sibling, Lived in	Child suspected of abuse, Critically ill child

Author, Year	Condition	Study Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria
					or pediatric emergency department	Baltimore	
Glazebrook, 2006[52]	Cancer (other), Melanoma	RCT	NS	Patient	Outpatient clinic	From a convenience sample of morning, afternoon and evening surgeries, patients with at least one risk factor for melanoma (red hair, multiple moles, history of sunburn as a child, freckling, family history of melanoma, fair sun-sensitive skin)	NS
Goddard, 2001[53]	Mental health (other), All mental health services	Survey of current practice, Attitude questionnaire, Semi-structured interviews re attitude and barriers	Year began not specified but ended in 1999	System, Clinician	Hospital, Outpatient clinic, Medical system (network of hospitals and/or clinics)	NS	NS
Gomez, 2002[54]	Diabetes	Pilot cross-over	(6-month cross-over)	Patient	Hospital	Patients had to present an inadequate metabolic control and DM duration of >5 yrs	NS
Gonzalez-Heydrich, 2000[55]	Unspecified psychiatric condition requiring psychopharmacological therapy	Usability	NS	System, Clinician	Outpatient clinic	Parents of 100 consecutive patients in psychopharmacology clinic	NS
Graham, 2007[56]	Menopause/HRT menopause/HRT menopause/HRT mental	Usability, Survey on intention to use and actual use	NS	Clinician	Outpatient clinic	Canadian respirologists, geriatricians or family physicians, Had patients to whom the intervention would	Not in inclusion group, Did not know about intervention

Evidence Table 32. Characteristics of studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Condition	Study Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria
	health (other), Feeding tube placement in cognitively impaired patient					apply	
Griffiths, 2006-[57]	Mental health (depression), Mental health (other)	Only did study with one group of 15 mental health clients, no control	NS	Clinician	NS	A psychiatric diagnosis, according to the ICD (10th revision, Australian Modification), of generalized anxiety disorder (GAD), PAD, MDD, or mixed ADD	Severe comorbid condition (e.g. major psychosis, severe substance abuse or intellectual disability), A high risk of self-harm, Poor English skills
Grossman, 2006[58]	Hospital and hospital system data sharing on all patients	Semi-structured interview	2005 (6 months)	System	Hospital, Medical system (network of hospitals and/or clinics)	Largest providers in community	Smaller, stand-alone hospitals
Grundmeier, 1999[59]	Any	Survey	NS	NS	Hospital	Housestaff at the two study hospitals (JHH and GWU)	NS
Gustafson, 2005[60]	Cancer (breast)	Quasi-experimental pre-post matched control	NS	Patient	Outpatient clinic	Female, Living at or below 250% of the official federal poverty line, Within 1 year of breast cancer diagnosis or had metastatic breast cancer, Not homeless, Able to read and understand an informed consent letter, Lived in urban	NS

Evidence Table 32. Characteristics of studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Condition	Study Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria
						or rural area	
Hailey, 2003[61]	Mental health (other), Availability of data, especially outcomes data, and the increasing complexity of the TMH service; Another practical consideration was the level of resources available to undertake assessments	Qualitative evaluation of assessment guideline	1997	Guidelines	Medical system (network of hospitals and/or clinics)	NS	NS
Halamka, 2006[62]	Electronic prescribing	Qualitative formal interviews with pilot EDs	2005	System	Hospital, Pharmacy	NS	NS
Han, 2005[63]	Cpoe	Retrospective analyses of pre-CPOE and post-CPOE implementation	18 months (13 months before, 5 months after CPOE implementation)	System	Hospital	All children who were admitted to CHP via interfacility transport for specialized, tertiary-level care	NS
Harper, 2000[64]	Cancer (other)	Usability, One-arm feasibility study	1997 (8 months)	Clinician, Patient	Outpatient clinic	18 yrs or older, Female, Scheduled for colposcopy	NS
Hassol, 2004[65]	Not specified	Survey	2001 (1 month)	Clinician, Patient	Outpatient clinic	Patients in Geisinger clinic registered on PHR MyChart, Accessed MyChart at least once since 1/1/2001	NS
Hess, 2007[66]	Diabetes	Focus group	2004	System	Hospital	NS	NS
Hetlevik, 2000[67]	Diabetes	RCT	1994 (18 months)	Clinician	Outpatient clinic	Patients in practices of selected	Died, Moved, Had checkup by specialist

Evidence Table 32. Characteristics of studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Condition	Study Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria
						Norwegian physicians	
Hibbert, 2004[68]	Chronic obstructive pulmonary disease (COPD)	Participant observation study	2001	System	NS	NS	NS
Hillman, 2005[69]	Implementation of CPOE	Implementation of CPOE	2003 (12 months)	System	Hospital, Medical system (network of hospitals and/or clinics), Survey of hospital patient safety and quality improvement activities	Non-federal short-term general hospitals, Children's' general hospitals	Specialty facilities, Veterans' Administration facilities
Hilty, 2006[70]	Depression, ADHD	Case series	NS	Clinician, Patient	Outpatient clinic	NS	NS
Hobbs, 2003[71]		Usability	2002	System, Clinician, Patient	Medical system (network of hospitals and/or clinics)	NS	NS
Homko, 2007[72]	Diabetes	RCT, control group, pre-test/post-test design	2004 (20 months)	Patient	Outpatient clinic, endocrinology outpatient department of a tertiary care hospital	Able to access the Internet in the home, Able to perform blood glucose self-testing, Had own cellular phone	Clinical history of a severe illness, Renal insufficiency with a creatinine level >1.5mg/dl, Using insulin pump
Hopp, 2006-[73]	Telemedicine use: Nearly all of the respondents indicated particular disease categories that would	Qualitative direct interviews	January 2004 (13)	Clinician, Administrator, Telemedicine provider	Medical system (network of hospitals and/or clinics), VHA medical centers and free-standing clinics located	NS	NS

Author, Year	Condition	Study Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria
	benefit from telemedicine: Chronic diseases such as heart failure, chronic obstructive pulmonary disease, (COPD) and diabetes were mentioned most often; Some mentioned subgroups within these disease categories, such as patients with poorly controlled conditions				in the Midwest of the USA		
Hunter, 2008[74]	Obesity	RCT	2003 (recruited between June 2003 and October 2005)	Patient	USAF personnel	18-65 yrs old, USAF personnel, Weight within 5 pounds of or above their MAW for the USAF, Availability of a personal computer with Internet access, Plans to remain in the local area for 1 year, Lackland and Randolph Air Force Base or Brooks City Base	Lost more than 10 pounds in the previous 3 months, Used prescription or over-the-counter weight-loss medications in the previous 6 months, Had any physical activity restriction, History of myocardial infarction, stroke, or cancer in the last 5 yrs, Reported diabetes, angina, or thyroid difficulties, Had orthopedic or joint

Author, Year	Condition	Study Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria
							problems that would prohibit exercise, Currently pregnant or breast-feeding, or had plans to become pregnant in the next year
Jerant, 2001[75]	Congestive heart failure	RCT	1999 (12 months)	System, Patient	Admitted to University of California Davis (UCD) Hospital with a primary admission diagnosis of CHF	40 yrs or older, Active telephone line in the home, English-speaking Had a PCP, Potential subjects (or a designated caretaker) needed to have vision and hearing adequate to use telephone or telecare equipment	Patients with a Charlson score of 6 or greater (equivalent to metastatic cancer, full-blown AIDS, or several chronic diseases with end organ manifestations), Scored 7 or higher on the GDS, 20 or lower on the MMSE, or more than 2 standard deviations below age- and education-adjusted mean SDMT scores
John, 2007[76]	Mental health (depression)	Reason for not screening, Usage tracking, Focus groups (in preparation for an RCT)	2006 (3 months)	Clinician	Outpatient clinic	APN students in the Columbia University School of Nursing	NS
Jones, 1999[77]	Cancer	RCT	1996	System, Patient	Oncology center	Patient with breast, cervical, prostate, or laryngeal cancer	Receiving palliative treatment, No knowledge of their diagnosis, Visual or mental handicap, Severe pain or symptoms
Kaner, 2007[78]	Atrial fibrillation and anticoagulation	Quasi-experimental, Qualitative	2003(13months)	Clinician, Patient	Outpatient clinic	General practitioners	NS
Kaufman,	Diabetes	RCT, Qualitative	NS	Patient	Patient home	Article suggests	NS

Evidence Table 32. Characteristics of studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Condition	Study Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria
2006[79]		IDEATel was an RCT; Study looked at usability via task analysis				Seniors, Includes Hispanic	
Keeffe, 2005[80]	CHF	Other	NS	NS	NS	NS	NS
Kerr, 2008[81]	Cardiac disease	Qualitative, Usability	NS	Patient	NS	Interest	NS
Keselman, 2007[82]	Patients' experience with reviewing their health records	Qualitative, Cross-sectional survey	2006 (1.5)	Patient	NS	Individual who viewed his/her paper or electronic health records within the past year	NS
Kim, 2002[83]	PHR for anyone; used a sample case for this study	Usability	NS	NS	NS	NS	NS
Kim, 2004[84]	Wounds	Prospective cohort design	1999 (18 months)	Clinician, Patient	Outpatient clinic	Patient: Chronic stage 2, 3, or 4 pressure sores, Postoperative wounds having undergone a tissue flap procedure for a grade 3 or 4 pressure ulcer, or diabetic ulcer, Hospital inpatient, outpatient, or nursing home resident, Gave informed consent	Mentally incompetent
King, 2007[85]	Unspecified	Survey	2003	Clinician	Medical system (network of hospitals and/or clinics)	Clinician staff working in 26 of Scotland's most remote practices and five of the seven most rural health boards	NS
Kittler, 2004[86]	Electronic platforms for patient-	survey	NS	NS	NS	NS	NS

Author, Year	Condition	Study Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria
	provider communication						
Kleinberg, 2002[87]	Any pediatric condition	Survey	2001	NS	Outpatient clinic	NS	NS
Kreuter, 2006[88]	Cancer (breast)	Quasi-experimental, Qualitative	2003	Patient	Kiosk users in beauty salons, churches, neighborhood health centers, laundromats, and social service agencies in St. Louis and other community commercial areas	NS	NS
Krousel-Wood, 2001-[89]	Hypertension	Satisfaction surveys, physician and patient	(12 months)	Clinician, Patient	Hospital, Home Telemedicine	Had clinic visit scheduled during the study period, Attended hypertension clinic	NS
Lahdenpera, 2000[90]		Pilot Study	1997	System, Patient	Medical system (network of hospitals and/or clinics)	32-63 yrs old, Male or female, High BP and taking medication for one year or no medication	Not interested in trying the intervention
Larcher, 2003[91]	Cancer (breast), Physicians' responses showed a significant difference regarding the EPR's effects on relationship with patient,	Usability	2000	System	Medical system (network of hospitals and/or clinics)	NS	NS

Evidence Table 32. Characteristics of studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Condition	Study Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria
	the nurses' responses with regard to its effects on care quality; Physicians felt that both modalities of teleconsultation were good						
Lavanya, 2006[92]	Skin care in nursing home residents	Outcome evaluation, Online survey	2005 (4 months)	System	Nursing home	Nurses who used the system in November 2005 (n=5), or Dermatologists who used the system in the month of November 2005 (n=2)	NS
Lee, 2002[93]	ICU setting GD	Usability	NS	Nurses	Hospital	Nurses had to have performed services in the unit for more than 6 months	NS
Levick, 2005[94]	CPOE implemenation	Other	NS	NS	NS	NS	NS
Liaw, 1998[95]	Chronic health problems, alcohol abuse, hypertension	RCT	(18 months)	Patient	Outpatient clinic	One or more chronic health problems	NS
Likourezos, 2004[96]	Emergency department physicians' and nurses' perception of EMR	Survey	2002		Hospital, ER	Physicians and nurses in the ED of a large urban teaching hospital affiliated with a school of medicine	NS
Lindenauer, 2006[97]		Survey	2003	Clinician	Hospital	Attending physician at two hospitals, Wrote at least 25 orders during May-June 2003	NS

Evidence Table 32. Characteristics of studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Condition	Study Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria
Linder, 2006[98]	No specific condition: Electronic Health Record use during patient visits	Qualitative cross-sectional survey	NS	Clinician	Medical system (network of hospitals and/or clinics)	PCPs at Massachusetts General Hospital and Brigham and Women's Hospital primary care clinics that use the LMR	NS
Lobach, 2006[99]	No specific condition: Perceptions of Medicaid beneficiaries regarding the usefulness of accessing personal health information and services through a patient Internet portal	Qualitative, Surveys, Pilot study	NS	Patient	Population of Medicaid beneficiaries	Medicaid beneficiaries in North Carolina, participating in a Medicaid-sponsored care management program, Medicaid claim during the past year	NS
Lober, 2006[100]	General elderly persons with disability: Population of the housing project	Qualitative survey and observation	2005 (6 months)	Patient	Housing project	Residents of the participating publicly subsidized housing project	NS
Lyons, 2005[101]	Use of information technologies for clinical guideline use	Qualitative, 50 focus groups segmented by profession and including administrators, physicians, and nurses	1999	System	Medical system (network of hospitals and/or clinics), the VAMC and the population of all VAMCs providing acute ambulatory care services	The VAMC and the population of all VAMCs providing acute ambulatory care services	NS
Madaras-	URIs:	Quasi-	2002 (winter 2002-	Clinician,	Community	Pharmacists in	NS

Evidence Table 32. Characteristics of studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Condition	Study Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria
Kelly, 2006[102]	Targeted URIs included acute bronchitis, acute sinusitis, nonspecific URI, pharyngitis, and "other;" The "other" category included diagnoses such as influenza or acute exacerbation of chronic bronchitis	experimental, 8-week control phase followed by an 8-week intervention phase, Cohort design (patient interview)	2003, winter 2003-2004)	pharmacist contacted PCP	pharmacy	community pharmacies in Twin Falls, Idaho, Patients who received an antimicrobial prescription for one of the targeted URI diagnoses or described symptoms consistent with a targeted URI	
Magnus, 2009[103]	Hiv/aids	Qualitative, Serial cross-sectional survey	2002 (40 months)	Clinician	Outpatient clinic, Medical system (network of hospitals and/or clinics)	Providers in HIV clinics	NS
Maisie Wang, 2004-[104]	Patient referrals to specialists	Quasi-experimental	(7 months)	Patient	Bone and Joint Center, University of Washington Department of Orthopedics	Patient completing referral requests	NS
Mangunkusumo, 2007[105]	Adolescent preventive care	RCT	NS	Adolescent, non-patient	Secondary-school students in a rural and an urban population	In secondary school (rural and urban)	NS
Marceau, 2007[106]	Chronic pain	RCT	NS	System	Hospital	More than 21 yrs old, English-speaking, Experiencing chronic	Cognitive impairment, No access to a landline telephone

Author, Year	Condition	Study Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria
						pain for longer than 3 months	
Margalit, 2006[107]	Patient-physician communication in primary care	Qualitative analysis of videotapes of patient-provider communication	NS	Clinician	Outpatient clinic	NS	NS
Maslin, 1998[108]	Cancer (breast)	Quasi-experimental, Experimental random design, not blinded	(24 months)	Patient	Medical system (network of hospitals and/or clinics), NS		Pregnancy, Evidence of bilateral or multifocal breast cancer, large tumor, Paget's diagnosis or inflammatory breast cancer, Evidence of extension or metastasis of breast cancer, Contraindication to mastectomy, Contradiction to radiation, Hearing visual or cognitive impairment
Masucci, 2006[109]	Hypertension, smoking, diabetes, hyperlipidemia	Quasi-experimental		Patient	NS	With Hypertension, Hyperlipidemia, Diabetes, or Smoker	NS
Masys, 2002[110]	Any healthcare patient who had at least one clinic visit or hospitalization within the previous year	Qualitative, User feedback (patient and physician), Usability	1999 (12 months)	NS	NS	Active UCSD Healthcare patients (i.e., Had at least one clinic visit or hospitalization within the previous year), Had pre-existing Internet access, Had an [internet-] compatible computer, Primary care physician agreed to their participation and	NS

Evidence Table 32. Characteristics of studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Condition	Study Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria
						co-signed the informed consent document acknowledging the patient's participation	
Maviglia, 2003[111]	Computerized practice guidelines for the long-term management of chronic diseases	Description of project	NS	System	Hospital	NS	NS
May, 2005[112]	EMR in private practice	Case studies	NS	Clinician	Outpatient clinic	NS	NS
Mayo-Smith, 2007[113]	Diabetes, Cancer (breast), Preventive care smoking	Usage frequency, Provider survey	2003(1month)	Clinician	Hospital, Outpatient clinic, Medical system (network of hospitals and/or clinics)	All primary care providers in 49 primary care practice sites affiliated with the eight medical centers of the VA New England Healthcare System	NS
McCowan, 2001[114]	Asthma	RCT	NS	Clinician, Patient	Outpatient clinic	NS	NS
McDonald, 2006[115]	Diabetes	Other	NS	System	Hospital	NS	NS
McKinley, 2001[116]	Patients with trauma as the primary risk factor for ARDS	RCT	NS	System, Clinician, Patient	Hospital	PaO2/FIO2 <18 mmHg for patients with a pulmonary artery catheter, Acute onset of respiratory failure (i.e., hypoxia, low compliance, need for ventilator support developing within 48 hours accompanied by an ARDS risk factor), Radiographic	Preexisting ARDS with duration >21 days, irreversible central nervous system damage, severe chronic obstructive pulmonary disease, severe chronic obstructive pulmonary disease area, rapidly fatal malignancy, chronic left ventricular

Author, Year	Condition	Study Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria
						evidence of bilateral diffuse infiltrates	failure, chronic renal failure (i.e., creatinine > 2 mg/dl or chronic dialysis), chronic liver failure (i.e., bilirubin > 2 mg/dl, biopsy-proven cirrhosis and documented portal hypertension, episodes of past upper gastrointestinal bleeding attributed to portal hypertension, prior episodes of hepatic failure, encephalopathy, coma)
McManus, 2000[117]	Study of clinical data collection systems	Qualitative	NS	NS	NS	NS	NS
Mikulich, 2001[118]	(Occupational exposure to blood and body fluids, low BP, febrile children 3 years of age, recurrent seizure, and male discharge/dysuria	Usability	1992 (60 months)	System, Clinician	NS	NS	NS
Molenaar, 2007[119]	Cancer (breast)	Quasi-experimental, according to author	NS	Patient	Hospital	Newly diagnosed with stage I/II breast cancer, Surgeon has decided that both BCT and MT are acceptable treatment options	NS

Evidence Table 32. Characteristics of studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Condition	Study Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria
Munir, 2001[120]	Patients' viewing of EHR	Postal survey	NS	Patient	NS	NS	NS
Nguyen, 2008[121]	Copd	RCT, Randomized repeated measures pilot study	(6 months intended but study stopped)	Patient	Two academic medical centers	Diagnosis of COPD, Clinically stable for at least 1 month, Spirometry results showing at least mild obstructive disease defined as post-bronchodilator forced expiratory volume in 1 s (FEV1) to forced vital capacity (FVC) ratio 80% predicted, ADL limited by dyspnea, Use of the Internet and/or checking e-mail at least once per week with a Windows operating system, Oxygen saturation > 85% on room air or ≤ 6 l/min of nasal oxygen at the end of a 6-minute walk test	Any active symptomatic illness (i.e., cancer, heart failure, ischemic heart disease with known coronary artery or valvular heart disease, psychiatric illness, or neuromuscular disease), Participated in a pulmonary rehabilitation program in the last 12 months, Currently participating in > 2 days of supervised maintenance exercise
Noel, 2004[122]	Heart failure, chronic lung disease, diabetes mellitus,	RCT	(> 6 months) NS	Patient	Home	Elderly veterans in VA program, CHF, COPD and/or DM, Documented high use of healthcare resources, Barriers to accessing healthcare services due to geographic, economic, physical, linguistic, technologic, and/or cultural factors	NS
Ojima, 2003[123]	Periodontal disease	RCT, Usability, Development of	NS	System	Workplace	Workers (unspecified location)	NS

Author, Year	Condition	Study Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria
	management use of the system, Utility of video images	Web-based intervention system					
Pagliari, 2003[124]	Diabetes DARTS 2000 system	Qualitative, Usability	NS	Clinician	Medical system (network of hospitals and/or clinics)	NS	NS
Paperny, 1999[125]	Health-compromising behaviors and psychological problems—as opposed to biomedical diseases—as the major threats to adolescent health	Feasibility study, Pilot study, Cost analysis	NS	Patient	In community: offered at 11 sites by mobile teams	NS	NS
Patt, 2003-[126]	Doctor-patient e-mail communication	Qualitative In-depth phone interviews of 45 physicians currently using e-mail with patients	2000 (5 months)	Clinician	Medical system (network of hospitals and/or clinics), National convenience sample of members of Physicians' Online	Convenience sample of "Internet-savvy" physicians frequently using e-mail with patients	NS
Patterson, 2004[127]	HIV/AIDS	Qualitative	2001 (12 months)	System	Medical system (network of hospitals and/or clinics)	Six study sites were selected based on IRB approval and participation in a larger, randomized 16-site study	NS
Patterson, 2005[128]	Clinical reminders	Qualitative, semi-structured	2001 (12 months: October 2001 to	System, Clinician	Veteran's Health	NS	NS

Evidence Table 32. Characteristics of studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Condition	Study Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria
		interviews, Surveys	October 2002)		Administration (VHA)		
Paul, 1999-[129]	Telemedicine across multiple disciplines	Multiple case study design	NS	Observational case study of multiple interactions: Primary care physician to multiple specialists, Specialist to specialist, Specialist to patient, Specialist relying on technology to nonphysician primary care provider	Medical system (network of hospitals and/or clinics), Health facilities and corresponding rural clinics	NS	NS
Pelletier-Fleury, 1999[130]	Sleep apnea	Quasi-experimental, Usability	1997 (11 months)	Clinician, Patient	Hospital, Home	Clinical suspicion of sleep apnea syndrome, Capacity to comply with intervention	Decompensated concomitant disease, Mental deficiency formally indicated a supervised examination or failing to give consent
Persell, 2008[131]	Diabetes	RCT	2004 (6 months)	Clinician, Patient	Outpatient clinic	More than 40 yrs old, DM diagnosed on the basis of ICD 9-CM codes, Insulin or oral hypoglycemic drug use, or A1c > 7.0%, DM based on ICD9-CM further defined as: presence of any	Aspirin, clopidogrel or warfarin on their medication list, No allergy to aspirin or NSAID

Author, Year	Condition	Study Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria
						two outpatient codes for diabetes mellitus 250.xx, diabetic neuropathy; diabetic retinopathy 362.0x, or diabetic cataract 366.41, Hg A1c > 7.0, 2 clinic visits in 18 months prior	
Peters, 2006[132]	Primary care	Quasi-experimental, Before/after patients/physicians	2002 (6 months)	Clinician, Patient, Cluster-randomized	Outpatient clinic, Medical system (network of hospitals and/or clinics)	NS	NS
Piette, 2000[133]	Diabetes	RCT	NS	Patient	Outpatient clinic, Home	Adult <75 yrs old, Diabetic, On oral hypoglycemic drug	Psychotic, Life expectancy <12 months, Non-English/ Spanish –speaking, Diabetics without medication, Leaving the clinic, No pushbutton telephone
Pillai, 2004[134]	Discharged patients	Survey	2002 (18)	Clinician	Hospital, Outpatient clinic	NS	NS
Pinna, 2007[135]	Home telemonitoring system is acceptable and feasible for heart failure patient measuring vital sign	Feasibility; Data sources: log of vital signs transmissions in each enrolling center, 2) followup information in the study database, and 3) notes by the study nurse	2002 (24 months)	Patient	Home telemonitoring	18-85 yrs old, Heart failure stage New York Heart Association class II - IV, Left ventricular ejection fraction < 40%, Etiology: ischemic, idiopathic, hypertensive, valvular, One or more hospital admissions for heart failure or decompensation episodes in the previous 12 months,	Myocardial infarction or revascularization in the previous 6 months, Angina or ischemia requiring future revascularization, Implanted ventricular or atrial pacemaker (except DDD pacemakers with good sinus activity), Insulin-dependent diabetes or other severe pathology limiting survival, IDC less than 6 months

Author, Year	Condition	Study Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria
						Abnormal echo diastolic pattern (from E/A)	before enrolment if delivering continuous pacing, Poor compliance with the telemonitoring system, Inclusion in another trial
Pizziferri, 2005[136]		Time-motion	2001 (May 2001 to Dec 2003)	Clinician	Outpatient clinic, five clinics	NS	NS
Poon, 2003[137]	Virtually all management officials, including those that have successfully implemented CPOE, Cited significant barriers to adoption, including: 1) cost, as high as 10–30 million dollars for a large hospital; 2) uncertain return on investment; 3) potential	Qualitative, direct interviews	NS	System, Senior administrators	Hospital	NS	NS
Priebe, 2007[138]	Mental health (other), Schizophrenia and psychotic disorders	RCT	2002 (29 months)	Clinician, Patient	Community mental health care	18-65 yrs old, Clinicians: Professional qualification in mental health or a minimum of 1 year's professional experience in an out-patient setting, An	NS

Author, Year	Condition	Study Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria
						active case-load as key worker; Patients: living in the community (not in 24-hour supported accommodation), Treated as out-patient by community psychiatric team, Routinely having at least one meeting with their key worker every 2 months, with the expectation that they would continue with the service for the next 12 months, No severe organic psychiatric illness or primary substance misuse	
Raebel, 2006[139]	On Amiodarone, Atorvastatin, Gemfibrozil, Lovastatin, Pioglitazone, Simvastatin, Carbamazepine, Lithium, Phenytoin, Metformin, Theophylline	RCT	2003	Patient	Outpatient clinic, Medical system (network of hospitals and/or clinics)	18 yrs or older, All adult patients in Kaiser Permanente	NS
Rahimpour, 2008-[140]	Congestive heart failure (CHF), chronic obstructive pulmonary disease (COPD), or	Qualitative, Focus group interviews (FGIs)	NS	Not an intervention study	Australia, culturally diverse focus groups	More than 40 yrs old, From one of 7 different ethnic backgrounds, Primary diagnosis of CHF, class II to IV of NYHA, COPD, or both, Member of one	NS

Author, Year	Condition	Study Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria
	both					of the major ethnic communities in the southeast area of Sydney, Able to read, write, and speak in their native language, Mentally able to understand the consent form	
Ralston, 2009[141]	Primary care: Effective communication	Quasi-experimental retrospective analysis	2004 (15 months)	Patient	Medical system (network of hospitals and/or clinics)	18 yrs or older, Continuously enrolled in Group Health between January 1, 2003 and March 31, 2005, Received primary care in a Group Health-owned medical center	NS
Rothert, 2006[142]	Obesity	RCT	2002 (6 months)	Patient	Outpatient clinic, Home	More than 18 yrs old, Patient of Kaiser Permanente, Had Web access, E-mail address, BMI 27-40 kg/m, Willing to complete follow-up questionnaires	Surgical management of obesity, Pregnant, Considering pregnancy
Rousseau, 2003[143]	Asthma, angina	Qualitative	NS	Clinician	Outpatient clinic	NS	NS
Rubin, 2006[144]	Upper respiratory tract infections, particularly pharyngitis	Exit questionnaire, Observational study	2002 (26 months)	Clinician	Hospital, Outpatient clinic	All primary care providers in six communities	NS
Ruland, 2003[145]	Cancer (other): Experience in administering the computer application,	RCT, Usability, cluster randomization at level of clinician	(2 months)	Clinician, Patient	Outpatient clinic	More than 21 yrs old, Able to read, write, and speak English, No cognitive impairment, Able to provide informed	New patient coming for the first consultation

Author, Year	Condition	Study Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria
	Cancer (other): Usefulness and feasibility of use of a new support system in a clinical setting, Cancer (other): Time taken to fill out instrument, Ease of use					consent, Did not feel too fatigued, Participation approved by patient's physicians	
Ruland, 2004[146]	Survey of clinicians	Cross-sectional	NS	Clinician	Hospital, Outpatient clinic, Medical system (network of hospitals and/or clinics)	NS	NS
Saigh, 2006[147]	Pain assesment	Usability cross-sectional survey	2002	Clinician	Hospital	NS	Visits by non-physician providers
Saleem, 2005[148]	Clinical reminder system	Qualitative field observations	(6 months)	System	Medical system (network of hospitals and/or clinics)	NS	NS
Samoutis, 2007[149]	Emr	Usability, Development of an EMR system and its pilot implementation and evaluation	(18 months)	Clinician, Patient	Outpatient clinic	Both genders, Primary care physician or nurses, Patients	NS
Schabetsberger, 2006[150]	EHR (all conditions): Purpose of study was to identify the key functional	Delphi technique	NS	System	NS	Patients (not further defined), Doctors (not further defined)	NS

Author, Year	Condition	Study Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria
	demands for a virtual cross-institutional and patient-centered EHR						
Schifferdecker, 2008[151]	Primary care: Preventive	RCT, Quasi-experimental time series (baseline, 3 months after 1st training, 3 after 2nd training)	2004 (24 months)	Clinician	Outpatient clinic, 24 PCC practices	NS	NS
Schumann, 2008[152]	Smoking	Not yet a clinical study; Study of theoretical and empirical variability	NS	Patient	Outpatient clinic	NS	NS
Sequist, 2005[153]	Diabetes, coronary artery	RCT	2002	System, Clinician	Medical system (network of hospitals and/or clinics)	NS	NS
Sequist, 2007[154]	EHR to be used for all patients	Qualitative surveys	2003	System, Clinician	Outpatient clinic, Medical system (network of hospitals and/or clinics)	Health record champion at the 26 health centers, Primary care clinicians including physicians, nurse practitioners, and physician assistants in one of the 26 health centers (N=223)	NS
Sevick, 2008[155]	Diabetes	RCT	September 2004 and December 2006	System	Combination of scheduled visits and educational sessions at an academic research facility at the University of	18 yrs or older, Diagnosis of type 2 diabetes	History of hypoglycemic coma/seizure within the last 12 months, Hypoglycemia requiring third-party assistance within the last 3 months, Unwillingness to do

Evidence Table 32. Characteristics of studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Condition	Study Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria
					Pittsburgh and at community settings when participants employed the intervention in their daily lives		capillary blood testing, History consistent with type 1 diabetes, Unwilling or unable to participate in scheduled group classes, Receiving renal dialysis or expected to require dialysis within 6 months, History of dementia, alcohol or substance abuse, Planned to move, Lack of support from PCP, Participating in another clinical study
Shea, 2007[156]	Diabetes	RCT	2000 (35 months)	Patient, Nurse case managers	Federally designated medically underserved area (MUA or HPSA)	55 yrs or older, Current Medicare beneficiary, DM defined by a physician's diagnosis, On treatment with diet, an oral hypoglycemic agent or insulin, Residence in a federally designated medically underserved area, Oral fluency in either English or Spanish	Moderate or severe cognitive, visual, or physical impairment, or the presence of severe comorbid disease
Shiffman, 2000[157]	Asthma	RCT, Before-after trial with randomly selected physicians who served as their own controls	1996 (24 months)	Clinician, Patient	Outpatient clinic	Clinician: Actively practiced primary care pediatrics within a 20-mile radius of New Haven, Connecticut, Anticipated seeing 20 patients older than 5 yrs of age with acute asthma exacerbations	Not in active practice (retired, administration, part-time), Had moved away, Did not anticipate seeing 20 patients, Did not have appropriate equipment, Partner in office already in study, Declined as a group

Evidence Table 32. Characteristics of studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Condition	Study Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria
						within the following year, Had equipment available in their offices for measurement of PEFR and for providing supplemental oxygen if needed	practice decision
Shore, 2008[158]	Mental health (other)	Usability, Survey, Prospective single-arm	NS	Patient	Outpatient clinic	Adult, American Indian	NS
Shu, 2001[159]	Time spent ordering before and after CPOE, Comparison of the impact on medical house staff time, Impact of order entry on other house staff responsibilities, Impact on time spent with various people, such as other physician and patients	Usability	1998 (5 months)	System	Hospital	Medical interns	NS
Sicotte, 1998[160]	Implementation of a coupterized medical records system in four hospitals	Data were collected through individual interviews, focus group interviews, observations, and secondary documented sourcesl the primary source was	NS	System	Hospital	NS	NS

Evidence Table 32. Characteristics of studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Condition	Study Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria
		semi-structured interviews					
Sicotte, 2009[161]	Nurses and physicians	Qualitative cross-sectional survey of nurses and physicians	2005 (6 months)	Clinician	Hospital	Nurse or physician in one of two hospitals	NS
Simon, 2007[162]	Physician use of EHR	Mail surveys	2005	Clinician	Medical system (network of hospitals and/or clinics)	All physicians practicing in Massachusetts in spring 2005	Residents in training, retired, or without direct patient care responsibilities
Simon, 2008[163]	EHR adoption in ambulatory care practices	Survey	2005	System	Hospital, Medical system (network of hospitals and/or clinics)	Sampled 100% of hospital-based primary care practices, larger practices and non-urban practices to ensure their adequate representation in the sample	NS
Sittig, 2006[164]	Clinical decision support GD	Qualitative survey of primary care physicians	(Completed surveys were returned over a 5-week period)	Clinician	HMO	NS	NS
Smith, 2005[165]	Computerized clinical documentation	Quasi-experimental precomputerization and postcomputerization surveys, interviews of nursing staff	(16 months)	Clinician	Hospital	Nursing staff surveys	NS
Smith, 2007[166]	DSM-IV diagnosis of dementia or mild cognitive impairment	Quasi-experimental subjects served as own controls; 6 (of 14) participants could not do the video because of poor phone line quality	NS	Patient	Outpatient clinic, Home monitoring	DSM-IV diagnosis of dementia or mild cognitive impairment, Clinical Dementia Rating Scale10 score of 0.5 or 1.0, Lived alone in own home or apartment, Had a reliable informant who lives in the region and	Significant health-related risks for hospitalization

Author, Year	Condition	Study Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria
						had regular contact with the patient, Absence of delusions or hallucinations as assessed by the NPI, Took at least 1 medication daily, If on psychotropic medications, the doses were stable	
Tamblyn, 2003[167]	Evaluated the use of both medical services and drugs before and after the implementation of CDS, Initiation and discontinuation rates by type of prescribing problem	RCT, Usability, Cluster-randomized	1997 (13 months)	Clinician, Patient	Medical system (network of hospitals and/or clinics)	Patients: 66 yrs or older, Male or female, Had been seen on two or more occasions, Living in the community; General practitioners: Practicing in Montreal	General practitioners working <20 hours/week, Salaried practice, Planning to retire or move within 24 months, Refused to participate, Consented too late
Tan, 2006[168]	Cancer (other)	Qualitative semi-structured interviews	2005 (2 months)	Clinician	Hospital	Senior-level physicians, junior-level physicians, nurses, pharmacists, "Purposeful sample" to represent all NSW Area Health Services and both metropolitan and rural hospitals	NS
Thomas, 2004[169]	Mental health (other), Common mental disorders	RCT	(6months)	Patient	Outpatient clinic	16 yrs or older, Completed the GHQ-124 and scored three or more	Previous diagnosis of psychotic illness, mental handicap or cognitive impairment, language or literacy difficulties, severe or terminal physical illness

Evidence Table 32. Characteristics of studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Condition	Study Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria
Tierney, 2003[170]	Heart failure	RCT	1994 (28 months)	Patient	Outpatient clinic	Patients with heart failure were eligible if they had objective evidence of left ventricular dysfunction on an echocardiogram (either the cardiologist impression of left ventricular systolic dysfunction or a fractional shortening of less than 25%) or card	NS
Tierney, 2005[171]	Asthma, COPD	RCT	1994 (12 months)	Clinician	Research hospital network	18 yrs or older, Had previously visited the study practices in the past year, Had either (1) a diagnosis of asthma or COPD recorded during any inpatient visit, (2) emphysema recorded as a reading on any prior chest radiograph, or (3) two or more prescriptions NS for inhaled alpha-agonists, corticosteroids, ipratropium	NS
Trief, 2006[172]	Diabetes	RCT, Qualitative	(12 months)	Patient	Outpatient clinic, Home	Diabetes, Married, partnered or cohabitating for more than 1 yr	Refused, Too sick, Did not have diabetes, Primary care provider refused
Trivedi, 2002[173]							
Trivedi, 2009[174]	Mental health (depression)	Qualitative, a series of informal qualitative	NS	Clinician	Outpatient clinic, five public mental	Interested clinicians at five test sites	NS

Author, Year	Condition	Study Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria
		interviews between the training director for the project (JKK) and the participating clinicians and support staff at the sites, Usability			health clinics in Texas		
Tsang, 2001[175]	(Questionnaire responses regarding attitude to the DMS), questionnaire responses regarding technical issues	RCT, Usability (survey-based)	NS	Patient	Outpatient clinic	Male and female, From the diabetes clinic	NS
Tudiver, 2007[176]	Diabetes	Qualitative, longitudinal phone survey	2000	Clinician	Medical system (network of hospitals and/or clinics)	Clinician with patients who: Were 55 yrs or older, Had diabetes, Were Medicare beneficiaries, Lived in a federally designated medically underserved area; PCPs from federally designated medically underserved areas within the contiguous area of more than 30,000 square miles of upstate New York west of the Hudson River and north of the Pennsylvania border	NS
Tufano, 2008[177]	Preventive: Patient-centered access	Qualitative semi-structured in-depth interviews	2005 (5 months)	System	Medical system (network of hospitals and/or clinics)	NS	NS

Evidence Table 32. Characteristics of studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Condition	Study Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria
Valdes, 2004[178]	Identify potential barriers to proliferation	Usability	2003	System	NS	NS	NS
van den Berg, 2008[179]	Rheumatoid arthritis	Usability	N/S	Clinician, Patient	Physical therapists, Insurance companies	Rheumatoid arthritis, Being sedentary, Access to the internet	NS
Van Den Brink, 2005[180]	Cancer (other)	Prospective evaluation study	2000 (15 months)	Clinician, Patient	Hospital, Outpatient clinic	Patients: Able to read and write Dutch, Had a phone at home, Had one of these surgeries: a laryngectomy (removal of the speech organ), a commando-procedure (removal of a tumor in the mouth or throat by splitting the lower jaw), or a neck dissection (removal of the lymph nodes in the neck)	NS
van Wijk, 2001[181]	Multiple conditions (study of appropriate test ordering)	RCT, Usability	1996(11months)	Clinician	Outpatient clinic in the region of Delft, the Netherlands	64 practices (94 general practitioners) in the region of Delft, the Netherlands, were invited to participate in the study; only practices that had replaced their paper-based patient records with electronic records and were using the computer during patient encounters were eligible	NS
Vanmeer beek,		Qualitative, Usability	Meetings in May 2004	NS	NS	NS	NS

Evidence Table 32. Characteristics of studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Condition	Study Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria
2004[182]							
Varonen, 2008[183]	Clinical applications: Disease prevention, diagnosis, therapy, allergy alerts, follow-up, administration	Qualitative focus groups/semi-structured interview	2005 (3 months)	Clinician	Network of the Centre for Pharmacotherapy Development	NS	NS
Velikova, 2002[184]	Cancer (other)	Prospective non-randomized study	NS	Patient	Outpatient clinic	Able to read and understand English, Willing to give informed consent, Expected to attend the clinic at least once after the baseline visit	NS
Wade, 2005[185]	Traumatic brain injury	One-arm feasibility study	NS	Patient, Family members	TBI Hospital-based registry	Children aged 5-16, Sustained a moderate-to-severe TBI for >15 months	Children with non-blunt head trauma
Wang, 2003[186]	Primary outcome: Net financial costs or benefits per provider during a 5-yr period	Cost-benefits analysis	NS	System	Outpatient clinic	NS	NS
Wang, 2009[187]	Survey of clinicians	Qualitative, Cross-sectional survey of physicians, Usability experiences with system usability	2006 (3 months)	Clinician	Private practices and small physician offices	Practicing physicians, those enrolled in Horizon's e-prescribing sponsorship program as of September, 2006	Retired, Deceased, Were on leave during the survey period, No longer in practice at the location of record with Horizon
Weingart, 2006[188]	PatientSite: "a tool for electronic patient-centered	Two pilot studies: A cohort study and a case-control study	April 2003 (1-yr cohort study)	Clinician, Patient	Hospital, Patient's home	Clinicians: One of their physicians had enrolled in the PatientSite system, Patients: Registered	NS

Author, Year	Condition	Study Design	Data Collection Period, Year Began (Length)	Level	Setting	Inclusion Criteria	Exclusion Criteria
	communication" that mitigated shortcomings of traditional e-mail (especially inadequate security) and offered additional patient-centric features					online for PatientSite, Logged into the system at least once	
Weiss, 2005[189]	Cancer (other), any type of cancer	Semi-structured interview	NS (1 week)	Patient	Outpatient clinic	Patients receiving chemotherapy and their caregivers	NS
West, 2004[190]	Telemedicine in a home healthcare	Qualitative case study	1997(33months)	System	Home care organization	NS	NS
Wilbright, 2006[191]	N/A Computer literacy	Qualitative survey of nurses	2004 (1 month)	Clinician	Hospital, Outpatient clinic	All nursing department staff, including nurses, nursing assistants, and nursing unit clerks, whose work responsibilities included the access and utilization of computerized information system	NS
Winkelman, 2005[192]	Inflammatory bowel disease	Qualitative	NS	Patient	Outpatient clinic	Patients with inflammatory bowel disease seen in a subspecialty clinic	NS
Woods, 1999[193]	Sickle cell anemia	Assigned to usual care/telemedicine based on clinic location	1998	Patient	Outpatient clinic, Outreach clinic or Telemedicine	Adult with sickle cell disease	NS

ADD: Anxiety and depressive disorder, ADL: Activity of daily living, APN: Advanced Practice Nurse, ARDS: Acute respiratory distress syndrome, BCT: Breast-conserving therapy, BMI: Body mass index, CHF: Congestive heart failure, COPD: Chronic obstructive pulmonary disease, DBP: Diastolic blood pressure, DM: Diabetes mellitus, DSM: Diagnostic and Statistical Manual of Mental Disorders, ED: Emergency department, FEV_1: Forced expiratory volume in one second, FVC: Forced vital capacity, GAD: Generalized anxiety disorder, GD: General diabetes, GP: General physician, GWU: George Washington University, HBPM: Home blood pressure measurements, ICD9: International Statistical Classification of Diseases and Related Health Problems, IDC: Implanted cardioverter-defibrillator, IRB: Institutional Review Board, IT: Internet technology, JHH: Johns Hopkins Hospital, LMR: Longitudinal medical record, LPS: Lanterman Petris Short, MAW: Maximum allowable weight, MDD: Major depressive disorder or mixed anxiety, mmHg: Millimeters of mercury, MMSE: Mini-Mental Status Examination, MT: mastectomy, MTN: Missouri Telehealth Network, NPI: Neuropsychiatric Inventory, NSAID: Non-steroidal anti-inflammatory drug, NSW: New South Wales, NYHA: New York Heart Association, PAD: Panic disorder with agoraphobia, PCC: Patient-centered care, PCP: Primary care provider, primary care physician, PEFR: Peak expiratory flow rate, PHR-: Patient health record, RCT: Randomized control trial, SAS: Sleep apnea syndrome, SBP: Systolic blood pressure, SDMT: Symbol Digit Modalities Test, SF: Store-and-forward, SMI: Severe mental illness, TBI: Traumatic brain injury, USAF: United States Air Force, URI: Upper respiratory infection, UCSD: University of California, San Diego, VA: Veteran's Affairs, VAMC: Veterans Affairs Medical Center, YWCA: Young Women's Christian Association

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Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
Abdullah, 2005[1]	Urban population: Survey of access to communication technologies	Mean: 62.7	(57)	White: (76), Non-Caucasian: (23.9)	<$20,000: (27.3), $20,000-50,000: (42.2), >$50,000: (30.4)	<8 yrs: (4.3), 8-12 yrs: (11.9), 12-16 yrs: (32.4), >16 yrs: (27)	Urban, Rural
	Rural population: Survey of access to communication technologies	Mean: 64.3	(56.5)		<$20,000: (35.1), $20,000-50,000: (42.7), >$50,000: (22.2)	<8 yrs: (7.8), 8-12 yrs: (16.5), 12-16 yrs: (48.7), >16 yrs: (27.0)	
Abraham, 2008[2]	Interviews regarding the implementation and management of home telehealth technologies			NS	NS	NS	
Ammenwerth, 2000[3]	Testing of a mobile communication application			NS	NS	NS	
Andreassen, 2006[4]	Qualitative interviews with participants using PasientLink			NS	NS	NS	
Ash, 2003[5]	Qualitative study of physician order entry	NS	NS	NS	NS	NS	NS
Audet, 2004[6]	Use of Information technologies	<45: 32, 45-54: 35, 55-64: 22, >=65: 12	23	NS	NS	NS	
Avery, 2007[7]	Qualitative study to		7	NS	NS	NS	

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
	identify how general practice computer systems could be improved to enhance safety in primary care						
Barak, 2006[8]	Analysis of positive online support conversations	15-50	~20 (50)				
	Comparison of participant and instructor's perceptions of online support chat	13-55	~30 (50)				
Bar-Lev, 2006[9]	Negotiating time scripts during implementation of an electronic medical record	NS	NS	NS	NS	NS	
Beale, 2006[10]	Video game, Re-Mission, for young cancer patients			NS	NS	NS	Did not report on control group
Benaroia, 2007[11]	All patients who used the interactive computer system	Mean: 34, SD: 13	(67)	NS	<$20,000 (28.8), $20,001-60,000: the majority	<8 yrs: a minority, 8-12 yrs: (42.4), 12-16 yrs: (30.3), >16 yrs (had either an undergraduate, professional, or graduate degree): (22.8)	
Bernhardt, 2002[12]	Internet-based human genetics health communication	Mean: 28.6, SD: 6.19	44 (59)	White: 39 (53), Black: 35 (47)	<$10,000: (16), $10,000 to $25,000: (24), $25,000 to $40,000: (29), >= $40,000: (26)	12-16 yrs: nearly half	

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control / Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
Bernheim, 2006[13]	Pocket-sized electronic information system, CardioCard, with cardiological data	Mean: 65, Range: 26-91	94 (24)	NS	NS	NS	
Blanchfield, 2006[14]	Identified cost of designing, developing, implementing, and operating an innovative informatics-based registry and disease management system (POPMAN) to manage type 2 DM	NS	NS	NS	NS	NS	
Bobrie, 2007[15]		>=18	NS	NS	NS	NS	
Bowns, 2006[16]	Control	Mean: 49.7, SD: 19.8	45 (62)				
	SF teledermatology	Mean: 43.6, Median: 17.8	58 (63)	NS	NS	NS	
Bratton, 2001[17]	Telemedicine			NS	NS	NS	
Brebner, 2005[18]	Experience-based guidelines for implementation of telemedicine services	NS	NS	NS	NS	NS	
Brooks, 2006[19]	Evaluating physician use of e-mail with patients	Mean: 50.64	(24.1)	White: 2875 (68.4), Black: 133 (3.2), Latino: 539 (12.8),	NS	NS	

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
				Asian/Pacific: 433 (10.3), Unknown: 223 (5.3)			
Campbell, 2006[20]	CPOE systems (identifying unanticipated adverse consequences of them)	NS	NS	NS	NS	NS	
Carroll, 2002[21]	Design and evaluating a clinical decision support system	NS	NS	NS	NS	NS	
Carroll, 2004[22]	Evaluating pediatricians' PDA use	NS	NS	NS	NS	NS	
Carroll, 2007[23]	Health-Pia GlucoPack™ Diabetes Monitoring System, integrates a small blood glucose monitoring device into the battery pack of a cell phone	Mean: 15.5	(50)	W:(80)	NS	NS	
Chen, 2008[24]	Control	Mean: 51.14	(42.5)	Asian: (100)			
	A reminder was sent via SMS 72 hours prior to the appointment	Mean: 50.01	(41.5)	Asian/Pacific: (100)			

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control / Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
	A reminder was sent via telephone 72 hours prior to the appointment	Mean: 50.52	(43.3)		NS	NS	
Chinman, 2007[25]	Computerized patient self-assessment from the VA	Mean: 49	9	White: (41), Black: (30)	NS	NS	Priimary diagnosis – Major depressive disorder (55), bipolar disorder (15), schizophrenia (12), PTSD (11);as their primary diagnosis. Comorbid alcohol or substance abuse/dependence diagnosis (47)
	Computerized patient self-assessment from the DMH Clinic	Mean: 47	(56)	White: (90)	NS	NS	Primary diagnosis – Major depressive disorder (35), bipolar disorder (25), schizophrenia (25), PTSD (0); Comorbid alcohol or substance abuse/dependence diagnosis (18)
Christensen, 2008[26]	Observation of 80 GP encounters	NS	NS	NS	NS	NS	
	Questionnaire of GPs in study	NS	NS	NS	NS	NS	
Chu, 2009[27]	Partnering with seniors for better health	Mean: 74	(72)		< $10,000 (64)	8-12 yrs: (21.4) 12-16 yrs: (50)	Previous computer use (29.5); Previous Internet access (18.8)
Citerio, 2000[28]	Database developed for head trauma victims admitted to the NICU			NS		NS	

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control / Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
Crosson, 2005[29]	Implementing EMR in family medicine practice	NS	NS	NS	NS	NS	
Cruz-Correia, 2007[30]	Control	Mean: 29	15 (71)			Median yrs: 11, Range: 4-18	
	P'ASMA	Mean: 29	15 (71)			Median yrs: 11, Range: 4-18	
Dansky, 2008[31]	Control	Mean: 76.88, Median: 78, SD: 10					
	Monitor only	Mean: 76.72, Median: 79, SD: 10.52					
	Monitor and Video	Mean: 78.11, Median: 79, SD: 7.11		NS	NS	NS	
Day, 2007[32]	Hospice		16 (94)	NS	NS	NS	
de Toledo, 2006[33]	Control	Mean: 72, SD: 8	3 (3.2)				FEV1 42, SD: 15
	Educational session (1.5 hours), single home visit (24-72 hours after discharge), telephone access to system's call center; the team used the system to coordinate their work and to access the ECPR	Mean: 71, SD: 8	2 (2.3)	NS	NS	NS	FEV1 42, SD: 20

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
Delichatsios, 2001[34]	Control	Mean: 45.7	72	White: 43.3, Black: 46	>$2,000 per month: (58.2)	12-16 yrs: (46.0)	BMI 28.7
	Computer-based monitoring of daily diet, educational feedback, advice, counseling	Mean: 46.2	72.3	White: 46.6, Black: 43.2	>$2,000 per month: (57.4)	12-16 yrs: (48.3) >16 yrs: (24.5)	BMI 28.7
Demakis, 2000[35]	Computerized reminders in VA sites			NS	NS	NS	
Demiris, 2004-[36]	Semi-structured interview protocol with eight open-ended questions			NS	NS	NS	
Deutscher, 2008[37]	EHR	Mean: 50.9, SD: 15.5	(57.1)	NS	NS		Affected body part – Lumbar (20.9), Cervical (16.6), Knee (12.8), Shoulder (12.6), Other (37.1); Language used to answer the survey for outcome measurement – English (2.7), Hebrew (66.3), Russian (28.9), Arabic (2.1)
Dombkowski, 2007[38]	MCIR is a statewide immunization information system			NS	NS	NS	No characteristics
Earnest, 2004[39]	EMR: SPPARO	>=18	NS	NS	NS	NS	
Eminovic, 2004[40]	Web chat with nurse	Mean: 48	57%	NS	NS	18 (78) of patients considered	For all patients, age, gender, and self-

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
						themselves computer-literate	reported computer literacy were recorded; in order to calculate the duration of the Web chat and its components, the intervals between specific defined events occurring during a CES session were logged into a file
Ertmer, 2005[41]	Control						Users who, according to log files, had not used the system frequently (i.e., control group) 11
	EHR akteonline.de with CD-ROM			NS	NS	NS	29
	EHR akteonline.de with brochure			NS	NS	NS	24
Farmer, 2005[42]	GPRS mobile phone diabetes telemedicine system			NS	NS	NS	Used full functionality 46; Did not use full functionality 48
Feil, 2000[43]	Evaluation of participation rates and factors associated with nonparticipation among primary care patients invited to join Internet-based self-management research	40-75					

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
	program						
Feldman, 2004[44]	E-mail reminder to nurse highlighting six key, condition-specific evidence-based practices	NS	NS	NS	NS	NS	
Finch, 2005[45]	Perspectives on telecare	NS	NS	NS	NS	NS	
Frank, 2004[46]	Control	Mean: 35.4	(57)				Number of services in 6 months before start of trial, median (interquartile range) 1 (0–2); Fees charged per consultation in 6 months before trial, median (interquartile range) $21 ($0–59); Number of long-term problems coded before trial, median (interquartile range) 0 (0–1)
	In-consultation reminders about 12 outstanding preventive activities	Mean: 36	(56)	NS	NS	NS	Number of services in 6 months before start of trial, median (interquartile range)1 (0–2); Fees charged per consultation in 6 months before trial, median (interquartile range) $21 ($0–56); Number of long term problems coded before trial, median (interquartile range) 0 (0–1)

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
Gagnon, 2004[47]	Survey on telehealth	NS	NS	NS	NS	NS	
Gagnon, 2005[48]	Telehealth			NS	NS	NS	Telehealth non-adopters 4; Telehealth adopters 5
Garcia-Sanchez, 2008[49]	Questionnaire asking attitudes about confidentiality breaches of computer records		66	NS	NS	NS	
Gardiner, 2006[50]	TOPCARE (Telematic Homecare Platform in Cooperative Health Care Provider Networks)			NS	NS	NS	
Gielen, 2007[51]	Control	Children: 4-66 months, Parents: 14-30	Mothers: 339 (90.4)	Black: (94.1), Other: (5.8)	<$5,000: (66.5), >$5,000: (33.5)	<8 yrs: (11.1), 8-12 yrs: (73.2) 12-16 yrs: (15.7)	
	Computer kiosk	Children: 4-66 months, Parents: 14-30	Mothers: 348 (90.6)	Black: (92.2), Other: (7.8)	<$5,000: (60.9) >$5,000: (39.0)	< 8 yrs: (9.2), 8-12 yrs: (75.8) 12-16 yrs: (15.0)	
Glazebrook, 2006[52]	Control	Mean: 38.4, SD: 15.2	259 (78.5)				Professional or skilled non-manual occupation 137 (42.4); Sought advice regarding suspicious lesion in the past year 28 (11.6)

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
	Interactive multimedia intervention "Skinsafe"	Mean: 38.2, SD: 14.3	214 (82.6)	NS	NS	>16 yrs: further or higher education 125 (54.1)	Professional or skilled non-manual occupation 98 (39.8); Sought advice regarding suspicious lesion in the past year 28 (14.2)
Goddard, 2001[53]	Investigation of barriers to effective information provision for mental health care delivery by comparing practitioner's perceptions with strategic solutions			NS	NS	NS	
Gomez, 2002[54]	Current features of the DIABTel telemedicine system and the evaluation outcomes of its use in clinical routine	NS	NS	NS	NS	NS	NS
Gonzalez-Heydrich, 2000[55]	Five-question survey to begin to assess the impact of the application on the alliance with the parent			NS	NS	NS	
Graham, 2007[56]	Survey on perceptions of decision aid and willingness to use		79 (29)	NS	NS	>16 yrs: 450 (100)	

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
Griffiths, 2006[57]	Telemedicine	NS	NS	NS	NS	NS	
Grossman, 2006[58]	Clinical data Exchange	NS	NS	NS	NS	NS	
Grundmeier, 1999[59]	Computer-based clinical decision support			NS	NS	NS	
Gustafson, 2005[60]	CHESS	Mean: 51.6		White: 154, Black: 77	Living at or below 250% of the official federal poverty line	Mean yrs: 13	Living in rural Wisconsin 144 (all Caucasian); Living in Detroit 85 (all African American)
Hailey, 2003[61]	Teleconsultation			NS	NS	NS	
Halamka, 2006[62]	E-prescribing			NS	NS	NS	
Han, 2005[63]	CPOE	Mean: 9	826 (44.2)	NS	NS	NS	
Harper, 2000[64]	Technical performance and clinical feasibility of telecolposcopic system in remote site 1	Mean: 28.9	79 (100)	NS	NS	NS	
	Technical performance and clinical feasibility of telecolposcopic system in remote site 2	Mean: 26.4	79 (100)	NS	NS	NS	
Hassol, 2004[65]	Online survey (and focus group information)	>18	(60)	NSW: (98) of 1421	NS	12-16 yrs: (40) >16 yrs: (27), High school or less: (33)	Duration of MyChart Use, Use of MyChart
Hess, 2007[66]	Pre-implementation	Mean: 53, SD: 13		Nonwhite: 7 (33)		8-12 yrs: 6 (29), 12-16 yrs: 7 (33), Postgraduate degree 6 (29)	

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
	Post-implementation	Mean: 55, SD: 11		Nonwhite: 4 (22)	NS	8-12 yrs: 1 (6), 12-16 yrs: 5 (28), >16 yrs: 4 (22), Postgraduate degree: 8 (44)	
Hetlevik, 2000[67]	Control	Mean: 68.1	(55)				Patients 408
	CDSS	Mean: 66.3	(53)	NS	NS	NS	Patients 368
Hibbert, 2004[68]	Technology-related tasks and the interplay between the research team and the 12 nurses who were to use the telehealth equipment	NS	NS	NS	NS	NS	NS
Hillman, 2005[69]	CPOE			NS	NS	NS	Hospitals located in The Leapfrog Group's targeted regions 842
Hilty, 2006[70]	Telemedicine: secure email, telephone, videoconferencing	Mean: 33	(33)	White: 3 (100)	NS	NS	
Hobbs, 2003[71]	A paper-based survey	Mean: 46.3	58907 (68.2)	White/non-Hispanic: 37620 (43.6), Black: 5714 (6.6), Hispanic: 6976 (8.1), Asian: 1504 (1.7), Other: 1204 (1.4), Unknown: 33284 (38.6)	NS	NS	Provider-patient e-mail usability system, Overall physician workload, Physician opinions regarding the use of e-mail with patients and time period physicians worked for Partners HealthCare System

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control / Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
Homko, 2007[72]		Mean: 47.5, SD: 9.1	15 (57.7)				
		Mean: 46.8, SD: 8.8	14 (56)	NS	NS	NS	BMI – Control group, mean 23.4 kg/m2, Intervention group, mean 24.5 kg/m2; Duration of diabetes – Control group, mean 8.0 yr, Intervention group, mean 5.2. There was no significant difference in age, sex, BMI, duration of diabetes, diabetes medication, blood pressure, blood glucose, or serum lipids levels between the two groups. At the pre-test, no significant difference was found in HbA1c levels between the groups
Hopp, 2006-[73]	Telemedicine	Mean: 64	(5)	NS	NS	NS	
Hunter, 2008[74]	Control	Mean: 34.4, SD: 7.2	(50.5)	White: (53.2)	NS	High school or some college: (61.7)	Married or partnered (73.0); Enlisted (75.2); Years in service, mean 13.0, SD: 6.6; Plan to retire from AF (81.4)

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control / Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
	BIT	Mean: 33.5, SD: 7.4	(50.0)	White: (58)	NS	High school or some college: (63.9)	Married or partnered (73.0); Enlisted (81.7); Years in service, mean 12.4, SD: 6.6; plan to retire from AF (78.9)
Jerant, 2001[75]	Control	Mean: 72.7, SD: 11.4	50	White: 7 (58), Black: 4 (33), Latino/Hispanic: 1 (8)	NS	NS	
	Home telecare	Mean: 66.6, SD: 10.9	54	White: 4 (31), Black: 8 (62), Latino/Hispanic: 1 (8)	NS	NS	
	Telephone telecare	Mean: 71.3, SD: 14.1	58	White: 7 (58), Black: 5 (42), Latino/Hispanic: 0 (0)	NS	NS	
John, 2007[76]	Personal digital assistant-based decision support system	NS	25	NS	NS	NS	
Jones, 1999[77]	Personal computer information			NS	NS	NS	
	General computer information			NS	NS	NS	

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
Kaner, 2007[78]	Implicit (concise) patient decision aid involved individualized risk and benefit presentation and a section to support shared decisionmaking			NS	NS	NS	
	Explicit (extended) patient decision aid additionally included patients' elicited values for health and treatment states derived via standard gamble and analyzed in a Markov decision analysis			NS	NS	NS	
Kaufman, 2006[79]	Analysis designed to identify problems related to use of the system and to characterize the complexity of the various tasks			NS	NS	NS	

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
	supported by the system						
Keeffe, 2005[80]	Assessment of the responses of providers to recommendations generated by a computer-management system for CHF	NS	NS	NS	NS	NS	
Kerr, 2008[81]	The intervention "CHESS Living with Heart Disease" provided information, emotional and social support, self-assessment and monitoring tools and behavior change support, modified for study	Range: 41-84	1 (20)	NS	NS	NS	
Keselman, 2007[82]	Survey of patients' experience with reviewing their health records, in order to identify barriers to optimal record use	NS	89	White: 95, Asian: 2, Other: 5	NS	High school: 9, College: 48, Graduate school: 39, Other: 5	

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
Kim, 2002[83]	Evaluation of the functionality and utility of a selection of personal health records	NS	NS	NS	NS	NS	
Kim, 2004[84]	Diagnostic evaluations of a wound were made both by a treating physician in person and by a remote physician using the telemedicine system	Mean: 59, Range: 24-83	NS	NS	NS	NS	Married or had a live-in partner (35.3); Lived at home rather than in a nursing home 97.1; Lived without assistance (41.3); Received some kind of assistance or care at home (58.7); Had a full- or part-time caregiver (39.7); Had some assistance (12.7); Used a full-time nurse (6.3); Considered their overall health to be – "Good or very good" (63.3), "Fair" (23.3), "Poor" (13.3)
M	Qualitative interview study to explore factors that have facilitated and prevented adoption of telemedicine in general practice in remote and rural Scotland	Range: 20-59	19 (66)	NS	NS	NS	Discipline – GPs 19; Nurses 10; Practice Island 8; Mainland 21
Kittler, 2004[85]	Feedback on use of Patient	NS	NS	NS	NS	NS	

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
	Gateway in an integrated health system						
Kleiner, 2002[86]	Survey	GPs: 29, SPs: 36	NS	White GPs: 82 (51.9), White SPs: 97 (59.5), Black GPs: 66 (41.8), Black SPs: 54 (33.1), Other GPs: 10 (6.3), Other SPs: 12 (7.4)	<$20,000, GPs: 25 (17.1), SPs: 24 (15.3), $20,000-35,000, GPs: 47 (32.2), SPs: 38 (24.2), $35,000-60,000, GPs: 39 (26.7), SPs: 39 (24.8), $60,000-100,000, GPs: 28 (19.2), SPs: 31 (19.8), >$100,000, GPs: 7 (4.8), SPs: 25 (15.9)	Not completes HS, GP 16 (10.1), SP:13 (7.9) Graduated, GP:53 (33.5), SP:43 (26.2), Did not complete college, GP:40 (25.3), SP: 45 (27.4), Graduated college, GP: 32 (20.3), SP: 45 (27.4) Attended postgrad, GP:4 (2.5) SP:1 (0.6) Completed post grad, GP:13 (8.2) SP:17 (10.4)	E-mail access – GPs 90 (57.3), SPs 107 (65.6)
Kreuter, 2006[87]	Tracked patterns of use and characteristics of kiosk users	Mean: 35.4		NS	NS	NS	By site: beauty salons, churches, health centers, laundromats, and social service agencies
Krousel-Wood, 2001-[88]	Telemedicine	Mean: 67 (11)	(43)	Black: (18)			Married (77); In managed care (53); Gave Louisiana as their state of residence (95); Retired (53); Had an income < $50,000 per year (66); Had a high-school education or more (68); Computer use at work, home, or some other place (32); Distance the

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
							participant lived from the clinic, mean (km) 37, SD: 45, and 37 min, SD: 31
Lahdenpera, 2000[89]	Assessed patients' attitudes to IT, their experiences of IT, and their attitudes and expectations concerning its use in the treatment of hypertension	Average: 46	12	NS	NS	NS	
Larcher, 2003[90]	Teleconsultation system in oncology			NS	NS	NS	
Lavanya, 2006[91]	A survey of teledermatology: D-PHIMS			NS	NS	Nurse, MD (dermatologist)	
Lee, 2002[92]	Present ICU nurses' experiences with a computerized nursing care plan system at a medical center in Taiwan	NS	NS	NS	NS	NS	
Levick, 2005[93]	CPOE implementation in Lehigh Valley	NS	NS	NS	NS	NS	NS

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
Liaw, 1998[94]	Control	5-24: (5) years, 25-64; (27), 65-74: (18), >75: (50)	20 (68)				
	Patients provided with a computer-generated patient handheld record	5-24: (10), 25-64: (28), 65-74: (17), >75: (45)	15 (69)				
	Patient had intervention but took posttest only	5-24: (0), 25-64: (43), 65-74: (14), >75: (43)	8 (60)	NS	NS	NS	
Likourezos, 2004[95]	Assessed physician and nurse satisfaction with an ED EMR						
Lindenauer, 2006[96]	Survey		97 (28)	NS	NS	Physicians	Site 1, Site 2
Linder, 2006[97]	Survey of LMR use during patient visits: non-use (non-users), moderate use (users but not complete documenters), and intensive use (complete documenters)	Mean: 39	(60)	NS	NS	NS	Physicians 197 (88); Nurse practitioners 24 (11); Other clinician types, including registered nurses and licensed practical nurses 4 (2); Trainees – interns, residents, and fellows 92 (41)
Lobach, 2006[98]	Perceptions of Medicaid beneficiaries regarding the	Mean: 36.9, Range: 22-62	28 (90)	Non-white: 26 (84)	NS	NS	Internet access 28 (90); Past Internet use 23 (74); Internet health Info 16 (52);

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
	usefulness of accessing personal health information and services through a patient Internet portal						Worked in medical environment 14 (45);
Lober, 2006[99]	Feasibility of PHR use by an elderly and disabled population	Mean: 69, Range: 49-92	(82)	NS	NS	NS	Population composed of elderly, disabled, and immigrants; Had chronic diseases
Lyons, 2005[100]	Multisite study compared the perceptions of three stakeholder groups regarding information technologies as barriers to and facilitators of CPGs	Mean: Administrator Focus: 47.8, Physician Focus: 46.3, Nurse Focus: 44.4, Range: 61-69	Administrator Focus: (63), Physician Focus: (43), Nurse Focus: (86)	NS	NS	NS	Length of career – Administrator focus, mean (yrs) 22.9, Physician focus, mean (yrs) 18.7, Nurse focus, mean (yrs)19.9, VA System: Aadministrator focus, mean (yrs) 17.1, Physician focus mean (yrs) 7.7, Nurse focus, mean (yrs) 13.4
Madaras-Kelly, 2006[101]	Pharmacists conducted guided interviews regarding patient symptoms in a cohort of patients with BSA prescription visiting two rural	.		NS	NS	NS	

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
	community pharmacies during peak respiratory illness season						
Magnus, 2009[102]	Cross-sectional survey	<30: 16 (8.6), 30-50: 127 (68.3), >50: 43 (23.1)	156(80)	NS	NS	NS	Respondents – Overall (all three times data were collected): Length of Time worked at clinic – 1 yr 167 (85.0); Usual work patterns at clinic – >4 days per week 103 (53.7); Role – Nurse 61 (31.2), Nurse practitioner 30 (15.4), Physician 56 (28.7), Ancillary service provider 12 (6.2), Other (e.g., students, data entry personnel, research coordinators) 36 (18.4); Facility location – Urban 109 (55.6), Rural 87 (44.4)
Maisie Wang, 2004[103]	PHIMS	Mean: 45.70 (12.93)	24 (39.34)	NS	NS	NS	

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
Mangunkusumo, 2007[104]	Control	Mean: 15, Range 13-17	242 (51.5)	NS	NS	8-12 yrs: 475	Nationality – Dutch (76.5), Turkish (7.7), Moroccan (1.7), Surinamese (2.1), Antillean/Arubean (0.4), Others (11.5); Education – Lower secondary/vocational education (57.7), Intermediate secondary education (19.8), Upper secondary education (22.5)
	Internet tool to support the current adolescent preventive health care provided by Dutch municipal health services	Mean: 15, Range: 13-17	256 (56.1)	NS	NS	8-12 yrs: 458	Nationality – Dutch (76.5), Turkish (5.0), Moroccan (3.3), Surinamese (2.4), Antillean/Arubean (0.4), Others (12.3); Education – Lower secondary/vocational education (59.1), Intermediate secondary education 18.6 Upper secondary education 22.3
Marceau, 2007[105]	Control	Mean: 48, Median: 8, Range: 34-65	(69)	White: (82)	NS	NS	Duration of pain, mean (yrs) 8.4, SD: 7.9
	Electronic	Mean: 48, Median: 8, Range: 34-65	(69)	White: (82)	NS	NS	Durations of pain, mean (yrs) 8.4, SD: 7.9
Margalit, 2006[106]	Extent of computer use was measured Communication dynamics	34-44 (physicians)	2/3	NS	NS	14 yrs of experience beyond medical school	

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
	were analyzed through the application of a new Hebrew translation and adaptation of the RIAS						
Maslin, 1998[107]	Control	Mean: 52.1, Range: 28-73	49 (100)	NS	NS	NS	
	Support from the multidisciplinary team and use of the IVD were offered to women to aid them in decision-making if they wished	Mean: 52.1, Range: 28-73	51 (100)	NS	NS	NS	
Masucci, 2006[108]	The 2-hour training was divided into three basic components: (1) determination of initial computer experience, (2) computer training, and (3) assessment of specific skills gained	Mean: 60.4	(73)	White: 21 (48), Black: 23 (52)	<$15,000: 15 (34), $15,000–24,999: 13 (30), $25,000–34,999: 4, <$35,000: 9	>16 yrs: 0 College: 8 (18), Some high school: 5 (11), High school: 21 (48), Some college 10 (23)	
Masys, 2002[109]	Giving patients access to their medical	NS	Physicians: (22), Patients: (73)	NS	NS	College degree: (71)	

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
	records via the Internet: PCASSO						
Maviglia, 2003[110]	Automating complex guidelines for chronic disease: Lessons learned	NS	NS	NS	NS	NS	NS
May, 2005[111]	NS	NS	NS	NS	NS	NS	NS
Mayo-Smith, 2007[112]	Survey of attitudes AND completion rates to reminders			NS	NS	NS	Provider type
McCowan, 2001[113]	Control	Mean: 37.4, SD: 22.6	53				
	CDSS	Mean: 32.6, SD: 24.2	51	NS	NS	NS	
McDonald, 2006[114]	Control	Mean: 38, SD: 2	29				ISS 25 6 2; (76)
McKinley, 2001[115]	"Protocol"-assigned patients had ventilatory support directed by the bedside respiratory therapist using the computerized protocol	Mean: 40, SD: 3	27	NS	NS	NS	Blunt ISS 26 6 3, (73) blunt

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
	Clinicians used handheld computers to maintain up-to-date records on their clients			NS	NS	NS	
McManus, 2000[116]	Embedding guidelines in an electronic charting system, EDECS	24-35	(30)	NS	NS	NS	
Mikulich, 2001[117]	Interactive decision aid on breast cancer	Mean: 55.1	NS	NS	NS	8-12 yrs – Compulsory or lower 63 (59), 12-16 yrs – Higher than compulsory 43 (41)	Other background information, p 125
Molenaar, 2007[118]	Survey of patient interest in EHR			NS	NS	NS	
Munir, 2001[119]	Survey	NS	NS	NS	NS	NS	NS
Nguyen, 2008[120]	fDSMP	Mean: 70.9, SD: 8.6	9 (45)			12-16 yrs: 8 (40), >16 yrs: 12 (60)	Not currently employed or currently disabled or retired 15 (75); Living situation with spouse or other 13 (65); Currently smoking 1(5); Distance to clinical site (km) 13.1, SD: 15.7; BMI (kg/m2): 27.7, SD: 6.4; [several disease severity measures]; [several computer / Internet skills]

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control / Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
	DSMP	Mean: 68.0, SD: 8.3	8 (39)	White: 20 (100)	NS	12-16 yrs: 10 (50) >16 yrs: 9 (50)	Not currently employed or currently disabled or retired 13 (72); Living situation with spouse or other 12 (63); Currently smoking 2 (11); Distance to clinical site (km) 20.4, SD: 18; BMI (kg/m2) 29.4, SD: 5.9; [several disease severity measures]; [several computer / Internet skills]
Noel, 2004[121]	Control	Mean: 70	0 (0)				
	Home telehealth plus nurse case management	Mean: 72	3 (3)				CHF, COPD, DM combinations
	Usual home healthcare services plus nurse case management	Mean: 70	0	NS	NS	NS	CHF, COPD, DM combinations
Ojima, 2003[122]	Experimental (group E) received Web-based followup as well as two occasions of face-to-face tooth brushing instruction and telephone follow-up			NS	NS	NS	
Pagliari, 2003[123]	Multifaceted, Web-based resource for diabetes	NS	NS	NS	NS	NS	

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
	Management, formative evaluation						
Paperny, 1999[124]	YHP, an interactive health education software program	Mean: 17.2, Range: 12.9-24.9	56				
Patt, 2003-[125]	Doctor-patient e-mail communication	<35: 9, 35-55: 73, >55: 18	18	NS	NS	NS	Generalists (general internal medicine, family practice, general pediatrics, general psych, preventive medicine) 64; Specialists (internal medicine, pediatrics) 20; Emergency room 2; Obstetrics/Gynecology 7
Patterson, 2004[126]	Objective: Identify human factors barriers to the use of CRs	NS	NS	NS	NS	NS	Total number observed – Patients 33; Attendings 10; Fellows 7 Residents 5, Medical student1, NP 1, Dietitian 1
Patterson, 2005[127]	Staff surveys at VA institutions using clinical reminder systems	NS	NS	NS	NS	NS	Providers 28; Patients 32
Paul, 1999-[128]	Telemedicine			NS	NS	NS	Not given and perhaps not relevant
Pelletier-Fleury, 1999[129]	Compared two particular modalities of PSG: at the patient's home and in hospital,	Mean: NS		NS	NS	NS	

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
	where the examination was telemonitored by a sleep laboratory						
Persell, 2008[130]	Patient intervention plus reminders in a cluster-randomized design	Mean: 58.8, SD: 11.2	92 (71)	White: 44 (33.9), Black: 45 (34.6), Latino: 7 (5.4), Asian/Pacific Islander: 5 (3.9), Other: 21 (16.2), Unknown: 8 (6.2)			Coronary artery disease 6 (5); Contraindication to Aspirin 19 (15); GI bleeding or peptic ulcer disease 12; Liver disease 5; Platelet disorder 3; CNS hemorrhage or vascular anomaly 2
	Clinician reminders only	Mean: 56.8, SD: 10.4	60 (54)		NS	NS	Coronary artery disease 10 (8.9); Contraindication to aspirin 12 (11); GI bleeding or peptic ulcer disorder 9; Liver disease 3; Platelet disorder 0; CNS hemorrhage or vascular anomaly 0
Peters, 2006[131]	Control	Mean: 32.9	(50.5)			<8 yrs: 309 (100)	Household size 4.6
	Early diagnosis and prevention system	Mean: 38.1	(56.8)	NS	NS	<8 yrs: 296 (100)	Household size 4.4
Piette, 2000[132]	Control	Mean: 53.3	56.5	White: (29) Hispanic: (51.6) Other: (19.4)	<$10,000 (56.3)		

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
	In addition to usual care, intervention patients received biweekly ATDM calls with telephone followup by a diabetes nurse educator; patients used the ATDM calls to report information about their health and self-care and to access self-care education; the nurse used patients' ATDM reports to allocate her time according to their needs	Mean: 55.7	61.3	White: (29) Hispanic: (47.6) Other: (23.4)	<$10,000 (59.1)	NS	
Pillai, 2004[133]	Electronic immediate discharge document			NS	NS	NS	
Pinna, 2007[134]	Patients were contracted monthly by study nurse to determine their symptoms, current medication, and vital sign measurement	NS	NS	NS	NS	NS	

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
	Patient were contracted weekly by study nurse to determine their symptoms, current medication and vital sign measurement and blinded cardiorespiratory monitoring	Mean: 60, SD: 11, <60: 98, 60-70: 59, 70-79: 31, >=80: 7	(13)	NS	NS	NS	
	Patient were contracted weekly by study nurse to determine their symptoms, current medication and vital sign measurement and cardiorespiratory monitoring	Mean: 60, SD: 11, <60: 98, 60-70: 59, 70-79: 31, >=80: 7	(13)	NS	NS	NS	
Pizziferri, 2005[135]	Use of EHR in the context of a clinic session	NS	20 physicians	NS	NS	NS	Years in practice, mean 13.5, SD: 8.4
Poon, 2003[136]	Multi-site qualitative study of US hospitals at various stages of CPOE implementation.			NS	NS	NS	Senior management officials in 25 US hospitals 57

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
Priebe, 2007[137]	Control	Mean: 41.8	83 (35.2)				Undifferentiated schizophrenia 89 (37.7); Paranoid schizophrenia 63 (26.7); Catatonic schizophrenia 4 (1.7); Hebephrenic schizophrenia 10 (4.2); Schizoaffective manic disorder 7 (3.0); Schizoaffective depression (moderate) 9 (3.8); Schizoaffective depression (severe) 2 (0.8); Schizoaffective bipolar disorder 9 (3.8); Delusional disorder 2 (0.8); Other non-organic psychotic disorders 41 (17.4)

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
	In the intervention group clinicians used DIALOG, a computer mediated procedure to discuss 11 domains with their patients	Mean: 42.5	88 (32.5)	NS	NS	NS	Undifferentiated schizophrenia 91 (33.6); Paranoid schizophrenia 89 (32.8); Catatonic schizophrenia 1 (0.4); Hebephrenic schizophrenia 7 (2.6); Schizoaffectivemanic disorder 19 (7.0); Schizoaffective depression (moderate) 9 (3.3); Schizoaffective depression (severe) 3 (1.1); Schizoaffective bipolar disorder 15 (5.5); Delusional disorder 1 (0.4); Other non-organic psychotic disorders 36 (13.3)
Raebel, 2006[138]	Control	Median: 60	2352 (51)				
	Staff from the departments of pharmacy, research, primary care, laboratory, and clinical technology collaborated to develop and implement computer programming to link drug and laboratory data	Median: 61	2313 (51)	NS	NS	NS	

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
Rahimpour, 2008[139]	Focus group interviews regarding the HTMS	Mean: 71 and 1 month, median: 71		NS	NS	NS	
Ralston, 2009[140]	Control	18-35: (15), 35-50: (30), 51-65: (37), >65: (18)	(55)		Low-income neighborhood: (5)		Rural location (2); Distance to clinic >/= 17 miles (7); Morbidity – None (8), Very low (6), Low (17), Moderate (51), High or very high (18); History of depression (6); History of diabetes (8); History of CHF (1) Enrollment with Health Plan – 0-3 yrs (12), 4-8 yrs (19), 9-12 yrs (12), >12 yrs (56); Insurance – Commercial (78), Medicare (21), Medicaid (1)

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
	Secure messages user (1-3 threads)	18-35: (15), 35-50: (31), 51-65: (40), >65: (14)	(60)		Low-income neighborhood: (6)		Rural location (2); Distance to clinic >/= 17 miles (7); Morbidity – None (3), Very low (4), Low (13), Moderate (58), High or very high (22); History of depression (9); History of diabetes (9); History of CHF (1); Enrollment with Health Plan – 0-3 yrs (12), 4-8 yrs (19), 9-12 yrs (13), >12 yrs (56); Insurance – Commercial (82), Medicare (17), Medicaid (1)
	Secure messages user (4-8 threads)	18-35: (13), 35-50: (31), 51-65: (42), >65: (14)	(64)		Low-income neighborhood: (6)		Rural location (3); Distance to clinic >/= 17 miles (7); Morbidity – None (1), Very low (1), Low (7), Moderate (57), High or very high (34); History of depression (13); History of diabetes (12); History of CHF (1); Enrollment with Health Plan – 0-3 yrs (12), 4-8 yrs (19), 9-12 yrs (12), >12 yrs (57); Insurance – Commercial (82), Medicare (17), Medicaid (1)

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
	Secure messages user (>8 threads)	18-35: (11)l 35-50: (29), 51-65: (43), >65: (17)	(65)	NS	Low-income neighborhood: (6)		Rural location (3); Distance to clinic >/= 17 miles (7); Morbidity – None (0), Very low (1), Low (2), Moderate (42), High or very high (55); History of depression (18); History of diabetes (15); History of CHF (2); Enrollment with Health Plan – 0-3 yrs (11), 4-8 yrs (19), 9-12 yrs (12), >12 yrs (59); Insurance – Commercial (77), Medicare (21), Medicaid (1)
Rothert, 2006[141]	Tailored Expert System Condition, program for weight management	Mean: 45.6, SD: 12.1	(82.9)	White: (56.8), Black: (35.4), Latino: (3.4), Other: (4.4)			BMI (kg/m2) 33.0 (3.8); Motivation (0-10 scale) 7.2 (2.0); Self-efficacy (1-5 scale) 2.5 (0.8); Weight (kg) 92.2 (14.4)
	Information-only condition	Mean: 45.2 SD: 12.0	(82.7)		NS	NS	BMI (kg/m2) 31.0 (3.9); Motivation (0-10 scale) 7.3 (2.1); Self-efficacy (1-5 scale) 2.5 (0.8); Weight (kg) 92.5 (14.3)
Rousseau, 2003[142]	CDSS using evidence-based guide-lines for the primary care management of asthma in adults and	>=18	NS	NS	NS	NS	19 semi-structured interviews with 13 respondents – Practice managers 2, Nurses 3, General practitioners 8; 40 people in randomized controlled trial

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
	angina						practices – Doctors 34, Nurses 3; Qualitative interview re study practices – Doctors (including 1 previously interviewed) 3
Rubin, 2006[143]	PDA-based CDSS and exit survey			NS	NS	NS	User (physician) type and PDA use frequency
Ruland, 2003[144]	Assessment summaries were printed and given to the patient and clinician in the subsequent consultation						Patients 25, MDs 5; Patients 27 MDs 9
Ruland, 2004[145]	Survey of clinicians' opinions about the usefulness of DSS for evidence- and patient preference-based illness management, factors important to their implementation, and criteria for evaluating their effectiveness		(49.7)	NS	NS	Nurse, MD	Physicians (54.9); Nurses (staff, head nurse, CNS, NP) (37); Other (8.2)
Saigh, 2006[146]	Mandatory computerized PAS in the outpatient EMR system	NS	NS	NS	NS	NS	

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
Saleem, 2005[147]	Use by providers (MD, PA, resident, NP) and nurses of CRs in an HER in an outpatient clinic	NS	NS	NS	NS	NS	
Samoutis, 2007[148]	The computer-based EMR: Physicians and nurses	Mean, physicians: 52, nurses: 40					
	The computer-based EMR: 18 patients	Mean: 65	10 (100)	NS	NS	8-12 yrs: 10 (100)	
Schabetsberger, 2006[149]	E-card, an overall link-up of nearly all health service providers of the external sector			NS	NS	NS	
Schifferdecker, 2008[150]	Control	Mean: 43.6, SD: 11.1	17 (85)				Role in practice – Provider 8 (40), Clinical staff 6 (30), Administration 2 (10), Other 4 (20); Years in practice 6.3, SD: 6.9; Hours per week 37.9, SD: 9.7; Computer with Web access available at work (1-5 scale) 4.5, SD: 1.1; Computer at work had fast Internet (1-5 scale) 4.1, SD: 1.4; Frequency of Web use at work (1-5 scale) 4.8, SD: 1.4

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
	Initial: Training to implement Web resources	Mean: 46, SD: 12.7	17 (71)				Role in practice – Provider 10 (40), Clinical staff 7 (28), Administration 3 (12), Other 5 (20); Years in practice 8.8, SD: 8.6; Hours per week 41.2, SD: 8.4; Computer with Web access available at work (1-5 scale) 4.6, SD: 0.9; Computer at work had fast Internet (1-5 scale) 4.3, SD: 1.1; Frequency of Web use at work (1-5 scale) 4.8, SD: 1.6
	Delayed: Training to implement Web resources NOTE: this is the control group for the data at followup 1, which was after the initial training but before the 2nd training	Mean: 43.6, SD: 11.1	17 (85)	NS	NS	NS	Role in practice – Provider 8 (40), Clinical staff 6 (30), Administration 2 (10), Other 4 (20); Years in practice 6.3, SD: 6.9; Hours per week 37.9 SD: 9.7; Computer with Web access available at work (1-5 scale) 4.5, SD: 1.1; Computer at work had fast Internet (1-5 scale) 4.1, SD: 1.4; Frequency of Web use at work (1-5 scale) 4.8, SD: 1.4
Schumann, 2008[151]	TTM-based intervention resulting in computer-generated tailored feedback for			NS	NS	NS	

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
	smoking cessation						
Sequist, 2005[152]	Control	Mean: 41.4, SD: 11	53 (52)	NS	NS	NS	Physicians
	Evidence-based electronic reminders within patients' EMR regarding diabetes and CAD	Mean: 39.2, SD: 10	60 (65)	NS	NS	NS	Physicians
Sequist, 2007[153]	Full-functioning electronic health record within Indian Health Service	NS	NS	NS	NS	NS	
Sevick, 2008[154]	PalmOne Tungsten/E2 PDAs preloaded with BalanceLog®	NS	NS	NS	NS	NS	
Shea, 2007[155]	Control	Mean: 71, Median: 70	NS	NS	NS	NS	
	HTU	Mean: 71, Median: 70	NS	NS	NS	NS	
Shiffman, 2000[156]	Control	Mean: 43, Range: 31-53	3(33)	NS	NS	NS	Interval since completion of residency, mean (yrs) 11.6; Percentage of effort in practice setting – Urban, inner-city (11), Urban, not inner-city (28), Suburban (56), Rural (5); Self-assessed computer experience – Nonuser 2, Novice 4, Intermediate 3.

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
	For acute asthma exacerbations, computer provided for structured encounter documentation and offered recommendations based on the guideline of the AAP; patients were contacted by telephone 7 to 14 days after the visit to assess outcomes	Mean: 43 acute asthma exacerbations, Range: 31-53	3(33)	NS	NS	NS	Interval since completion of residency, mean (yrs) 11.6; Percentage of effort in practice setting – urban, inner-city (11), Urban, not inner-city (28), Suburban (56), Rural (5); Self-assessed computer experience – Nonuser 2, Novice 4, Intermediate 3
Shore, 2008[157]	Telepsychiatry with videoconferencing	Mean: 54, Median: 54, Range: 46-71	(0)	American/Indian: 53 (100)	NS	12-16 yrs: 28 (52)	Had been married in the past 48 (90); Currently married1 7 (32)
Shu, 2001[158]	Computerized physician order entry	NS	NS	NS	NS	NS	
Sicotte, 1998[159]	CPR	NS		NS	NS	NS	
Sicotte, 2009[160]	Survey of nurses and physicians on electronic clinical information system	<=40, Nurses: (50), Pphysicians: (33)	Nurses (89), Physicians (26)	NS	NS	NS	Had significant computer experience – Physicians (69), Nurses (31)
Simon, 2007[161]	EHR use	NS	(36.4)	NS	NS	NS	
Simon, 2008[162]	Survey of a stratified random			NS	NS	NS	

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
	sample of 1829 office practices in Massachusetts in 2005						
Sittig, 2006[163]	Survey of PCPs to identify factors that affected their acceptance of clinical decision support	Mean: 46.5	(38)	NS	NS	NS	Tenure at Kaiser Permanente 11.7 years
Smith, 2005[164]	Determined the impact of online documentation on staff attitudes, completeness of documentation, and the time needed for documentation	NS	Total: 35 nurses	NS	NS	NS	
Smith, 2007[165]	Control	Mean: 85.5, SD: 6.6				Mean yrs: 12.1 (4.1)	Mini-Mental State Examination (MMSE) score 25.7 (3.3); Neuropsychiatric Inventory score 0 (0)
	Video	Mean: 79.8, SD: 11.4				Mean yrs: 11.9 (2.8)	(MMSE score 23.2 (1.9); Neuropsychiatric Inventory score 0.4 (1.3)
	Phone	Mean: 81.9, SD: 11.0		NS	NS		MMSE score 22 (2.1); Neuropsychiatric Inventory score 0 (0)

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
Tamblyn, 2003[166]	Control	Mean: 75.3	4028 (64.2)				Total physician visits 21.2, SD: 20.5; Visits to primary care physician 8.3, SD: 5.5; Visits to primary care physician (51.4), SD: (25.5); Total prescriptions 53.3, SD: 40.7;, Prescriptions from primary care physician 32.4, SD: 31.8, Prescribing physicians 3.3, SD: 2.2; Pharmacies 1.8, SD: 1.2, Prevalence of potentially inappropriate prescribing in the 2-month period before the study (14 items) 53; MD characteristics – age, sex, first language, location of medical school training (graduation), computer experience, number of eligible patients in practice

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
	Computerized decision-making support Group	Mean: 75.4	3845 (61.2)	NS	NS	NS	Total physician visits 20.7, SD: 19.5, Visits to primary care physician 7.7, SD: 5.3; Visits to primary care physician (49.5), SD: (26.4); Total prescriptions 51.0, SD: 43.1; Prescriptions from primary care physician 30.3, SD: 32.4; Prescribing physicians 3.3, SD: 2.3; Pharmacies 3.3, SD: 2.3; Prevalence of potentially inappropriate prescribing in the 2-month period before the study (14 items) 54
Tan, 2006[167]	Interview survey of cancer-treating clinicians to determine what human, electronic and printed information sources to guide pharmacologic al treatment they perceived as the most readily available and time-efficient at the point of	<=25: 1, 26-35: 17, 36-45: 6, 46-55: 7, >55: 1	22	NS	NS	NS	Senior Medical Officer 8; Junior Medical Officer 8; Oncology Pharmacist 7; Oncology Nurse 7; Pharmacist 1; Pharmacy technician 1; Patients treated – Inpatient only 3, Outpatient (ambulatory) only 4, Both inpatient and outpatient 25

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
	care						
Thomas, 2004[168]	Control	Mean: 42.4	66				Married/cohabiting (60); Home owners/occupier (63); Car owner (84); Living comfortably (15); Long-standing disability/infirmity (66)
	Participants completed a computerized psychosocial assessment that generated a report for the GP, including patient-specific treatment recommendations.	Mean: 43.5	72	NS	NS	NS	Married/cohabiting (58); Home owner/occupier (61); Car owner (79); Living comfortably (16); Long-standing disability/infirmity (61)
Tierney, 2003[169]	Control	Mean: 60, SD: 13	(66)	Black: (59)			Primary care visits during the study, mean 4.5, SD: 3.5; Enrolled patients completing the 12-month interview 119 (66)
	Physician intervention	Mean: 61, SD: 12	(61)				Primary care visits during the study 5.3, SD: 4.1; Enrolled patients completing the 12-month interview 142 (72)

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control / Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
	Pharmacist Intervention	Mean: 57, SD: 12	(68)	Black: (54)	NS	NS	Primary care visits during the study 4.8, SD: 3.7; Enrolled patients completing the 12-month interview 107 (68)
Tierney, 2005[170]	Control	Mean: 52, SD: 13	71	White: 61		Mean yrs: 9.9, SD: 3.0	COPD (74)
	Physician Intervention	Mean: 50, SD: 14	77	White: 55		Mean yrs: 10.1, SD: 2.9	COPD (70)
	Pharmacist Intervention	Mean: 51, SD: 14	68				COPD (63)
	Both Interventions	Mean: 51, SD: 14	71	White: 59	NS	Mean yrs: 10.4, SD: 2.9	COPD (68)
Trief, 2006[171]	Control	Mean: 69.5	(38.71)	White: 58 (93.55), Black: 2 (3.23), Other: 2 (3.23)	$2,580.01 per month	Mean yrs: 12.33	
	Telemedicine intervention	Mean: 70.64	(45.83)	White: 68 (94.44), Black: 2 (2.78), Other: 2 (2.78)	: $2,306.47	Mean yrs: 12.69	
Trivedi, 2002[172]	Discussion: 1) barriers of implementation of guidelines in general and of CDSSs; 2) importance of physician's role in development, implementation, and adherence; 3) methods that could improve CDSS acceptance	NS	NS	NS	NS	NS	

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
	and use; 4) the types of tools needed to obtain end-user feedback						
Trivedi, 2009[173]	Computerized decision support system for depression (CDSS-D)			NS	NS	NS	
Tsang, 2001[174]		Mean: 35	2 (225)				Duration of illness, mean (yrs) 11.8, SD: 3.5; Body mass index, mean (kg/m2) 26.0, SD: 5.8; Basal HbA1c (8.81), SD: 1.79
	Group 1 used the DMS for 12 weeks and then had a control period of 12 weeks	Mean: 30	5 (50)	NS	NS	NS	Duration of illness (yrs) 5.3, SD: 6.5; Body mass index, mean (kg/m2) 22.2, SD: 3.1; Basal HbA1c (8.56) SD: 1.79
Tudiver, 2007[175]	IDEATel: telemedicine to electronically deliver health care services to Medicare patients with diabetes in federally designated medically underserved areas of upstate New York	Mean (PCPs): 48, SD: 20.0	32 (27.6)	NS	NS	NS	PCP Type – Physician 91 (81.9), Physician Assistant 4 (3.6), Nurse Practitioner 8 (7.2), Doctor of Osteopathy 8 (7.2); Practice base – Institution 41 (38.7), Self 58 (54.7), Other 7 (6.6); PCP care panel size – <=2,000 36 (38.3), 2,001-4,000 40 (42.6), 4,001-6,000 11 (11.7), 6,001 and over 7 (7.4), Average 3,393, SD: 3,718;

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
							Clinical practice per week, mean (hours) 47.7, SD: 19.81; Patients per PCP enrolled in the study – 1-5 68 (60.7), 6-10 28 (25.0), 11-15 10 (8.9), >15 6 (5.4), Average (year 1, N = 112) 3.0, SD: 2.89, Average (year 2, N = 66) 3.2 patients SD: 3.07; Minutes per month spent on IDEATel, mean (year 1) 33.5, SD: 3.175
Tufano, 2008[176]	Elicited, described, and characterized providers' perceptions of the effects of the Access Initiative, an information technology-enabled organizational redesign initiative intended to promote patient-centered access	NS	NS	NS	NS	NS	21 care providers representing 14 medical specialties were recruited; participants worked at least 50% of time performing direct patient care activities
Valdes, 2004[177]	Characterized users and non-users of EHR/EMR software, identified	<40: (23.5), 40-5:(23.7), >65: (19.1)	(24.1)	NS	NS	NS	Urban (23.5); Rural (23.7)

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
	potential barriers to proliferation, examined the extent of standardization across reported EHR/EMR, and suggested possible solutions to identified barriers						
van den Berg, 2008[178]	A short questionnaire sent to patients regarding implementation of an Internet-based physical activity intervention, phone calls to rheumatology centers and insurance companies			NS	NS	NS	
Van Den Brink, 2005[179]	Evaluate use, appreciation and effectiveness of electronic health information support system in H&N cancer care	Range: 38-78	10 (27.7)	NS	NS	NS	

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
van Wijk, 2001[180]	BloodLink-Guideline, an indication-oriented test-ordering system	Mean: 43.2, Median: 43, Range: 39-47					Experience at start of study, mean (yrs) 15.6, Median 16.0, Range 12.0-20.0
	BloodLink-Restricted group, a system which initially presented a limited list of tests	Mean: 43.7, Median: 42, Range: 38.7-48.2		NS	NS	NS	Experience at start of study, mean (yrs) 16.5, Median 15.0
Vanmeerbeek, 2004[181]	Use of EMR in FMH	NS	NS	NS	NS	NS	
Varonen, 2008[182]	EBMeDS focus group interviews re (CDSS)	Median: 46, Range: 27-56	(44)				Work experience, median 17; Daily computer use; Medication
Velikova, 2002[183]	Compute-administered individual quality of life measurement in oncology clinics	Median: 57.4, Range: 43-77	22	NS	NS	Basic school education: 3, Studied in college: 9, Higher university education: 3, Uknown: 3	
Wade, 2005[184]	Web-based problem solving intervention	Mean: 10.5	2	NS	NS	NS	Children with TBI 6, Parents 8, Siblings 5
Wang, 2003[185]	Cost-benefit study to analyze the financial effects of electronic medical record systems in ambulatory primary care	NS	NS	NS	NS	NS	

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
	settings from the perspective of the health care organization						
Wang, 2009[186]	Cross-sectional survey of physicians who either had installed or were awaiting installation of one of two commercial e-prescribing systems	Mean: 47, Range: 27-82		NS	NS	NS	
Weingart, 2006[187]	Control	Mean: 52.9, Range: 21-92	(56)	W:(54)			100 Case-control
	PatientSite	Mean: 42.9, Range: 20-81	(67)	W:(80)	NS	NS	100 Case-control
Weiss, 2005[188]	Web-based information and communication systems for cancer patients to provide holistic cancer care and communication	NS	NS	NS	NS	NS	

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
West, 2004[189]	Homecare patients	<65, Male: (13), Female: (18.2), >=65, Male: (25.1), Female: (43.6)	(61.8)	White and Other: (68.6), Black: (31.1), Hispanic: (0.3)	NS	NS	
	Telemedicine patients	<65, Male: (10.9), Female: (28.3), >=65, Male (19.5), Female: (41.3)	(69.6)	White and Other: (60.9), Black: (39.1), Hispanic: (0)	NS	NS	
Wilbright, 2006[190]	Self-assessment survey administered to nurses and nursing support staff to determine proficiency with computer skills they might perform at work: 15-question self-assessment survey to the nurses and nursing support staff	5-50: (49), <35:(23), >50: (28)			NS	Nursing or related degree	RNs (60)
Winkelman, 2005[191]	Focus groups, Interviews, and observation	Range: 21-60	7 (58)	NS	NS	NS	Diagnosis, Years since diagnosis

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
Woods, 1999[192]		Mean: 33.32, SD: 10.23	33 (55)			Mean yrs: 12.62, SD: 2.25	Insurance status – Medicaid 25 (41.7), Medicare 4 (6.7), Private insurance 11 (18.3), Medicaid/Medicare 12 (20.0), Other 1 (1.7), None 7 (11.7); Employment status – Employed 13 (21.7), Unemployed 47 (78.3); Genotype – HbSS 49 (81.7), HbSC 7 (11.7), HbSbthal 3 (5.0), Other 1 (1.7); Hydroxyurea treatment – Yes 29 (48.3), No 31 (51.7); Complications – Cardiomyopathy 4 (7.0),

Evidence Table 33. Characteristics of patients in studies addressing barriers, facilitators, and/or drivers to the use of health IT to implement patent-centered care (continued)

Author, Year	Control Intervention	Age, n (%)	Female, n (%)	Race, n (%)	Income Range, n (%)	Education, n (%)	Other Characteristics, n (%)
	Telemedicine	Mean: 29.37, SD: 10.18	36 (30)	NS	NS	Mean yrs: 12.03, SD: 2.39	Insurance status – Medicaid 43 (1.7), Medicare 4 (6.7), Private insurance 6 (10.0), Medicaid/Medicare 6 (10.0), Other 1 (1.7), None 0 (0.0); Employment status – Employed 17 (28.3), Unemployed 43 (71.7); Genotype – HbSS 57 (95.0), HbSC 1 (1.7), HbSbthal 2 (3.3), Other 0 (0.0); Hydroxyurea treatment – Yes 45 (75.0) No 15 (25.0) Complications – Cardiomyopathy 0 (0.0),

AAP: American Academy of Pediatrics, AF: Air Force, ATDM: Automated telephone disease management, BIT: Behavioral Internet treatment, BMI: Body mass index, CAD: Coronary artery disease, CDSS: Clinical decision support system, CHESS: Comprehensive Health Enhancement Support System, CHF: Congestive heart failure, COPD: Chronic obstructive pulmonary disease, CPOE: Computerized provider order entry, Computerized physician order entry, CPR: Computer-based patient record, CPGs: Clinical practice guidelines, CRs: Clinical reminders, DM: Diabetes mellitus, DMH: Department of Mental Health, D-PHIMS: Distributed Personal Health Information Management System, DSS: Decision support systems, EBMeDS: Evidence-based Medicine Electronic Decision Support, ED: Emergency department, EDECS: Emergency Department Expert Charting System, EHR: Electronic health record, EMR: Electronic medical record, fDSMP: face-to-face dyspnea self-management programs, FEV_1: Forced expiratory volume in 1 second, FMH: French-speaking Belgian Medical Houses, HCO: Homecare organization, HIV: Human immunodeficiency virus, H&N: Head and neck, ICU: Intensive care unit, IIS: Immunization information system, ISS: Injury Severity Score, IT: Information technology, IVD: Interactive video disk, HTU: Home telemedicine unit, HTMS: Home Telecare Management System, LMR: Longitudinal medical record, MCIR: The Michigan Care Improvement Registry, MD: Doctor, MMSE: Mini-Mental Status Examination, NICU: Neurointensive care unit, NIH: National Institutes of Health, NP: Nurse practictioner, NS: Not specified, PA: Physician's assistant, PAS: Pain assessment screen, P'ASMA: A Web-based asthma self-management support tool, PCASSO: Patient-Centered Access to Secure Systems Online, PCP: Primary care provider or primary care physicians, PDA: Personal digital assistant, PHIMS: Personal Health Information Management System, PSG: Polysomnography, RCT: Randomized Controlled Trial, RIAS: Roter Interaction Analysis System, RN: Nurse, Rx: Prescription, SF: Store and forward, SMS: Short messaging system, SPs: Subspecialty pediatricians, SPPARO: System Providing Patients Access to Records Online, TTM: Transtheoretical model, VA: Veteran's Affairs, YHP: Youth health provider.

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