

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	Control Outcome Measure at Final	Control Change Intervention Change	Change Difference	P-Value
					Intervention Outcome Measure at Baseline	Intervention Outcome Measure at Final		Final Difference	
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		40.4			0.013
				199		46.6		6.20	
	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		37.8			0
				199		42.5		4.70	
	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		48.6			0.091
				199		55.6		7.00	
	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	Control Outcome Measure at Baseline	Control Outcome Measure at Final	Control Change Intervention Change	Change Difference	P-Value
				n Final Intervention	Intervention Outcome Measure at Baseline	Intervention Outcome Measure at Final		Final Difference	
	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		39.3			0.003
				199		48.9		9.60	
	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		40.4			0.048
				202		45.6		5.20	
	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	Control Outcome Measure at Baseline	Control Outcome Measure at Final	Control Change Intervention Change	Change Difference	P-Value
				n Final Intervention	Intervention Outcome Measure at Baseline	Intervention Outcome Measure at Final		Final Difference	
	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	0
	Kansas City Cardiomyopathy Questionnaire: 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		48.6			
				202		53.6		5.00	
	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	Control Outcome Measure at Final	Control Change Intervention Change	Change Difference	P-Value
					Intervention Outcome Measure at Baseline	Intervention Outcome Measure at Final		Final Difference	
	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	0
	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		39.3			
				202		36.9		-2.40	
	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	Control Outcome Measure at Final	Control Change Intervention Change	Change Difference	P-Value
					Intervention Outcome Measure at Baseline	Intervention Outcome Measure at Final		Final Difference	
	Cardiomyopathy Questionnaire: % 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	0.9
	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			
				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	Control Outcome Measure at Final	Control Change Intervention Change	Change Difference	P-Value
					Intervention Outcome Measure at Baseline	Intervention Outcome Measure at Final		Final Difference	
	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	0
	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			
				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 Questionnaire: % 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
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	Control Outcome Measure at Final	Control Change Intervention Change	Change Difference	P-Value
					Intervention Outcome Measure at Baseline	Intervention Outcome Measure at Final		Final Difference	
	Physical subscale on Minnesota Living With Heart Failure Questionnaire: Mean	Score unit	Telecare vs. usual care	12	26.4	16.1	-10.3	3.7	**SNR
				13	27.8	21.2	-6.6	5.10	
	Total score on Minnesota Living With Heart Failure Questionnaire: Mean	Score Unit	Telecare vs. usual care	12	58.3	38.1	-20.2	6.5	**SNR
				13	64.1	50.4	-13.7	12.30	
	Short Form-36: Mental component score	Score Unit	Telecare vs. usual care	12	41.8	48.9	7.1	-4	**SNR
				13	41.5	44.6	3.1	-4.30	
	Short Form-36: Physical component score	Score Unit	Telecare vs. usual care	12	34.2	33.7	-0.5	5.5	**SNR
				13	30.1	35.1	5	1.40	
	Emotional subscale on Minnesota Living With Heart Failure Questionnaire: Mean	Score Unit	Telephone vs. usual care	12	11.8	8.2	-3.6	0	**SNR
				12	8.8	5.2	-3.6	-3.00	
	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	Control Outcome Measure at Final	Control Change Intervention Change	Change Difference	P-Value
					Intervention Outcome Measure at Baseline	Intervention Outcome Measure at Final		Final Difference	
	subscale on Minnesota Living With Heart Failure Questionnaire: Mean		usual care	12	24.4	15.8	-8.6	-0.30	**SNR
	Total score on Minnesota Living With Heart Failure Questionnaire: Mean	Score unit	Telephone vs. usual care	12	58.3	38.1	-20.2	1.7	
				12	54	35.5	-18.5	-2.60	
	Short Form-36: Mental component score	Score unit	Telephone vs. usual care	12	41.8	48.9	7.1	0.9	
				12	44.7	52.7	8	3.80	
	Short Form-36: Physical component score	Score unit	Telephone vs. usual care	12	34.2	33.7	-0.5	1.4	
				12	28.1	29	0.9	-4.70	
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			

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	Control Outcome Measure at Baseline	Control Outcome Measure at Final	Control Change Intervention Change	Change Difference	P-Value
				n Final Intervention	Intervention Outcome Measure at Baseline	Intervention Outcome Measure at Final		Final Difference	
	days		alert to physician about patient's risk of deep-vein thrombosis vs. no computerized alert	1255		22.5		0.20	0
	Major hemorrhage at 30 days	% of patients	Computerized alert to physician about patient's risk of deep-vein thrombosis vs. no computerized alert	1251		1.5			
				1255		1.5		0.00	
	Minor hemorrhage at 30 days	% of patients	Computerized alert to physician about patient's risk of deep-vein thrombosis vs. no computerized alert	1251		7			
				1255		6.5		-0.50	0
	Mechanical	% of patients	Computerized	1251		1.5			

Evidence Table 12. Outcomes related to heart disease in studies addressing clinical outcomes (continued)

Study, Year	Outcomes Measure	Unit	Description of Intervention	<div>n Final Control</div>	<div>Control Outcome Measure at Baseline</div>	<div>Control Outcome Measure at Final</div>	<div>Control Change</div> <div>Intervention Change</div>	<div>Change Difference</div>	P-Value
				<div>n Final Intervention</div>	<div>Intervention Outcome Measure at Baseline</div>	<div>Intervention Outcome Measure at Final</div>		<div>Final Difference</div>	
	prophylaxis		alert to physician about patient's risk of deep-vein thrombosis vs. no computerized alert	1255		10		8.50	<0.001
	Pharmacologic prophylaxis	% of patients	Computerized alert to physician about patient's risk of deep-vein thrombosis vs. no computerized alert	1251		13			
				1255		23.6		10.60	
	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		2.6			
				1255		2.5		-0.10	
	Lowensteyn, 1998 ⁵	Total-cholesterol	mmol/L	Coronary risk profile to physician vs. no risk profile to physician	782	6.11	6.02	-0.09	-0.4
176					6.55	6.06	-0.49	0.04	
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	Control Outcome Measure at Final	Control Change Intervention Change	Change Difference	P-Value
					Intervention Outcome Measure at Baseline	Intervention Outcome Measure at Final		Final Difference	
	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/HD L-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	Control Outcome Measure at Final	Control Change Intervention Change	Change Difference	P-Value
					Intervention Outcome Measure at Baseline	Intervention Outcome Measure at Final		Final Difference	
	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 with no recorded blood pressure	% of patients	Audit plus strategic practices vs. patients who received no feedback	1813	18.8	17.9	17.9	-22.5	0
				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	

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	Control Outcome Measure at Final	Control Change Intervention Change	Change Difference	P-Value
					Intervention Outcome Measure at Baseline	Intervention Outcome Measure at Final		Final Difference	
Poller, 2008 ⁷	Incidence of clinical events adjudicated	Events per 100 patient-yrs	Parma 5 computer-assisted dosage program vs. manual dosage	5290		463			0.08
						420		-43.00	
	Minor bleeds	Events per 100 patient-yrs	Parma 5 computer-assisted dosage program vs. manual dosage	5290		245			**SNR
				5131		211		-34.00	
	Major bleeds	Number of events	Parma 5 computer-assisted dosage program vs. manual dosage	5290		85			**SNR
				5131		73		-12.00	
	Thrombotic events	Number of events	Parma 5 computer-assisted dosage program vs. manual dosage	5290		85			**SNR
				5290		84		-1.00	
	Deaths	Number of events	Parma 5 computer-assisted dosage program vs. manual dosage	5131		48			**SNR
				5131		52		4.00	
	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	Control Outcome Measure at Final	Control Change Intervention Change	Change Difference	P-Value
					Intervention Outcome Measure at Baseline	Intervention Outcome Measure at Final		Final Difference	
	non-events	events	computer-assisted dosage program vs. manual dosage	5131		37		4.00	0.05
	Total events in deep-vein thrombosis/pulmonary embolism group	Number of events	Parma 5 computer-assisted dosage program vs. manual dosage	5290		152			
				5131		115		-37.00	
	Time for which international normalized ratio (INR) was in range	Mean % of time	Computer-assisted oral anticoagulant dosage vs. medical staff dosage	6503		64.7			<0.001
				6605		65.9		1.20	
Poller, 2008 ^b	Incidence of clinical events adjudicated (events per 100 patient-yrs)	Number of events	Computer-assisted oral anticoagulant dosage vs. medical staff dosage	6503		555			**SNR
				6605		513		-42.00	
	Minor bleeds	Events per 100 patient-yrs	Computer-assisted oral anticoagulant dosage vs. medical staff dosage	6503		288			**SNR
				6605		253		-35.00	
	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	Control Outcome Measure at Baseline	Control Outcome Measure at Final	Control Change Intervention Change	Change Difference	P-Value
				n Final Intervention	Intervention Outcome Measure at Baseline	Intervention Outcome Measure at Final		Final Difference	
		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	<u>n Final Control</u>	<u>Control Outcome Measure at Baseline</u>	<u>Control Outcome Measure at Final</u>	<u>Control Change</u> Intervention Change	<u>Change Difference</u>	P-Value
				n Final Intervention	Intervention Outcome Measure at Baseline	Intervention Outcome Measure at Final		Final Difference	
	international normalized ratio (INR) was in range (mean %)	time	assisted oral anticoagulant dosage vs. medical staff dosage	6605		65.9		1.20	**SNR
	Incidence of clinical events adjudicated	Events per 100 patient-yrs	Computer-assisted oral anticoagulant dosage vs. medical staff dosage	6503		555			
				6605		513		-42.00	
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	83	85	2	3	0.08
				38	86	91	5	6.00	
	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	Control Outcome Measure at Baseline	Control Outcome Measure at Final	Control Change	Change Difference	P-Value
				n Final Intervention	Intervention Outcome Measure at Baseline	Intervention Outcome Measure at Final	Intervention Change	Final Difference	
	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	0
	Quality of life	Score unit	Participants in	43	56	62	6	2	

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	Control Outcome Measure at Baseline	Control Outcome Measure at Final	Control Change	Change Difference	P-Value
				n Final Intervention	Intervention Outcome Measure at Baseline	Intervention Outcome Measure at Final	Intervention Change	Final Difference	
			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	0
	Functional	Score unit	Participants in	43	66	70	4	-3	

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	Control Outcome Measure at Baseline	Control Outcome Measure at Final	Control Change	Change Difference	P-Value
				n Final Intervention	Intervention Outcome Measure at Baseline	Intervention Outcome Measure at Final	Intervention Change	Final Difference	
	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	0
	Clinical	Score unit	Participants in	43	64	66	2	3	

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	Control Outcome Measure at Final	Control Change Intervention Change	Change Difference	P-Value
					Intervention Outcome Measure at Baseline	Intervention Outcome Measure at Final		Final Difference	
	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	Control Outcome Measure at Baseline	Control Outcome Measure at Final	Control Change	Change Difference	P-Value
				n Final Intervention	Intervention Outcome Measure at Baseline	Intervention Outcome Measure at Final	Intervention Change	Final Difference	
	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	157.3	145	-12.3	0.3	0
				362	158	146	-12	1.00	
	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	157.3	145	-12.3	-6	0
				358	156.3	138	-18.3	-7.00	
	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	Control Outcome Measure at Final	Control Change Intervention Change	Change Difference	P-Value
					Intervention Outcome Measure at Baseline	Intervention Outcome Measure at Final		Final Difference	
	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	Control Outcome Measure at Final	Control Change Intervention Change	Change Difference	P-Value
					Intervention Outcome Measure at Baseline	Intervention Outcome Measure at Final		Final Difference	
Scherr, 2009 ¹¹	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	

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	Control Outcome Measure at Baseline	Control Outcome Measure at Final	Control Change Intervention Change	Change Difference	P-Value
				n Final Intervention	Intervention Outcome Measure at Baseline	Intervention Outcome Measure at Final		Final Difference	
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		1.3			0.03
				355		-0.6		-1.90	
	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	Control Outcome Measure at Baseline	Control Outcome Measure at Final	Control Change	Change Difference	P-Value
				n Final Intervention	Intervention Outcome Measure at Baseline	Intervention Outcome Measure at Final		Final Difference	
	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	Control Outcome Measure at Baseline	Control Outcome Measure at Final	Control Change Intervention Change	Change Difference	P-Value
				n Final Intervention	Intervention Outcome Measure at Baseline	Intervention Outcome Measure at Final		Final Difference	
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	Control Outcome Measure at Baseline	Control Outcome Measure at Final	Control Change Intervention Change	Change Difference	P-Value
				n Final Intervention	Intervention Outcome Measure at Baseline	Intervention Outcome Measure at Final		Final Difference	
	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	Control Outcome Measure at Baseline	Control Outcome Measure at Final	Control Change Intervention Change	Change Difference	P-Value
				n Final Intervention	Intervention Outcome Measure at Baseline	Intervention Outcome Measure at Final		Final Difference	
	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	Control Outcome Measure at Baseline	Control Outcome Measure at Final	Control Change Intervention Change	Change Difference	P-Value
				n Final Intervention	Intervention Outcome Measure at Baseline	Intervention Outcome Measure at Final		Final Difference	
	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)

					Control Outcome Measure at Baseline	Control Outcome Measure at Final		Change Difference	
Study, Year	Outcomes Measure	Unit	Description of Intervention	<div>n Final Control</div> <div>n Final Intervention</div>	Intervention Outcome Measure at Baseline	Intervention Outcome Measure at Final	Control Change	Change 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		63			**SNR
				106		64		1.00	
	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	Control Outcome Measure at Baseline	Control Outcome Measure at Final	Control Change Intervention Change	Change Difference	P-Value
				n Final Intervention	Intervention Outcome Measure at Baseline	Intervention Outcome Measure at Final		Final Difference	
	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	**SNR
	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		5.2			
				106		5		-0.20	
	Fatigue	Score unit	Printed note	119		4			

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	Control Outcome Measure at Baseline	Control Outcome Measure at Final	Control Change Intervention Change	Change Difference	P-Value
				n Final Intervention	Intervention Outcome Measure at Baseline	Intervention Outcome Measure at Final		Final Difference	
	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	Control Outcome Measure at Baseline	Control Outcome Measure at Final	Control Change	Change Difference	P-Value
				n Final Intervention	Intervention Outcome Measure at Baseline	Intervention Outcome Measure at Final		Final Difference	
	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	Control Outcome Measure at Baseline	Control Outcome Measure at Final	Control Change	Change Difference	P-Value
				n Final Intervention	Intervention Outcome Measure at Baseline	Intervention Outcome Measure at Final		Final Difference	
	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	Control Outcome Measure at Final	Control Change Intervention Change	Change Difference	P-Value
					Intervention Outcome Measure at Baseline	Intervention Outcome Measure at Final		Final Difference	
	(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	Control Outcome Measure at Baseline	Control Outcome Measure at Final	Control Change	Change Difference	P-Value
				n Final Intervention	Intervention Outcome Measure at Baseline	Intervention Outcome Measure at Final		Final Difference	
	(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	Control Outcome Measure at Final	Control Change Intervention Change	Change Difference	P-Value
					Intervention Outcome Measure at Baseline	Intervention Outcome Measure at Final		Final Difference	
	(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	5.7	5.63	-0.07	-0.1	0
				61	5.7	5.53	-0.17	-0.10	
	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	0
	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	
	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	
	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	

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	Control Outcome Measure at Baseline	Control Outcome Measure at Final	Control Change Intervention Change	Change Difference	P-Value
				n Final Intervention	Intervention Outcome Measure at Baseline	Intervention Outcome Measure at Final		Final Difference	
	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		22.4			0
				47		21.3		-1.10	

**SNR: Significance not reported

P-value of "0" denotes a p-value > 0.10

Evidence Table 12. Outcomes related to heart disease in studies addressing clinical outcomes (continued)

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

References

- 1 Feldman PH, Murtaugh CM, Pezzin LE, McDonald MV, Peng TR. Just-in-time evidence-based e-mail "reminders" in home health care: impact on patient outcomes. *Health Serv Res* 2005; 40(3):865-85.
- 2 Jerant AF, Azari R, Nesbitt TS. Reducing the cost of frequent hospital admissions for congestive heart failure: a randomized trial of a home telecare intervention. *Med Care* 2001; 39(11):1234-45.
- 3 Jerant AF, Azari R, Martinez C, Nesbitt TS. A randomized trial of telenursing to reduce hospitalization for heart failure: patient-centered outcomes and nursing indicators. *Home Health Care Services Quarterly* 2003; 22(1):1-20.
- 4 Kucher N, Koo S, Quiroz R *et al.* Electronic alerts to prevent venous thromboembolism among hospitalized patients. *N Engl J Med* 2005; 352(10):969-77.
- 5 Lowensteyn I, Joseph L, Levinton C, Abrahamowicz M, Steinert Y, Grover S. Can computerized risk profiles help patients improve their coronary risk? The results of the Coronary Health Assessment Study (CHAS). *Prev Med* 1998; 27(5 Pt 1):730-7.
- 6 Mitchell E, Sullivan F, Watt G, Grimshaw JM, Donnan PT. Using electronic patient records to inform strategic decision making in primary care. *Stud Health Technol Inform* 2004; 107(Pt 2):1157-61.
- 7 Poller L, Keown M, Ibrahim S *et al.* A multicentre randomised clinical endpoint study of PARMA 5 computer-assisted oral anticoagulant dosage. *Br J Haematol* 2008; 143(2):274-83.
- 8 Poller L, Keown M, Ibrahim S *et al.* An international multicenter randomized study of computer-assisted oral anticoagulant dosage vs. medical staff dosage. *J Thromb Haemost* 2008; 6(6):935-43.
- 9 Ross SE, Moore LA, Earnest MA, Wittevrongel L, Lin CT. Providing a web-based online medical record with electronic communication capabilities to patients with congestive heart failure: randomized trial. *J Med Internet Res* 2004; 6(2):e12.
- 10 Roumie CL, Elasy TA, Greevy R *et al.* Improving blood pressure control through provider education, provider alerts, and patient education: a cluster randomized trial. *Ann Intern Med* 2006; 145(3):165-75.
- 11 Scherr D, Kastner P, Kollmann A *et al.* Effect of home-based telemonitoring using mobile phone technology on the outcome of heart failure patients after an episode of acute decompensation: randomized controlled trial. *Journal of Medical Internet Research* 2009; 11(3):e34.
- 12 Subramanian U, Fihn SD, Weinberger M *et al.* A controlled trial of including symptom data in computer-based care suggestions for managing patients with chronic heart failure. *Am J Med* 2004; 116(6):375-84.
- 13 Tierney WM, Overhage JM, Murray MD *et al.* Effects of computerized guidelines for managing heart disease in primary care. *J Gen Intern Med* 2003; 18(12):967-76.
- 14 Verheijden M, Bakx JC, Akkermans R *et al.* Web-based targeted nutrition counselling and social support for patients at increased cardiovascular risk in general practice: randomized controlled trial. *J Med Internet Res* 2004; 6(4):e44.
- 15 Wakefield BJ, Ward MM, Holman JE *et al.* Evaluation of home telehealth following hospitalization for heart failure: a randomized trial. *Telemedicine Journal and E-Health : the Official Journal of the American Telemedicine Association* 2008; 14(8):753-61.