The Growing Burden of Chronic Disease in America

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In 2000, approximately 125 million Americans (45% of the population) had chronic conditions and 61 million (21% of the population) had multiple chronic conditions. The number of people with chronic conditions is projected to increase steadily for the next 30 years. While current health care financing and delivery systems are designed primarily to treat acute conditions, 78% of health spending is devoted to people with chronic conditions. Quality medical care for people with chronic conditions requires a new orientation toward prevention of chronic disease and provision of ongoing care and care management to maintain their health status and functioning. Specific focus should be applied to people with multiple chronic conditions.

METHODS

We define chronic conditions as those conditions that last a year or more and require ongoing medical attention and/or limit activities of daily living.[1] To determine which specific conditions met our definition, we convened two physician panels to review all medical conditions represented by the International Classification of Diseases, 9th Revision (ICD-9) codes.[1] We applied the resulting classifications to data from the Medical Expenditure Panel Survey (MEPS), a survey sponsored by the Agency for Healthcare Research and Quality (AHQR).

The Household Component of the 1998 MEPS is a nationally representative sample of the non-institutional U.S. population. Two groups of respondents (24,072 people total) were interviewed three times each during the 1998 survey period. The MEPS Household Component provides information on health status, health services utilization, and health care spending. Health care spending is calculated by AHRQ using respondents' medical claims or other records.[2] This is a survey of people living in the community, and therefore does not provide information on people residing in institutions such as nursing homes. This is an important point. As a result, our data analysis understates the number of people with chronic conditions as well as health care spending on their

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behalf because those living in institutions and the health spending on their behalf are excluded from MEPS.

RESULTS

Analysis of the 1998 MEPS data shows that almost four in five health care dollars (78%) are spent on behalf of people with chronic conditions. People with chronic conditions are the heaviest utilizers of medical care: 96% of home health, 88% of prescriptions, 72% of physician visits, and 76% of inpatient hospital stays are attributed to people with chronic conditions (Figure 1). Most of the utilization is by people with two or more chronic conditions: 80% of home health, 67% of prescriptions, 48% of physician visits, and 56% of inpatient stays.

Analysis of 1998 MEPS data (Figure 2) shows that chronic conditions are more prevalent in older populations. Eighty-five percent of people aged 65 years and older have one or more chronic conditions, whereas 23% of children have one or more chronic conditions. Among the working-age population, 45% have a chronic condition. Prevalence of multiple conditions also increases with age, as shown in Figure 2: only 5% of children have multiple chronic conditions, but 62% of people aged 65 years and older have multiple chronic conditions.

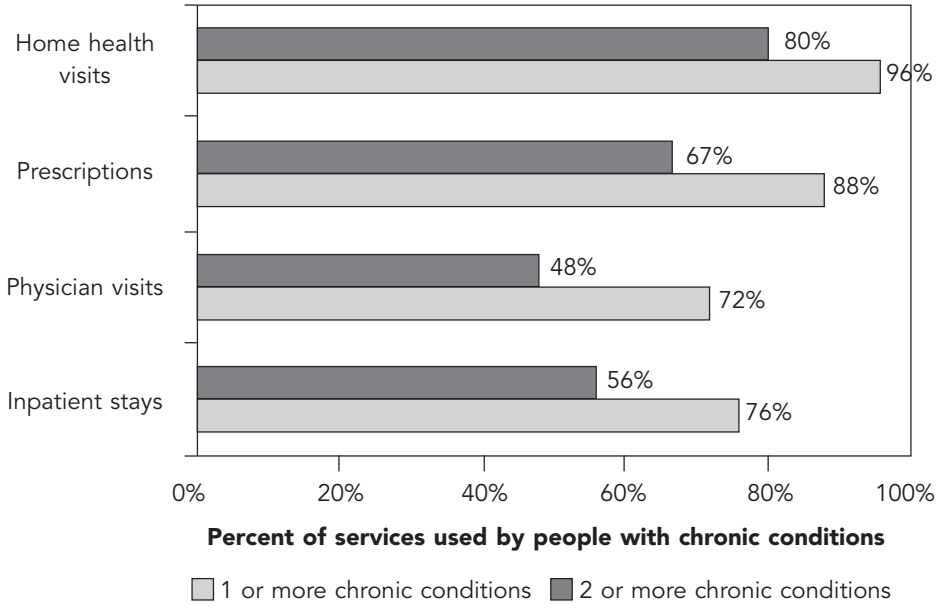
Almost 50% of women have at least one chronic condition, while only 40% of men have a chronic condition (Figure 3). Most of the difference in prevalence can be attributed to longevity, not gender. Age-specific rates are relatively comparable between men and women, according to the 1998 MEPS data.

Chronic conditions afflict people by race at different rates. As Figure 4 shows, whites have the highest prevalence rates, followed by blacks and then by other racial groups. The differences in prevalence rates among the different racial groups are smaller if the rates are compared within age groups (data not presented). Because of sample size constraints, more detailed ethnic and racial breakdowns are not available.

Our analysis showed no statistically significant difference ($p<.05$) in prevalence rates by family income status (Figure 5). While this is perhaps a counter-intuitive result, this also may reflect the impact of age; lower-income populations tend to be younger. While we know from some disease-specific studies that there is a correlation between income and prevalence rates, the correlation does not appear to hold for chronic conditions overall.

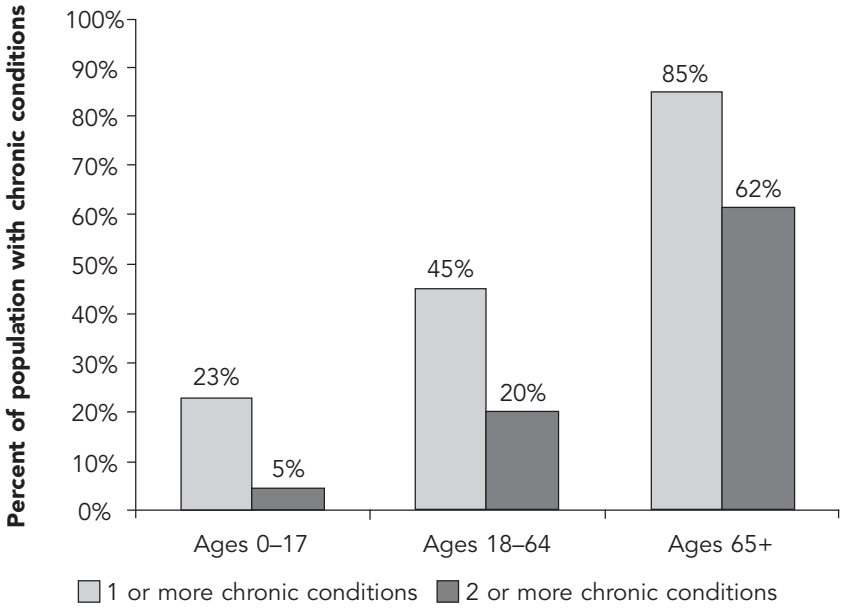
Analysis of 1998 MEPS data, as shown in Figure 6, shows that the most common chronic conditions among children are respiratory diseases, preadult behavioral disorders, and eye disorders. When children have a chronic condition, most have only one chronic condition. However, approximately one-third have at least one other chronic condition.

Figure 1. Services use by people with chronic conditions



SOURCE: Medical Expenditure Panel Survey, 1998.

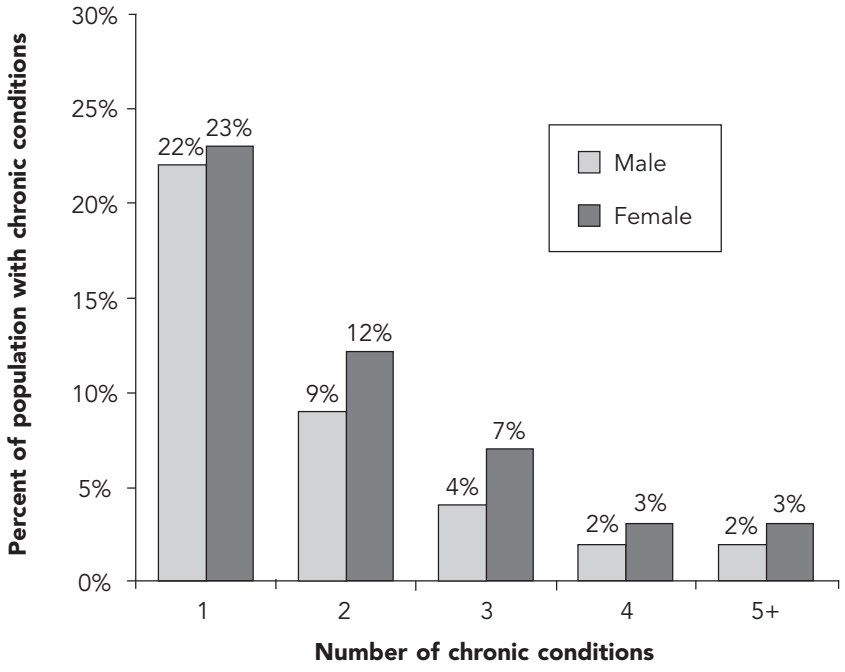
Figure 2. Prevalence of chronic conditions by age



SOURCE: Medical Expenditure Panel Survey, 1998.

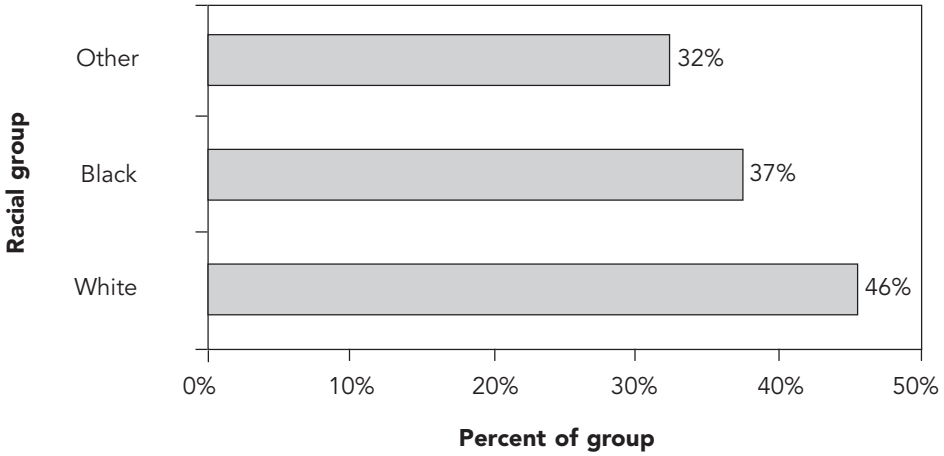
Figure 7 shows that among the working-age population, hypertension, respiratory diseases, chronic mental conditions, and arthritis are most common. When working-age adults have a chronic condition, it generally occurs with other chronic conditions. For instance, among those with hypertension, only 30% have just that condition, while 70% have hypertension and at least one other chronic condition.

Figure 3. Prevalence of chronic conditions by gender



SOURCE: Medical Expenditure Panel Survey, 1998.

Figure 4. Prevalence of chronic conditions by race

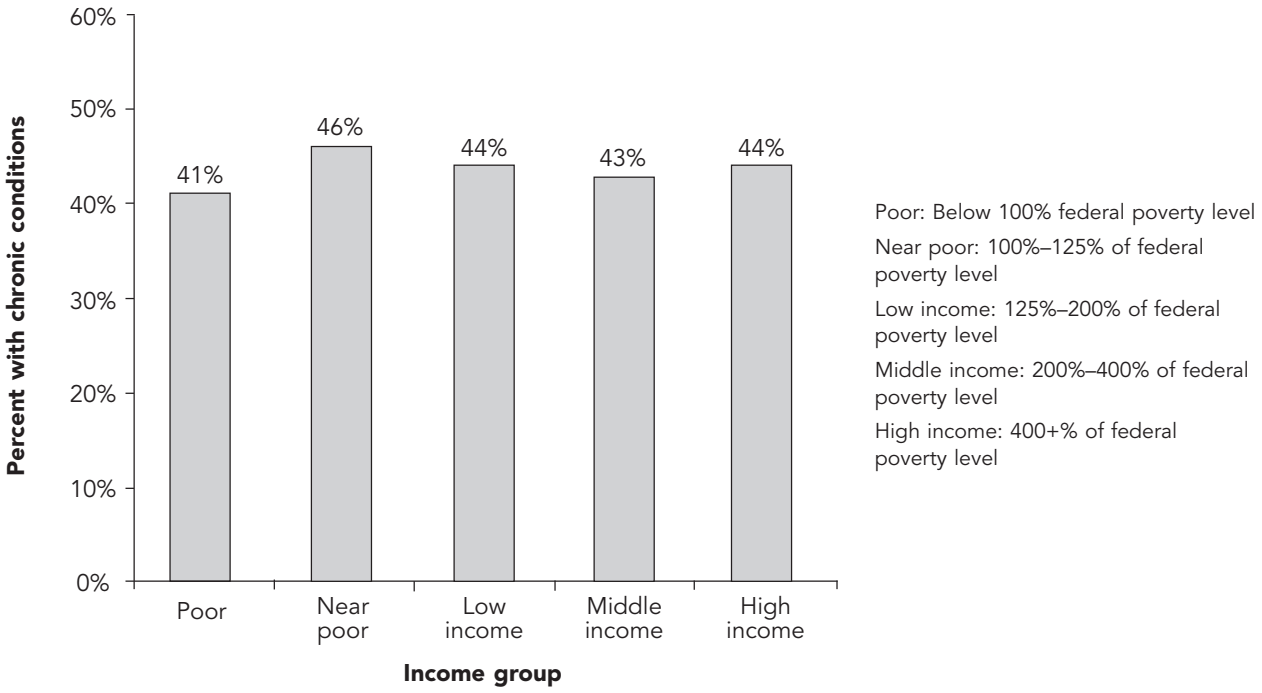


SOURCE: Medical Expenditure Panel Survey, 1998.

The prevalence of comorbidities increases with age. Among seniors, hypertension, heart disease, arthritis, eye disorders, and diabetes are the most common chronic condition. As Figure 8 shows, comorbidities are a major concern in seniors. Among seniors with hypertension, for example, only 17% have only hypertension, while 83% have at least one other chronic condition.

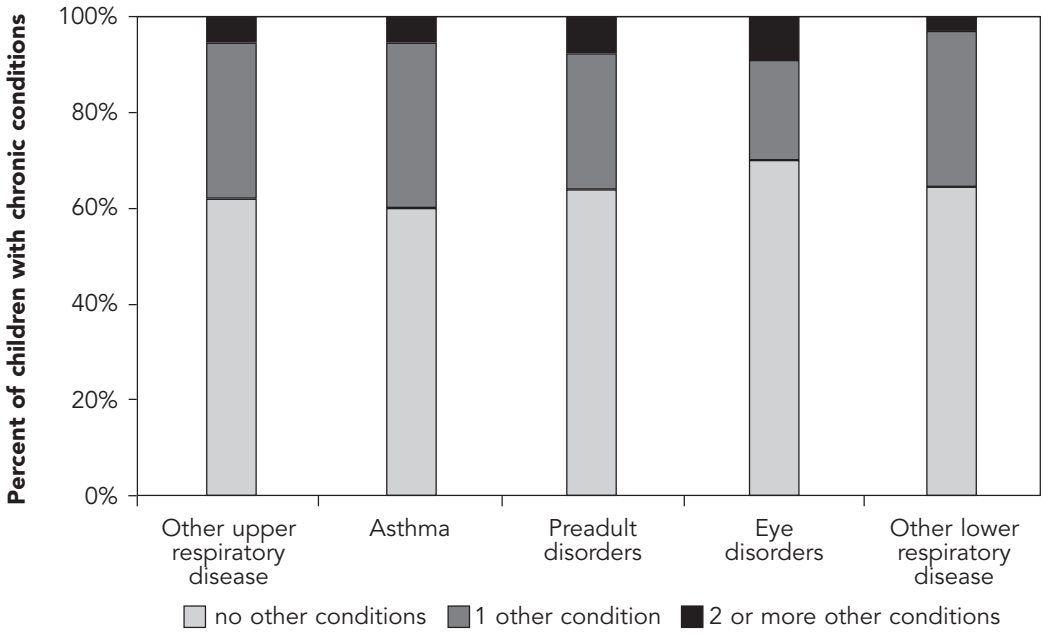
Spending on behalf of people with multiple chronic conditions increases with the addition of each condition (Figure 9). Average per capita spending for a person with one condition is $1,900, almost tripling to

Figure 5. Chronic condition prevalence by income status



SOURCE: Medical Expenditure Panel Survey, 1998.

Figure 6. Most common chronic conditions in children



SOURCE: Medical Expenditure Panel Survey, 1998.

$5,600 for a person with three conditions and then doubling again for the person with five or more conditions.

DISCUSSION

Approximately 125 million Americans (45% of the population) had one or more chronic conditions in 2000 and 61 million (21% of the population) had multiple chronic conditions.[3] It is estimated that the population of people with chronic conditions will increase steadily in that next two decades, so that by 2020, 164 million people (almost 50% of the population) will have a chronic condition, and 81 million (24%) of them will have two or more conditions.[3]

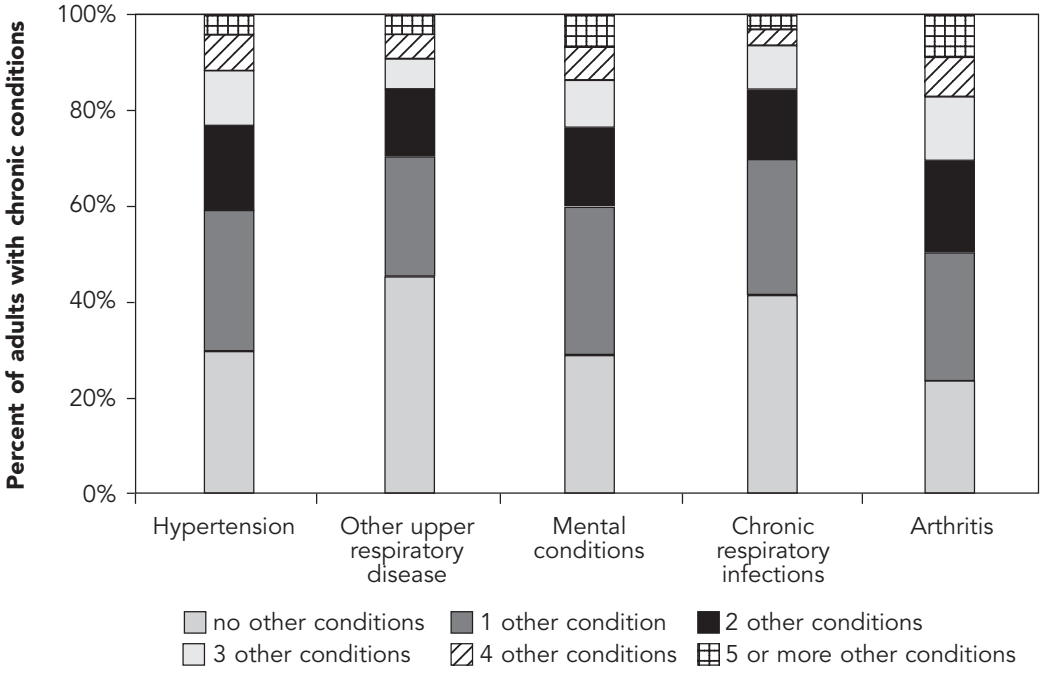
The increasing prevalence of chronic conditions is due to a number of factors: increased life expectancy together with the aging of society, and new drugs and medical procedures that convert once-fatal diseases to chronic, life-long conditions.[4] Clinicians and policy makers are turning more and more attention to the issue of chronic conditions—particularly multiple chronic conditions—and the need to transform the health care system to one oriented toward providing ongoing, coordinated care.

The most important actions that individuals, clinicians, and policymakers can undertake are those that would help prevent chronic conditions. A number of studies have shown that most chronic conditions are preventable through behavior change, and other studies have shown specific interventions that are successful.[5] However, even if these actions are successful and the number of people with chronic conditions is less than forecast, changes in the health care system are still necessary to help those who already have chronic conditions.

The care received by people with chronic conditions is financed by a variety of sources: private employers, government programs such as Medicare and Medicaid, and individuals through their insurance premiums and out-of-pocket spending for services. Because the prevalence of chronic conditions increases with age, the highest prevalence is among the senior population. However, the greatest number of people with chronic conditions are working age and privately insured. Sixty-six million people with chronic conditions have private insurance coverage, and their care accounts for about 70% of private insurance spending.[4] Clearly, the needs of people with chronic conditions involve issues that cannot be addressed by the Medicare system alone, and should include efforts by the private sector.

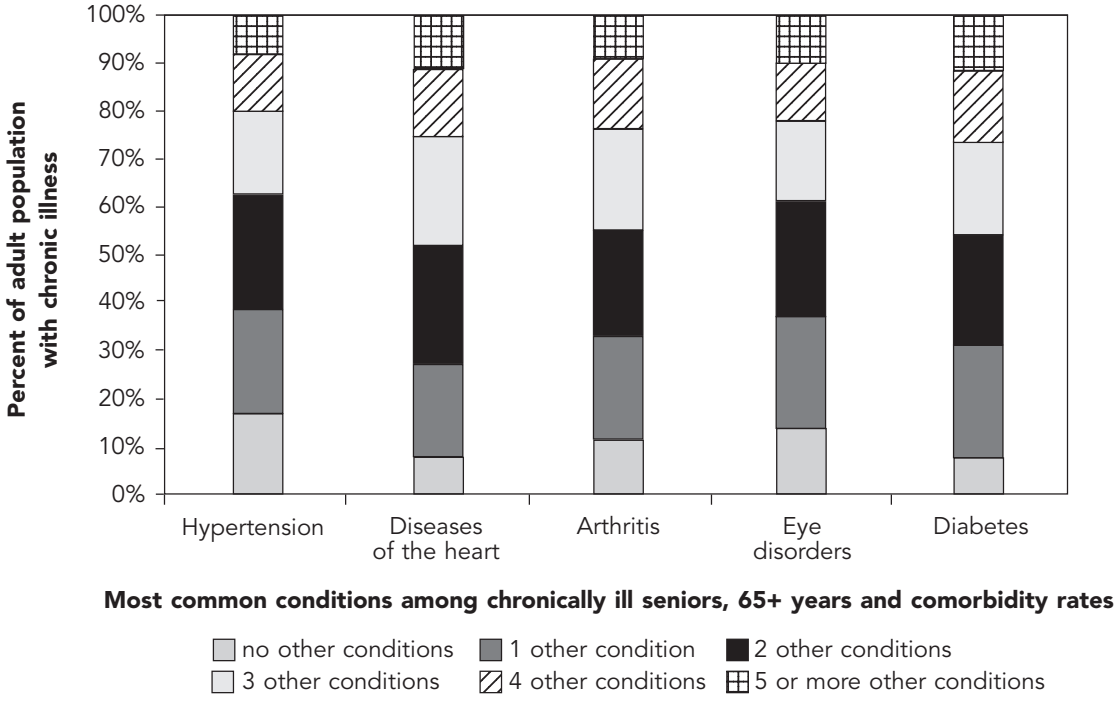
Care coordination is a serious problem for people with multiple chronic conditions. This issue includes coordination across medical providers and also among medical and long term, rehabilitation, and other care

Figure 7. Most common chronic conditions in adults



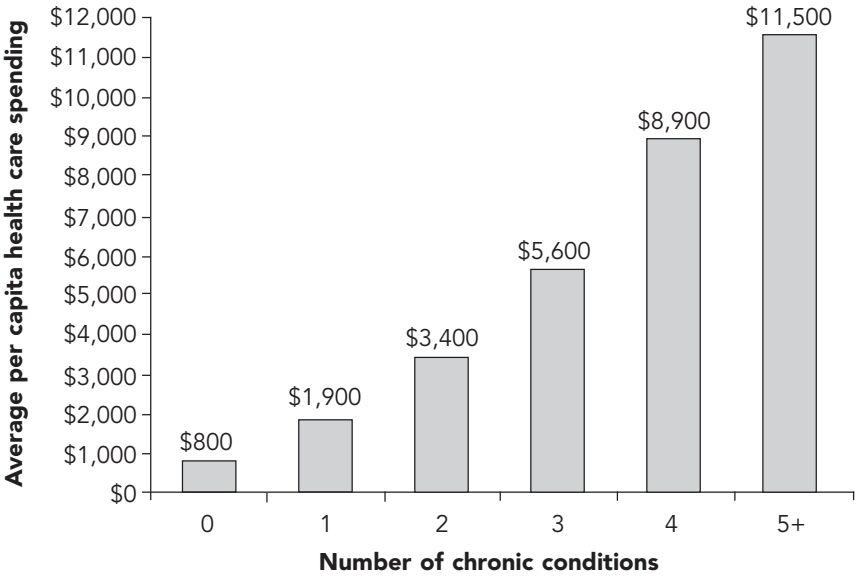
SOURCE: Medical Expenditure Panel Survey, 1998.

Figure 8. Most common chronic conditions in seniors



SOURCE: Medical Expenditure Panel Survey, 1998.

Figure 9. Per capita spending by number of chronic conditions



SOURCE: Medical Expenditure Panel Survey, 1998.

providers. In this article, we focus only on the medical providers. People with multiple chronic conditions see multiple providers. For example, while the average Medicare beneficiary sees between six and seven different physicians, beneficiaries with five or more chronic conditions see almost 14 different physicians in a year and average 37 physician visits annually.[6] People with five or more chronic conditions fill almost 50 prescriptions in a year.[4]

People with multiple chronic conditions indicate that the care among providers is often uncoordinated. This lack of coordination leads to potentially adverse outcomes for patients, and inefficient or wasteful health care spending. A national survey of the American public found that more than 60% of caregivers of people with chronic conditions report that they received conflicting medical advice from different providers, as did about 45% of people with serious chronic conditions. More than 50% of people with serious chronic conditions and more than 50% of caregivers of people with chronic conditions reported that for the same set of conditions, they received different diagnoses from different providers.[7] In a recent survey, physicians reported that they found it difficult to coordinate care for people with chronic conditions and that poor care coordination led to adverse outcomes such as hospitalizations and nursing home stays.[4]

Studies are beginning to report the number of adverse outcomes generated by lack of care coordination among treating providers for people with multiple chronic conditions. For instance, one study found that among Medicare beneficiaries with one chronic condition, seven out of 1,000 will have an inpatient hospital stay for an ambulatory care sensitive condition (preventable hospitalization), and that among those with five chronic conditions, 95 out of 1,000 will have an ambulatory care sensitive condition. The number rises to 261 out of 1,000 for those with 10 or more chronic conditions.[8] Because beneficiaries with multiple conditions do not benefit from good care coordination, they are more likely to experience an acute exacerbation that could have been prevented. This adds to health care spending.

Adjusting the financing and delivery systems for health care to better meet the needs of people with chronic conditions will require a renewed focus on preventing disease when possible, identifying it early when it does occur, and implementing secondary and tertiary prevention strategies that slow disease progression and the onset of physical limitations that often accompany chronic conditions. For people with multiple chronic conditions, it will require better care coordination across the numerous treating providers and settings where care is delivered.

The challenge is to change the medical care system to adapt it to the needs of people with chronic conditions, particularly those with multiple chronic conditions. We need to change medical education so that physicians are trained to coordinate and consult with other physicians as well as other medical profession-

als. We need to improve health care to provide more support for ongoing care of chronic conditions, including when people have access to otherwise covered benefits. Often today, covered services are terminated when a patient no longer improves but are authorized again only after deterioration has occurred. Medical necessity criterion should be interpreted to allow people to maintain their health and functional status. We need information systems that allow clinicians to communicate with each other on a timely basis. Finally, and perhaps most importantly, we need to align financial incentives within health care systems to promote coordination within the medical care system and among medical and supportive care systems. Ultimately, care coordination for people with multiple chronic conditions must become a standard of quality care, against which health plans and providers are measured.

The health care system has successfully adapted to meet new challenges in the past. Examples include the creation of a public health system in the early 20th century to combat communicable diseases, and the development of services and financing systems to effectively treat acute conditions such as heart attacks in the latter half of the 20th century. The system must transform itself again by reorienting to the major challenge of the 21st century—effective prevention and treatment of chronic conditions.

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