The Rise In Health Care Spending And What To Do About It

Disease prevention/health promotion approaches are key to slowing the rise in health care spending.

by Kenneth E. Thorpe

ABSTRACT: Reforms for slowing the growth in health care spending and increasing the value of care have largely focused on insurance-based solutions. Consumer-driven health care represents the most recent example of this approach. However, much of the growth in health care spending over the past twenty years is linked to modifiable population risk factors such as obesity and stress. Rising disease prevalence and new medical treatments account for nearly two-thirds of the rise in spending. To be effective, reforms should focus on health promotion, public health interventions, and the cost-effective use of medical care.

OVER THE PAST FIVE YEARS the cost of health insurance has risen 54 percent.[1] This persistent rise has recently been attributed to the low out-of-pocket costs paid by consumers.[2] By not knowing the full costs associated with health care, consumers demand more and "overuse" it (moral hazard). The growth in spending has also been linked to the rising use of prescription drugs and new medical innovations and treatments.[3] Still others believe that the rise can be traced to the lack of competition in the health care marketplace and have proposed new approaches for health plans to compete on price and outcomes.[4]

Economists thinking about rising health care spending note that there are only two approaches for slowing its growth: reduce spending on high-cost medical care that produces no benefits, and reduce spending on high-cost care that yields some health benefits but at even higher costs. Along these lines, some have proposed that we need to "ration rationally" to slow spending growth.[5] Although this may be true, this approach ultimately involves some form of rationing and difficult decisions concerning the introduction of new technologies. Proposals to increase patient cost sharing under consumer-driven models are designed to place consumers in the position to make these health care judgments for themselves.

With the diagnosis of the problem identified as low consumer cost sharing and rising discretionary use of services, the policy solutions have focused on demand-

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side interventions. These innovations are designed to reduce the discretionary use of health care thought to account for most of the growth in spending. Consumer-driven approaches include the broader dissemination of information to consumers about prices and quality coupled with products such as health savings accounts (HSAs). The HSA concept is designed to reduce spending by making consumers more conscious of their use of routine medical care. Consumer-driven health care has dominated the recent cost containment debate.

However, nearly two-thirds of the rise in health care spending is linked to a rise in treated disease prevalence (for example, diabetes) and innovations in medical treatment. Health behavior such as overconsumption of food, lack of exercise, smoking, and stress accounts for approximately 40–50 percent of morbidity and mortality.[6] Thus, a reliance solely on the consumer-driven model is not likely to solve the problem, since it would do little to address the key factors that underlie the rise in health care spending. Indeed, missing from the list of solutions for slowing health spending growth are public health and preventive interventions at the population level that target the rise in treated disease prevalence.[7] Moreover, given the important role that medical innovations have assumed in expanding treatment, options for discouraging the diffusion of high-cost/low-benefit technologies also need exploration. To date, U.S. cost containment policy has focused too narrowly on demand-side interventions such as changing the design of insurance benefits and increasing cost sharing.

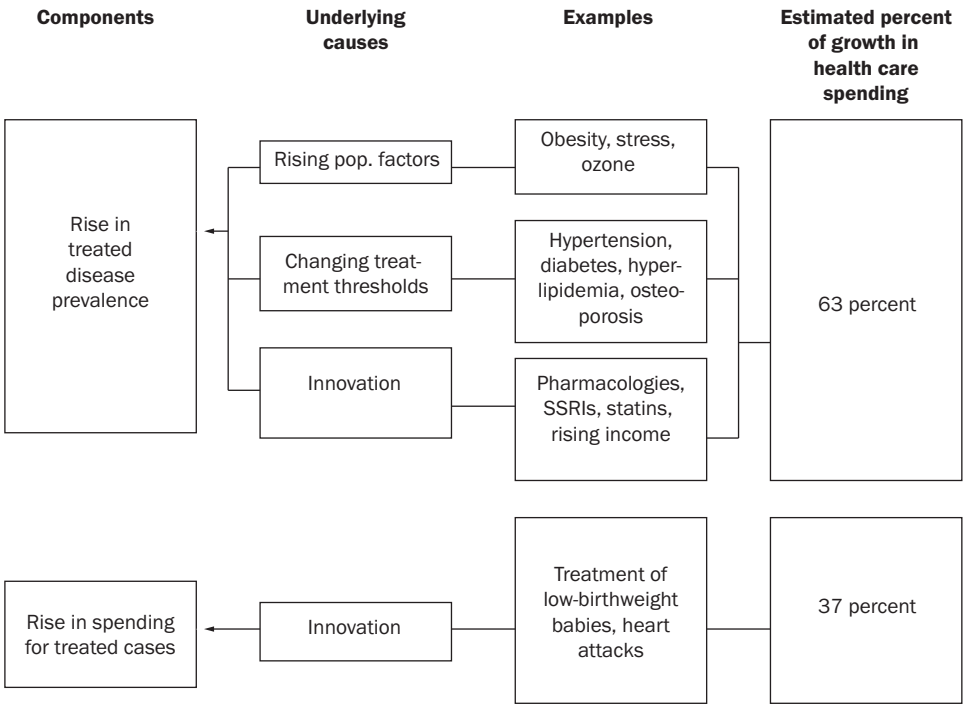
This paper summarizes the factors responsible for the rise in health care spending during the past twenty years. As the data show, most of this rise has been driven by a rise in treated disease prevalence, fueled by an increase in population risk factors such as obesity and by innovations in the treatment of chronic disease. The bulk of the paper then outlines a series of reforms that are designed to address the factors responsible for the rise in spending.

What Accounts For The Rise In Health Care Spending?

The growth in real per capita health care spending is simply the growth in spending per treated case times the number of medical conditions treated (treated disease prevalence). Elsewhere my colleagues and I have apportioned the rise in spending over time into these two categories and concluded that approximately 63 percent of the rise in real per capita spending is traced to a rise in treated disease prevalence (Exhibit 1).[8] This rise is caused by rising prevalence of disease in the population, changing clinical thresholds for diagnosing and treating disease, and innovations (new technology) in treatment. The discussion distinguishes among these sources, since some of the rise in treated prevalence is likely desirable (primary prevention of hypertension, more aggressive treatment of patients with the metabolic syndrome, lipid control, and treatment of prediabetic patients), while other sources could be prevented, such as the rise in obesity.

■ **Rise in treated disease prevalence.** Some of the rise in treated disease is

EXHIBIT 1
Factors Accounting For The Rise In Real U.S. Per Capita Health Spending



SOURCE: Derived from K.E. Thorpe et al., "The Rising Prevalence of Treated Disease: Effects on Private Health Insurance Spending," *Health Affairs,* 27 June 2005, content.healthaffairs.org/cgi/content/abstract/hlthaff.w5.317 (26 August 2005).

linked to a rise in population disease prevalence. Previous work has indicated that the rise in modifiable population risk factors such as obesity accounted for approximately 27 percent of the change in health care spending between 1987 and 2002.[9] This reflects a rising share of obese adults and a concomitant rise in population prevalence of disease such as diabetes, as well as a rise in spending among obese adults relative to normal-weight adults. The rise also reflects an expanded menu of medical treatments for patients with chronic illnesses linked to obesity. A rise in treated disease prevalence accompanied the rise in obesity among both children and adults between 1987 and 2002. The rising prevalence of treated conditions includes back problems (rising from 4.6 percent to 8.1 percent of the adult population), mental disorders (from 4.6 percent to 11 percent), diabetes (from 2.4 percent to 4 percent), and several cardiovascular risk factors such as hypertension and hyperlipidemia.

■ **Changes in clinical thresholds for treatment.** Changes in clinical thresholds for treatment have resulted in more patients' being treated for asymptomatic conditions. This reflects a desire for preventive interventions of patients with asymptomatic symptoms of several cardiovascular disease risk factors such as diabetes, hyper-

tension, and hyperlipidemia. Treatment thresholds have changed for these risk factors during the past twenty-five years. This reflects a desire for earlier clinical intervention to reduce the severity of each of these conditions. For instance, treatment thresholds for hypertension have steadily been lowered from systolic blood pressure = 160 mm Hg or diastolic blood pressure = 95 mm Hg (in 1980) to lower levels of 140/90 over time.[10] More recent recommendations have focused on the need for more aggressive primary prevention of hypertension.[11] The more aggressive treatment (down to blood pressure levels of 120/80) targets those most at risk of developing hypertension. The recommendations would greatly expand the number of Americans targeted for primary prevention. An estimated twenty-three million adults are estimated to have high-normal blood pressure readings of 130–139 mm Hg systolic or 85–89 mm Hg diastolic.[12] Similar changes have occurred in lipid control, where recommended levels for treatment have declined from total cholesterol levels of 240 down to 200 (along with a recommendation to reduce low-density lipoprotein levels for moderate- and high-risk people to under 100).[13] Recommended thresholds for the preventive treatment of diabetes have been reduced from impaired fasting glucose levels of 110 to 100. An estimated twelve million Americans have "prediabetes," which falls within this threshold.[14]

As a result of these changing thresholds, the number of adults treated for these three medical conditions has increased sharply. At issue is whether the more aggressive treatment and control will result in improved cardiovascular outcomes and whether the added spending will produce even larger improvements in health outcomes. Some preliminary evidence indicates that increased use of antihypertensive medicines and statins has been associated with reductions in blood pressure and total cholesterol levels among adults during the past twenty years.[15]

■ **Innovations in treatment.** Innovations in medical treatment have also assumed a key role in the growth of treated disease prevalence. Most of the rise in spending per treated case identified in previous work is linked to innovations in pharmacologic treatment options as well as new treatment procedures. For instance, spending per newborn delivery rose fivefold between 1987 and 2002.[16] The higher spending reflects a wealth of new technologies (such as neonatal intensive care, incubators, steroids, and ventilators) aimed at improving the survival rates among low-birthweight babies. These innovations have been very successful in reducing infant mortality rates, which have declined from 8.9 to fewer than 7 deaths per thousand live births over the past fifteen years.[17]

In addition, new pharmacologic treatment options have expanded the share of patients with several medical conditions—including depression, hypertension, and hyperlipidemia—under treatment. For example, drug treatment options—particularly the development of selective serotonin reuptake inhibitors (SSRIs)—have given physicians new approaches for treating patients. For depression alone, the share of patients prescribed a psychotropic medication increased from 45 percent in 1987 to nearly 80 percent a decade later.[18]

Implications For Health Care Reform Proposals

As outlined above, much of the rise in spending can be traced to the rise in obesity and new medical technologies. Yet much of the recent discussion concerning health care reform has focused on demand-side reforms such as HSAs and consumer-driven health plans. Even if such plans were adopted by all insured adults today, they might have only a limited impact on the level and growth of health care spending. For instance, approximately 90 percent of health care spending is for sicker patients spending $1,000 per year or more.[19] Moreover, about 80 percent of health care spending is traced to patients with largely predictable health care needs and expenses: the chronically ill. Finally, the faster adoption of HSAs and consumer-driven products would have done little to address the rise in obesity prevalence, stress, and other population risk factors that resulted in the rise in disease prevalence during the past twenty years.

This is not to say, of course, that demand-side interventions should not be pursued; they should be. Instead, the analysis indicates that a broader menu of reforms, including public health and population-based interventions and more effective models for treating chronically ill patients, should be at the core of efforts to slow health care spending growth.

A Menu Of Potential Reforms

Perhaps the most important strategy for reducing the growth in health care spending without reducing benefits is to focus on slowing or reversing the growth in obesity prevalence. This will require interventions designed to change behavior with respect to diet and exercise. These strategies should target schools and the rise in childhood obesity, the workplace, and communities in general. Changing behavior is difficult, although we do have an important case study in reducing smoking in the population. Today, approximately 22 percent of adults age twenty-five and older are smokers, compared with 33 percent in 1979.[20]

The psychology literature has outlined the process by which people change their behavior.[21] This research has identified distinct stages that accompany behavior changes such as smoking, drinking, exercise, and diet. Lessons from this line of research will be important to include in the design of population-based behavior change programs.

Another key design issue is to how to get people to participate in behavior change programs and sustain their participation. Unfortunately, there have been few successful interventions used in health care to reduce weight, modify diets, and lower stress. Some employers have adopted worksite health promotion programs, although these vary greatly in terms of design, intensity of the intervention, rates of participation, and results.[22] Yet well-designed programs do show promise. A recent review of the literature found an average savings of $3.93 for each dollar invested in a health promotion program. The literature also reveals substantial variation in the design, comprehensiveness, and effectiveness of the limited num-

ber of programs now in existence.[23] A key policy challenge is to identify empirically the key design features of effective programs and provide strong incentives for employers to adopt them and for workers to participate.

Three new initiatives outlined below could prove helpful in slowing the growth in future health care spending.

■ **Federal financial incentives for workplace health promotion programs.** Only about 30 percent of employers have any health promotion programs, and only about 10 percent of these can be viewed as comprehensive.[24] Thus, the challenge is to provide incentives for employers to adopt comprehensive worksite health promotion programs and to attract broad and sustained enrollment among workers. Previous research has also found that approximately 80 percent of adults do not meet the guidelines for physical activity and fruit and vegetable intake established by the U.S. Centers for Disease Control and Prevention (CDC).[25]

A two-part approach is needed to address this problem. A first step would be to charge the CDC with outlining the elements of a comprehensive workplace health promotion program. Identifying best-practice programs would be based on empirical evidence of the key design features that have proved effective in changing individual behavior. A second step to create strong incentives for employers to adopt worksite programs would also be important. For instance, the federal government could provide refundable tax credits (or, in the case of not-for-profit and government employers, direct subsidies to pay for the programs) for employers that adopt comprehensive promotion programs. The size of the tax credit (say, 50–75 percent of the cost of the program) should be large enough to assure widescale adoption of the programs by employers.

Few smokers or obese adults use health promotion programs when they are available. Thus, multiple approaches for increasing enrollment will be required. Employers and health plans could use both passive approaches (financial incentives) as well as more proactive means (contacting eligible workers). Employers could give workers an incentive to join best-practice programs through reductions in their monthly health insurance premiums or through other cash incentives. Previous research has also indicated that proactive strategies for enrolling workers in health promotion and smoking-cessation programs are very effective. For example, 80 percent of smokers who received telephone "cold calls" enrolled in a smoking-cessation program.[26]

■ **School-based interventions.** Approximately 15 percent of school-age children were obese in 2000, more than double the rates from thirty years earlier. The rise in childhood obesity has been associated with a rise in diabetes, hypertension, hyperlipidemia, and a variety of social and mental disorders among children.[27] Although recent educational initiatives have focused on reducing the achievement gap among students and improving test results, less attention has been paid to children's physical health and level of achievement. Federal education policy has made schools accountable for meeting academic achievements through the No Child Left Behind

Act (NCLBA), but it has not focused on closing the rising health gap among normal-weight, overweight, and obese children. Under the NCLBA, states establish standards for academic achievement and are measured against their performance. These standards could be expanded (with appropriate funding) to include physical activity (for example, at least thirty minutes of physical activity each day) as well.[28] As schools focus their resources to meet the expectations of the NCLBA provisions, fewer than 10 percent of schools now provide physical education for all children throughout the year, even though 75 percent of states and school districts require it.[29] Redressing the lack of physical activity will take time, but progress could be accelerated by including physical activity standards in the NCLBA.

The Institute of Medicine (IOM), among others, has called for several initiatives around school lunches, vending machines, and physical education. The average school, however, is not meeting the current standards with respect to fat and saturated fat outlined in the National School Lunch Program and School Breakfast Program.[30] Moreover, parents should be notified when schools do not meet the fat targets in school lunches outlined in these programs for two consecutive years. More controversial would be financial sanctions associated with the extent to which school lunches deviate from the standards.

■ **Clinical effectiveness and technology assessment.** A third reform would target the rise in high-cost, low-benefit medical technologies. The U.S. health care system lacks the institutional capacity to discourage the adoption of such technologies. Also, the underlying data are not readily available to undertake comprehensive technology assessments.

Develop state data. Let us consider the lack of data first. Although the Centers for Medicare and Medicaid Services (CMS) tries each year to estimate total health care spending by the source of funding and its use, the estimates are pieced together from dozens of data sources. The Medical Expenditure Panel Survey (MEPS) provides important national estimates on health care spending, utilization patterns, and medical conditions of people surveyed, although these estimates are not available at the state level. Thus, the first place to start is to make the appropriate investment in data to at least know how much we spend, how this varies by state, and what clinical conditions and practices are driving the growth. MEPS could easily be expanded to provide state-level estimates on a rotating basis (say, a third of the states each year). The sample size (and with it the sample size of its donor survey, the National Health Interview Survey, or NHIS) should also be expanded. The several-hundred-million-dollar cost of collecting these data is trivial in the context of what we spend and the potential for the data to provide immediate dividends. It seems counterintuitive that in a $1.7 trillion health care system, we do not even have the most rudimentary data linking spending, medical care conditions and other key markers on a timely state-by-state basis.

Assess costs and benefits of medical technology. With expanded data capacity, our health care system would also benefit from having a new advisory committee to

examine the costs and benefits associated with new and existing health care technologies. This committee would assume the wide range of functions now outside the scope of the U.S. Food and Drug Administration (FDA), which relies on an absolute standard: Is the new drug or device safe and effective? We also need to develop relative standards: Is the technology cost-effective, and does the new device or drug outperform what is now on the market?

There are some important examples of this type of research. One is the Antihypertensive and Lipid-Lowering Treatment to Prevent Heart Attack Trial (ALLHAT). ALLHAT examined the initial effects of antihypertensive drugs among type 2 diabetics, or those with impaired fasting glucose, on two primary outcomes—fatal coronary heart disease and nonfatal myocardial infarction. The randomized study found that the least costly drug—a simple diuretic—was as effective in reducing the relative risk of the two primary outcomes as the newer, more costly drugs (calcium channel blockers and angiotensin-converting enzyme [ACE] inhibitors) were.[31]

The research, however, is merely a first step. The key is to translate such findings into clinical practice—a more complicated problem. Developing financial incentives for physicians and patients to use cost-effective treatments when the clinical and economic evidence is clear should be a key reform priority. Health care reforms that redefine and restructure competition around the provision of chronic disease care rather than around health plans would be an important start. This would allow patients and purchasers to compare the cost of treatment as well as the extent to which clinically appropriate medical care is provided. "Value"-focused competition would encourage the use of cost-effective health care.[32]

The U.S. health care system could benefit from more structured formal analyses (using both primary and secondary data) along the lines of ALLHAT. One approach would be to adopt a structure similar to that of the U.K. National Institute for Clinical Excellence (NICE). Among NICE's responsibilities are technology appraisals, including assessments of health promotion programs. These appraisals examine the incremental costs and health benefits associated with new and existing medicines, medical devices, diagnostic techniques, and surgical procedures as well as health promotion activities. Thus, the NICE process includes both medical and population interventions designed to improve health.

A quasi-public institution such as NICE could be created in the U.S. context. To be effective, membership should include representation from both public- and private-sector interests. A start of this process is outlined in the Medicare Prescription Drug, Improvement, and Modernization Act (MMA) of 2003. Section 1013 of the law charges the secretary of health and human services with examining scientific evidence concerning the comparative clinical effectiveness, outcomes, and appropriateness of care.

Building on the MMA mandate, the technology appraisal process for new drugs and devices could move in parallel with the FDA process for determination of

safety and effectiveness. For existing drugs and procedures (such as those listed above in the NICE process), the U.S. version could examine practice areas with the largest variation in medical spending and most costly medical conditions. For instance, examining the top fifteen or twenty medical conditions would account for nearly two-thirds of all U.S. medical spending.

TO BE EFFECTIVE, options for reforming health care need to include both population-based/public health approaches and economic incentives for the cost-conscious use of services. Much of the current debate over health care spending has focused on demand-side innovations, such as consumer-driven health care, that target overuse of health care by consumers. However, most of the rise in health care spending is traced to the rise in population risk factors and the application of new technologies to treat chronically ill patients. Even if widely adopted, these demand-side fixes would do little to reduce the rise in obesity prevalence and other key risk factors. Maintaining or reducing the population prevalence of disease represents a strategy with large potential payoffs, without the side effects of rationing and other interventions such as managed care that have proved politically unpopular.

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NOTES

1. Henry J. Kaiser Family Foundation, *Employer Health Benefits: 2004 Annual Survey,* September 2004, www.kff.org/insurance/7148/index.cfm (26 August 2005).
2. See, for example, D.M. Herrick, *Consumer Driven Health Care: The Changing Role of the Patient,* NCPA Policy Report no. 276, May 2005, www.ncpa.org/pub/st/st276/st276.pdf (26 August 2005).
3. D. Cutler, *Your Money or Your Life: Strong Medicine for America's Health Care System* (New York: Oxford University Press, 2004).
4. S.M. Butler and R.E. Moffit, "The FEHBP as a Model for a New Medicare Program," *Health Affairs* 14, no. 4 (1995): 47–61.
5. H.J. Aaron, "Should Public Policy Seek to Control the Growth of Health Care Spending?" *Health Affairs,* 8 January 2003, content.healthaffairs.org/cgi/content/abstract/hlthaff.w3.28 (25 August 2005).
6. J.M. McGinnis and W.H. Foege, "Actual Causes of Death in the United States," *Journal of the American Medical Association* 270, no. 18 (1993): 2207–2212. See also M. Wolz et al., "Statement from the National High Blood Pressure Education Program: Prevalence of Hypertension," *American Journal of Hypertension* 13, no. 1, Part 1 (2000): 103–104.
7. A notable exception is presented by J.M. McGinnis, P. Williams-Russo, and J.R. Knickman, "The Case for More Active Policy Attention to Health Promotion," *Health Affairs* 21, no. 2 (2002): 78–93.
8. K.E. Thorpe et al., "The Rising Prevalence of Treated Disease: Effects on Private Health Insurance Spending," *Health Affairs,* 27 June 2005, content.healthaffairs.org/cgi/content/abstract/hlthaff.w5.317 (25 August 2005). The prevalence data are age-adjusted as well.
9. K.E. Thorpe et al., "The Impact of Obesity on Rising Medical Spending," *Health Affairs,* 20 October 2004, content.healthaffairs.org/cgi/content/abstract/hlthaff.w4.480 (25 August 2005).
10. Wolz et al., "Prevalence of Hypertension."
11. P.K. Whelton et al., "Primary Prevention of Hypertension: Clinical and Public Health Advisory from the National High Blood Pressure Education Program," *Journal of the American Medical Association* 288, no. 15 (2002): 1882–1888.

12. Wolz et al., "Prevalence of Hypertension."
13. S.M. Grundy et al., "Implications of Recent Clinical Trials for the National Cholesterol Education Program Adult Treatment Panel III Guidelines," *Circulation* 110, no. 2 (2204): 227–239.
14. CaringForDiabetes.com, "Screening and Diagnosis of Prediabetes and Metabolic Syndrome," www.caringfordiabetes.com/ScreeningandDiagnosis/Prediabetes/prediabetes.cfm (7 October 2005).
15. E.W. Gregg et al., "Secular Trends in Cardiovascular Disease Risk Factors According to Body Mass Index in U.S. Adults," *Journal of the American Medical Association* 293, no. 15 (2005): 1868–1874.
16. Thorpe et al., "The Rising Prevalence of Treated Disease."
17. V.M. Freid et al., *Health, United States, with Chartbook on Trends in the Health of Americans* (Hyattsville, Md.: National Center for Health Statistics, 2003), Table 19.
18. M. Olfson et al., "National Trends in the Outpatient Treatment of Depression," *Journal of the American Medical Association* 287, no. 2 (2002): 203–209.
19. Based on author's tabulations of data from the 2002 Medical Expenditure Panel Survey (MEPS).
20. U.S. Centers for Disease Control and Prevention, *Health, United States, 2004, with Chartbook on Trends in the Health of Americans* (Atlanta: CDC, 2004), Table 61.
21. J.O. Prochaska, C.C. DiClemente, and J.C. Norcross, "In Search of How People Change: Application to Addictive Disorders," *American Psychologist* 47, no. 9 (1992): 1102–1114. These stages of change are precontemplation, contemplation, preparation, action, and maintenance. Success in changing behavior is related to a person's stage prior to enrollment in a program. Thus, treating all people enrolling in a diet, exercise, or smoking-cessation program equally is less effective than providing programs tailored to these stages at enrollment.
22. R.J. Ozminkowski et al., "Long-Term Impact of Johnson and Johnson's Health and Wellness Program on Health Care Utilization and Expenditures," *Journal of Occupational and Environmental Medicine* 44, no. 1 (2002): 21–29.
23. S.G. Aldana, "Financial Impact of Health Promotion Programs: A Comprehensive Review of the Literature," *American Journal of Health Promotion* 15, no. 5 (2001): 296–320.
24. Tabulations of data from the 1998 National Health Insurance Survey (NHIS), Adult Prevention Module. About 10 percent of these programs are viewed as comprehensive (Michael P. O'Donnell, editor of the *American Journal of Health Promotion*, personal communication, 10 June 2005). Comprehensive programs would include health awareness, education, screening, and behavior-change modules that include smoking, obesity, stress, fitness, nutrition, substance abuse, and mental health.
25. R.R. Miller et al., "Adherence to Heart-Healthy Behaviors in a Sample of the U.S. Population," *Preventing Chronic Disease*, April 2005, www.cdc.gov/pcd/issues/2005/apr/04_0115.htm (3 August 2005).
26. J.S. Holtrop et al., "Recruiting Health Plan Members Receiving Pharmacotherapy into Smoking Cessation Counseling," *American Journal of Managed Care* 11, no. 8 (2005): 501–507.
27. Institute of Medicine, *Preventing Childhood Obesity: Health in the Balance* (Washington: National Academies Press, 2004), 55–58.
28. Ibid., 253. The current recommendation from the Department of Health and Human Services is that children should have at least sixty minutes of moderate to vigorous physical activity each day. Half their time is spent in school, generating the concept of thirty minutes per day at school.
29. Ibid., 254.
30. Ibid., 240.
31. P.K. Whelton et al., "Clinical Outcomes in Antihypertensive Treatment of Type 2 Diabetes, Impaired Fasting Glucose Concentration, and Normoglycemia," *Archives of Internal Medicine* 165, no. 12 (2005): 1401–1409.
32. A similar proposal has been advanced in M.E. Porter and E.O. Teisberg, "Redefining Competition in Health Care," *Harvard Business Review* 82, no. 6 (2004): 65–76.