

# The Economic Argument for Disease Prevention: Distinguishing Between Value and Savings

A Prevention Policy Paper Commissioned by  
Partnership for Prevention

Steven H. Woolf, MD, MPH  
Professor of Family Medicine  
Virginia Commonwealth University

Corinne G. Husten, MD, MPH  
Interim President  
Partnership for Prevention

Lawrence S. Lewin, MBA  
Executive Consultant

James S. Marks, MD, MPH  
Senior Vice President  
Robert Wood Johnson Foundation

Jonathan E. Fielding, MD, MPH, MBA  
Director of Public Health and Health Officer  
Los Angeles County Department of Public Health  
Professor of Health Services and Pediatrics  
UCLA Schools of Public Health and Medicine

Eduardo J. Sanchez, MD, MPH  
Vice President and Chief Medical Officer  
Blue Cross and Blue Shield of Texas



## **Executive Summary**

Unsustainable growth in medical spending has sparked interest in the question of whether prevention saves money and could be the answer to the health care crisis. But the question misses the point. What should matter (for both prevention and treatment services) is value -- the health benefit per dollar invested. We discuss a package of effective clinical preventive services that improves health at a relatively low cost. Cost-effectiveness should also be examined for disease care, the major driver of health spending. Health care spending can best be controlled by shifting investments from expensive low-value services to more cost-effective interventions.

*Note: The authors prepared this paper on behalf of the National Commission on Prevention Priorities (NCPP), which is convened by Partnership for Prevention. The NCPP guides Partnership for Prevention's work to assess the value of prevention. Partnership for Prevention and the NCPP gratefully acknowledge support from WellPoint Foundation, Robert Wood Johnson Foundation, and Centers for Disease Control and Prevention.*

February 2009

## Introduction: The Problem and the Potential

The rising costs of health care pose a formidable challenge for policymakers. Health care already accounts for 16% of the gross domestic product (GDP) and is projected to increase to 25% by 2025.<sup>1</sup> According to the Congressional Budget Office, spending on health care is likely to accelerate because of an aging population, a rising burden of chronic diseases, and higher costs for pharmaceuticals and other treatments.<sup>2,3</sup> Increased spending will only exacerbate current stresses on the economy, employers, government programs, and the public. Many patients are foregoing health care, especially when they encounter higher medical costs. In addition, at a time when jobs and incomes are at risk,<sup>4,5</sup> the recession is likely to accelerate the growth of the number of uninsured Americans. Because of the depth and gravity of this crisis, policymakers are under mounting pressure to solve it.

An option of longstanding interest is prevention—interventions that prevent or delay the occurrence of the very diseases that drive these costs. There are three kinds of prevention. *Primary prevention* can be accomplished by modifying unhealthy behaviors (e.g., smoking, physical inactivity), which cause many diseases and account for 38% of all deaths in the United States,<sup>6</sup> administering immunizations to prevent infectious diseases, and reducing exposure to harmful environmental factors. *Secondary prevention* can reduce the severity of diseases, such as cancer and heart disease, through screening programs that detect the diseases or their risk factors at early stages, before they become symptomatic or disabling. *Tertiary prevention*—the effort to avoid or defer the complications of diseases after they have developed—is the current focus of medical care.

The *health* benefits of prevention are intuitive—it is wiser to prevent a disease than to face its consequences at a more advanced stage—but for many years policymakers, politicians, and professionals have also advanced the *economic* argument that prevention saves money. Enthusiasm for prevention has become prominent in health care reform discussions in Congress and was a theme during the 2008 presidential election. Prevention is seen as the touchstone of a redesigned system focused on improving health outcomes.<sup>7</sup> Prevention advocates have emphasized that it will save money, arguing that prevention is not only good for health but also a means to control spending.<sup>8,9</sup> The Trust for America's Health reported that prevention programs could save the country more than \$16 billion annually within five years, a return of \$5.60 per dollar invested.<sup>10</sup> The Commonwealth Fund estimated that reduced tobacco use and a decline in obesity would lower national health expenditures by \$474 billion over 10 years.<sup>11</sup>

Whether prevention does save money has been a running debate for decades. As long ago as 1986, in the book *Is Prevention Better than Cure?*, Rutgers economist Louise Russell argued that prevention rarely reduces costs.<sup>12</sup> The issue resurfaced recently as policymakers embraced prevention as a means for controlling spending. In October 2007, Russell reprised her message that prevention rarely saves money in a report for the National Coalition for Health Care,<sup>13</sup> and she did so again in a recent commentary.<sup>14</sup> Cohen et al, in a February 2008 *New England Journal of Medicine* article directed at the 2008 presidential candidates, argued that prevention is inherently no more cost effective than conventional medical care.<sup>15</sup> In April 2008, an article in the same journal described primary prevention as having the “lowest potential” among policy options for cost savings.<sup>16</sup> These findings were picked up by the news media. An April 2008

*Washington Post* article used the headline, “Some candidates disagree, but studies show it’s often cheaper to let people get sick.”<sup>17</sup> An August 2008 *Newsweek* article warned that “the conventional wisdom is wrong: preventive-care programs usually result in higher payouts, not lower ones.”<sup>18</sup> An October 2008 *New York Times* op-ed called prevention a “campaign myth.”<sup>19</sup>

The purpose of this paper is to help make sense of these diverse perspectives, offer a clearer answer to the policymaker’s question of whether and when prevention saves money, and clarify what saving money really means. We argue for refocusing the question on value—in health and economic terms—to properly weigh the merits of prevention, and we review the evidence about the benefits and costs of prevention. Finally, we note that the logic for emphasizing value is not just for prevention but for all of health care.

## A Closer Look at the Issues

### Reframing the Question: What Saving Money Really Means

Health is a *good*, and goods—whether they are national security, clean water, or a new car—are not purchased to save money. They are purchased for the nonmonetary benefits they provide. Shoppers do not buy groceries to save money, but they do “save money” by shopping wisely. Resources can be stretched farther and more goods can ultimately be acquired by optimizing economic *value*—getting more per dollar spent.

In economic terms, *value* is the ratio between the cost of a service and its benefits. The metric that is used widely in health care is the cost-effectiveness (CE), or cost-utility ratio.\* Some goods offer very high value by producing *net savings*, in which the cost of providing the service is exceeded by the savings it produces, but such services are rare. Some services cost relatively little per unit of health gain, but most of the \$2 trillion spent annually on health care is for expensive tests and treatments that cost large amounts per unit of health gain. Although services are said to have a reasonable CE if they cost less than \$50,000 per quality-adjusted life year (QALY), payers routinely cover expensive treatments that cost more than \$100,000 per QALY. For example, Medicare covers lung volume reduction surgery at a cost of \$189,000 per QALY.<sup>20</sup>

Finding the occasional service that offers net savings is not the magic bullet for controlling health care spending. Through sheer volume, much more can be accomplished by limiting spending on expensive, relatively low-value services and shifting those dollars to high-value services that will make greater or comparable improvements in health at less cost (and may occasionally yield net savings). This reapportionment in spending offers the greatest opportunity to stretch the health care dollar and achieve greater health gains for the same expenditure.

---

\* The CE ratio is the cost of an intervention (numerator) divided by some measure of health gain (denominator), such as life years, quality-adjusted life years, or other health metrics. The numerator and denominator create a counterintuitive relationship: exorbitant services have high CE ratios (low value), whereas the best buys (high value) have low CE ratios. Services that yield net savings have negative CE ratios because the numerator (cost of providing the service minus the savings it produces) is less than zero. The CE ratio is different for different services and even for the same service under different circumstances.

Thus, the proper question for prevention—and, ultimately, for all of health care—is not whether it saves money but whether it offers good value on the dollar.<sup>†21</sup> For a given disease, which strategy—prevention, a new diagnostic test, or a better treatment—offers the greatest benefit per unit cost? Finding the best ways to enhance health for the same cost is common sense, and it is common practice in other countries, such as Canada, the United Kingdom, France, and Japan. The agencies that control health spending in these countries have made it a priority to study the CE of services and to eschew inefficient practices. They spend an average of 8-11% of their gross domestic product on health care (compared to 16% in the U.S.) but rank higher than the U.S. on a variety of outcomes, such as infant mortality and life expectancy.<sup>22</sup>

### Why Economic Evaluations of Prevention Differ

The public and policymakers receive mixed messages about the costs and benefits of prevention. The least attractive outlooks come from short-view, narrowly focused analyses, such as the scoring performed by the Congressional Budget Office and many health plans, which tabulate the often sizable upfront costs of covering preventive services but ignore their subsequent payback over time. This approach creates sticker shock: according to one recent report, adding a package of preventive services would increase medical care costs by \$7.6 trillion.<sup>23</sup>

A more useful perspective emerges when the calculation considers the return on investment, such as CE research. Here, too, studies can reach different conclusions. For example, in three studies, estimates of the CE of various mammography screening protocols ranged from \$4,200 per QALY (clearly a good value) to \$140,000 per QALY (far less clear).<sup>24</sup> Overall assessments of the CE of preventive services also are inconsistent. As noted earlier, Russell, Weinstein, and other economists have questioned whether the average CE of preventive services is any better than for medical treatments. Conversely, groups such as Partnership for Prevention and the Partnership to Fight Chronic Disease paint a more positive picture and speak of low CE ratios and cost savings for some forms of prevention.<sup>8</sup>

Such disparate findings stem in part from technical variations in how economic evaluations are conducted.<sup>‡25</sup> The frame of reference affects inferences about the CE of prevention. For example, it matters whether the analysts have taken a societal perspective or are considering the costs and benefits experienced by a sector (e.g., payers, employers), and the time horizon they are considering.<sup>26</sup> Those who benefit from and bear the costs of preventive services are not

---

<sup>†</sup> Accepting the value proposition requires one to set aside more acute concerns, which can be difficult. Few patients care about value when they are sick. Similarly, the payer or policymaker concerned with next year's health care budget is focused on reducing short-term outlays, not on the return on investment. Whether it is medicine's duty to maximize value is itself the subject of some debate.

<sup>‡</sup> Published CE ratios vary if studies employ different assumptions for the numerator (i.e., cost) and/or denominator (i.e., effectiveness). The numerator varies if higher or lower charges are assumed (e.g., using brand-name versus generic drug prices), which costs are included (e.g., only treatment costs vs. other costs such as time lost from work), if discounting is applied, etc. Values for the denominator vary depending on how effectiveness is measured (e.g., life-year vs. QALY gained), the assumed magnitude of benefit, and the target population. CE is generally enhanced when interventions are targeted to a higher-risk population because the benefits are greater, apply to a larger fraction of those treated, or occur sooner.

always the same. It matters whether the study evaluates the CE of the intervention compared to doing nothing, or the *marginal* (i.e., incremental), CE of option A versus option B.

The type of preventive service being evaluated also matters. Preventive interventions can be undertaken by individuals, the health care system, or community/population-based programs, and CE can differ starkly in each setting. For example, it is reasonable to ask whether the costs people incur by exercising are justified by its benefits; according to available research, voluntary exercise produces net savings to the individual in terms of improved health.<sup>27</sup> A separate question is whether it is cost effective for clinicians to counsel patients to exercise. Here, the evidence that such counseling alters exercise habits is weak; clinicians have not yet devised good systems for helping patients change behaviors. Therefore, published outcomes from existing methods are unimpressive.<sup>28</sup> More intensive programs that include community resources can be more effective; in one trial the risk of developing diabetes was reduced by more than 50%.<sup>29</sup> From a societal perspective, the CE of such programs ranges between \$14,000 and \$69,000 per QALY,<sup>30</sup> but it may be less favorable from a health plan perspective.<sup>31</sup>

To infer from these data, however, that “exercise is not cost effective” is to confuse the CE of *programs* (of varied economic value) with the CE of the *behavior* itself (which saves money), but such confusion abounds in critiques of the costs of smoking cessation, exercise, weight loss, and other behaviors. This confusion obscures a vital message for public health and for the economy: The nation’s health bills and disease burden would be reduced considerably if the public became more active, ate well, and stopped smoking, and the enormous savings would easily pay for the costs—in time, walking shoes, and nicotine patches—that people incur to modify those habits. The economics of programs and services to assist people in making difficult lifestyle changes are separate from the potent economic benefits that result from the changes themselves.

In addition, it is important to view cautiously studies that critique the CE of preventive services as a whole, because the “basket” of services under scrutiny may combine proven preventive interventions with those of uncertain effectiveness. Consider, for example, the previously cited critique by Cohen et al.,<sup>15</sup> which warned the presidential candidates that the CE of prevention is inherently no better than disease care. Their evidence was the CE ratios reported in 599 studies catalogued in a manuscript registry. The ratios in this collection appeared to have the same distribution for preventive and treatment interventions; for example, one third of the CE ratios for both preventive and treatment studies were between \$10,000 and \$50,000 per QALY. From such findings, the authors concluded that “opportunities for efficient investment in health care programs are roughly equal for prevention and treatment.” The flaw in this argument is that what the authors classified as preventive services included not only recommended practices but also interventions that no major guideline recommends (e.g., newborn screening for medium-chain-acyl-coenzyme A dehydrogenase deficiency). A more meaningful analysis would examine the CE of the core preventive services that reputable guidelines recommend.

Whether an intervention is called prevention or treatment is often less pertinent to its value than how it is delivered. For example, the management of elevated blood pressure, cholesterol levels, or blood sugar is classified by some as prevention—because it addresses risk factors, harbored by otherwise healthy people, which can precipitate diseases such as stroke and diabetes—but for

others it is considered treatment because the risk factor is a chronic condition to manage. The semantics bear little on CE, but what does matter is how aggressively the risk factor is managed. For example, drugs to treat elevated lipid levels (e.g., statins) are far more cost effective when used for patients at high risk of disease (e.g., had a previous heart attack) or when the treatment goal is modest (e.g., reducing LDL cholesterol levels below 130 mg/dL) than when the patient has no history of cardiovascular disease and/or when very low treatment targets (e.g., less than 100 mg/dL) are pursued. The most aggressive statin protocols can cost as much as \$1.4 million per QALY.<sup>32</sup>

### **Challenges and Opportunities in the Economic Argument for Prevention**

Unlike much of disease care, prevention faces unique challenges in demonstrating its economic value, even when the health value is apparent. Personal behaviors are difficult to change, and once modified, may take some time to demonstrate health and economic benefits. Employers and payers may be reluctant to shoulder the upfront expense of offering preventive services when the benefits will not accrue until much of their population has moved on to other jobs and health plans or retirement. Private payers have historically taken their lead from the Medicare program, which, by law, restricted coverage of preventive services, even when their benefits and CE were established, but reimbursed all kinds of therapeutic services regardless of cost (see the section titled “Leveling the Playing Field”).<sup>33</sup> Employers have not always considered the monetary benefits of preventive services in terms of increased productivity, reduced absenteeism, and lower disability rates.<sup>9,34,35</sup>

The size of the target population also affects the price tag for prevention. Whereas disease care is delivered to a limited number of patients who are already ill, preventive interventions are often presented to a much larger population that is typically in better health and faces a much lower absolute risk of disease. The provision of preventive services to so large a population can be very expensive unless the per capita cost is small. Although people with a risk factor (e.g., elevated cholesterol levels) face higher odds of experiencing a disease than those without the risk factor, even those with the risk factor are still unlikely to experience the disease and/or to benefit from the intervention. Effective preventive interventions are those in which the gains for the minority who do benefit are sizable enough to offset the costs and harms of involving the whole population. Even services with some measurable net health gain may offer poor value on the dollar.

The fundamental aim of prevention—to prevent death, disease, or disability—is itself elusive. Death is inevitable, and thus the more precise objective is to prevent *premature* death, a seemingly worthy goal but one that is sometimes contested on economic grounds. A stoic argument posits that prevention lacks economic value because it costs more to live longer. As stated by Mongan et al., “longer life spans mean more years of health care adding to overall costs.”<sup>16</sup> This, of course, ignores the economic benefits of living longer, which include greater work productivity and additional tax revenue, to say nothing of the innate desire for a long life and good health. Nonetheless, the tobacco industry employed this awkward thesis to argue that increased smoking, by lowering life expectancy, would generate savings for the Czech Republic.<sup>36</sup>

Whether prevention can even forestall disease also is questioned. The goal of prevention is “compression of morbidity”<sup>37</sup>—to maximize the number of years lived in good health by deferring illness—but this does not always occur, and some argue on economic grounds that at best it can postpone but not avert the costs of treatment. Costs may even increase when the service is ineffective, such as an expensive imaging procedure (e.g., whole-body computerized tomography) that has little health benefit.

The economic value of prevention is limited by these factors but strengthened by others. Risk factors such as tobacco use or an unhealthy diet have broad effects on multiple leading causes of death, such as heart disease, cancer, and diabetes. Preventive interventions addressing a single risk factor can therefore alter the prevalence and severity of a broad range of conditions, often too many for any single CE study to capture. For example, a study of the CE of cardiovascular risk modification might overlook the benefits of smoking cessation with respect to cancer, preterm births, or children’s exposure to secondhand smoke.

The long time horizon, which poses a challenge for prevention, can also be an opportunity because of the “compounding” of health benefits, a circumstance that does not arise with the more immediate effects of disease care. For example, because of demographic trends (e.g., population aging) and the projected increase in chronic diseases, reducing the prevalence of risk factors for those diseases can have amplified effects over time in shifting disease trajectories. Addressing obesity in today’s children will alter the frequency and severity of a host of diseases they will encounter decades later, a return on investment that may be profound.

The claim that preventive and treatment services are equally cost effective suffers from a more fundamental problem: Preventing people from getting sick has value in human terms that econometrics cannot capture. Even if preventing a disease or treating it after symptoms emerge costs the same amount per QALY saved, people prefer the former to avoid the suffering. Some people may even be willing to pay more to stay healthy than to undergo treatment to restore (however successfully) good health. Preventing diseases produces other societal benefits that go unmeasured in most CE studies, such as reducing service capacity demands on health and social systems and Medicaid providers, increasing workforce productivity and corporate competitiveness, and the ripple effects these trends bring to households and children, educational attainment, crime rates, and other societal outcomes.

## **The Consensus: Points of Agreement**

With so much variation in analytic methods and the challenges in assessing the business case for prevention, it may be tempting to conclude that a direct answer on the economics of prevention is elusive. But that would be an incorrect conclusion. Although debates persist on the margins, a strong consensus has emerged on the following points:

- **A core set of preventive services is effective.** Few dispute that a population experiences better health status if people stop smoking, lose weight, exercise, and consume a healthy diet. For *clinical* preventive services (e.g., screening tests, immunizations, and counseling performed by clinicians), virtually all guidelines advocate a core set of services that are deemed effective by groups with rigorous scientific standards, such as

the U.S. Preventive Services Task Force<sup>38</sup> and the National Commission on Prevention Priorities (NCCPP).<sup>39</sup> Support is nearly universal for screening for hypertension; high blood cholesterol; obesity; and certain cancers (e.g., breast, colorectal); childhood and adult immunizations; the use of counseling services for smoking cessation; and the use of aspirin by persons at high risk for cardiovascular disease. Disagreements occur on the margins about services not on this list (e.g., screening for prostate cancer), but few dispute the fact that widespread application of this core package would extend lives and markedly reduce the prevalence and severity of the nation's major diseases. According to the NCCPP, 100,000 deaths would be averted each year by increasing delivery of just five high-value clinical preventive services.<sup>40</sup>

- **Economic studies of the CE of this core set of services—for all their variation in analytic methods—consistently report that *evidence-based clinical preventive services offer high economic value.*** Whereas the mainstays of disease care (e.g., angioplasty) can cost payers \$100,000 per QALY or more,<sup>41</sup> most evidence-based preventive services are a better value. For example, colonoscopy and other evidence-based screening tests for colorectal cancer cost less than \$25,000 per QALY.<sup>42,43</sup> Among 25 strongly recommended preventive services examined in 2006 by the NCCPP, 15 cost less than \$35,000 per QALY and 10 cost less than \$14,000 per QALY.<sup>39</sup> Some preventive services cost as much or more, but this generally occurs with interventions outside the mainstream, for which the evidence base is debated, such as screening low-risk patients rather than high-risk groups, frequent rescreening, or pursuing aggressive treatment goals (see above).
- **Among the core set of preventive services that offer high economic value, a subset of preventive measures yields net savings.** Net savings have been reported for the administration of several childhood vaccines<sup>44</sup> and for smoking cessation. Studies also report that smoking cessation counseling by clinicians is cost-saving or has extremely attractive CE ratios (less than \$5,000 per QALY gained).<sup>45</sup> Recent reports document the cost savings of offering aspirin prophylaxis to patients at increased risk for cardiovascular disease.<sup>46</sup>
- **Some preventive services, like many disease treatments, do not offer good economic value.** Preventive services for which effectiveness is uncertain or of small magnitude almost never demonstrate good value on the dollar. For example, helical computerized tomography screening for lung cancer has an estimated CE ratio of \$116,300 per QALY for current smokers and \$2,322,700 per QALY for former smokers.<sup>47</sup> Even for services that are effective, the upfront outlay may be prohibitive if the technology is costly. The net return on investment may be too low if the population has a small absolute risk for the target condition. The same services can sometimes be modified so that they offer better economic value by enhancing their effectiveness (e.g., making screening tests more accurate), reducing technology costs, or targeting the service to a select, high-risk population.

## Extending the Consensus to Community Preventive Services

The observations about the CE of *clinical* preventive services apply to many *community* (population-based) preventive services. A core set of strategies has been recognized as effective, such as those identified by the U.S. Task Force on Community Preventive Services (e.g., indoor smoking bans, increased taxes on cigarettes, immunization requirements for school entry, mandatory motor vehicle occupant restraints).<sup>48</sup> Many of these programs have low cost per QALY or yield net savings.<sup>49</sup> The CE of community services may seem “out of scope” for delivery systems and payers concerned with delivering medical care; for them, the comparison that matters is the relative CE of competing *clinical* options for improving health.

However, a broader perspective is warranted for policymakers concerned with the health of the population, who must look beyond the health care sector to identify the best way to reduce the burden of cardiovascular disease or cancer in the country, a state, or a community. For these policymakers, a community intervention that saves money (e.g., indoor smoking ban) might be a more efficient way to reduce tobacco-related deaths than some clinical interventions (e.g., pulmonary therapies). Collaborative models that involve partnerships between health systems, public health agencies, and the community (e.g., schools, employers) may be more successful than interventions undertaken in isolation by any one sector. Achieving the nation’s health objectives<sup>50</sup> at a time of economic hardship requires an examination of all options, not just those in the clinical arena, to make the most of every dollar.

## **Leveling the Playing Field: How Treatment Measures Up to Prevention**

Disease care often escapes the scrutiny applied to preventive services, despite its dominant role as a driver of health spending. Prevention accounts for only 2-3% of health care expenditures.<sup>51</sup> Logic dictates that the same questions about efficacy and CE that are posed for prevention should apply to disease care. The answers are at hand for prevention; for two decades, the U.S. Preventive Services Task Force and other rigorous groups have compiled the evidence for preventive services and recommended only those of proven value. However, laxer expectations operate for disease care. Whereas policymakers will rightly deny coverage for cancer screening until trials demonstrate an effect on mortality rates, they will readily extend coverage for new diagnostic tests simply because they boast greater accuracy or are advocated by specialists. In the United States, the absence of strong outcomes data generally does little to slow adoption and coverage of new technologies, which often become entrenched as standards of care long before the data become available.<sup>52, 53</sup> For example, Medicare and private payers pay \$20,000-30,000 for stereotactic radiosurgery for prostate cancer, despite inadequate evidence of its effectiveness or safety.<sup>54</sup>

Questions about costs are often waived for disease care. The question posed for prevention—will it save money?—is rarely applied to an imaging procedure, a new antibiotic, or a surgical procedure. Although some payers will consider CE studies and eschew coverage when CE is poor, many coverage decisions (and drug approvals by the Food and Drug Administration) occur without consideration of costs. Indeed, the largest payer in the United States—the Medicare program—is dissuaded from considering costs in its coverage determinations.<sup>55, 56</sup>

Various factors explain how this double standard came to be, but the economic crisis in health care calls for more critical thinking. At a time when the economy and the lives of American

families are deeply affected by medical spending, policymakers who ask whether prevention can save money or reduce spending must pose the same questions for disease treatments. For all forms of health spending, they should ask the following questions:

- Is the intervention effective in improving health outcomes, and is it based on sound evidence?
- If it is effective, does it offer good value per dollar spent?
- Can other options achieve better results, the same results at lower cost, or possibly yield net savings?

Across the board, the economic crisis requires a comprehensive examination of how to shift spending from services of dubious economic value to those with high CE or net savings. Whether those services are preventive or otherwise is less the point than the value they provide for the dollars spent.

## **Conclusions**

The unsustainable growth in health care spending in the United States underscores the urgency of adopting a new perspective that strives to maximize economic value throughout the health sector. The untenable prospect of continuing to spend more than other countries for less favorable results calls for a new approach focused on producing better health outcomes and spending health care dollars more wisely. As part of that approach, there is every reason to invest in a well-defined package of preventive services that are recognized as effective in preventing disease and offer good economic value. The few services that yield net savings—be they prevention or disease treatment—are obvious priorities, but the greatest gains will occur by shifting spending to services that maximize value while eschewing services with the lowest health benefit per cost. As a matter of economic security and ethics, it grows more troubling to continue debating the economic value of prevention while excusing the remainder of medical care from such scrutiny.

## References

- 
- <sup>1</sup> Catlan A, Cowan C, Hartman M, Heffler S; National Health Expenditure Accounts Team. National health spending in 2006: a year of change for prescription drugs. *Health Aff (Millwood)* 2008;27:14-29.
- <sup>2</sup> Orszag PR, Ellis P. Addressing rising health care costs -- a view from the Congressional Budget Office. *N Engl J Med* 2007;357:1885-1887.
- <sup>3</sup> Congress of the United States, Congressional Budget Office. *The Long-Term Outlook for Health Care Spending*. Pub. No. 3085, November, 2007. Accessed March 19, 2008 at <http://www.cbo.gov/ftpdocs/87xx/doc8758/11-13-LT-Health.pdf>.
- <sup>4</sup> "Scrimping on medical care." *New York Times*, October 26, 2008, p WK13.
- <sup>5</sup> Schoen C, Osborn R, How SK, Doty MM, Peugh J. In chronic condition: experiences of patients with complex health care needs, in eight countries, 2008. *Health Aff* 2008 Nov 13 [Epub ahead of print].
- <sup>6</sup> Mokdad AH, Bowman BA, Ford ES, Vinicor F, Marks JS, Koplan JP. The continuing epidemics of obesity and diabetes in the United States. *JAMA* 2001;286:1195-200.
- <sup>7</sup> Davis K. Slowing the growth of health care costs--learning from international experience. *N Engl J Med*. 2008;359:1751-5.
- <sup>8</sup> Partnership to Fight Chronic Disease and Partnership for Prevention. *The Value of Prevention*. Accessed December 10, 2008 at <http://www.prevent.org/images/stories/2008/value%20of%20prevention%20%28pfp%20and%20pfc%29.pdf>.
- <sup>9</sup> C-Change. *Making the Business Case for Cancer Prevention and Early Detection*. Milliman, Inc. Accessed December 10, 2008 at <http://www.c-changeprojects.org/MakingTheBusinessCase/pdf/C-Change%20Business%20Case%20Key%20Messages.pdf>.
- <sup>10</sup> Levi J, Segal LM, Juliano C. *Prevention for a Healthier America: Investments in Disease Prevention Yield Significant Savings, Stronger Communities*. Washington, DC: Trust for America's Health, 2008. Accessed September 18, 2008 at <http://healthyamericans.org/reports/prevention08/Prevention08.pdf>.
- <sup>11</sup> Schoen C, Guterman S, Shih A, Lau J, Kasimow S, Gauthier A, Davis K. *Bending the Curve: Options for Achieving Savings and Improving Value in U.S. Health Spending*. New York: The Commonwealth Fund, December 2007.
- <sup>12</sup> Russell LB. *Is Prevention Better than Cure?* Washington, DC: Brookings Institution, 1986.
- <sup>13</sup> Russell LB. *Prevention's Potential for Slowing the Growth of Medical Spending*. Washington, DC: National Coalition on Health Care. October 2007. Accessed September 11, 2008 at [http://www.nchc.org/nchc\\_report.pdf](http://www.nchc.org/nchc_report.pdf).
- <sup>14</sup> Russell LB. Preventing chronic disease: an important investment, but don't count on cost savings. *Health Aff* 2009;28:42-5.
- <sup>15</sup> Cohen JT, Neumann PJ, Weinstein MC. Does preventive care save money? Health economics and the presidential candidates. *N Engl J Med* 2008;358:661-3.
- <sup>16</sup> Mongan JJ, Ferris TG, Lee TH. Options for slowing the growth of health care costs. *N Engl J Med* 2008;358:1509-14.

---

<sup>17</sup> Brown D. "In the balance: some candidates disagree, but studies show it's often cheaper to let people get sick." *Washington Post*, p. HE01, April 8, 2008. Accessed September 10, 2008 at [http://www.washingtonpost.com/wp-dyn/content/article/2008/04/04/AR2008040403803\\_pf.html](http://www.washingtonpost.com/wp-dyn/content/article/2008/04/04/AR2008040403803_pf.html).

<sup>18</sup> Carmichael M. "The politics of prevention: cancer screening and other measures for heading off disease don't always reduce health-care costs." *Newsweek*, August 23, 2008. Accessed September 12, 2008 at <http://www.newsweek.com/id/154904/output/print>.

<sup>19</sup> Welch HG. "Campaign myth: prevention as cure-all." *New York Times*, October 6, 2008. Accessed October 29, 2008 at [http://www.nytimes.com/2008/10/07/health/views/07essa.html?\\_r=1&ei=5070&emc=eta1&oref=slogin](http://www.nytimes.com/2008/10/07/health/views/07essa.html?_r=1&ei=5070&emc=eta1&oref=slogin).

<sup>20</sup> Ramsey SD, Berry K, Etzioni R, Kaplan RM, Sullivan SD, Wood DE. National Emphysema Treatment Trial Research Group. Cost effectiveness of lung-volume-reduction surgery for patients with severe emphysema. *N Engl J Med* 2003;348:2092-102.

<sup>21</sup> Goetzel R. Do prevention or treatment services save money? The wrong debate. *Health Aff* 2009;28:37-41.

<sup>22</sup> *OECD Health Data 2008 - Frequently Requested Data*. Organisation for Economic Co-Operation and Development. Accessed October 29, 2008 at [http://www.oecd.org/document/16/0,3343,en\\_2649\\_34631\\_2085200\\_1\\_1\\_1\\_1.00.html](http://www.oecd.org/document/16/0,3343,en_2649_34631_2085200_1_1_1_1.00.html).

<sup>23</sup> Kahn R, Robertson RM, Smith R, Eddy D. The impact of prevention on reducing the burden of cardiovascular disease. *Diabetes Care* 2008;31:1686-96.

<sup>24</sup> Stone PW, Teutsch S, Chapman RH, Bell C, Goldie SJ, Neumann PJ. Cost-utility analyses of clinical preventive services: published ratios, 1976-1997. *Am J Prev Med* 2000;19:15-23 (including Appendix A: Table of cost-utility ratios of clinical preventive services, accessed September 17, 2008 at [ajpm.com](http://ajpm.com)).

<sup>25</sup> Gold MR, Siegel JE, Russell LB, Weinstein MC, eds. *Cost-Effectiveness in Health and Medicine*. New York: Oxford University Press, 1996, and in three articles published in the *Journal of the American Medical Association* in October 1996.

<sup>26</sup> Leatherman S, Berwick D, Iles D, Lewin LS, Davidoff F, Nolan T, Bisognano M. The business case for quality: case studies and an analysis. *Health Aff* 2003;22:17-30.

<sup>27</sup> Hatziandreu EI, Koplan JP, Weinstein MC, Caspersen CJ, Warner KE. A cost-effectiveness analysis of exercise as a health promotion activity. *Am J Public Health* 1988;78:1417-21.

<sup>28</sup> Eden KB, Orleans CT, Mulrow CD, Pender NJ, Teutsch SM. Does counseling by clinicians improve physical activity? Summary of the evidence for the U.S. Preventive Services Task Force. *Ann Intern Med* 2002;137:208-15.

<sup>29</sup> Knowler WC, Barrett-Connor E, Fowler SE, Hamman RF, Lachin JM, Walker EA, et al. Reduction in the incidence of type 2 diabetes with lifestyle intervention or metformin. *N Engl J Med*. 2002;346:393-403.

<sup>30</sup> Roux L, Pratt M, Tengs TO, et al. Cost effectiveness of community-based physical activity interventions. *Am J Prev Med* 2008;35:578-88.

<sup>31</sup> Eddy DM, Schlessinger L, Kahn R. Clinical outcomes and cost-effectiveness of strategies for managing people at high risk for diabetes. *Ann Intern Med* 2005;143:251-64.

<sup>32</sup> Prosser LA, Stinnett AA, Goldman PA, Williams LW, Hunink MG, Goldman L, Weinstein MC. Cost-effectiveness of cholesterol-lowering therapies according to selected patient characteristics. *Ann Intern Med* 2000;132:769-79.

<sup>33</sup>Partnership for Prevention. *A Better Medicare for Healthier Seniors: Recommendations to Modernize Medicare's Prevention Policies*. Washington DC: Partnership for Prevention, 2003.

<sup>34</sup>Pelletier KR. A review and analysis of the clinical and cost-effectiveness studies of comprehensive health promotion and disease management programs at the worksite: update VI 2000-2004. *J Occup Environ Med* 2005;47:1051-8.

<sup>35</sup>“National Business Group on Health honors best employers for healthy lifestyles.” Press release, National Business Group on Health. Accessed December 19, 2008 at <http://www.businessgrouphealth.org/pressrelease.cfm?ID=89>.

<sup>36</sup>A. D. Little International Inc. (2001). Public balance of smoking in the Czech Republic. Report to Philip Morris CR a.s. Retrieved February 24, 2003, from <http://www.tobacco.org/Documents/001128pmlittleczech.html>.

<sup>37</sup>Fries JF. The compression of morbidity. *Milbank Mem Fund Q Health Soc.* 1983;61:397-419.

<sup>38</sup>*Guide to Clinical Preventive Services, 2008*. AHRQ Publication No. 08-05122, September 2008. Agency for Healthcare Research and Quality, Rockville, MD. <http://www.ahrq.gov/clinic/pocketgd.htm>.

<sup>39</sup>Maciosek MV, Coffield AB, Edwards NM, Flottemesch TJ, Goodman MJ, Solberg LI. Priorities among effective clinical preventive services: results of a systematic review and analysis. *Am J Prev Med* 2006;31:52-61.

<sup>40</sup>National Commission on Prevention Priorities. *Preventive Care: A National Profile on Use, Disparities, and Health Benefits*. Washington, DC: Partnership for Prevention, 2007.

<sup>41</sup>Mark DB. Percutaneous coronary revascularisation: is it ever worth what it costs? *Heart* 2007;93:1161-3.

<sup>42</sup>Pignone M, Saha S, Hoerger T, Mandelblatt J. Cost-effectiveness analyses of colorectal cancer screening: a systematic review for the U.S. Preventive Services Task Force. *Ann Intern Med* 2002;137:96-104.

<sup>43</sup>Maciosek MV, Solberg LI, Coffield AB, Edwards NM, Goodman MJ. Colorectal cancer screening: health impact and cost effectiveness. *Am J Prev Med* 2006; 31(1):80-89.

<sup>44</sup>Trust for America's Health. *Every Child by Two. Closing the Vaccination Gap: A Shot in the Arm for Childhood Immunization Programs*. August 2004. Available at: [http://www.ecbt.org/media/pdf/TFAH\\_ImmunizationRpt.pdf](http://www.ecbt.org/media/pdf/TFAH_ImmunizationRpt.pdf).

<sup>45</sup>Solberg LI, Maciosek MV, Edwards NM, Khanchandani HS, Goodman MJ. Repeated tobacco use screening and intervention in clinical practice: health impact and cost effectiveness. *Am J Prev Med* 2006; 31(1):62-71.

<sup>46</sup>Pignone M, Earnshaw S, Tice JA, Pletcher MJ. Aspirin, statins, or both drugs for the primary prevention of coronary heart disease events in men: a cost-utility analysis. *Ann Intern Med.* 2006 Mar 7;144(5):326-36.

<sup>47</sup>Mahadevia PJ FL, Frick KD, Eng J, Goodman SN, Powe NR. Lung cancer screening with helical computed tomography in older adult smokers: a decision and cost-effectiveness analysis. *JAMA* 2003; 289:313 –322.

<sup>48</sup>Zaza S, Briss PA, Harris KW. *The Guide to Community Preventive Services: What Works to Promote Health?* Task Force on Community Preventive Services. New York: Oxford University Press, 2005.

<sup>49</sup><http://www.thecommunityguide.org/tobacco/tobac-econ.pdf>.

<sup>50</sup>Healthy People 2020: the Road Ahead. U.S. Department of Health and Human Services. Accessed December 10, 2008 at <http://www.healthypeople.gov/hp2020/>.

<sup>51</sup>Satcher D. The prevention challenge and opportunity. *Health Aff* 2006;25:1009-11.

<sup>52</sup>Leff B, Finucane TE. Gizmo idolatry. *JAMA* 2008;299:1830-2.

<sup>53</sup>Brownlee S. *Overtreated: Why Too Much Medicine is Making Us Sicker and Poorer*. New York: Bloomsbury, 2007.

<sup>54</sup>Stein R. "Experts debate CyberKnife for prostate cancer; safety, effectiveness of device at issue." *Washington Post*, November 28, 2008, p A03.

<sup>55</sup>Tunis S. Reflections on science, judgment, and value in evidence-based decision making: a conversation with David Eddy. *Health Aff* 2007;26:w500–w515.

<sup>56</sup>Ramsey SD, Sullivan SD. Evidence, economics, and emphysema: Medicare's long journey with lung volume reduction surgery. *Health Aff* 2005;24:55-66.