SPECIAL ARTICLE

SHATTUCK LECTURE

# We Can Do Better — Improving the Health of the American People

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THE UNITED STATES SPENDS MORE ON HEALTH CARE THAN ANY OTHER nation in the world, yet it ranks poorly on nearly every measure of health status. How can this be? What explains this apparent paradox?

The two-part answer is deceptively simple — first, the pathways to better health do not generally depend on better health care, and second, even in those instances in which health care is important, too many Americans do not receive it, receive it too late, or receive poor-quality care. In this lecture, I first summarize where the United States stands in international rankings of health status. Next, using the concept of determinants of premature death as a key measure of health status, I discuss pathways to improvement, emphasizing lessons learned from tobacco control and acknowledging the reality that better health (lower mortality and a higher level of functioning) cannot be achieved without paying greater attention to poor Americans. I conclude with speculations on why we have not focused on improving health in the United States and what it would take to make that happen.

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## HEALTH STATUS OF THE AMERICAN PUBLIC

Among the 30 developed nations that make up the Organization for Economic Cooperation and Development (OECD), the United States ranks near the bottom on most standard measures of health status (Table 1).[1-4] (One measure on which the United States does better is life expectancy from the age of 65 years, possibly reflecting the comprehensive health insurance provided for this segment of the population.) Among the 192 nations for which 2004 data are available, the United States ranks 46th in average life expectancy from birth and 42nd in infant mortality.[5,6] It is remarkable how complacent the public and the medical profession are in their acceptance of these unfavorable comparisons, especially in light of how carefully we track health-systems measures, such as the size of the budget for the National Institutes of Health, trends in national spending on health, and the number of Americans who lack health insurance. One reason for the complacency may be the rationalization that the United States is more ethnically heterogeneous than the nations at the top of the rankings, such as Japan, Switzerland, and Iceland. It is true that within the United States there are large disparities in health status — by geographic area, race and ethnic group, and class.[7-9] But even when comparisons are limited to white Americans, our performance is dismal (Table 1). And even if the health status of white Americans matched that in the leading nations, it would still be incumbent on us to improve the health of the entire nation.

## PATHWAYS TO IMPROVING POPULATION HEALTH

Health is influenced by factors in five domains — genetics, social circumstances, environmental exposures, behavioral patterns, and health care (Fig. 1).[10,11] When it

**Table 1. Health Status of the United States and Rank among the 29 Other OECD Member Countries.**

| Health-Status Measure | United States | U.S. Rank in OECD | Top-Ranked Country in OECD* |
|---|---|---|---|
| Infant mortality (first year of life), 2001 | | | |
| All races | 6.8 deaths/ 1000 live births | 25 | Iceland (2.7 deaths/ 1000 live births) |
| Whites only | 5.7 deaths/ 1000 live births | 22 | |
| Maternal mortality, 2001† | | | |
| All races | 9.9 deaths/ 100,000 births | 22 | Switzerland (1.4 deaths/ 100,000 births) |
| Whites only | 7.2 deaths/ 100,000 births | 19 | |
| Life expectancy from birth, 2003 | | | |
| All women | 80.1 yr | 23 | Japan (85.3 yr) |
| White women | 80.5 yr | 22 | |
| All men | 74.8 yr | 22 | Iceland (79.7 yr) |
| White men | 75.3 yr | 19 | |
| Life expectancy from age 65, 2003‡ | | | |
| All women | 19.8 yr | 10 | Japan (23.0 yr) |
| White women | 19.8 yr | 10 | |
| All men | 16.8 yr | 9 | Iceland (18.1 yr) |
| White men | 16.9 yr | 9 | |

* The number in parentheses is the value for the indicated health-status measure.
† OECD data for five countries are missing.
‡ OECD data for six countries are missing.

comes to reducing early deaths, medical care has a relatively minor role. Even if the entire U.S. population had access to excellent medical care — which it does not — only a small fraction of these deaths could be prevented. The single greatest opportunity to improve health and reduce premature deaths lies in personal behavior. In fact, behavioral causes account for nearly 40% of all deaths in the United States.[12] Although there has been disagreement over the actual number of deaths that can be attributed to obesity and physical inactivity combined, it is clear that this pair of factors and smoking are the top two behavioral causes of premature death (Fig. 2).[12]

## ADDRESSING UNHEALTHY BEHAVIOR

Clinicians and policymakers may question whether behavior is susceptible to change or whether

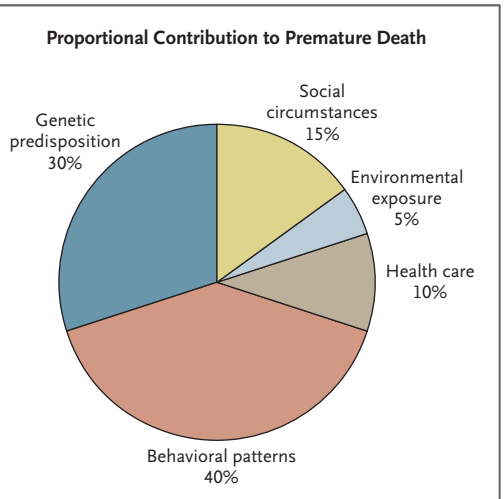


**Figure 1. Determinants of Health and Their Contribution to Premature Death.**
Adapted from McGinnis et al.[10]

attempts to change behavior lie outside the province of traditional medical care.[13] They may expect future successes to follow the pattern whereby immunization and antibiotics improved health in the 20th century. If the public's health is to improve, however, that improvement is more likely to come from behavioral change than from technological innovation. Experience demonstrates that it is in fact possible to change behavior, as illustrated by increased seat-belt use and decreased consumption of products high in saturated fat. The case of tobacco best demonstrates how rapidly positive behavioral change can occur.

### *The Case of Tobacco*

The prevalence of smoking in the United States declined among men from 57% in 1955 to 23% in 2005 and among women from 34% in 1965 to 18% in 2005.[14,15] Why did tobacco use fall so rapidly? The 1964 report of the surgeon general, which linked smoking and lung cancer, was followed by multiple reports connecting active and passive smoking to myriad other diseases. Early antismoking advocates, initially isolated, became emboldened by the cascade of scientific evidence, especially with respect to the risk of exposure to secondhand smoke. Counter-marketing — first in the 1960s and more recently by several states and the American Legacy Foundation's "truth®" campaign — linked the creativity of Madison Avenue with messages about the duplicity of the to-

bacco industry to produce compelling antismoking messages[16] (an antismoking advertisement is available with the full text of this article at www.nejm.org). Laws, regulations, and litigation, particularly at the state and community levels, led to smoke-free public places and increases in the tax on cigarettes — two of the strongest evidence-based tobacco-control measures.[14,17,18] In this regard, local governments have been far ahead of the federal government, and they have inspired European countries such as Ireland and the United Kingdom to make public places smoke-free.[14,19] In addition, new medications have augmented face-to-face and telephone counseling techniques to increase the odds that clinicians can help smokers quit.[15,20,21]

It is tempting to be lulled by this progress and shift attention to other problems, such as the obesity epidemic. But there are still 44.5 million smokers in the United States, and each year tobacco use kills 435,000 Americans, who die up to 15 years earlier than nonsmokers and who often spend their final years ravaged by dyspnea and pain.[14,20] In addition, smoking among pregnant women is a major contributor to premature births and infant mortality.[20] Smoking is increasingly concentrated in the lower socioeconomic classes and among those with mental illness or problems with substance abuse.[15,22,23] People with chronic mental illness die an average of 25 years earlier than others, and a large percentage of those years are lost because of smoking.[24] Estimates from the Smoking Cessation Leadership Center at the University of California at San Francisco, which are based on the high rates and intensity (number of cigarettes per day plus the degree to which each is finished) of tobacco use in these populations, indicate that as many as 200,000 of the 435,000 Americans who die prematurely each year from tobacco-related deaths are people with chronic mental illness, substance-abuse problems, or both.[22,25] Understanding why they smoke and how to help them quit should be a key national research priority. Given the effects of smoking on health, the relative inattention to tobacco by those federal and state agencies charged with protecting the public health is baffling and disappointing.

The United States is approaching a "tobacco tipping point" — a state of greatly reduced smoking prevalence. There are already low rates of smoking in some segments of the population, including physicians (about 2%), people with a postgraduate education (8%), and residents of the states of Utah (11%) and California (14%).[25] When Kaiser Permanente of northern California implemented a multisystem approach to help smokers quit, the smoking rate dropped from 12.2% to 9.2% in just 3 years.[25] Two basic strategies would enable the United States to meet its Healthy People 2010 tobacco-use objective of 12% population prevalence: keep young people from starting to smoke and help smokers quit. Of the two strategies, smoking cessation has by far the larger short-term impact. Of the current 44.5 million smokers, 70% claim they would like to quit.[20] Assuming that one half of those 31 million potential nonsmokers will die because of smoking, that translates into 15.5 million potentially preventable premature deaths.[20,26] Merely increasing the baseline quit rate from the current 2.5% of smokers to 10% — a rate seen in placebo groups in most published trials of the new cessation drugs — would prevent 1,170,000 premature deaths. No other medical or public health intervention approaches this degree of impact. And we already have the tools to accomplish it.[14,27]

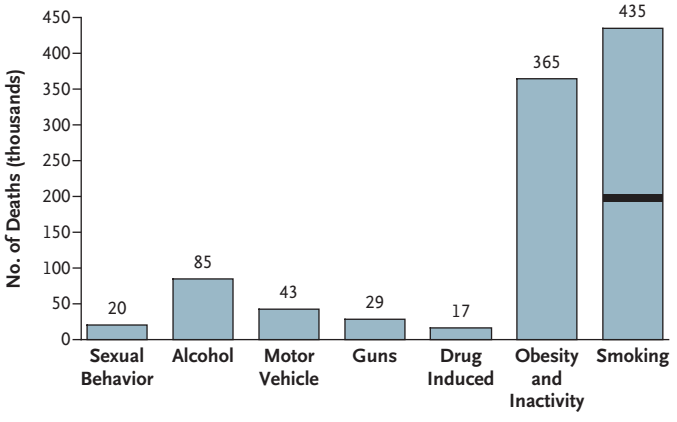


**Figure 2. Numbers of U.S. Deaths from Behavioral Causes, 2000.**
Among the deaths from smoking, the horizontal bar indicates the approximately 200,000 people who had mental illness or a problem with substance abuse. Adapted from Mokdad et al.[12]

### *Is Obesity the Next Tobacco?*

Although there is still much to do in tobacco control, it is nevertheless touted as a model for combating obesity, the other major, potentially preventable cause of death and disability in the United States. Smoking and obesity share many charac-

**Table 2. Similarities and Differences between Tobacco Use and Obesity.**

| Characteristic | Tobacco | Obesity |
|---|---|---|
| High prevalence | Yes | Yes |
| Begins in youth | Yes | Yes |
| 20th-century phenomenon | Yes | Yes |
| Major health implications | Yes | Yes |
| Heavy and influential industry promotion | Yes | Yes |
| Inverse relationship to socioeconomic class | Yes | Yes |
| Major regional variations | Yes | Yes |
| Stigma | Yes | Yes |
| Difficult to treat | Yes | Yes |
| Clinician antipathy | Yes | Yes |
| Relative and debatable definition | No | Yes |
| Cessation not an option | No | Yes |
| Chemical addictive component | Yes | No |
| Harmful at low doses | Yes | No |
| Harmful to others | Yes | No |
| Extensively documented industry duplicity | Yes | No |
| History of successful litigation | Yes | No |
| Large cash settlements by industry | Yes | No |
| Strong evidence base for treatment | Yes | No |
| Economic incentives available | Yes | Yes |
| Economic incentives in place | Yes | No |
| Successful counter-marketing campaigns | Yes | No |

teristics (Table 2). Both are highly prevalent, start in childhood or adolescence, were relatively uncommon until the first (smoking) or second (obesity) half of the 20th century, are major risk factors for chronic disease, involve intensively marketed products, are more common in low socioeconomic classes, exhibit major regional variations (with higher rates in southern and poorer states), carry a stigma, are difficult to treat, and are less enthusiastically embraced by clinicians than other risk factors for medical conditions.

Nonetheless, obesity differs from smoking in many ways (Table 2). The binary definition of smoking status (smoker or nonsmoker) does not apply to obesity. Body-mass index, the most widely used measure of obesity, misclassifies as overweight people who have large muscle mass, such as California governor Arnold Schwarzenegger. It is not biologically possible to stop eating, and unlike moderate smoking, eating a moderate amount of food is not hazardous. There is no addictive analogue to nicotine in food. Nonsmokers mobilize against tobacco because they fear injury from secondhand exposure, which is not a peril that attends obesity. The food industry is less concentrated than the tobacco industry, and although its advertising for children has been criticized as predatory and its ingredient-labeling practices as deceptive, it has yet to fall into the ill repute of the tobacco industry. For these reasons, litigation is a more problematic strategy, and industry payouts — such as the Master Settlement Agreement between the tobacco industry and 46 state attorneys general to recapture the Medicaid costs of treating tobacco-related diseases — are less likely.[14] Finally, except for the invasive option of bariatric surgery, there are even fewer clinical tools available for treating obesity than there are for treating addiction to smoking.

Several changes in policy have been proposed to help combat obesity.[28-30] Selective taxes and subsidies could be used as incentives to change the foods that are grown, brought to market, and consumed, though the politics involved in designating favored and penalized foods would be fierce.[31] Restrictions could also apply to the use of food stamps. Given recent data indicating that children see from 27 to 48 food advertisements for each 1 promoting fitness or nutrition, regulations could be put in place to shift that balance or to mandate support for sustained social-marketing efforts such as the "truth®" campaign against smoking.[16,32] Requiring more accurate labeling of caloric content and ingredients, especially in fast-food outlets, could make customers more aware of what they are eating and induce manufacturers to alter food composition. Better pharmaceutical products and counseling programs could motivate clinicians to view obesity treatment more enthusiastically. In contrast to these changes in policy, which will require national legislation, regulation, or research investment, change is already under way at the local level. Some schools have banned the sale of soft drinks and now offer more nutritionally balanced lunches. Opportunities for physical activity at work, in school, and in the community have been expanded in a small but growing number of locations.

### NONBEHAVIORAL CAUSES OF PREMATURE DEATH

Improving population health will also require addressing the nonbehavioral determinants of health that we can influence: social, health care, and environmental factors. (To date, we lack tools to change our genes, although behavioral and envi-

ronmental factors can modify the expression of genetic risks such as obesity.) With respect to social factors, people with lower socioeconomic status die earlier and have more disability than those with higher socioeconomic status, and this pattern holds true in a stepwise fashion from the lowest to the highest classes.[33-38] In this context, class is a composite construct of income, total wealth, education, employment, and residential neighborhood. One reason for the class gradient in health is that people in lower classes are more likely to have unhealthy behaviors, in part because of inadequate local food choices and recreational opportunities. Yet even when behavior is held constant, people in lower classes are less healthy and die earlier than others.[33-38] It is likely that the deleterious influence of class on health reflects both absolute and relative material deprivation at the lower end of the spectrum and psychosocial stress along the entire continuum. Unlike the factors of health care and behavior, class has been an "ignored determinant of the nation's health."[33] Disparities in health care are of concern to some policymakers and researchers, but because the United States uses race and ethnic group rather than class as the filter through which social differences are analyzed, studies often highlight disparities in the receipt of health care that are based on race and ethnic group rather than on class.

But aren't class gradients a fixture of all societies? And if so, can they ever be diminished? The fact is that nations differ greatly in their degree of social inequality and that — even in the United States — earning potential and tax policies have fluctuated over time, resulting in a narrowing or widening of class differences. There are ways to address the effects of class on health.[33] More investment could be made in research efforts designed to improve our understanding of the connection between class and health. More fundamental, however, is the recognition that social policies involving basic aspects of life and well-being (e.g., education, taxation, transportation, and housing) have important health consequences. Just as the construction of new buildings now requires environmental-impact analyses, taxation policies could be subjected to health-impact analyses. When public policies widen the gap between rich and poor, they may also have a negative effect on population health. One reason the United States does poorly in international health comparisons may be that we value entrepreneurialism over egalitarianism. Our willingness to tolerate large gaps in income, total wealth, educational quality, and housing has unintended health consequences. Until we are willing to confront this reality, our performance on measures of health will suffer.

One nation attempting to address the effects of class on health is the United Kingdom. Its 1998 Acheson Commission, which was charged with reducing health disparities, produced 39 policy recommendations spanning areas such as poverty, income, taxes and benefits, education, employment, housing, environment, transportation, and nutrition. Only 3 of these 39 recommendations pertained directly to health care: all policies that influence health should be evaluated for their effect on the disparities in health resulting from differences in socioeconomic status; a high priority should be given to the health of families with children; and income inequalities should be reduced and living standards among the poor improved.[39] Although implementation of these recommendations has been incomplete, the mere fact of their existence means more attention is paid to the effects of social policies on health. This element is missing in U.S. policy discussions — as is evident from recent deliberations on income-tax policy.

Although inadequate health care accounts for only 10% of premature deaths, among the five determinants of health (Fig. 1), health care receives by far the greatest share of resources and attention. In the case of heart disease, it is estimated that health care has accounted for half of the 40% decline in mortality over the past two decades.[40] (It may be that exclusive reliance on international mortality comparisons shortchanges the results of America's health care system. Perhaps the high U.S. rates of medical-technology use translate into comparatively better function. To date, there are no good international comparisons of functional status to test that theory, but if it could be substantiated, there would be an even more compelling claim for expanded health insurance coverage.) U.S. expenditures on health care in 2006 were an estimated $2.1 trillion, accounting for 16% of our gross domestic product.[41] Few other countries even reach double digits in health care spending.

There are two basic ways in which health care can affect health status: quality and access. Although qualitative deficiencies in U.S. health care

have been widely documented,[42] there is no evidence that its performance in this dimension is worse than that of other OECD nations. In the area of access, however, we trail nearly all the countries: 45 million U.S. citizens (plus millions of immigrants) lack health insurance, and millions more are seriously underinsured. Lack of health insurance leads to poor health.[43] Not surprisingly, the uninsured are disproportionately represented among the lower socioeconomic classes.

Environmental factors, such as lead paint, polluted air and water, dangerous neighborhoods, and the lack of outlets for physical activity, also contribute to premature death. People with lower socioeconomic status have greater exposure to these health-compromising conditions. As with social determinants of health and health insurance coverage, remedies for environmental risk factors lie predominantly in the political arena.[44]

## THE CASE FOR CONCENTRATING ON THE LESS FORTUNATE

Since all the actionable determinants of health — personal behavior, social factors, health care, and the environment — disproportionately affect the poor, strategies to improve national health rankings must focus on this population. To the extent that the United States has a health strategy, its focus is on the development of new medical technologies and support for basic biomedical research. We already lead the world in the per capita use of most diagnostic and therapeutic medical technologies, and we have recently doubled the budget for the National Institutes of Health. But these popular achievements are unlikely to improve our relative performance on health. It is arguable that the status quo is an accurate expression of the national political will — a relentless search for better health among the middle and upper classes. This pursuit is also evident in how we consistently outspend all other countries in the use of alternative medicines and cosmetic surgeries and in how frequently health "cures" and "scares" are featured in the popular media.[45] The result is that only when the middle class feels threatened by external menaces (e.g., secondhand tobacco smoke, bioterrorism, and airplane exposure to multidrug-resistant tuberculosis) will it embrace public health measures. In contrast, our investment in improving population health — whether judged on the basis of support for research, insurance coverage, or government-sponsored public health activities — is anemic.[46-48] Although the Department of Health and Human Services periodically produces admirable population health goals — most recently, the Healthy People 2010 objectives[49] — no government department or agency has the responsibility and authority to meet these goals, and the importance of achieving them has yet to penetrate the political process.

## WHY DON'T AMERICANS FOCUS ON FACTORS THAT CAN IMPROVE HEALTH?

The comparatively weak health status of the United States stems from two fundamental aspects of its political economy. The first is that the disadvantaged are less well represented in the political sphere here than in most other developed countries, which often have an active labor movement and robust labor parties. Without a strong voice from Americans of low socioeconomic status, citizen health advocacy in the United States coalesces around particular illnesses, such as breast cancer, human immunodeficiency virus infection and the acquired immunodeficiency syndrome (HIV–AIDS), and autism. These efforts are led by middle-class advocates whose lives have been touched by the disease. There have been a few successful public advocacy campaigns on issues of population health — efforts to ban exposure to secondhand smoke or to curtail drunk driving — but such efforts are relatively uncommon.[44] Because the biggest gains in population health will come from attention to the less well off, little is likely to change unless they have a political voice and use it to argue for more resources to improve health-related behaviors, reduce social disparities, increase access to health care, and reduce environmental threats. Social advocacy in the United States is also fragmented by our notions of race and class.[33] To the extent that poverty is viewed as an issue of racial injustice, it ignores the many whites who are poor, thereby reducing the ranks of potential advocates.

The relatively limited role of government in the U.S. health care system is the second explanation. Many are familiar with our outlier status as the only developed nation without universal health care coverage.[50] Less obvious is the dispersed and relatively weak status of the various

agencies responsible for population health and the fact that they are so disconnected from the delivery of health services. In addition, the American emphasis on the value of individual responsibility creates a reluctance to intervene in what are seen as personal behavioral choices.

## HOW CAN THE NATION'S HEALTH IMPROVE?

Given that the political dynamics of the United States are unlikely to change soon and that the less fortunate will continue to have weak representation, are we consigned to a low-tier status when it comes to population health? In my view, there is room for cautious optimism. One reason is that despite the epidemics of HIV–AIDS and obesity, our population has never been healthier, even though it lags behind so many other countries. The gain has come from improvements in personal behavior (e.g., tobacco control), social and environmental factors (e.g., reduced rates of homicide and motor-vehicle accidents and the introduction of fluoridated water), and medical care (e.g., vaccines and cardiovascular drugs). The largest potential for further improvement in population health lies in behavioral risk factors, especially smoking and obesity. We already have tools at hand to make progress in tobacco control, and some of these tools are applicable to obesity. Improvement in most of the other factors requires political action, starting with relentless measurement of and focus on actual health status and the actions that could improve it. Inaction means acceptance of America's poor health status.

Improving population health would be more than a statistical accomplishment. It could enhance the productivity of the workforce and boost the national economy, reduce health care expenditures, and most important, improve people's lives. But in the absence of a strong political voice from the less fortunate themselves, it is incumbent on health care professionals, especially physicians, to become champions for population health. This sense of purpose resonates with our deepest professional values and is the reason why many chose medicine as a profession. It is also one of the most productive expressions of patriotism. Americans take great pride in asserting that we are number one in terms of wealth, number of Nobel Prizes, and military strength. Why don't we try to become number one in health?

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