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## National Priorities in Disease Prevention

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*Preventive practices that can improve health, extend life, and reduce medical costs are already well known. The challenge is to better apply them.*

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Perhaps the fundamental measure of a nation's vitality is the health and longevity of its citizens. By this standard the United States has ample opportunity for improvement. More than 60 percent of all Americans who die each year succumb prematurely. These deaths carry a heavy toll in economic as well as human terms. More than 12 million potential years of productive life were lost to the nation in 1986 as a result of deaths that occur before age 65 (see [Table 1](#)).

The costs of medical care and lost productivity for some of the country's leading health problems run to hundreds of billions of dollars (see [Table 2](#)). This financial burden is particularly disturbing because it falls disproportionately on the poor. Behavioral choices and living conditions make the poor, as a group, most susceptible to injury, chronic illness, and early death.

Buried in all these troubling facts is a heartening one: Many health problems are preventable. Indeed, for each of the leading causes of death and disability in this country, epidemiologic and biomedical research have shown actions that can be taken to reduce risk (see [Table 3](#)). If improved and broadened as suggested later in this article, such measures as early detection and intervention, immunization, and motivating changes in individual behavior could eliminate an estimated 45 percent of cardiovascular disease deaths, 23 percent of cancer deaths, and more than 50 percent of the disabling complications of diabetes. Better control of fewer than 10 risk factors—for example, poor diet, infrequent exercise, the use of tobacco and drugs, and the abuse of alcohol—could prevent between 40 and 70 percent of all premature deaths, a third of all cases of acute disability, and two-thirds of all cases of chronic disability. In contrast, technologically oriented medical treatment currently promises to reduce premature morbidity and mortality by no more than perhaps 10 to 15 percent.

Obviously, one's chances of dying are ultimately 100 percent. But preventive practices can prolong life, diminish the impact of illness, and slow the rate at

which people move from good health to illness or disability and finally to death. More than 95 percent of the half-trillion dollars spent for medical care in the United States each year goes to treat rather than prevent disease. A better balance is clearly in order. The question is how to achieve it.

### **Successful precedents**

Prevention strategies have already proven their merit. One of the best known and best accepted of these is the immunization of infants against childhood diseases. Diphtheria, whooping cough, and polio have largely disappeared in the United States, along with their once-considerable burden of death and permanent disability. Measles is close to being eliminated here, but recent outbreaks among some inner-city pre-school children around the country demonstrate that vaccines are not reaching everyone. In this we cannot afford complacency.

Campaigns designed to raise public awareness of health risk factors, including behavioral risks to health, have also shown their worth. One of the most successful has been the National High Blood Pressure Education Program, a massive attempt to teach the public and health professionals about the relationship of high blood pressure to stroke, and about the habits that influence high blood pressure's onset and severity. Initiated in 1972 by the National Heart, Lung, and Blood Institute (NHLBI), in collaboration with public and private organizations at the national, state, and local level, the program promotes, among other things, drug therapy, dietary change, weight loss, stopping smoking, and exercise. Partly as a result of the program, by 1984, stroke deaths had declined by about 55 percent. Three years ago the NHLBI started the National Cholesterol Education Program, in hopes of achieving similar good results in controlling serum cholesterol, which is strongly linked to heart disease.

Cigarette smoking is still the single most destructive preventable health risk. It is estimated to account for nearly a third of all deaths that occur as a result of cardiovascular diseases, cancer, and respiratory diseases. As a result of an array of public and private efforts to educate the public about the health risks of smoking, the percentage of adults who smoke dropped from 42 percent in 1965 to 26 percent in 1987. Death rates for some of the illnesses associated with smoking, such as heart attacks and stroke, already show clear evidence of decline as a result.

Injuries rank fourth among the leading causes of death, after heart disease, cancer, and stroke. They represent the leading cause of death for people between 5 and 44 years of age, and account for the most potential years of life lost to society for those under 65. Motor vehicle accidents are a prominent cause of preventable injuries. Failure to use seat belts, reckless driving, speeding, and substance abuse are the common and preventable risk factors. The 55-mile-per-hour speed limit, together with campaigns to raise awareness of the dangers of drinking and driving—some initiated by students, mothers, and other concerned citizens—and to popularize the use of seat belts cut the motor vehicle death rate back by nearly a fifth between 1978 and 1987.

Across the United States, public and private agencies are in the midst of one of the most massive education efforts ever undertaken, in an attempt to control the spread of acquired immune deficiency syndrome, the country's number-one health threat. It is too early to claim success. But because there is as yet no vaccine or cure for AIDS, prevention is the only weapon we have.

### **A national plan for prevention**

Some of America's most intractable health problems—adolescent pregnancy, black infant mortality, drug abuse, and even heart disease and cancer—are exacerbated by poverty and lack of education, conditions beyond the reach of the public health apparatus. Restoring the vigor and integrity of schools is one of the most important steps we can take to improve health.

The public health system is by no means powerless, however. How well we deploy the resources that are available, the extent to which policies favoring preventive medicine can transform medical clinics from illness care to health care settings, and our efficiency in implementing scientific discoveries can make a big difference in the health profile of Americans. Meeting these challenges, in turn, depends on effective planning, appropriate reimbursement, and the timely application of the fruits of biomedical research.

When opportunities and needs are great and resources are limited, as they are for the national disease

**TABLE 1**  
**Years of Potential Life Lost (Ages 1–64, 1986)**

Cause	Percent of total years lost	Years of life lost, potentially preventable (1,000s)
Unintentional injuries	19.7	2,371
Cancer	15.1	1,822
Heart disease	12.7	1,535
Homicide and suicide	11.1	1,343
Chronic liver disease and cirrhosis	1.9	225
Stroke	1.9	233
All causes (total)		12,054

Source: *Morbidity and Mortality Weekly Report*, May 27, 1988, 37(20), p. 319.

prevention and health promotion agenda, we must pick our battles carefully, where effort is most likely to yield results. A mechanism for doing so is already in place. In 1980 the Public Health Service (PHS) presented a 10-year strategy for setting and pursuing goals and for measuring progress: *Promoting Health/Preventing Disease: Objectives for the Nation*. This strategy grew out of an earlier study, *Healthy People: The Surgeon General's Report on Health Promotion and Disease Prevention*, published in 1979, which identified opportunities for prevention.

The national objectives set by the PHS for 1990 fall into three categories. The first is preventive services, which health providers should deliver to individuals. The priorities within this category are the control of high blood pressure and sexually transmitted diseases, family planning, the health of pregnant women and infants, and immunization. The second category—health protection—focuses on public and private agencies and on industry. The priorities for this category are the control of toxic agents and radiation, occupational safety and health, preventing accidents and injuries, fluoridation and dental health, and surveillance and control of infectious diseases. The third category—health promotion—emphasizes what communities and individuals can do to promote healthful lifestyles. The priorities here are smoking, drug use, alcohol abuse, nutrition, physical fitness and exercise, and control of stress and violent behavior.

The 1990 campaign is doing more than codifying goals. It has set in motion an effort to achieve them. Each of the 15 priorities has been assigned to an appropriate agency within the PHS. These agencies in turn have developed implementation plans that reach beyond the Department of Health and Human Services to include participants elsewhere in the federal government, at the state and local level, and in the private sector. The federal government is providing financial support, technical resources, and information, but the most critical activity is at the community level, where improvements in individual and collective health must occur. For example, federal programs are in place to encourage good infant and maternal nutrition, fluoridation of water, and control of sexually transmitted diseases, but these programs will only succeed if they have local leadership.

The whole system of disease prevention and health promotion depends on knowing where we are, in order to judge how far we have to go and how best to get there. Data are gathered by a variety of means and analyzed by the responsible agencies and organizations. Each month the assistant secretary for health chairs a meeting with the lead agencies to evaluate the progress they have made toward achieving their assigned objectives and to discuss barriers they have encountered or foresee. The PHS shares this information with health professionals and the public through a range of official, professional, and lay channels.

The states are getting involved in setting and pursuing goals for improving health. As of the middle of 1988, 42 states and territories (out of a total of 57) had established objectives for at least some of the 1990 priority areas. Eight more states had begun the process. People at the state and local level have testified to the utility of having specific, measurable goals for their domains.

Careful review of the 1990's activity is contributing to development of objectives for the year 2000. The Institute of Medicine of the National Academy of Sciences is working with the PHS to elicit the opinions, expertise, and commitment of national professional and voluntary organizations, health care

**TABLE 2**  
**The Costs of Diseases and injuries**

Cause	Economic costs (1985, billions)		
	Total	Direct costs	Indirect costs
Heart disease	\$124	\$57	\$67
Cancer	65	18	47
Stroke	33	30	3
Accidents	121	33	88
Lung disease	48	29	19
Infectious diseases	15	7	8

Source: Dorothy P.Rice, Thomas A.Hodgson, and Andrea N.Kapstein, "The Economic Costs of Illness: A Replication and Update," *Health Care Financing Review*, Fall 1985, Vol. 7, No 1, p. 62; Dorothy P.Rice, unpublished data, 1988; and Office of Disease Prevention and Health Promotion estimates.

professionals, advocates, and consumers. These efforts began with regional public hearings held in 1988 in eight cities. The hearings were intended to clarify health care problems and opportunities around the country and to provide the PHS with a broad spectrum of detailed information about the special health care needs of racial, ethnic, and other population groups in America. Additionally, 18 "mini-hearings" were held in conjunction with the national meetings of professional and voluntary organizations. This level of participation added a unique nonfederal perspective to the vast body of information generated by the hearings.

As a result of this input, the Year 2000 project will build on the current campaign in several ways. It will introduce new priorities, such as the control of AIDS, and expand the focus of others, such as screening for and lowering high serum cholesterol. The project will include objectives for population groups (for example, blacks, Native Americans, Hispanics, the elderly) that are unusually vulnerable to certain risk factors and that can be hard to reach. It will also encourage health promotion activities in settings such as the workplace that are particularly conducive to them.

In June, draft objectives for the Year 2000 project's 21 priorities will be available for public comment. The PHS will announce their availability in the *Federal Register*, and invite interested groups and individuals to participate in the review process.

One of the most important aspects of the new objectives campaign will be an emphasis on planning effective implementation activities at the state and local levels as well as on the federal level. The PHS will work with the representatives of various population groups to tailor programs to the specific risks those groups face. In this way, the Year 2000 initiative will provide new opportunities for a diverse array of groups and individuals to be involved.

There are at least two important dividends of the objectives process. For one thing, it provides a way to measure national physical well-being just as we measure material well-being. This ability to document the state of the nation's health as we document consumer prices, the rate of unemployment, and the gross national product brings with it an opportunity to create a public health index that should rank in importance and stature with the leading economic indicators.

For another, the two-decade national health objectives activity is giving shape, efficiency, and an unprecedented consistency in policy to efforts in the public and private sector at the national, state, and local levels. The reward will be improved health for all Americans.

### **Paying by the rules**

Although our broad planning processes have the potential to help focus resources, a leap forward in the ability to deliver preventive health services to individuals cannot happen without changes in the way Americans pay for health care. Last year we spent about \$2,000 each—11 percent of GNP—on health. By far the largest share of this huge sum went for treatment—not necessarily at the expense of prevention, but there can be no doubt that countless opportunities to prevent injury and illness were missed.

This pattern will not be altered until we remove the economic disincentives to prevention. Current reimbursement practices do not encourage doctors to offer preventive services. Inpatient services are reimbursed at a higher rate than those provided in ambulatory settings; technical procedures and diagnostic tests are assigned a higher dollar value per unit of time

**TABLE 3****The Five Leading Causes of Death in the United States and Associated Risk Factors**

Cause of death	Risk factors
Cardiovascular disease	Tobacco use Elevated serum cholesterol High blood pressure Obesity Diabetes Sedentary lifestyle
Cancer	Tobacco use Improper diet Alcohol Occupational/environmental exposures
Cerebrovascular disease	High blood pressure Tobacco use Elevated serum cholesterol
Accidental injuries	Safety belt noncompliance Alcohol/substance abuse Reckless driving Occupational hazards Stress/fatigue
Chronic lung disease	Tobacco use Occupational/environmental exposures

Source: National Center for Health Statistics/U.S. Department of Health and Human Services, *Health United States: 1987*. DHHS Pub. No. (PHS) 88-1232.

invested than services requiring cognitive and communication skills.

Reimbursement rules are discriminatory. Most treatment services must be shown only to be reasonably safe and possibly effective in addressing a given problem to qualify. Preventive services must be proven effective with a higher degree of certainty. What's more, Medicare and many other insurers often require clear evidence of cost savings, as well, before they will pay.

Typically, when insurers and employers consider covering preventive services ranging from immunization for influenza to screening for cancers, they compare the costs with the costs of treating disease after it occurs. Some health economists go further and add to the cost of preventing deaths the cost of maintaining the lives of people who will later incur routine (or catastrophic) medical costs and draw pensions and Social Security. If payment policies for treatment followed this reasoning we could imagine an insurer refusing to cover the victim of a heart attack or an automobile injury on the grounds that letting the victim die would save money.

Cost of care is a reasonable concern when resources are limited, but analyses like these compel decisions that will, in health terms, be inevitably inefficient. The double standard—one for treatment and another for prevention—is inimical to a rational health policy, which would base investment decisions in health care on expected relative returns to health.

Market research shows that consumers are interested in preventive coverage, are willing to pay extra for it, and would prefer preventive services benefits to some others traditionally provided. The insurance industry has been slow to respond. Only 6 percent of the nation's health insurance companies surveyed in 1984 reported covering various common preventive-medicine claims. Health maintenance organizations, notwithstanding their pioneering efforts to deliver comprehensive health services, have not been in the vanguard. Preferred provider organizations (PPOs), in which health providers contract directly with groups of employers or through an intermediary to offer reduced rates for services, seem to be taking a lead. A 1986 survey revealed that more than half cover periodic preventive checkups and almost half reimburse doctors or other health providers who teach patients how to minimize risks to their health.

As part of an effort to promote the delivery of preventive services, the Public Health Service created the U.S. Preventive Services Task Force. This group has been charged with developing age- and sex-specific recommendations to the medical community regarding patient history and physical assessment, immunizations, laboratory and screening tests, and patient

education and counseling. It will issue its report in early spring. The recommendations should provide a framework upon which insurers might model preventive benefits packages. Estimates by the insurance industry itself suggest that such packages need not cost more than a few percent of total premiums.

Of course, even when preventive services are adequately reimbursed, they are not always offered. Most clinical encounters are brief and designed for acute care. Doctors are not rewarded for spending time counseling patients. Although doctors rarely disagree that health promotion and risk reduction are important, relatively few work with patients to change their habits. Surveys show that nutritional advice is “rarely or never” offered; only 25 to 30 percent of smokers reported having ever received a doctor’s advice to quit. Some doctors feel that patient education and counseling are peripheral; they are diagnosticians and healers, not teachers. Some feel uncomfortable in the counselor function; others doubt its efficacy. Even when preventive services are offered they are often merely tacked on to a regular office visit.

Many things can be done. Advances in biomedical knowledge and technology promise improved screening and more effective therapies for some chronic diseases. People inside and outside of the government are looking harder at the issues of financing and cost-effectiveness, at techniques for educating patients, and at opportunities to offer preventive services across a range of clinical settings and within a variety of specialties. Finally, any patient-physician encounter should be recognized as an opportunity for prevention.

Whatever the attitudes of insurers and doctors, people must accept more responsibility for their own health. Like consumers of other services, consumers of health care are becoming increasingly well informed. And as medical and insurance charges rise and the share paid by consumers increases, people will be more adamant about getting the most for their money. It may be possible to improve the availability of preventive services by stimulating demand as well as supply.

With a more rational calculus on which to base decisions about investments in health, with better reimbursement of preventive services, and with a mode of medical practice more sensitive to consumer needs, this country may one day be able to move beyond its concentration on disease and adopt a health care system more reflective of the name.

### **The science of prevention**

Over the past quarter century, biomedical research has opened doors in the prevention of health threats such as heart disease, cancer, stroke, lung disease, and diabetes. Even greater progress is possible. Work in the genetic sciences and protein engineering points to the development of new vaccines, a deeper understanding of individual variation in susceptibility, and a host of new tools for early diagnosis. All have immense potential to prevent disease.

We need broader epidemiologic studies to fill in the gaps. Examples are abundant—chief among them, work to identify groups at high risk of developing heart disease and cancer on the basis of physiology and behavior as well as genetic predisposition. A better understanding of childhood risk factors for cardiovascular diseases may offer a basis for appropriate intervention. At the other end of the age spectrum, research in exercise physiology is demonstrating how beneficial systematic physical training can be for most older men and women.

Nutrition is an area of research worth special mention. There is increasingly convincing evidence that dietary practices are important risk factors for the leading causes of death and disability mentioned earlier. Indeed, for those Americans who do not smoke, use drugs, or abuse alcohol, diet is thought to be the crucial determinant of long-term health. Our total caloric intake (in relation to need), and our consumption of fat, cholesterol, salt, and alcohol all appear to be important, with fat—especially saturated fat—ranking first. Moreover, diet interacts with other genetic, environmental, and behavioral characteristics that affect health, albeit in ways that are not yet well understood.

*The Surgeon General’s Report on Nutrition and Health*, released in July, presents the scientific evidence linking specific dietary factors to specific diseases. For example, consuming too much saturated fat is clearly linked to high serum cholesterol and to heart disease. The report also authoritatively describes the contribution of obesity to heart disease, as well as to high blood pressure and stroke, some types of cancer, gallbladder disease, and to a generally increased risk of death.

The value of nutritional research will be lost unless the findings are translated into behavior, inspiring a shift away from alcohol and foods high in fat, cholesterol, sugar, and salt to vegetables, fruits, and whole grains. Such a shift will require more than individual will power. Public agencies and the food industry must respond to the evidence, as well. The American diet is the product of habit—not just of consumers but also of producers—and lack of information. Only a little more than half of the products now on grocery store shelves carry nutrition information. Some of this is done voluntarily. The Food and Drug Administration requires such labeling when manufacturers add protein, vitamins, or minerals to a product or when they make a nutritional claim on the package (e.g., “contains fewer calories”). Reform in food labeling should be a national priority, but that will not come about easily.

If we are to be a society that makes steady improvements in the human condition, a fully educated citizenry is essential. If we are to be a nation of healthy people, there can be no tolerance for inequitable access to health care. Yet these ideals cannot be achieved without social commitment.

And so it is with prevention. Science and statistics can tell us much about the possibilities and priorities. Planners can chart a course. But what determines the success of a policy is the resolve to act. And there are strong countervailing forces at play, whether the issue is clearly labeling the fat content of foods, protecting nonsmokers from the effects of environmental tobacco smoke, keeping handguns out of reach of criminals and minors, or enforcing measures to reduce the number of highway deaths that result from drinking and driving. Yet each of these is an example of issues crucial to the health of Americans—to the prevention of unnecessary social and personal disability—and of issues that must be addressed directly if our national health potential is to be achieved.

We have the knowledge and the means to become a healthier society. We need only exert the will to apply what we know systematically, in the interest of a truly vital nation.

#### *Recommended reading*

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