

# The Case For More Active Policy Attention To Health Promotion

To succeed, we need leadership that informs and motivates, economic incentives that encourage change, and science that moves the frontiers.

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**ABSTRACT:** Until recently, when anthrax triggered a concern about preparedness in the public health infrastructure, U.S. health policy and health spending had been dominated by a focus on payment for medical treatment. The fact that many of the conditions driving the need for treatment are preventable ought to draw attention to policy opportunities for promoting health. Following a brief review of the determinants of population health—genetic predispositions, social circumstances, environmental conditions, behavioral patterns, and medical care—this paper explores some of the factors inhibiting policy attention and resource commitment to the nonmedical determinants of population health and suggests approaches for sharpening the public policy focus to encourage disease prevention and health promotion.

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ONE OF THE MOST-CITED STATISTICS in public health is the imbalance of social investments in medical care compared with prevention activities. Approximately 95 percent of the trillion dollars we spend as a nation on health goes to direct medical care services, while just 5 percent is allocated to populationwide approaches to health improvement.<sup>1</sup> However, some 40 percent of deaths are caused by behavior patterns that could be modified by preventive interventions.<sup>2</sup> (Social circumstances and environmental exposure also contribute substantially to preventable illness.) It appears, in fact, that a much smaller proportion of preventable mortality in the United States, perhaps 10–15 percent, could be avoided by better availability or quality of medical care. Thus, one could question a funding scheme that places so much

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emphasis on medical care and not on prevention.

The fact that medical care historically has had limited impact on the health of populations has been known for many years. In 1974 Marc Lalonde, then the Canadian minister of health and welfare, issued a seventy-six-page governmental working document that advanced the idea that government priority is drawn primarily to the financing and delivery of medical care, with scant attention to many other influences on health.<sup>3</sup>

This observation and recent initiatives are grounded in science derived from many sources, ranging from research sponsored by the U.S. National Institutes of Health (NIH) on the etiologies of disease to observations in the late 1960s and early 1970s like those of England's Thomas McKeown, who noted that the major contributions to improved health in England over the previous 200 years came more from changes in food supplies, sanitary conditions, and family size than from medical interventions.<sup>4</sup> John Bunker, in the United States, estimated that since 1950 medicine has accounted for about three of the total of seven years by which life expectancy has increased.<sup>5</sup> The balance seems to be due to prevention, broadly defined.

Why have we as a nation allocated so few health dollars to prevention? If we wanted to expand our investments in promoting population health, perhaps reducing the demand for spending to restore health, what types of public policy interventions might work? These are the questions addressed in this paper. In addition, the paper provides an overview of what social and behavioral researchers have learned about the nonmedical determinants of health: What domains influence health prospects? What interventions within each domain might improve health? How do different types of causal factors interact and intersect?

## **The Leading Determinants Of Health**

Our understanding of the factors that shape the health of populations has come from structured efforts to gather evidence linking where and how we live to our health futures. In the United States, lessons from William Kannel and colleagues in the Framingham Heart Study and from Lester Breslow and colleagues in the Alameda County study gave us early insights on the impact of behavioral choices on health outcomes.<sup>6</sup> Similarly, important insights about the influence of social circumstances on health prospects have come from McKeown and, more recently, Britain's Michael Marmot.<sup>7</sup>

Drawing on the power of the extensive studies of the past generation, we can now speak about our health prospects as being shaped by our experiences in five domains: genetic and gestational endowments, social circumstances, environmental conditions, behavioral

choices, and medical care.<sup>8</sup> The health of populations is the product of the intersecting influences from these different domains, influences that are dynamic and that vary in their impact depending upon when in the life course they occur and upon the effects of preceding and subsequent factors.<sup>9</sup>

■ **Genetics.** Our predispositions to health or disease begin to take form at the moment of conception, embedded in our genetic blueprint for construction of the proteins that give form to our sizes, shapes, and personalities and even to the biologic limit of our life expectancies. Under certain circumstances, inborn variants of the code occasionally occur that confer disadvantage. Changes also can occur in the codes of certain cells as a result of exposures during the life cycle. For some cancers or neural tube defects, for example, environmental triggers can alter the genetic coding signals, resulting in abnormally regulated cell growth.

Although only about 2 percent of deaths in the United States may be attributed to purely genetic diseases, perhaps 60 percent of late-onset disorders—such as diabetes, cardiovascular disease, and cancer—have some genetic component.<sup>10</sup> The apportioning of that component is still uncertain. The BRCA1 gene accounts for only about 5–10 percent of breast cancers in the United States, only 10 percent of colon cancers may be explained by genes, and only about one case in twenty of elevated serum cholesterol levels may be explained by familial hyperlipidemia.<sup>11</sup> Studies of monozygotic (identical) twins focusing on the occurrence of schizophrenia and other similar twin studies looking at mental alertness in older people have found that about half of each might be explained by genetic factors.<sup>12</sup> About two-thirds of the risk of obesity may be genetic, but, as with most other predispositions, that risk is expressed only with exposure to lifestyle factors that are controllable.<sup>13</sup>

The estimated 30,000–60,000 genes of the human genome have been sequenced, and our rapidly expanding knowledge in this area will lead to possibilities for new interventions with greater specificity about individual vulnerabilities to environmental and behavioral factors and later to alteration of genetic determinants of disease and disability. Similarly, we will gain new insights into the impact of exposures during gestation, and the results from long-term observational studies now getting under way will help us to assess the consequences of maternal, social, environmental, behavioral, and medical care factors on the health of offspring.

■ **Social circumstances.** Our first encounter at birth is with the domain of social circumstances, about which a great deal has been learned in recent years. Health is powerfully influenced by education, employment, income disparities, poverty, housing, crime, and

social cohesion. From cradle to grave, interpersonal linkages matter. Studies consistently have shown that infant nurturing enhances socialization and survival. Recent research reported by David Olds, for example, demonstrates that nurses' prenatal home visits to at-risk mothers can reduce the likelihood of both risky health behavior and criminal activity some fifteen years hence.<sup>14</sup> Socially isolated persons have a death rate two to five times higher than that of those who maintain close ties to friends, family, and community.<sup>15</sup>

For the population as a whole, the most consistent predictor of the likelihood of death in any given year is level of education; persons ages 45–64 in the highest levels of education have death rates 2.5 times lower than those of persons in the lowest level.<sup>16</sup> Poverty, another strong influence, has been estimated to account for 6 percent of U.S. mortality.<sup>17</sup> The observation also has been made that each 1 percent rise in income inequality (the income differential between rich and poor) is associated with something on the order of a 4 percent increase in deaths among persons on the low end, which prods us to sort out the pecuniary elements of deprivation from the biological, behavioral, and psychological consequences of place.<sup>18</sup>

■ **Environmental conditions.** Health status also is affected by physical environments. The places where we live and work can present hazards in the form of toxic agents, microbial agents, and structural hazards. Toxic agents from occupational products, environmental pollutants, chemical contaminants of food and water supplies, and components of commercial products have been associated in particular with skin diseases, cancers, allergies, and other diseases of various organ systems. Radon occurs as a natural background gas in certain places and increases the risk for cancer. Elevations of airborne pollutants such as particulates, sulfur dioxide, and carbon monoxide have been associated with transient increases in mortality and morbidity rates, in particular from pulmonary and cardiovascular conditions. The sum of the lower boundaries of various estimates of the mortality burden of toxic-agent exposures places their contribution in the range of 60,000 deaths per year.<sup>19</sup>

Infectious disease threats also can be related to environmental conditions. Apart from behavior-associated diseases such as HIV and hepatitis B, many infectious diseases, sheltered and cultured by environmental conditions, are major contributors to death in the United States. This is more common than might be inferred from the news reports of Hantavirus, legionellosis, *E. coli*, and *Cryptosporidium* and persists despite the fact that immunizations and infection control measures may already prevent as many as 135 million infections and more than 60,000 deaths annually in the United States.<sup>20</sup> In all, an estimated 90,000 infectious disease deaths occur

each year, beyond those infections attributable to sexual behavior or use of tobacco, alcohol, or illicit drugs.<sup>21</sup>

Structural hazards in the environment, ranging from roadway design and lighting to worksite conditions and home hazards, also contribute greatly to the burden of preventable injury morbidity and mortality. Approximately 7,000 deaths occur annually from motor vehicle crashes, falls, fires, and work-related injuries derivative of structural design and safety shortfalls.<sup>22</sup>

■ **Behavioral choices.** Behavior patterns represent the single most prominent domain of influence over health prospects in the United States. The daily choices we make with respect to diet, physical activity, and sex; the substance abuse and addictions to which we fall prey; our approach to safety; and our coping strategies in confronting stress are all important determinants of health.

What we choose to eat and how we design activity into (or out of) our lives have a great bearing on our health prospects. Dietary factors have been associated with coronary heart disease; stroke; cancers of the colon, breast, and prostate; and diabetes.<sup>23</sup> Physical inactivity has been associated with increased risk for heart disease, colon cancer, diabetes, dementia, and osteoporosis.<sup>24</sup> In the face of imprecise data on individual dietary habits and physical activity patterns, and the fact that given the basic laws of thermodynamics, obesity is a common intermediary for a fair amount of the burden of each, it is difficult if not impossible to parcel out the share specific to diet or to physical activity. But combined, the range of the estimates for their contributions spans from 300,000 to more than 500,000 deaths annually in the United States.<sup>25</sup>

Unprotected sexual intercourse is accountable each year not only for 1.5 million unintended pregnancies and twelve million new cases of sexually transmitted diseases, but also for deaths from HIV, hepatitis B, and cervical cancer and excess infant mortality.<sup>26</sup> Together, about 30,000 deaths in 1999 were related to sexual behavior.<sup>27</sup>

Substance abuse and addiction inflict a tremendous toll on the health of Americans. Tobacco, at more than 400,000 deaths, is the leading single contributor to mortality, and substance abuse as a whole represents the most prominent contributor to the constellation of preventable illness, health costs, and related social problems facing U.S. families and communities today.<sup>28</sup> In 1995 substance abuse accounted for some forty-three million illnesses or injuries and more than half a million deaths.<sup>29</sup>

In all, behavioral choices account for at least 900,000 deaths annually, of which more than 40 percent (and all of them, by definition) are early deaths, and the burden of associated illness is compelling. Thus, taken together, behavioral issues represent the greatest

single domain of influence on the health of the U.S. population.

■ **Medical care.** Improvements in the quality or use of medical care have a relatively limited ability to reduce deaths among Americans. This is not too surprising, given the fact that we spend 15 percent of our gross domestic product (GDP) to treat people.<sup>30</sup> Over the course of the twentieth century, about five of the thirty years of increased life expectancy could be attributable to better medical care.<sup>31</sup> As noted previously, the relative contribution of medical care to life expectancy rose during the latter part of the century and will likely continue to grow as technology is better able to address the health care needs of our aging population. But in terms of the practical possibilities of the moment, the potential of medical care is revealed by where it misses the mark: where problems of access or poor quality of care have done harm. The Institute of Medicine (IOM), for example, suggests that medical errors alone may account for 44,000–98,000 deaths annually, or about 2–4 percent of all deaths.<sup>32</sup> A long-standing estimate by the Centers for Disease Control and Prevention (CDC) places the contribution of health care system deficiencies to total mortality at about 10 percent.<sup>33</sup> Thus, even if the entire population had timely, error-free treatment, the number of early deaths would not be much reduced.

■ **Contributions of various domains.** On a population basis, using the best available estimates, the impacts of various domains on early deaths in the United States distribute roughly as follows: genetic predispositions, about 30 percent; social circumstances, 15 percent; environmental exposures, 5 percent; behavioral patterns, 40 percent; and shortfalls in medical care, 10 percent. But more important than these proportions is the nature of the influences in play where the domains intersect. Ultimately, the health fate of each of us is determined by factors acting not mostly in isolation but by our experience where domains interconnect. Whether a gene is expressed can be determined by environmental exposures or behavioral patterns. The nature and consequences of behavioral choices are affected by our social circumstances. Our genetic predispositions affect the health care we need, and our social circumstances affect the health care we receive.

The growing knowledge and evidence base in these areas provides important opportunities for targeted action and analysis that will develop tools to prompt and facilitate change, build the capacities of networks and organizations best positioned to use those tools, and strengthen the levers of policy that directly affect the dynamics that shape these influences.

## Why Are So Few Dollars Devoted To Promoting Health?

In the past a dominant factor slowing investments that address the nonmedical determinants of health was lack of consensus on what could be done to change factors such as behavioral choices, social conditions, and the physical environment. However, clear evidence is emerging about health-promoting interventions that do work. The recent IOM report, *Promoting Health*, documents social, behavioral, and clinical interventions for which there is solid empirical evidence about effectiveness in promoting and maintaining health.<sup>34</sup>

For example, childhood vaccines are clearly effective at preventing a range of childhood diseases, and organizational interventions such as computerized registries have been shown to greatly improve the use of vaccines for children.<sup>35</sup> Methods to reduce youth initiation to tobacco use are clear: Raising the tax on cigarettes to increase prices greatly reduces initiation, as does enforcing regulations to restrict youth access.<sup>36</sup> Behavioral interventions by health care providers have been documented to improve the ability of addicted tobacco users to stop smoking. An understanding that many users will have a chronic problem remaining tobacco-free has guided the development of effective long-term cessation treatments.<sup>37</sup> Moderate amounts of physical activity have been shown to greatly reduce the risk of heart attacks, strokes, and diabetes. Also, evidence is emerging about effective strategies that communities can use to encourage physical activity and about behavioral interventions that providers can use to help people maintain exercise regimens.<sup>38</sup>

■ **Cost-effectiveness.** The cost-effectiveness of various interventions to improve population health is less clear. In a vexing example of double standards, public investments in health promotion seem to require evidence that future savings in health and other social costs will offset the investments in prevention. Medical treatments do not need to measure up to this standard; all that is required here is evidence of safety and effectiveness. The cost-effectiveness challenge often is made tougher by a sense that the benefits need to accrue directly and in the short term to the payer making the investments. Neither of these two conditions applies in many interventions for health promotion.

■ **Complexity of interventions.** Prevention also requires the targeting of multiple, and often upstream, causes of disease, while medical care often focuses only on a single symptom or manifestation. The treatment of colorectal cancer, for example, is based on clear protocols tailored to family history and the stage of the disease. Prevention of this disease, on the other hand, needs to address issues

such as genetic predisposition, dietary and physical activity patterns, access to screening services, and social conditions that affect risk. When multiple factors need to be addressed to assure prevention, multiple funding streams need to be coordinated, and incentives for numerous actors need to be addressed through a broad health strategy. Support for strategies with a single decision node—such as passage by Congress of Medicare coverage of end-stage renal disease treatment—is both easier to achieve and longer lasting than is support for time-limited authorization of a community-based program to reduce the prevalence of high blood pressure through dietary change, physical activity, and tobacco cessation.

■ **Interest-group dynamics.** Quite distinct from the issues of evidence and complexity is old-fashioned interest-group dynamics. The interest groups that make health their highest priority and thus lobby hard for resources are those focused on research and treatment related to specific chronic diseases. In contrast, the millions of people who benefit from health promotion interventions each receive seemingly small benefits—usually sometime in the distant future.

The result is a vacuum of political accountability for maintaining population health—in effect, a diffusion of responsibility for health.<sup>39</sup> Again, in contrast, a well-defined set of actors—physicians and other health care providers—has responsibility for medical care. These groups have a strong professional ethic to provide as much medical care as needed. Also, providers have strong financial incentives to provide medical care as well as interest-group incentives to lobby for increasingly more medical care resources.

Interest-group dynamics, of course, play large roles in considerations of ways to change social conditions and the physical environment. Changing social inequalities and even investing tax dollars in social and community programs always represent zero-sum activities where those with more resources need to share with those with few resources. It takes more than just evidence that social change would improve health to convince the general public that such redistributive investments should be undertaken. These choices are very much about ideology and social values.

Investments in improving the environment often concentrate costs for these efforts on a small number of businesses that have great incentives to argue against such investments. Also, the behavioral issues that together account for so many deaths—tobacco, alcohol, dietary excess, and sedentary lifestyles—are all products in part of strong commercial forces. Tobacco and alcohol represent U.S. industries with annual sales of well over \$100 billion.<sup>40</sup> The food industry spends billions just on advertising and promotion.

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■ **Broad policy arena.** Many prevention initiatives depend upon policy changes that are outside the traditional health policy world. Excise taxes on tobacco and alcohol products, passage and enforcement of nonsmoking laws, development and implementation of safety standards for workers and products, zoning approaches to enhance recreational opportunities or reduce the density of bars and liquor stores, establishment and monitoring of environmental standards for potential hazards, adoption of community water supply fluoridation, and assurance of truth and reliability in the marketing of health-related products are all examples of important prevention efforts that not only touch on but are often entirely dependent upon action across a broad spectrum of the political and policy political arena.

■ **Social preferences.** In comparing investments in behavioral change to investments in medical care, the added issue of lifestyle and habits comes into play. The public clearly wants medical care when illness occurs; this is a well-articulated social preference. However, many people do not want to change their health-threatening behavior even when they are quite aware of the risks they are taking. In these cases, arguments to invest in public programs to encourage behavioral change need to consider what social factors predispose people to choose health-threatening behavior.

Often, careful consideration indicates that people are induced to adopt unhealthy behavior in subtle and not so subtle ways. Simple examples include eating unhealthy foods because of the absence of supermarkets in low-income neighborhoods, adopting sedentary lifestyles because of unsafe neighborhoods or environments that make walking dangerous or unappealing, and smoking cigarettes or overusing alcohol because of the influence of advertisements.

### **Successful Health Promotion Investments**

■ **In the states.** While this discussion focuses on barriers impeding investment in health promotion, there are important exceptions to the investment shortfall rule that offer support for the case that increased investments could be effective at improving population health. Some states (such as California, Florida, Arizona, and Massachusetts) have developed policy interventions to discourage tobacco use among minors, with striking success. Investments in auto safety have paid off in the form of reduced fatalities. Public policy

and civic initiatives to reduce drunk driving have proved successful, and some ambitious interventions to increase screening for diseases such as breast cancer, monitoring and paying attention to cholesterol, and helping patients to better manage asthma have had positive health promotion outcomes.<sup>41</sup>

■ **Healthy People initiative.** Evidence of improvements in population health also emerges from the Healthy People national initiative. Two decades ago, as the U.S. Public Health Service began looking to the end of the twentieth century, it established measurable targets for health improvement: for 1990, reduce infant mortality by 35 percent, death rates among children by 20 percent, death rates for adolescents and young adults by 20 percent, adult death rates by 25 percent, and, for older adults, sick days by about 20 percent.<sup>42</sup> These were targets based on the evidence at hand about the controllability of disease and injury at various stages of life and, although ambitious, were expected to be accomplished in a decade's time. Despite the size of the gains anticipated, the goals were largely reached: Infant mortality declined by just under 35 percent by decade's end, childhood death rates greatly exceeded the target with a decline of about 29 percent, adolescent and young adult deaths fell short of the mark with a 9 percent decline, adult death rates declined by 25 percent, and age-adjusted sick days for older adults declined by about 14 percent.<sup>43</sup> Many of these achievements can be traced to behavioral and social interventions.

Among the various component targets established, the most glaring shortfalls are related to the access and health status gaps that still exist among population subgroups. As a result, when the decision was made to extend the initiative to 2010, the Healthy People goals were broadened to issues of functional status and quality of life and placed particular emphasis on reducing disparities among groups.<sup>44</sup> In the current Healthy People 2010 initiative, quantified targets have been established for twenty-six priority areas designed to promote healthy behavior, promote healthy and safe communities, improve systems for personal and public health initiatives, and prevent and reduce diseases and disorders. The inventory of areas sweeps broad and deep, ranging from physical activity and fitness to food and consumer product safety, family planning, chronic disease management, and public health infrastructure.

### **Public Policy Approaches For Change**

Key elements of public policy for change include leadership that informs and motivates, economic incentives that encourage and facilitate change, and science that moves the frontiers. The strongest allies for prevention need to be the people who benefit from preven-

tion activities. Thus, leadership that encourages health promotion needs to first raise awareness among the public about the power of prevention and health promotion to increase longevity and improve the quality of life. A focused, engaged public needs to understand the payoffs to healthier lifestyles and improved social conditions that reduce stress and improve well-being. Also, people need to be convinced that interventions to change lifestyles and social conditions are available and not too burdensome.

■ **Role of leadership to inform and motivate.** Better public communication efforts and adequate funding for such efforts are essential. Such communications initiatives are now under way to influence youths not to use illegal drugs. This is a worthwhile first step, and evaluative research needs to assess the effectiveness of the advertisement-oriented communications campaigns. However, given the epidemiology of disease, there are many added behavioral targets on which to focus communication efforts.

Perhaps most importantly, our leaders for health-promoting public policies must be comfortable working in complex environments, at those intersections of the domains of influence in which our lives play out. When behavioral patterns are affected by social triggers, environmental surroundings, and even genetic predispositions, shaping a focused vector for change is challenging. Leading change requires facility in brokering partnerships and blending science and community action. These are the skills that must be honed for the promotion of population health and that must be cultivated in our new generation of leaders.

■ **Incentives to facilitate change.** A second prerequisite for change is found in the incentives we build into policy initiatives for healthier lifestyles, environments, and social conditions. An array of legal and public policy interventions is available to improve population health: economic incentives and disincentives, information interventions, direct regulation, indirect regulation through the tort system, and deregulation.<sup>45</sup> Of this list, the potential of economic incentives and disincentives offers the largest opportunities to make a difference. These can take many forms, ranging from taxes to increase the price of tobacco, to advertising the identity of restaurants in violation of food-safety protocols, to grants-in-aid to encourage communities to develop bike paths. Over the long run, for example, the initiative of the Surface Transportation Policy Project to set aside Highway Trust Fund resources for community initiatives for sidewalks, walking trails, and bike paths could be one of our most important steps to better health.

Clearly, the use of incentives has fostered the strong progress made in the United States against tobacco. Sustained increases in

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excise taxes, constraining advertising and marketing, constricting use in public places, and penalizing the sale and distribution to minors have all worked to help drive down the use of tobacco. The sensitivity of teen tobacco use to these measures has yielded aggressive and successful campaigns in several states.

Economic incentives also can be used to encourage health care providers to take a broader perspective when considering how to keep people healthy. Reimbursement rates for brief interventions to assist smokers to quit or to encourage exercise routines would motivate providers to undertake these behavioral interventions. Similarly, incentives for health care purchasers and payers can be structured to provide stronger emphasis on the principles of “purchasing population health” or “paying for outcomes.”<sup>46</sup> Purchasers contracting with provider groups can build in incentives oriented around their successes in the design and delivery of proven health promotion interventions to the populations most at risk. On a larger scale, policies could be envisioned that set aside small portions of medical care premiums or payments for redeployment for communitywide initiatives, with incentives for measures such as those related to air quality, design for walking and biking, or zoning to reduce the concentration of alcohol establishments in vulnerable areas.

For these measures to work, public policymakers need to begin thinking in terms of a health agenda rather than a health care agenda or—even more narrowly—a health care financing agenda. In prioritizing policy initiatives, health care cost savings should not be the only way to rank the importance of interventions. Sometimes prevention will save money, and sometimes it will not. Instead, quality of life and health status of populations need to be what drives priorities in health policy. It is important that when funding is taken into consideration on matters of health and health care, relative returns of investing in health promotion and health care interventions should play out in concert. For rational public policy, and for good health, our social investment decisions that affect health should be made with a common calculus and with quality of life foremost in the value equation.

■ **Improve the science base.** Vital for informed and sustained progress is our commitment to an improved science base that will yield new insights, both on the determinants of health and disease and on the relative effectiveness of alternative approaches to im-

proving population health. This expanded agenda should include more attention to understanding how social factors and social environments affect health and well-being. A research agenda should focus on the relationships between social factors associated with poor health outcomes and the mechanisms that lead to poor health. In behavior, the highest research priority may be to better understand how social marketing and behavior-change interventions can be designed and implemented to work at the population level. Also, a carefully designed cost-effectiveness research agenda can help to focus specific interventions and develop believable economic guidance for decisionmakers. A key research need, as previously noted, is better understanding of the factors at play within each of the domains determining health and of the dynamics at their intersections. Ultimately, success at engaging health promotion opportunities in our communities will depend on the reliability of insights into the ways these complex interactions shape our lives.

### **Opportunities For Progress**

Formidable as some of these challenges may be, a number of opportunities exist for progress related to the various nonmedical influences on health status. More innovative science, better targeting of social efforts to improve health, new models for policy implementation, and stronger leadership all can assist such efforts. From more innovative science, we may be better able to understand the nature of those domain intersections and better build the case for the power and course of effective interventions that are not only clinical but also personal, environmental, and cultural.

■ **Targeting the vulnerable.** Some of these scientific advances may help to improve our targeting of vulnerable groups. With a better understanding of what constitutes vulnerability, we may begin to strip away the anonymity of some of these problems. With better coordination of information from clinical, social, and legal sources, we may intervene earlier in the course of children who live in families under the pall of abuse, violence, or dysfunction; teens who are estranged, truant, and in trouble with the law; and older persons who are cut off from supportive relationships. We also may be able to improve the way persons who, although not so anonymous or invisible to society's line of sight, have issues that are invisible to the normal course of clinical care: sedentary lifestyles, weight problems, addiction, or depression.

■ **New policy models.** Ingenuity in fashioning new models for policy development and implementation will also help. Medical care payment policy can be better structured to induce the provision of behavior-change interventions, by fostering linkages with suppor-

tive community-based resources and rewarding broad efforts to improve the population health and quality of life. Other financial incentives can be imaginatively plied to nurture health-promoting behavior and community initiatives on active lifestyles.

■ **New linkages across sectors.** New linkages can be forged between elements of the social services system, which work in different and often uncoordinated ways to provide strategic support to vulnerable children, families, teens, and older people. Also, innovative models for community planning and design might be fashioned in the interest of environmental approaches to enhancing the health and safety of communities, ranging from zoning to reduce the concentration of liquor establishments in poor areas to improving streets and parks to encourage physical activity.

**A**S UNDERSTANDING AND AWARENESS INCREASE about what is possible, broader leadership is necessary to muster the will. It is therefore important not only that we use established means of reaching the health policy community, but also that thought leaders from disciplines far beyond the health sector become engaged in the discussion, debate, and leadership.

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## NOTES

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