



High Hopes: Public Health Approaches to Reducing the Need for Health Care

BACKGROUND
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OVERVIEW — Driven in part by a desire to contain health care costs, policymakers are looking beyond medical care for opportunities to reduce the need for expensive services. This paper briefly reviews current public health concepts and strategies for improving health that emphasize nonmedical factors such as behavior, socioeconomic status, and environment. It also provides examples of how these concepts and strategies undergird many of the public health provisions of the Patient Protection and Affordable Care Act, other legislation, and several programs and initiatives. These concepts include prevention, health in all policies, global health, the One Health Initiative, and climate change and health.

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Although they may be fewer and smaller in scope and may have received less attention than health insurance provisions during the debate, many of the provisions of the Patient Protection and Affordable Care Act (PPACA) are not focused on health care. Instead, they emphasize other determinants of health and are intended to reduce health care utilization and expenditures by preventing people from becoming patients in the first place (see text box). Similar kinds of provisions, premised partly on the idea that a healthy economy requires healthy people and vice versa, are also found in the American Recovery and Reinvestment Act (ARRA).

The thinking behind these provisions is not necessarily new, but it has been evolving. Sections of PPACA and other legislation reflect a convergence of several lines of research, deliberation, effort, and advocacy for the public's health.

This paper briefly describes some of the major public health ideas about and activities directed predominantly at the nonmedical determinants of health, including prevention, health in all policies, global health, the One Health Initiative, and climate change and health. It is intended to serve as a reference point for understanding the origins of some of the provisions of PPACA, likely implementation challenges, and similar issues that may arise during the development of legislation and policy in other arenas such as agriculture, banking, energy, environment, food, foreign affairs, and transportation.

LOOKING UNDER THE LAMPPOST

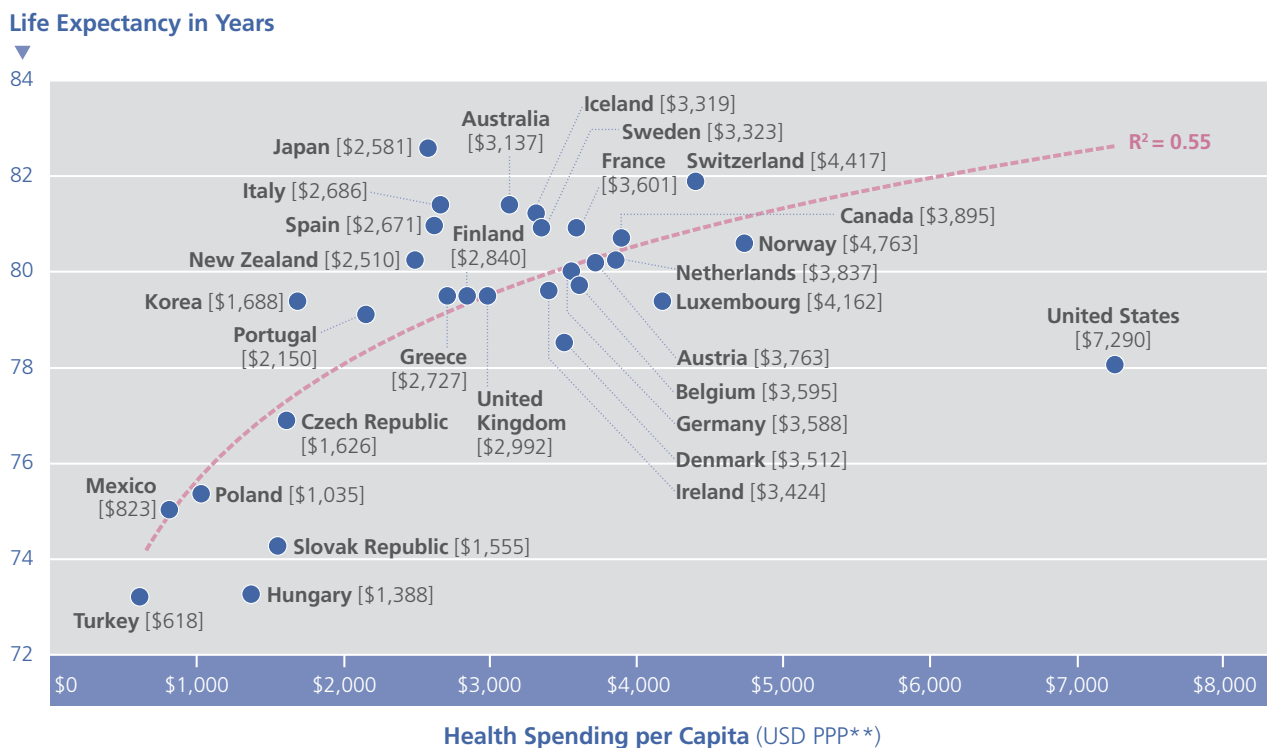
Virtually every discussion of health reform starts with two largely undisputed facts: first, the United States spends more on average per person on health care than every other nation, including high-income nations, and by a wide margin; second, despite these high expenditures, the United States ranks below average on a variety of measures of

Nonmedical Provisions of PPACA: Three Examples

- To provide more information to enable healthier choices, section 4205 requires nutrition labeling for standard menu items in chain restaurants.
- To discourage a risky behavior, while at the same time generating revenue, section 5000B imposes a 10 percent excise tax on indoor tanning services.
- To facilitate a healthy behavior, section 4207 requires employers to provide reasonable break time and location for nursing mothers to express breast milk.

health status, even below some much lower-income countries (Figure 1). However, as true as these two facts may be, one does not necessarily follow directly from the other. In fact, inadequate health care ranks lower than most other factors in contributing to premature death (see Figure 2, next page). Access to good health care can make a big difference to the health of many people in the short and the long term. But for most people on most days, health care may be almost irrelevant, and other considerations, such as how they behave and where they live and work, can have a much greater (although often more subtle and gradual) effect on their current and future health.¹ So perhaps it should come as no surprise that high national spending on health care does not necessarily translate into a healthy nation.

FIGURE 1 | Life Expectancy at Birth and Health Spending Per Capita, 2007*

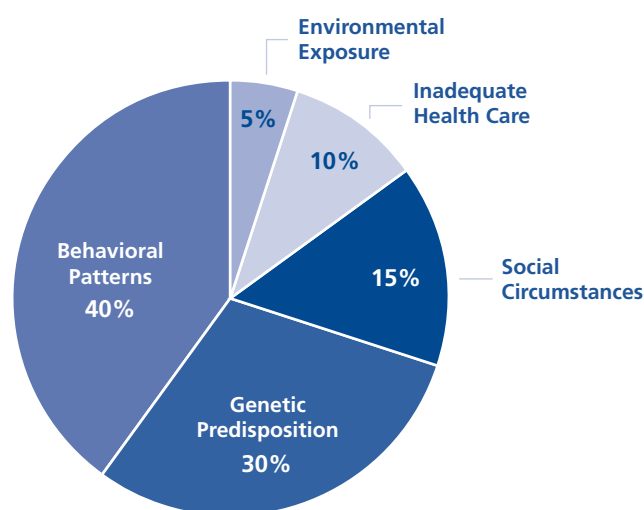


* Data for Canada, Italy, the United Kingdom, and the United States are for 2006.

** In making its calculations, the OECD took into account differences in the purchasing power of national currencies in each country. To calculate the conversion rate of national currencies into U.S. dollar purchasing power parity (PPP), the same, fixed basket of goods and services across different countries is priced in the national currency, and then converted to U.S. dollars (USD).

Source: Organisation for Economic Co-Operation and Development (OECD), "Health Status: Life Expectancy at Birth," in Health at a Glance 2009: OECD Indicators (2009), fig. 1.1.4; available at <http://www.oecd-ilibrary.org/content/serial/19991312>.

FIGURE 2 | Proportional Contribution of Determinants of Health to Premature Death



Note: The science of attributing these proportions is imprecise, and thus the emphasis should be on appreciating the relative contributions of the determinants rather than the exact size of each slice.

*Source: Steven A. Schroeder, "We Can Do Better—Improving the Health of the American People," *New England Journal of Medicine*, 357, no. 12 (September 20, 2007): p. 1222; available at <http://www.nejm.org/doi/pdf/10.1056/NEJMsa073350>.*

Nonetheless, the focus of health reform has tended to be on health care, perhaps in part because it seems as though that is where the money is.² And maybe it is because, as vast and complicated as health care has become, at least its dimensions are relatively clearly illuminated. From the perspective of some, focusing on the other factors that influence health moves one rapidly outside the circle of light shed by the streetlamp and into the increasingly murky darkness where lurk numerous, sometimes poorly understood influences on health. These include personal behavior, genetics, education, economic resources, neighborhood conditions, and both the global and the local environment. Faced with these myriad factors that intersect and interact in complex ways and that can be difficult to measure and influence, it is perhaps understandable to want to rush back to the lamppost.

Estimates of how much the nation does or should spend on these other factors that influence health are hard to determine, partly because methods vary, data are not comparable, and the boundaries can be difficult to draw. While it might seem reasonable to most

people to include spending on seatbelt campaigns, lead abatement, and water sanitation, what about bike paths, farmers' markets, or wetlands restoration? Estimates for U.S. national spending on public health programs not focused on health care range from 1 percent up to about 9 percent and suggest that the United States spends relatively little on public health compared to health care.³ Other data suggest that the United States spends a smaller proportion of its total health spending on public health than many other nations do.⁴ Given these estimates, if the goal is to identify ways to save money and improve health, focusing on health care rather than nonmedical strategies may seem both easier and more fruitful.

LOOMING DEMAND FOR HEALTH CARE

Especially when looked at in historical terms, both medicine and public health have greatly increased the quantity and quality of life that Americans enjoy, with traditional public health claiming credit for the majority of the gains, particularly in average lifespan.⁵ But, by many accounts, the United States faces a genuine health crisis and is headed for poorer health status and greater utilization of health care. Epidemiologists caution that steady historical gains in lifespan could stall or even be reversed in future generations, and economists warn that health care spending, if it remains on its current trajectory, will consume an increasingly large and perhaps unsustainable proportion of the economy.⁶

Health care by itself cannot prevent or significantly alter the course of many of the conditions that afflict Americans, but these conditions can lead to substantial demands for health care, many sooner rather than later (see text box on U.S. health statistics, next page). Health care fixes have consumed a great deal of the nation's attention of late, but even perfecting the health care system may not be enough to overcome the health crisis. Even if medicine were to evolve to the point where it could substantially alter genetic predispositions, more than half of the determinants of health could still be beyond the reach of health care.

Some analysts worry that, unless the need for health care is reduced by significantly improving the health of the American people, it will be difficult if not impossible to bring health care costs under control. Increasingly, they argue that improving the nation's health will require venturing into the murkiness beyond the lamppost and

looking not only at where the money is currently being spent but also at where it might more effectively be spent to yield the biggest gains in health.

THINKING BIG—PUBLIC HEALTH

Many people are endeavoring to think bigger than health care. They assert that the medical model, even an expansive one that provides everyone with a medical home and fully integrates the mind and body and the full range of approaches to care, goes only so far.⁷ To have healthy people, they say, it is necessary to seek and think more broadly and be working on many fronts simultaneously, among them the state of the planet and the local environment; the condition of the communities where people work, live, and go to school; the socioeconomic status of the family; the attitudes and behaviors of the individual person; and the quality of medical care. Although the terminology may vary, the concepts under discussion have in common a comprehensive vision of what “health” entails and call for a robustly integrated approach to achieving it for all individuals, communities, and populations.⁸ An integrated approach is one that is multifaceted, interdisciplinary, interagency, and multisectoral.

It can be difficult to come up with a rubric that encompasses all of the ideas under discussion without getting into an argument about medicine versus public health. Increasingly, the emphasis is not on making that distinction but rather on starting from the perspective of a person, family, or community (rather than from a condition, discipline, or agency); appreciating the complete array of factors that determine health and their intersections and interactions; and developing an approach that will, in all likelihood, require many partners

A Few U.S. Health Statistics That Portend Increased Health Care Needs

Cigarette smoking—Although rates have declined over the past decades, roughly one in five high school students and adults smokes cigarettes. Cigarette smoking is the leading cause of preventable death, and for every person who dies from a smoking-related disease, about 20 more people have at least one serious illness related to smoking.

Obesity and overweight—More than one-third of adults are considered to be obese, and almost another third overweight. Obesity is associated with increased risk of heart disease, stroke, diabetes, some cancers, hypertension, osteoarthritis, gallbladder disease, and disability.

Increasing numbers of children, even very young children, are overweight: more than one out of ten preschoolers are overweight. Being overweight increases their risk of developing hypertension, high cholesterol, orthopedic disorders, sleep apnea, diabetes, and low self-esteem and of becoming an overweight adult.

Heart disease—More than one-third of adults have two or more of the major risk factors for heart disease, a leading cause of morbidity, mortality, and health care utilization and spending.

Sources: Centers for Disease Control and Prevention (CDC), “Smoking and Tobacco Use: Fast Facts,” available at www.cdc.gov/tobacco/data_statistics/fact_sheets/fast_facts/index.htm; CDC, “Health, United States, 2009,” available at <http://www.cdc.gov/nchs/hus.htm>.

What Is "Public Health"?

The field defines public health broadly as what a society does collectively to assure the conditions in which people can be healthy. More specifically, public health includes “the efforts, science, art, and approaches used by all sectors of society (public, private, and civil society) to assure, maintain, protect, promote, and improve the health of the people.”*

However, many inside and outside of the field of public health have something narrower in mind that may focus on the health infrastructure and activities of the government (federal, state, and local); on the subspecialty of medicine concerned primarily with community or population health; on the agencies charged with protecting and promoting the health of the public, such as the Food and Drug Administration and the Centers for Disease Control and Prevention; or on publicly financed health programs and services, such as Medicaid and grant programs supported by the Health Resources and Services Administration.

*Institute of Medicine, *The Future of the Public's Health in the 21st Century* (Washington, DC: National Academies Press, 2002); available at www.nap.edu/openbook.php?isbn=030908704X.

from many fields and both the public and private sectors working together in order to be fully successful.

Those in the public health field define it very broadly, encompassing even health care (see text box at left). And people who practice in many medical specialties, such as primary care, preventive medicine, and occupational health, tend to think and act in widening circles around the patient. Thus, the lines are blurry, the overlap great, and the distinctions perhaps not helpful in understanding the basic concepts. For practical purposes, however, such as discussions of financing, the lack of clarity can cause real consternation. For example, if the broadest definition of public health were taken to its logical extreme, it might be difficult to identify much spending that could not be characterized as health spending. A lack of good evidence hampers attempts to determine how much should be spent, in either absolute or relative terms, on public health activities and health care services; however, the consensus has been that, for

a variety of reasons, public health has suffered from a lack of attention and funding relative to medical care.⁹

PUBLIC HEALTH CONCEPTS AND INITIATIVES

For purposes of this paper, the concepts and initiatives described below fall, although imperfectly, under the broad rubric of public health, with an emphasis on nonmedical determinants of health (“imperfectly” because many of them have a focus on better integrating the traditional medical and public health domains).¹⁰ These concepts and approaches have numerous intersections as well as many common roots, ideas, and actors. Each overlaps significantly with at least one other and, to some degree, with most of the others. This paper discusses them in an order which allows for a logical flow, but the order is not intended to convey any sense of relative importance or significance.

Prevention

The concept of prevention has been around for a long time, and most people can readily identify preventive interventions, such as vaccinations against childhood diseases and influenza. Over the years, the concept of prevention has been increasingly broadened: it now ranges across a spectrum from “primordial prevention” (defined as preventing the emergence of predisposing social and environmental conditions that can lead to causation of disease) to “quaternary prevention” (which is generally concerned with preventing a seriously ill person from getting even sicker, especially by virtue of the medical care he or she is receiving).¹¹ In between are the more familiar primary, secondary, and tertiary prevention (Table 1). Primordial and primary prevention tend to be focused more on the nonmedical determinants of health and are often referred to as “true” prevention, while the rest of the spectrum generally deals with the failure to prevent disease and disability and involves health care services.

Much of what many people think of as prevention is clinical preventive health care services. These have been somewhat better studied in terms of both efficacy and cost-effectiveness than population- or community-based interventions.¹² Screenings, such as for cancer or high cholesterol or depression, are familiar preventive services that are conducted in the hope that a condition or disease can be detected

TABLE 1 | Examples of Prevention Activities, by Intervention Mode and Level

MODES	LEVELS		
	Primary	Secondary	Tertiary
Clinical	Behavioral counseling by physicians	Testing by physicians for early detection of cancer, heart disease, etc.	Chronic illness care and disease management by physicians
Community Population-Based	Altering the community and environment to promote healthy lifestyles	Screening fairs and other community venues for disease testing	Self-care; disease management at home, work, or school

Source: Steven Woolf, “Will Prevention Save Money?” slide presentation to the Agency for Healthcare Research and Quality 2009 Annual Conference, September 15, 2009; available at www.ahrq.gov/about/annualconf09/woolf.htm

PREVENTION AND PUBLIC HEALTH FUND APPROPRIATIONS, Fiscal Years 2010–2015 and After

Fiscal Year	Appropriation
2010	\$500 million
2011	\$750 million
2012	\$1 billion
2013	\$1.25 billion
2014	\$1.5 billion
2015 and after	\$2 billion

Source: Patient Protection and Affordable Care Act, section 4002.

early enough to prevent its further progression. But screenings, like most preventive health care services, do not prevent people from developing a condition or disease in the first place.

Such services are included in the province of the [U.S. Clinical Preventive Services Task Force](#), to which several provisions of PPACA apply. Most notably, PPACA establishes in law the independent task force, authorizes funding for it, and requires or provides incentives for Medicare, Medicaid, and private insurers to fully cover (that is, without cost-sharing requirements) the items and services it recommends that are supported with certain levels of evidence.¹³

The interventions aimed at the nonmedical determinants of health and intended to accomplish primordial and primary prevention, are the province of the [U.S. Community Preventive Services Task Force](#), which collaborates in producing the [Guide to Community Preventive Services](#).¹⁴ This guide is a compendium of evidence about community interventions to improve health, such as programs and policies to increase physical activity or to reduce violence-related injuries. As with the clinical services task force, PPACA establishes in law this task force and authorizes funding for it.¹⁵

The legislation directs the task forces to coordinate with each other and with other relevant entities, both generally and specifically; the coordination is to include “the examination of how each task force’s recommendations interact at the nexus of clinic and community.”¹⁶ Both task forces share and have in common with entities focused on health care services the challenge of strengthening an evidence base that is not as robust as needed. Funds authorized by both ARRA and PPACA are directed to research in order to meet this challenge.

PPACA establishes a permanent [Prevention and Public Health Fund](#), as well as grant programs such as the [Community Transformation Grant](#) program, and authorizes and appropriates funding to support broad public health and prevention interventions at the federal, state, and community levels (see text box for fiscal year appropriations). The explicit purpose of this fund is “to provide for expanded and sustained national investment in prevention and public health programs to improve health and help restrain the rate of growth in private and public sector health care costs.”¹⁷

The Community Transformation Grant program, like many of the other prevention and wellness provisions of PPACA, focuses on

nonmedical determinants of health and eliminating health disparities. This grant program is managed by the Centers for Disease Control and Prevention and is intended to reduce chronic disease rates, prevent the development of secondary conditions, address health disparities, and develop a stronger evidence base for prevention programming. Grantees are required to submit “a detailed plan that includes the policy, environmental, programmatic, and as appropriate infrastructure changes needed to promote healthy living and reduce disparities”; they are encouraged to prioritize “strategies to reduce racial and ethnic disparities, including social, economic, and geographic determinants of health.”¹⁸

Health in All Policies

The concept of health in all policies has its roots in the World Health Organization’s health-for-all and primary care policy frameworks for advancing the health of people, which date back to the 1970s. Recognizing that much of what affects health broadly lies outside the influence of the health domain, the World Health Organization recommends that governments adopt a health-in-all-policies approach; Australia and the European Union, among others, are leading the way.¹⁹ Such an approach seeks to build awareness of and take into account the impact on health of seemingly unrelated policies, such as those directed at agriculture, housing, and transportation, and has been employed from the international level to the federal level and even in some states and communities (see text box on the health impact assessment tool).²⁰

A health-in-all-policies approach is reflected in the **National Prevention, Health Promotion and Public Health Council** established by PPACA.²¹ The legislation directs that the surgeon general serve as chairperson of this council and that its membership include the Secretaries of Health and Human Services, Agriculture, Education, Transportation, Labor, and Homeland Security; the chairman of the Federal Trade Commission; the administrator of the Environmental Protection Agency; the director of the Office of National Drug Control Policy; the director of the Domestic Policy Council; the assistant secretary for Indian Affairs; the chairman of the Corporation for National and Community Service, and the head of any other federal agency that the chairperson determines is appropriate.

Health promotion, which is often linked with prevention, as it is in PPACA, is defined by the World Health Organization as “the process of enabling people to increase control over, and to improve, their health. It moves beyond a focus on individual behaviour towards a wide range of social and environmental interventions.”*

*World Health Organization, “Health Promotion”; available at www.who.int/topics/health_promotion/en/.

A primary tool for the health-in-all-policies approach is the **health impact assessment**. These assessments are intended to bring a health focus to policies, programs, and projects in other domains where the effects of the proposed action on health might not be adequately considered or considered at all.

For more on this topic, see Janet Collins and Jeffrey P. Koplan, “Health Impact Assessment: A Step Toward Health in All Policies,” *JAMA*, 302, no. 3 (July 15, 2009): pp. 315–317.

Social Determinants

According to the World Health Organization, “the social determinants of health are the conditions in which people are born, grow, live, work and age, including the health system. [They] are mostly responsible for health inequities—the unfair and avoidable differences in health status seen within and between countries.”

The legislation charges this council with developing a national prevention, health promotion, and public health strategy. One of the many challenges for this council will be to coordinate this strategy and its implementation with numerous other national strategies, both within and outside the health domain. Important among these is *Healthy People*, the Department of Health and Human Services’ initiative for promoting health and preventing disease. Since 1979, *Healthy People* has set and monitored 10-year national health objectives. One of two overarching goals of *Healthy People 2010* was to eliminate health disparities among different segments of the population. The plan for *Healthy People 2020* calls for the overarching goals to incorporate a focus on social determinants of health (see text box) and include the development of related objectives and methods to ensure their integration across all objectives.²²

Global Health

Interest in global health, formerly known as international health, has burgeoned over the past decade. Worldwide funding and programs have increased dramatically, and, with bipartisan support, the United States’ investment in it has more than quintupled. Appreciation has grown for the global nature of such things as determinants of health, threats to health, the evidence base for health practice, the health workforce, the food supply, and the marketplace for health products and technologies. The field is in the process of redefining itself, and its leaders recently published for comment the following definition:

Global health is an area for study, research, and practice that places a priority on improving health and achieving equity in health for all people worldwide. Global health emphasizes transnational health issues, determinants, and solutions; involves many disciplines within and beyond the health sciences and promotes interdisciplinary collaboration; and is a synthesis of population-based prevention with individual-level clinical care.²³

The H1N1 influenza pandemic of 2009–2010, like previous experiences with SARS, avian influenza, and other infectious diseases, brought home to many the interdependence of the United States and other nations. Disease surveillance and vaccine production and distribution in particular were universal challenges that required global cooperation and coordination. But advocates for global health emphasize that, in addition to its self-interest, the United States has numerous reasons, ranging from compassion to international security, for global involvement and commitment.

Federal global health activities and funding involve many departments and agencies beyond the Department of Health and Human Services (see text box). In addition, numerous public and private-sector entities, both international and based in the individual countries, are involved. Providing some of the best examples of the opportunities and challenges inherent in interdisciplinary, interdepartmental, interagency, intersectoral, crosscultural work at all levels is the United States' *Global Health Initiative*, most notably its HIV/AIDS program, the President's Emergency Plan for AIDS Relief (known as *PEPFAR*), which was launched in 2003.²⁴

The One Health Initiative

The recently formed One Health Initiative, an international, public-private collaboration of a wide variety of health scientists, emphasizes the linkages between human and animal and environmental health and seeks to integrate human and veterinary medicine and public health.²⁵ Advocates of this approach highlight the numerous intersections between human and animal health, such as the animal origins of the majority of recent and anticipated emerging infections and the numerous drugs that are used both in human and animal medicine and agriculture.

One Health activities have involved the Departments of Agriculture and Homeland Security, the Environmental Protection Agency, the U.S. Agency for International Development, and several agencies within the Department of Health and Human Services, such as the Centers for Disease Control and Prevention, the Food and Drug Administration, and the National Institutes of Health.²⁶ Several state and local departments of health, agriculture, the environment, and fisheries and wildlife are also involved, along with numerous private-sector organizations, including associations of veterinary, human, and public health professionals. Participants in One Health intend to be involved in a wide range of legislation and policies, from those related to agriculture to those concerning zoonotic diseases.²⁷

Climate Change and Health

The relationship between climate change and health has over the past few years become a focus of the long-standing field of environmental

U.S. Global Health Initiative

Federal entities involved in the U.S. Global Health Initiative:

- U.S. Agency for International Development
- Department of Agriculture
- Department of Commerce
- Department of Defense
- Department of Health and Human Services
- Department of Homeland Security
- Department of Labor
- Department of State
- Department of the Treasury
- Environmental Protection Agency
- Millennium Challenge Corporation
- Peace Corps

Public Health Concepts and Initiatives

Prevention ranges across a spectrum from preventing the emergence of predisposing social and environmental conditions that can lead to causation of disease to preventing a seriously ill person from getting even sicker.

A **health-in-all-policies** approach highlights the impact on health of policies in arenas such as agriculture, banking, energy, and transportation and seeks to influence those policies for the betterment of health.

Global health aims to improve health and achieve equity in health for all people worldwide, emphasizing transnational health issues, determinants, and solutions and interdisciplinary collaboration.

The **One Health Initiative** emphasizes the linkages between human and animal and environmental health and seeks to integrate human and veterinary medicine and public health.

Those concerned with **climate change and health** are focused on understanding, ameliorating, and preventing the observed and expected adverse effects of global warming on health.

health. Concern about the impact of a changing climate on health has been a major emphasis of both public and private-sector organizations ranging from those with a global perspective, like the World Health Organization, to national entities, like the American Public Health Association, to federal agencies, such as the Environmental Protection Agency. (See text box, next page, for an example of interagency cooperation.) Although there is still argument in some quarters about the precise extent and causes of climate change, the public health community generally characterizes the observed and expected effects on health of global warming as profound. While not all of the effects are necessarily harmful—for example, some areas may benefit from increased local food production due to a longer and warmer growing season—the damages to health are expected to outweigh the benefits.²⁸

All countries and populations are affected in varying ways, and those in developing countries are seen as most at risk from the adverse effects. Among the concerns are more frequent and severe extreme weather events that can

kill large numbers of people, both directly and by enhancing conditions for the spread of disease; changes in precipitation patterns that affect the supply of food and water and areas in which people can live safely; and challenges to controlling infectious diseases as the microorganisms and their vectors evolve and migrate in response to changing environments.²⁹ The science and policy of climate change and health involves a wide range of disciplines and actors inside and outside of the health domain, and thus provides a real-time illustration of both the promise and challenge of such broad-based issues and approaches to improving health. The impact of climate change on health is also an integral part of legislation outside the traditional health arena, including energy bills and foreign assistance bills.³⁰

CHALLENGING ROAD AHEAD

At the federal level, the Department of Health and Human Services and, in particular, its Centers for Disease Control and Prevention

are at the intersection of all of these approaches and the initiatives related to them. Many other federal agencies and nongovernmental entities are often involved in several of them. These approaches and the consortia to implement them also exist at other levels, from the international to the local.

All participants from both the public and private sectors face similar challenges in implementing these approaches, including communicating and working together across different sectors, disciplines, organizations, institutional cultures, and administrative and other procedures and practices; dealing with jurisdictional or “turf” issues and conflicting ideologies, imperatives, and priorities; finding the resources necessary to participate in activities that may be seen as outside the traditional boundaries of the entity’s mandate or person’s job description; understanding different cultures, building trust, and forming partnerships; building the evidence base for and sharing knowledge about effective strategies and practices for integration, coordination, and cooperation; and, often, simply finding the time and energy for efforts that are likely to be beyond the regular call of duty. These challenges are formidable, and successful implementation of many of the public health provisions of PPACA and other legislation and programs as well will require participants to find ways to overcome them.

ENDNOTES

1. For more information, see World Health Organization (WHO), “Social determinants of health”; available at www.who.int/social_determinants/en/.
2. The Centers for Medicare & Medicaid Services estimates that about 3 percent of the well over \$2 trillion dollars that the United States spends on health annually is for “government public health activities.” See Centers for Medicare & Medicaid Services, “National Health Expenditure Projections 2009–2019,” Table 2; available at www.cms.gov/NationalHealthExpendData/downloads/proj2009.pdf.
3. George Miller *et al.*, “Quantifying National Spending on Wellness and Prevention” in *Beyond Health Insurance: Public Policy to Improve Health*, vol. 19, *Advances in Health Economics and Health Services Research*, (Emerald Group Publishing Limited, 2008), pp. 1–24.
4. According to the Organisation for Economic Co-Operation and Development (OECD), on average, 3 percent of a country’s health expenditures go for “organised public health and prevention programmes.” The United States is slightly above average at 3.3 percent, while Canada spends the highest proportion (7.3 percent) and Italy the lowest (0.6 percent). See OECD, *Health at a Glance 2009: OECD Indicators*, figure 7.3.3, p. 165; available at www.oecd-ilibrary.org/content/serial/19991312.

Coordination Among Federal Agencies: An Example

In 2009, the Department of Housing and Urban Development, the Department of Transportation, and the Environmental Protection Agency formed the **Interagency Partnership for Sustainable Communities** to coordinate federal housing, transportation, and other infrastructure investments to protect the environment, promote equitable development, and address the challenges of climate change. A major goal of the partnership is to improve the health of communities.

For more information, see U.S. Environmental Protection Agency, “HUD-DOT-EPA Interagency Partnership for Sustainable Communities”; available at <http://www.epa.gov/smart-growth/partnership/index.html#background>.

5. See John P. Bunker, Howard S. Frazier and Frederick Mosteller, "Improving Health: Measuring Effects of Medical Care," *Milbank Quarterly*, 72, no. 2 (1994); pp. 225–58; Centers for Disease Control and Prevention (CDC), "Ten Great Public Health Achievements—United States, 1900–1999," *Morbidity and Mortality Weekly Report*, 48, no. 12 (April 2, 1999), available at www.cdc.gov/mmwr/preview/mmwrhtml/00056796.htm; and David M. Cutler and Grant Miller, "The Role of Public Health Improvements in Health Advances: The Twentieth-Century United States," *Demography*, 42, no. 1 (February 2005): pp.1–22. As is evident from these seminal articles, public health's greatest successes have historically been with acute conditions, such as infectious disease and injury. Chronic diseases and long-term conditions represent relatively uncharted territory, and thus the field of public health is challenged to rethink virtually everything from its conceptual frameworks to how the impact of interventions should be measured.
6. S. Jay Olshansky *et al.*, "A Potential Decline in Life Expectancy in the United States in the 21st Century," *New England Journal of Medicine*, 352, no. 11, (March 17, 2005): pp. 1138–45; Peter R. Orszag and Philip Ellis, "The Challenge of Rising Health Care Costs—A View from the Congressional Budget Office," *New England Journal of Medicine*, 357, no. 18, (November 1, 2007): pp. 1793–95.
7. The medical or biomedical model emphasizes the physical and biological causes and manifestations of diseases and conditions.
8. Some prefer terms like "wellness" or "well-being."
9. See for example, David Hemenway, "Why We Don't Spend Enough on Public Health," *New England Journal of Medicine*, 362, no. 18 (May 6, 2010): pp. 1657–58; available at www.nejm.org/doi/pdf/10.1056/NEJMp1001784.
10. Other common and related terms for a broad public health approach include "ecological," "community health," and "population health."
11. For a thought-provoking discussion, see B. Starfield *et al.*, "The concept of prevention: a good idea gone astray?" *Journal of Epidemiology and Community Health*, 62 (2008): pp. 580–83; available at <http://jech.bmj.com/content/62/7/580.full.pdf>.
12. Debate is ongoing about whether such preventive health care services save money, either individually or in totality, and results can depend on the intervention examined, the perspective taken in the analysis, and the methods used. See Eileen Salinsky, "Clinical Preventive Services: When Is the Juice Worth the Squeeze?" National Health Policy Forum, Issue Brief No. 806, August 24, 2005; available at www.nhpf.org/library/details.cfm/2600. See also Larissa Roux *et al.*, "Cost Effectiveness of Community-Based Physical Activity Interventions" *American Journal of Preventive Medicine*, 35, no. 6 (December 2008): pp. 578–588; available at <http://download.journals.elsevierhealth.com/pdfs/journals/0749-3797/PIIS0749379708007708.pdf>. Also note that, in August 2010, the National Institutes of Health issued a request for applications for research to conduct economic analyses of prevention and health (RFA-RM-10-015); available at see <http://grants.nih.gov/grants/guide/rfa-files/RFA-RM-10-015.html#PartI>.
13. Patient Protection and Affordable Care Act (PPACA), sections 4003, 4104, 4106, and 1001.
14. CDC, "Guide to Community Preventive Services"; available at www.thecommunityguide.org/index.html.

15. PPACA, section 399U
16. PPACA, sections 4003 and 399U.
17. PPACA section 4002.
18. PPACA, sections 4201(c)(2)(A) and 4201(c)(2)(B)(vi).
19. For more information on the health-in-all-policies concept, see WHO and Government of South Australia, “Adelaide Statement on Health in All Policies,” report from the International Meeting on Health in All Policies, Adelaide, 2010; available at www.who.int/social_determinants/hiap_statement_who_sa_final.pdf. See also Timo Ståhl et al. (Eds.) *Health in All Policies: Prospects and potentials*, Finnish Ministry of Social Affairs and Health/European Observatory on Health Systems and Policies, 2006; available at www.euro.who.int/__data/assets/pdf_file/0003/109146/E89260.pdf.
20. Two examples of this health in all policies approach at the state level are California’s Health in All Policies Task Force and the Kansas Health Policy Authority (KHPA). See California Strategic Growth Council, “Health in All Policies Task Force,” available at www.sgc.ca.gov/workgroups/hiap.html; and KHPA, “Welcome to the Kansas Health Policy Authority,” available at www.khpa.ks.gov/.
21. PPACA, section 4001
22. For more information about the Healthy People initiative, see U.S. Department of Health and Human Services, “Healthy People 2020: The Road Ahead,” available at www.healthypeople.gov/hp2020/default.asp.
23. Jeffrey P Koplan *et al.*, “Towards a common definition of global health,” *Lancet*, 373, no. 9679 (June 6, 2009): p. 1995; available at www.thelancet.com/journals/lancet/article/PIIS0140-6736%2809%2960332-9/fulltext#.
24. For more information on the President’s Emergency Plan for AIDS Relief (PEPFAR), see PEPFAR, “Meeting the Millennium Development Goals,” available at www.pepfar.gov.
25. For information about the One Health Initiative, see One Health Initiative, “One Health Initiative will unite human and veterinary medicine,” available at www.onehealthinitiative.com/index.php.
26. See, for example, Thomas F. Powdrill, Terry L. Nipp, and Jennifer L. Rinderknecht, “One health approach to influenza: assessment of critical issues and options,” conference summary, *Emerging Infectious Diseases*, 16, no. 8 (August 2010), available at www.cdc.gov/eid/content/16/8/e1.htm; and Institute of Medicine, “One Health Summit,” available at <http://iom.edu/Activities/Global/OneHealthCommissionSummit/2009-NOV-17.aspx>.
27. Zoonotic diseases are those that can be transmitted from animals to people. Examples include anthrax, Lyme disease, and rabies. For more information, see CDC, “National Center for Emerging and Zoonotic Infectious Diseases,” available at www.cdc.gov/ncezid/.

28. WHO, "Climate change," available at www.who.int/topics/climate/en/; American Public Health Association, "Global Climate Change Legislation," available at www.apha.org/advocacy/priorities/issues/GlobalClimateChange.htm; U.S. Environmental Protection Agency, "Climate Change," available at www.epa.gov/climatechange/.

29. See Anthony Costello *et al.*, "Managing the health effects of climate change," *Lancet*, 373, no. 9676 (May 16, 2009): pp. 1693–733; available at www.thelancet.com/journals/lancet/article/PIIS0140-6736%2809%2960935-1/fulltext.

30. See, for example, the American Clean Energy and Security Act of 2009 (H.R. 2454) passed by the House of Representatives in 2009, Subtitle E, Subpart B—Public Health and Climate Change. Also, a discussion draft of the Global Partnerships Act of 2010 circulated by the House Foreign Affairs Committee in mid-2010 includes as one of the principles of foreign assistance the following: "The likely impact of United States foreign assistance policies and programs upon the environment should be taken into account in all stages of the foreign assistance process, and effective action should be taken to mitigate any negative impacts."