

## Chapter 6

# Physical, Social and Cultural, and Global Influences

In Chap. 5, we examined the technological environment of the health care policymaking system. Specifically, we examined the classification, evolution, and diffusion of medical technology; the effects of medical technology on medical training and the practice of medicine; effects on medical costs, quality of care, and quality of life; effects on access to care; the ethical concerns raised by medical technology; and the practice of technology assessment. We concluded the chapter by observing that the growth of technology, as well as other human endeavors, affects other important aspects of our lives, most notably, the air we breathe, the food we eat, the generation of radioactive by-products and toxic chemicals, the manufacture of illicit drugs, and the generation of natural and man-made hazards. In other words, in addition to their effects on the health care system, technology and other human activities affect many other aspects of our lives that are associated with health.

Briefly, we concluded Chap. 5 by observing that since technology also impacts our physical, social, cultural, and global environments, it was advisable to devote the next chapter of the book to examining these additional issues. Therefore, our goal for this chapter is to delineate, to the best of our ability, the impacts of physical, social, cultural, and global factors on health and health policymaking. This exercise will help us to more fully understand and appreciate the demographic health data that are presented in the next chapter. Essentially, therefore, this chapter is an attempt to broaden the concept of health policy to include areas that, for a long time, were not usually considered when thinking about health, such as education, income, occupation, recreation, living arrangements, and housing (Williams and Jackson 2005, p. 325). According to Isaacs and Schroeder (2004, p. 1141), “investments in social and economic policy made upstream can pay health dividends downstream.” We begin the pursuit of our goals for this chapter by defining health.

## **The Definition of Health**

We can define health under the medical, or more specifically, the biomedical, and wellness models of health care delivery and financing. These two models differ in terms of the scope of the factors they identify as contributing to health and wellness. As will be demonstrated below, health policymaking under each of these models would involve the allocation of different amounts and levels of resources to the health care system, as well as different combinations of medical technologies employed to provide care. Therefore, in defining health, stakeholders are likely to employ the definition that gives them the most advantage or best achieves their cherished goals.

### ***The Medical Model***

The medical model has primarily informed the concepts of health and health care delivery and policymaking in the United States. Under the medical model, health is defined as the nonoccurrence of disease or illness. This definition implies that a person in optimum health is free of symptoms and does not require medical treatment.

The treatment of disease and illness under the medical model primarily involves the diagnostic, curative, life-saving, and illness management physical technologies, as well as some of the designed social technologies presented in Table 5.1 of Chap. 5. Preventive, health education and promotion, social support systems, and some of the designed social technologies listed in Table 5.1, such as assisted living facilities, senior centers, continuing care retirement communities, and child care centers, which are primarily concerned with health maintenance, are secondary under the medical model. As we noted in Chap. 4, some of these technologies were not part of the regular medical system until the quest for cost containment led to their invention and incorporation into the health care delivery system.

### ***The Wellness Model***

The WHO's definition of health as "a complete state of physical, mental, and social well-being, and not merely the absence of disease or infirmity" (WHO 1948), is primarily based on the wellness model. In this definition, emphasis is put on the fact that health is not merely the absence of disease, but also involves a social dimension. Therefore, it also emphasizes the social and financial support systems identified in Table 5.1 of Chap. 5. This definition of health, as involving the combination of physical, mental, and social well-being led to the concept of the "Health Triangle."

The Health Triangle left out the spiritual dimension of health, which has recently gained significant attention in the literature due to a growing interest in the notion of holistic health. Holistic health stresses the importance of all the things that make a person whole and complete. In addition to the three dimensions of the Health Triangle,

it incorporates a fourth factor, the spiritual dimension of health. It is now argued that these four factors are necessary for optimal health. For example, some of the research cited in Chap. 5 point to the healing effects of religion and spirituality on morbidity and mortality (Levin 1994, p. 1475; Maugans 1996, p. 11; McCullough and Larson 1999, p. 126; McCullough et al. 2000, p. 211; Roberts et al. 1997, p. 166).

The four factors stressed by the advocates of holistic health—physical, social, mental, and spiritual—involve some environmental components, personal habits, and living conditions that can increase the likelihood of developing a particular disease or negative health condition (Banta and Jonas 1995, p. 14). In other words, the notion of holistic health also includes the control and reduction of both internal and external risk factors for both disease and negative health conditions.

Because diseases and negative health outcomes are seldom caused by a single factor, the tripartite model or the so-called Epidemiology Triangle has been used to explain disease occurrence, particularly communicable diseases (Timmreck 1994, p. 2). The tripartite model involves three elements—the host, an agent, and the environment.

The host is the person or organism that becomes diseased. Some factors associated with the host include genetic disposition, level of immunity, and personal habits and lifestyles. But for the host to become diseased, an agent—a bacterium, a virus, tobacco smoke, contaminated or adulterated food, unbalanced diet, radiation, unclean water and air—must be present. However, the presence of the agent does not guarantee the occurrence of disease. The physical, social, cultural, economic, and global nature of the environment where the host lives serves as a mediating or moderating factor that can either enhance or impede the likelihood of the host becoming diseased.

The brief discussion of health and disease undertaken above leads to the main focus of this chapter, which is the discussion of the physical, social and cultural, and global environments of the US health care policymaking process. The discussion proceeds by looking at the association between these environmental factors and health, and by extension, the influences of the environmental factors on health care policymaking in the country. Put differently, we begin by examining our understanding of the determinants of health, and how that understanding shapes health policymaking.

## The Determinants of Health

The prominent British public health scholar, Thomas McKeown, was a powerful and forceful critic of the mid-twentieth century medical profession's emphasis of curative and scientific medicine. In his famous book, *The Role of Medicine: Dream, Mirage, or Nemesis*, McKeown emphasized the importance of economic growth, rising living standards, and improved nutrition as the primary sources of the historical improvements in the health of the people of the developed nations. Although McKeown's analysis was profoundly insightful, it was faulted for failing to emphasize the redistributive social philosophy and practical politics that prevailed at the time

of his analysis (Szreter 2002, p. 723). Subsequent studies revealed that the cessation of the large-scale redistribution of income and wealth from the very rich to the poorest in society had adverse effects on the health of the population. For example, when unhealthy behaviors and lifestyles were held as constant as possible, studies showed that people of lower socioeconomic status were more likely to die prematurely than were people of higher socioeconomic status (Isaacs and Schroeder 2004, p. 1138; Smith et al. 1996, p. 486; Davey Smith et al. 1994, p. 131).

The relationship between physical, social and cultural, and global environmental factors and health status is very well documented. In a letter to the Editor of the *JAMA*, Winkelstein (1993, p. 2504) argues that curative medical care, or those practices that are used for the care and rehabilitation of the sick, which involve most of the physical and designed social technologies listed in Table 5.1 of the previous chapter, is not the same as health care. Medical care, as he defines it, makes only modest contributions to the health status of the population.

On the contrary, the health status of the population is largely determined by a different set of factors that involve important physical, social, and economic components. These include preventive medicine, genetic predisposition, social and economic circumstances, environmental conditions, lifestyles and behaviors, and medical care (McKeown 1976; Kannel et al. 1991; Belloc and Breslow 1972, p. 409; Bunker et al. 1989; Bunker et al. 1995, p. 305; Marmot et al. 1991, p. 1387; Bell and Standish 2005, p. 339; McGinnis et al. 2002, p. 78; Wilkinson 1996, p. 1504). We briefly examine each of the identified determinants of health below.

### ***Preventive Medicine***

Preventive medicine seeks to minimize the occurrence of illness and disease. Unlike the medical model that is reactive and seeks to contain disease and ill-health after they have occurred, preventive medicine is proactive and seeks to minimize the likelihood of the occurrence of disease and ill-health.

Generally, there are three areas or types of preventive measures, namely: primary prevention, secondary prevention, and tertiary prevention. Primary prevention seeks to stop or minimize the development of disease or ill-health before it occurs. Primary prevention may involve counseling against smoking, in order to prevent the development of chronic emphysema or chronic obstructive pulmonary disease (COPD) and lung cancer. Other primary interventions may include the promotion of an active lifestyle or exercise program, in order to minimize the likelihood of excess body fat and heart disease; driver education and mandatory seatbelt and motorcycle helmet laws, in order to reduce motor vehicle accidents and accidental head injuries; vaccinations for various forms of diseases and illnesses, such as measles and rubella, which can minimize the occurrence of early childhood diseases and mortality; and water purification and sewage treatment programs that can minimize the occurrence of typhoid, cholera, and other waterborne diseases.

Secondary prevention involves the early detection and treatment of disease. Health screenings and periodic and regular health examinations, such as hypertension

screenings, mammograms, and PAP smears, serve as examples of secondary prevention measures. These examples fall under the broad category of health promotion discussed in Chap. 4. The beneficiaries of these programs are currently healthy people who are targeted to improve their health-related behaviors in order to minimize their chances of developing catastrophic and expensive illnesses. As was discussed in Chap. 4, secondary prevention measures are some of the most cost-effective steps employers take to lower their health benefit costs (Coffield et al. 2001, p. 1).

Tertiary prevention measures involve steps taken to reduce the complications of diseases or illnesses, or to prevent further illnesses. They involve rehabilitative practices and the monitoring of the process of health care delivery. The infection control practices in hospitals and other improvements in the methods of health care delivery discussed in Chap. 2, under the postindustrial period of the evolution of the health care system, which are intended to reduce the occurrences of nosocomial infections and iatrogenic illnesses, are practical examples of tertiary prevention measures. Other examples include patient education, nutrition counseling, and behavior modification programs that seek to prevent the recurrence of disease and illness (Timmreck 1994, p. 17).

Since the mid-1970s in the United States, there have been significant reductions in heart disease, stroke, personal injury, and non-tobacco-related death rates (McGinnis and Foege 1993, p. 2207; Banta and Jonas 1995, p. 20). Similarly, the data presented in Table 5.3 of Chap. 5 show significant declines in death rates related to heart disease, cancer, stroke, influenza and pneumonia, chronic liver disease or cirrhosis, human immunodeficiency virus (HIV) disease, suicide and homicides, from 1990 to 2006. These particular declines appear to be the result of preventive health measures, such as early screening, detection and treatment of hypertension, the provision and utilization of pneumonia and influenza vaccinations, moderate alcohol intake or abstinence, safe sex practices, suicide prevention and anger management programs, increased use of seatbelts and reductions in driving-under-the-influence episodes, smoking cessation, and the lowering of dietary fat and cholesterol. If, at least, some of the declines in mortality discussed above are due to preventive measures, the preventive strategy has yielded significant gains in health. Perhaps, it is this recognition of the importance of preventive services that led to the establishment of the US Preventive Services Task Force (USPSTF) in 1984.

## **The USPSTF**

Most likely, it was the recognition of the crucial role that preventive medicine plays in enhancing population health that led to the convening of the USPSTF in 1984 by the US Public Health Service. The Task Force is a leading independent panel of nationally recognized nonfederal experts in prevention and evidence-based medicine. Programmatic responsibility for the Task Force was transferred to the Agency for Health Care Research and Quality (AHRQ) in 1995 (USPSTF Procedure Manual 2011).

The USPSTF is assigned the responsibility of making evidence-based recommendations that address primary and secondary preventive services targeting conditions that represent a substantial burden in the country, and that are provided

in primary care delivery settings or made available through primary care referrals. The Task Force's recommendations are intended to improve clinical practice and promote the public health. Tertiary prevention measures are outside the scope of the USPSTF. Even though the main audience for Task Force recommendations is the primary care provider, the recommendations are also used to guide programmatic, funding, and reimbursement decisions by policy-makers, managed care organizations, public and private payers, quality improvement organizations, research institutions, and consumers.

Beginning at the end of May 2007, the USPSTF changed the grades it assigns to its recommendations. It assigns one of five possible letter grades, A, B, C, D, or I, to each of its recommendations, including "suggestions for practice" associated with each grade. The agency also defines the levels of certainty regarding the net benefit of each of its recommendations. The Task Force's 2009 reduction of the grade given for evidence quality from "B" to "C" for routine mammograms in women under the age of 50 years generated significant controversy among health professionals and politicians (Kinsman 2009).

In addition to the 2009 mammography recommendations stated above, the USPSTF has recently recommended against screening for testicular cancer in adolescent or adult males (Grade D recommendation) (USPSTF 2011, p. 483). It has also concluded that there was insufficient evidence to assess the balance of benefits and harms of screening for bladder cancer in asymptomatic adults (Moyer 2011, p. 246), and that prostate-specific antigen (PSA) screening was associated with psychological harms, while its potential benefits remained uncertain (Lin et al. 2008, p. 192). Table 6.1 shows the approach adopted by the agency in June 2007, to rank its recommendations.

## *Genetic Disposition*

Health is dependent upon biological factors. Our predispositions to health or disease begin to take shape at the moment of conception. These predispositions are embedded in our genetic code. The genetic code guides the development of the proteins that determine our phenotypes (sizes, shapes, personalities, hair color, etc.) and genotypes or those aspects of our genetic codes that we cannot see, such as the biologic limit of our life expectancies (McGinnis et al. 2002, p. 80; Khoury et al. 1993; Bell and Standish 2005, p. 339; Starfield 1973, p. 132; Blum 1981; Centers for Disease Control and Prevention (CDC) 1979).

Genetic factors predispose individuals to certain diseases. But although an individual may have a strong likelihood of developing a particular disease, this propensity to develop the disease is significantly enhanced by environmental factors. For example, some studies demonstrate that there is a genetic basis for alcoholism (Reich 1988).

But a person who has never taken a drink will not become an alcoholic. Some triggers, in this case, the availability and consumption of alcohol, are necessary for the individual to progress from being genetically predisposed to alcoholism to actually

**Table 6.1** US Preventive Services Task Force (USPSTF) grade definitions and suggestions for practice associated with each grade

Grade	Definition	Suggestions for practice
A	The USPSTF recommends the service. There is high certainty that the net benefit is substantial	Offer or provide this service
B	The USPSTF recommends the service. There is high certainty that the net benefit is moderate or there is moderate certainty that the net benefit is moderate to substantial	Offer or provide this service
C	The USPSTF recommends against routinely providing the service. There may be considerations that support providing the service in an individual patient. There is at least moderate certainty that the net benefit is small	Offer or provide this service only if other considerations support the offering or providing of the service in an individual patient
D	The USPSTF recommends against the service. There is moderate or high certainty that the service has no benefit or that the harms outweigh the benefits	Discourage the use of this service
I	The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of the service. Evidence of poor quality is lacking, or is conflicting, and the balance of benefits and harms cannot be determined	Read the clinical considerations section of USPSTF Recommendation Statement. If the service is offered, patients should understand the uncertainty about the balance of benefits and harms

Source: Agency for Health Care Research and Quality, *Guide to clinical preventive services*, 2010–2011

Appendix A: How the US Preventive Services Task Force Grades Its Recommendations; at <http://www.ahrq.gov/clinic/pocketgd1011/gcp10app.htm>

drinking and becoming an alcoholic. Similarly, those who develop lung cancer from smoking cigarettes, or those who develop cancer due to genetic mutations caused by environmental contaminants, may well have genetic predispositions for the diseases (Berkman and Breslow 1983; Burnett 1971; Banta and Jonas 1995, p. 18; Davis and Webster 2002, p. 13). These examples suggest that the interaction between genetic factors and the environment in producing a particular disease is complex. While people have little or no control over their genetic makeups, the lifestyles and behaviors they freely choose and the surroundings where they live can have significant influences on the likelihood of developing a particular disease to which they are genetically predisposed.

To further the discussion of the influence of genetics on health, McGinnis et al. (2002, p. 80) cite studies which show that although only about 2% of deaths in the United States may be attributed to purely genetic diseases, about 60% of late-onset disorders, such as diabetes, cardiovascular disease, and cancer, have some genetic component. For example, the BRCA1 gene accounts for only between 5 and 10% of breast cancers in the United States; only about 10% of colon cancers may be explained by genes, and only about 5% of elevated serum cholesterol levels may be explained by familial hyperlipidemia. Similarly, studies of identical twins focusing

on the occurrence of schizophrenia, and other twin studies examining the occurrence of dementia in older people, have found that about half of each might be explained by genetic factors. Further, while about two-thirds of the risk of obesity might be genetic, the risk is expressed only with exposure to controllable lifestyle factors (Baird 1994, p. 133; Muller 2000, p. 7; Panjukanta et al. 1998, p. 369; Kendler 1983, p. 1413; Rowe and Kahn 1998).

### ***Social and Economic Circumstances***

The Institute of Medicine (IOM) (2003, p. 20) reported that Americans in 2003, compared with those who lived in 1900, were healthier, lived longer, and enjoyed lives that were less likely to be marked by injuries, ill health, or premature death. But the gains in health reported by the IOM were not shared equally among the population of the United States. At the moment, as was also the case in 2003, gains in health status are not shared fairly or equally by all Americans. Americans with a good education, those who hold high-paying jobs, and those who live in serene and comfortable neighborhoods live longer and healthier lives than those with lower levels of education and income, and those who live in crime infested, overcrowded, and less comfortable and cohesive urban areas (Isaacs and Schroeder 2004, p. 1137; Bell and Standish 2005, p. 339; Lantz et al. 1998, p. 1703; Navarro 2009, p. 423; Satcher 2010, p. 6; Williams 1990, p. 81; Metzler 2007, p. 1; Kilbourne et al. 2006, p. 2113; Berkman and Lochner 2002, p. 291).

There are several pathways through which social and economic circumstances affect health. Those with good educational achievements are more likely to attain higher socioeconomic status than the poorly educated (Angel et al. 2006; Barr 2008; Bartley 1994; Mirowsky and Ross 1986, p. 23). People of lower socioeconomic status die earlier and are more susceptible to undesirable life events than people on higher socioeconomic levels, a pattern that holds true in a progressive fashion from the poorest to the richest (McLeod and Kessler 1990, p. 162; Adler et al. 1993, p. 3140; Adler and Newman 2002, p. 60; Guralnik et al. 1993, p. 110; McDonough et al. 1997, p. 1476). This trend also holds whether one looks at education or occupation (National Center for Health Statistics 1998, p. 3; Kaplan and Keil 1993, p. 1973). These differences are said to be due to the fact that people of higher socioeconomic status have healthier behaviors and lifestyles than those of lower socioeconomic status. People of higher socioeconomic status are less likely to smoke, and are far more likely to eat healthier foods and to engage in leisure-time physical exercise (National Center for Health Statistics 2002, p. 198; Pratt et al. 1999, p. S526; Giles-Corti and Donovan 2002, p. 601). According to Isaacs and Schroeder (2004, p. 1138), as a result of “a sedentary lifestyle and unhealthy eating habits, obesity and the diseases it fosters now characterize lower-class life.”

Poor eating habits and a sedentary lifestyle alone do not explain the differences in health between high and low socioeconomic people. Rather, another explanation for the differentials lies in the distribution of income or the income gradient between



the low and high socioeconomic groups. In a study of white Americans using 1980 census data, undertaken by Smith et al. (1996, p. 486), men earning less than \$10,000 per year were 1.5 times as likely to die prematurely as were those earning \$34,000 or more. A similar study of British civil servants conducted about 2 years before the American study showed that when smoking and other risk factors were controlled for, those who were in the lowest employment category were more than twice as likely to die prematurely of cardiovascular disease as were those in the highest employment category (Davey Smith et al. 1994, p. 131). The findings of these studies have led to the theory that inequitable distribution of income and wealth, or the so-called income and wealth gradient, causes poor health (Sen 1992, p. 102, 1999, p. 87; Daniels et al. 2000; Deaton 2002, p. 13).

As noted above, the relationship between health and income is referred to as a gradient. This terminology emphasizes the gradual relationship between the two variables. Health improvements are directly related to improvements in income throughout the income distribution, and poverty has more than a “threshold” effect on health (Deaton 2002, p. 14). The US National Longitudinal Mortality Study (NLMS) published by the National Institutes of Health (NIH) (1992) showed that the proportional relationship between income and mortality was the same at all income levels, implying that the absolute reduction in mortality for each dollar of income was much larger at the bottom of the income distribution than at the top.

Apart from income, mortality is also known to decline with wealth, rank, and with social status (Marmot et al. 1984, p. 1003, 1991, p. 1387). Similarly, studies also show marked differences in life expectancy by race and by geography or people’s places of residence. For example, there is a 20-year gap in life expectancy between white men who live in the healthiest counties or localities and black men who live in the unhealthiest counties (Murray et al. 1998, p. 1; Gittelsohn 1982, p. 133; Marmot 2006, p. 1304; Kawachi and Berkman 2003).

The brief discussion in this section points to the effects of numerous, and possibly interrelated, social and economic factors on health. Income might affect health just as health might affect income; the distribution of income and wealth might affect health. Similarly, education, race, minority status, geography, employment, housing, discrimination and social isolation, nutrition, lifestyle, stress, health practices, and coping skills might affect health. It does not appear to matter very much which of the above factors is stressed, especially since they are more likely to be interdependent than independent.

Disease risks exist, most often, along a continuum (Rose 1994). Risks are rarely dichotomous. According to Berkman and Lochner (2002, p. 2291), there is no clear division between risk and no risk with regard to, for example, levels of blood pressure, cholesterol, alcohol or tobacco use, physical activity, diet and weight, etc. This gradient of risk also exists for many social and environmental conditions, such as socioeconomic status, social isolation, occupational and environmental exposure, and air quality. Put differently, the numerous studies on the determinants of health that we are unable to fully summarize individually here for lack of space, point to the fact that even though the human and material resources at our disposal, the foods we eat, our levels of education, the houses we live in, the quality of the environments

where we live and work, to name but a few, affect every person's health, the effects may vary in direction and scope from person to person, depending on the differences in their unique circumstances.

### ***Environmental Conditions***

Improvement in environmental conditions is an important goal of the US government, as can be inferred from the emphasis on environmental quality outlined in *Healthy People 2010*. That document clearly states that factors in the physical and social environment play major roles in the health of individuals and communities.

The physical environment is operationalized to include the air, water, and soil through which exposure to chemical, biological, and physical agents may occur. The physical environment can harm individual and community health, especially when individuals and communities are exposed to toxic substances, irritants, infectious agents, and physical hazards in homes, schools, and work sites. The physical environment can also promote good health, for example, by providing clean and safe places for people to work, exercise, and play (*Healthy People 2010*, p. 19). Therefore, the physical environment is perhaps one of the most important factors that should be considered when classifying the health status of an individual (Wikipedia 2010).

Environmental factors, such as air and water quality, exposure to pesticides and toxic waste, and housing conditions, have major effects on health and human development. For example, substandard air and water quality have been directly associated with diseases such as cancer, asthma, certain birth defects, and some neurological disorders (Grant Makers in Health 2010, p. 165). Similarly, many forms of cancer are associated with dioxin, polychlorinated biphenyls (PCBs), and mercury (Friis 2007). Also, airborne particulate matter, tobacco smoke, and ground-level ozone, have been known to cause asthma attacks in children. Exposure to lead, which can be found in peeling paint or in the soil and air in many poor communities, has been associated with impaired cognitive and behavioral development and low birth weight among children born to exposed mothers, and is also known to cause kidney damage (Friis 2007).

In recognition of the danger of environmental contamination, Bell and Standish (2005, p. 339) urge communities to act on their behalf to make changes in the policies that affect their physical, social, and economic environments. They state, plausibly, that "policy, place, and community" matter. Combined, policy and community can alter or ameliorate the underlying forces that lie at the heart of the determinants of health. For example, they argue that policy determines the behaviors or things that are allowed, encouraged, discouraged, and prohibited. Policy also determines whether industrial facilities will be sited near residential neighborhoods, how industrial facilities treat their neighbors; how dense neighborhoods will be; what materials can be used to build houses; who will live in a neighborhood; whether businesses can locate in a neighborhood; and whether there are tax or other incentives available for locating in a neighborhood (Bell and Standish 2005, p. 340).

In the developed communities or countries, environmental epidemiologists are concerned about such things as gene–environment interactions, environment–environment interactions, particulate air pollution, nitrogen dioxide, ground-level ozone, environmental tobacco smoke, radiation, lead, video display terminals, cellular telephones, and persistent organic pollutants (POPs) that act as endocrine disruptors. Exposure to these downstream or proximate environmental vectors (exposures that are closely related in time and space to the ill-effects they cause) affect both health and well-being (Encyclopedia of Public Health 2010).

In the developing communities, the primary environmental determinants of health are said to involve biological agents in the air, water, and soil that account for most deaths. For example, diarrheal diseases acquired from contaminated food or water, malaria, intestinal parasitic infections, respiratory diseases caused by biological and chemical agents in both indoor and outdoor air, wreak havoc in the developing countries. These environmental hazards take a far greater toll on human life and suffering in absolute terms compared to those environmental vectors of concern in the developed countries (Encyclopedia of Public Health 2010).

The above environmental vectors that cause havoc in the developing countries also abound in the poor localities of the United States and other developed countries. Wealthy people are more likely to live in better homes and locations where they are less exposed to environmental risks than poor people (Friis 2007; McLeod and Kessler 1990, p. 162; Giles-Corti and Donovan 2002, p. 601; Shi and Singh 2008, p. 51; Grant Makers in Health 2010, p. 165). For example, although the rates of asthma have been rising in the country, the disease affects low-income people disproportionately. Whereas the national prevalence rate of childhood and adult asthma is put at about 7%, some African-American communities report about 25% of children suffering from asthma. Also, Puerto Rican children are reported to have the highest prevalence of active asthma of any US ethnic or racial group. In California, Latino children are reported to be hospitalized for asthma at a rate that is 10% greater than that of white children. Obviously, environmental hazards are some of the reasons for these disparities (*Healthy People* 2010; Joint Center for Political and Economic Studies and PolicyLink 2004, p. 6; Flores et al. 2002, p. 82).

Despite the gains in environmental quality since the advent of the environmental movement in the 1970s, mainstream environmental policies neglected the problems identified in low-income communities because the inhabitants of those areas lacked the political and economic resources to press for environmental justice. However, since its start around 1982, the environmental justice movement has resulted in the cleanup of hazardous waste sites, the redevelopment of brown-fields, the shutdown of incinerators, and the establishment of parks and conservation areas in low-income communities.

Additionally, in low-income communities, local pollution problems are being addressed, cleaner and more accessible means of public transportation are made available, and wild lands and unique habitats are being protected (Faber and McCarthy 2001). These changes are due to interest group pressure, the recognition of the externalities associated with environmental degradation, and the value of a clean environment to the health and well-being of all persons, rich and poor.

## *Lifestyle and Behaviors*

McGinnis et al. (2002, p. 82) contend that behavior choices constitute the single most important domain of influence over health prospects in the United States. Lifestyle and behaviors involve many dimensions, including dietary choices, engagement in physical activity, sexual behavior and recreation, including the choice to smoke and to ingest alcohol, the wearing of motor vehicle seatbelts and motorcycle helmets, and other responsible behavior when operating motor vehicles. Because lifestyle and behavioral factors are under the control of individuals, the public is very likely to define lifestyle and behavioral health problems as being self-induced.

The choices we make with regard to the many dimensions of lifestyle and behavior enumerated above have significant impacts on personal and population health. For example, dietary factors have been associated with coronary heart disease and stroke; colon, breast, and prostate cancers; and diabetes (US Department of Health and Human Services 1988). Similarly, a sedentary lifestyle has been associated with increased risk for heart disease, osteoporosis, dementia, diabetes, and colon cancer (US Department of Health and Human Services 1996). Furthermore, research shows that diets rich in fruits and vegetables, low-fat dairy foods with reduced saturated and total fat, and low sodium diets can lower blood pressure (Appel et al. 1997, p. 1117; Svetkey et al. 1994, p. 285; Sacks et al. 2001, p. 3).

The primary differences between how we perceive behavioral change now from much earlier perceptions is the great awareness that individual behavior occurs in a social context (Berkman and Lochner 2002, p. 292), be it the place of work or abode, the family, the place of worship, the peer group, the school system, the stage of development, etc. For example, the results from the 2001 National Youth Risk Behavior Survey (YRBS) demonstrated that numerous high school students engaged in behaviors that increased their chances of dying from motor vehicle crashes, other unintentional injuries, homicide, and suicide. Specifically, the survey results showed that 14.1% of those surveyed had rarely or never worn a seatbelt during the 30 days preceding the survey; 30.7% had ridden with a driver who had been drinking alcohol; 17.4% had carried a weapon during the 30 days preceding the survey; 47.1% had drunk alcohol during the 30 days preceding the survey; 23.9% had used marijuana during the 30 days preceding the survey; and 8.8% had attempted suicide during the 12 months preceding the survey (Grunbaum et al. 2002, p. 313).

The authors of the YRBS concluded that “priority health-risk behaviors, which contribute to the leading causes of mortality and morbidity among youths and adults, are often established during youth, extend into adulthood, are interrelated, and are preventable.” The examination of the main causes of death in the United States, which we shall shortly discuss in the next section of this chapter, will shed further light on behavioral risk factors. Meanwhile, suffice it to say that lifestyle and behavioral factors constitute some of the important determinants of health that health policy must seek to address.

## ***Medical Care***

Even though it is agreed that the contribution of medical care to improved health is not as pronounced as the other factors just examined, curative medical care—those practices, technologies, and organizations that society and the medical profession use to cure and rehabilitate the sick—is nonetheless a key determinant of health (Blum 1981; CDC 1979). The Centers for Disease Control and Prevention (CDC) estimate that only about 10% of premature deaths in the United States can be attributed to inadequate access to medical care, while the remaining 90% can be accounted for by individual lifestyle and behaviors (50%), genetic profiles (20%), and social and environmental conditions (20%) (CDC 1979).

The reason why medical care is the least important determinant of health is because it is reactive, not proactive—it waits for disease and illness to occur before intervening, so to speak. In other words, while individual and population health are somehow associated with having access to curative care, access to preventive services is of greater significance. Therefore, health can improve significantly, and the prevalence of disease can decline dramatically, without effective medical care, due to the other determinants of health (Sigerist 1970, p. 46; McKeown 1976, p. 93; Banta and Jonas 1995, p. 19). This knowledge is very likely the reason why Williams and Jackson (2005, p. 325) and Isaacs and Schroeder (2004, p. 1141) advocate the broadening of the concept of health policy to include the other determinants of health that were not usually seriously considered when discussing health policy. This knowledge, too, is the primary reason for this chapter of the book.

We can elaborate further on the importance and relevance of the determinants of health by linking them to the ten leading causes of death in the United States. Where possible, the analysis will link the incidences of mortality reported in the country that are associated with each, some, or combinations of the determinants of health. Table 6.2 shows the ten leading causes of death in the United States for 2006 and 2007.

## **The Ten Leading Causes of Death in the United States, 2006–2007**

We present, below, the ten leading causes of death in the country for 2006 and 2007 in order to attempt to link some of them to treatable or preventable behaviors and exposures. In other words, we shall attempt to show that most of the deaths can be associated with factors that mainly fall under the social, economic, environmental, and lifestyle and behavioral determinants of health that we have just discussed.

Most of the ten leading causes of death presented above are nongenetic and can be prevented or treated. Diseases of the heart, cancers, cerebrovascular diseases or strokes, chronic lower respiratory diseases, unintentional injuries, diabetes, influenza and pneumonia, and infection- and high blood pressure-induced nephritis can be curtailed, prevented, or treated. For example, cigarette smoking is linked with an increased

**Table 6.2** Leading causes of death in the United States, 2006 and 2007

Causes of death	Rank	2007		2006	
		Deaths	% of Total deaths	Deaths	% of Total deaths
<i>All causes</i>	–	2,423,712	100	2,426,264	100
Disease of heart	1	616,067	25.4	631,636	26.0
Malignant neoplasms	2	562,875	23.2	559,888	23.1
Cerebrovascular disease (stroke)	3	135,952	5.6	137,119	5.7
Chronic lower respiratory disease	4	127,924	5.3	124,583	5.1
Accidents (unintentional injuries)	5	123,706	5.1	121,599	5.0
Alzheimer's disease	6	74,632	3.1	72,432	3.0
Diabetes mellitus	7	71,382	2.9	72,449	3.0
Influenza and pneumonia	8	52,717	2.2	56,326	2.3
Nephritis, nephrotic syndrome and nephrosis	9	46,448	1.9	45,344	1.9
Septicemia	10	34,828	1.4	34,234	1.4

Source: Heron, M. (2011)

risk of heart disease, chronic lower respiratory disease, and cancer; obesity is a major health risk for diabetes, hypertension, coronary heart disease, and some forms of cancer; alcohol causes a wide variety of accidents and injuries, increases the risks for high blood pressure, irregularities of the heart, and stroke; flu vaccines can minimize influenza deaths; and seeking treatment for infections can prevent septicemia.

Additionally, although there is a genetic basis for nephrosis and nephrotic syndrome, the conditions can occur as a result of infection (such as strep throat, hepatitis, or mononucleosis), use of certain drugs, and diabetes. Furthermore, although age and family history are important risk factors for Alzheimer's disease, longstanding high blood pressure and a history of head trauma are suspected risk factors for the disease as well (Institute of Medicine (US) Committee on Health and Behavior 2001; The Robert Wood Johnson Foundation 2004; MedlinePlus 2011; Womenshealth.gov. 2011; PubMed Health 2011a, b). Most of these conclusions are consistent with the results of previous studies on the actual causes of death in the United States.

McGinnis and Foege (1993, p. 2207) identified and quantified the major external or nongenetic factors that contributed to deaths in the United States in 1990. Deaths associated with socioeconomic factors and access to medical care, although important contributors to the total deaths recorded in the country, were not included in the study because of the difficulty quantifying them independent of the other factors reported in the study. About 10 years after the McGinnis and Foege study, Mokdad et al. (2004, p. 1238) used a similar methodology to quantify the nongenetic factors that contributed to deaths in 2000.

The results of the two studies cited above showed that about half of all deaths that occurred in the United States in both 1990 and 2000 could also be attributed to a small number of largely controllable behaviors and exposures, including tobacco, diet and activity patterns, alcohol, microbial and toxic agents, firearms, sexual behavior, motor vehicle accidents, and illicit drug use.

The results of the causes of death studies reported by McGinnis and Foege and Mokdad and his colleagues are consistent with the findings of the 2001 National YRBS cited earlier in this chapter. The survey results showed that in the United States, 70.6% of all deaths among youth and young adults aged 10–24 years were due only to four causes: motor vehicle crashes, other unintentional injuries, homicide, and suicide. The deaths attributable to these causes among the identified population group were 31.4, 12, 15.3, and 11.9%, respectively (Grunbaum et al. 2002, p. 313).

Furthermore, substantial morbidity and social problems were said to result from the approximately 870,000 pregnancies that occurred each year among women 15–19 years (Ventura et al. 2001, p. 1), and from the estimated million cases of sexually transmitted diseases (STDs) that occurred each year among persons 10–19 years (Institute of Medicine 1997; Eng and Butler 1997).

Similar to the studies on the actual causes of death in the United States in 1990 and 2000, the YRBS also found that the leading causes of mortality and morbidity among all age groups in the country were related to behaviors that contributed to unintentional injuries and violence, tobacco use, alcohol and other drug use, sexual behaviors that contributed to unintended pregnancies and STDs, including HIV infection, unhealthy dietary behaviors, and sedentary lifestyles.

In 2010, almost 10 years after the 2001 YRBS discussed above, the CDC quantified the death rates among teenagers aged 12–19 years between 1999 and 2006. Not surprisingly, the ten leading causes of death for the teenage population remained constant throughout the period. They were as follows: accidents or unintentional injuries, 48% of deaths; homicides, 13% of teenage deaths; suicide, 11%; cancer, 6%; and heart disease, 3%. Further analysis showed that motor vehicle accidents accounted for almost three quarters (73%) of all deaths from unintentional injury; and that non-Hispanic black males had the highest death rate among all teenagers, with homicide being the leading cause of death for them (Minino 2010).

The determinants of health that have occupied our attention up to this point are not only affected by the broad national and personal factors we have identified but are also affected by broad global or international factors (Shi and Singh 2008, p. 53). Therefore, the rest of this chapter is devoted to examining the influences of global factors on the health care system and the health policymaking process.

## Global Factors and Health

Foreign policies involve the political relationships between countries and the outside world. Foreign policy development generally concerns the protection of a country's national interests, usually defined in terms of security, economic prosperity, and ideological goals (Lee et al. 2007, p. 208). Increased globalization has led to the broadening of foreign policy concerns to include health. Conversely, it is now recognized that international trade and finance, migration and population mobility, environmental change or global warming, the emerging and reemerging infectious disease paradigms, natural disasters, and global insecurity or terrorism have clear

and observable consequences for human health (Kassalow 2001; McInnes and Lee 2006, p. 5; Lee et al. 2007, p. 208; Katz and Singer 2007, p. 223; Campbell-Lendrum et al. 2007, p. 235; Fidler 2007, p. 243; MacPherson et al. 2007, p. 200; Labonte et al. 2009). We shall briefly examine how these components of globalization—international trade, population mobility, infectious diseases, global warming or climate change, and natural disasters and terrorism—affect countries' health care and policymaking systems generally, and the United States' health care and policymaking systems in particular. We begin with international trade.

### *International Trade and Finance*

The principal agents of global international trade and finance include such international agencies as the World Bank, the International Monetary Fund (IMF), and the World Trade Organization (WTO). It has been reported that the market-biased or efficiency-oriented austerity policies these organizations promote or sponsor have resulted in reduced expenditures for social programs in developing countries, thereby impairing population health and slowing the advances in literacy, fertility reduction, and improved reproductive health of the women of the developing countries (Kinnon 1998, p. 397; Gray 1998; Watts 1997).

Some specific examples of international trade and finance policies include the following: trade liberalization or the lowering of tariffs and other barriers to imports that has led to the doubling of the value of world trade from 24% of world GDP in 1960 to 48% in 2003 (World Bank 2006); the reorganization of production and service provision across multiple national borders by multinational or transnational corporations, such as outsourcing or the pursuit of integration into global value chains, resulting in a global labor market (World Bank 1995, p. 2007; Woodall 2006); the conditions attached to World Bank and IMF loans, and to the rescheduling of loan payments, including structural adjustment programs (SAPs); financial liberalization, which exposes national economies to the uncertainties created by large and volatile short-term capital flows; the significant growth in the world's urban population caused by transnational economic integration; the promotion of export-oriented agricultural development that does not consider the social and environmental consequences of such actions, which result from the pressures on governments around the world to increase export earnings (Stonich and Bailey 2000, p. 23); and the promotion and reinforcement of a market-oriented concept of health sector reform that strongly favors private provision and financing (Petchesky 2003; Koivusalo and Mackintosh 2005, p. 3).

Critics of the above international trade and finance policies argue that it is not at all clear that globalization leads to substantial poverty reduction. They point to the large-scale and extreme unequal distribution of wealth and income in the countries that have been identified as "globalizers" witnessing rapidly growing economies. It is argued that even a little redistribution of income through progressive taxation and targeted social programs would go farther in terms of poverty reduction than many



years of solid economic growth (Jubany and Meltzer 2004; Paes de Barros et al. 2002; de Ferranti et al. 2004).

Further, it is argued that as countries compete for foreign direct investment and outsourced production, the need to appear business-friendly may limit their ability to adopt and implement labor standards, occupational safety and health regulations, and other redistributive programs (Cornia 2005); global integration of production may cause a sharp decline in the wages of, and demand for, low-skilled workers; large amounts of debt limit the ability of many developing and developed countries to meet other human needs related to health, education, water, public safety, sanitation, nutrition, etc.; globalization may lead to an intensification of worldwide social relations which link distant localities in such a way that local happenings are shaped by events occurring many miles away, and vice versa (Giddens 1990, p. 64); much of the urbanization caused by international finance and trade policies occurs in countries that have limited resources to provide urban infrastructures; and the emphasis on private financing and provision of health care leads to large-scale underinsurance and uninsurance in both the developed and developing countries (Labonte and Schrecker 2007, p. 6).

Globalization and the quest for exports are also blamed for increased smoking and tobacco-related mortality in the developing countries (Murray and Lopez 1997, p. 1498). Also noteworthy is the escalation in the sale of weapons, much of it facilitated by Western governments. The wars that have raged on and off in sub-Saharan Africa, Latin America, and Asia are tragic examples of the ill effects of aggressive weapon sales to these places (McMichael and Beaglehole 2000, p. 497).

Although the adverse effects of globalization discussed above tend to affect developing countries more than the United States, there are significant adverse consequences of globalization for the United States as well. Some of these include the perpetuation and exacerbation of the gap between the rich and the poor, a large public debt profile that puts significant pressure on social and other safety net policies and programs, the prevalence of uninsurance and underinsurance, job insecurity and reduced wages, the collapse of large manufacturing businesses, increased availability and demand for illicit drugs, and the emergence of new infectious diseases that spread more easily due to increased migration and population mobility (Ubokudom and Khubchandani 2010, p. 20). For example, American labor unions complain that the North American Free Trade Agreement (NAFTA) with Canada, Mexico, and the United States, which came into force on January 1, 1994, has led to the loss of American jobs. Job loss causes stress, loss of income and the financial means to pay for medical care.

### *Infectious Disease Epidemics*

From the onset, health issues were not at the heart or margins of foreign policy theory or practice for two reasons. First, the protection and promotion of population health did not factor into world leaders' calculations of what "competition in anarchy"

(the condition from which foreign policy dynamics flow) required of their countries, nor was health for all seriously (as opposed to rhetorically) considered a pathway to a better world. Second, those who were engaged in public health did not participate significantly in discussions of foreign policy (Fidler 2007, p. 243). Therefore, there were only small and nonsubstantial linkages between health and foreign policy (Harris 2004, p. 171).

Actions linking health issues or problems with foreign policy have been strongest when the potential impact on economic prosperity, national security, the environment, and development is severe. This has resulted in attention to health threats that are acute and severe, those that are projected to result in mass casualties, and those that are believed to be geographically widespread. In contrast, long-term health risks, or health risks that cause minor health problems, affect a limited number of people, or are not geographically widespread, attract little attention in relation to foreign policy. In other words, acute epidemic infections and major public health emergencies, such as natural or human-induced disasters, bioterrorism, and chemical and radiation accidents, have received significant attention (Fidler 2007, p. 243; Lee et al. 2007, p. 208; Katz and Singer 2007, p. 233).

A few specific examples of “attention-receiving” public health problems include the previously unknown human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS) which appeared in the United States in the early 1980s; the hantavirus, believed to have originated in Korea; eastern equine encephalitis, which is found in the eastern and north-central United States, Canada, parts of Central and South America, and the Caribbean Islands; Western equine encephalitis, which occurs primarily in the Western and Central United States, Canada, and parts of South America; the polio virus that is believed to have originated in India in 2005; the spread of Severe Acute Respiratory Syndrome (SARS) from China in 2003; and the 2009 outbreak of the deadly H1N1-Swine Flu-influenza believed to have originated in Mexico (CDC 2009; Shi and Singh 2008, p. 578; Friis 2007, p. 87).

In summary, many health problems, particularly infectious diseases, are widely recognized as global concerns that cross national and international boundaries. Consequently, countries frequently include in their foreign policies strategies on these diseases that have the potential to threaten their domestic interests. This is likely to lead to higher prioritization, more attention, greater political support, and more funding. For example, in the United States, projections of the impact of HIV/AIDS on the workforces of many countries, and the prevalence of HIV among military personnel in several regions of the world, contributed to the determination that HIV/AIDS was a security issue.

Similarly, awareness of the havoc caused by previous influenza pandemics and the economic impact of the small and short outbreak of SARS led to serious preparations by the WHO and its member states for the next influenza pandemic (Katz and Singer 2007, p. 234). This understanding has led to many international agreements covering health and the environment, including the Agreement on Sanitary and Phytosanitary Measures, the International Standards Organization’s classification system for food labeling, the UN Framework Convention on Climate Change, and the Kyoto Protocol, to name a few.

## ***Global Warming or Climate Change***

Data from the National Aeronautics Space Administration (NASA) show that the Earth's surface has warmed by about 0.66°C between January and November 2010. That period was reported to be the warmest January–November in the NASA Goddard Institute for Space Studies (GISS) analysis, which covers 131 years. The period was only a few hundredths of a degree warmer than 2005, so it is possible that the final GISS results for the full year, 2010, would be warmer or in the same range as 2005. Further, the available data also show that the Earth's surface has warmed by more than 0.8°C over the past century and by about 0.6°C in the past 3 decades (NASA 2010). Therefore, contrary to frequent assertions that global warming has slowed in the past decade, global warming has proceeded in the decade that ended in 2010 just as fast as it did in the prior 2 decades (NASA 2010).

The health hazards posed by climate change and global warming are inequitable, diverse, global, and probably irreversible over human time scales (Patz et al. 2005, p. 310; Campbell-Lendrum et al. 2007, p. 235). They include increased risks of extreme weather, such as floods and storms, fatal heat waves, long-term drought conditions in many areas of the world, surface water pollution and groundwater contamination, the melting of glaciers that supply freshwater to large population centers, salination of sources of agricultural and drinking water, increased rates of water extraction that may precipitate declines in supply, and creating a conducive environment for the global killers that are very sensitive to climatic conditions, such as malaria, diarrhea, and protein-energy malnutrition (Campbell-Lendrum et al. 2007, p. 235; Friis 2007, p. 3). As we noted under the actual causes of death, these three global killers cause many deaths in the United States; they are also said to account for about three million deaths worldwide each year (WHO 2004).

## ***Population Mobility***

The relationship between migration, population mobility, and health is receiving renewed attention due to the emerging and reemerging infectious diseases that were discussed previously in this section. The health of both legal and illegal migrants to any country are affected by the determinants of health discussed earlier in this chapter, as well as by the risks that are present in their country of origin or that arise from the migration process itself (MacPherson and Gushulak 2001, p. 390). This is very true of the United States where a significant portion of the annual population growth is due to migration.

The effects of population mobility and migration on the country's health care system and the provision of health services are reported daily in the pages of newspapers. First, there is likely to be increased demand for services due to population growth, whether that growth is due to increased fertility rates or migration. For example, the exponential growth in Medicaid expenditures in states that border Mexico are said to be due to the increased demand for medical services by illegal

immigrants as well as by the medical needs of an aging population. Second, officials of the states that share boundaries with Mexico complain about increased violent crimes committed by illegal immigrants, crimes that take a heavy toll on population health and health care expenditures. Third, increased migration compels more health services planning, infrastructure maintenance, development and training of a diverse medical workforce to cater for the increasingly diverse population, and the establishment of public health programs for health promotion, health protection, and disease prevention (MacPherson et al. 2007, p. 200; Cohen et al. 2002, p. 90). And, fourth, the opinion pages of newspapers carry citizens' letters that attribute the success of previous terrorist campaigns to the nearly open border policy the United States maintained prior to September 11, 2001 (9/11). Since the 9/11 attacks, border security and entry visa requirements have been tightened. Border control measures are now centered on inspecting and excluding goods, vessels, and people that pose serious health or terrorist threats to the United States. Other countries have similar measures.

### *Natural Disasters and Terrorism*

The world has changed. Indeed, the world has changed significantly. While most people are actively planning on how to make their lives better, a few others are actively planning on how to destroy lives and settle political and ideological differences through acts of violence. No place and people are immune from the threats of violence, terrorism, and natural disasters. In the past 9 or 10 years, the United States has experienced disasters that have led to a rethinking of how to keep the population safe.

The terrorist attacks in the United States on September 11, 2001, an unsuccessful attempt to initiate an anthrax epidemic in October 2001, and the devastation caused by Hurricane Katrina of the 2005 Atlantic hurricane season led to significant loss of lives and property and revealed deficiencies in the public health and emergency response systems in the country. Because of both underfunding and understaffing, and perhaps because the changes that have taken place in the world were not anticipated, the public health system was unable to develop or implement a comprehensive program of preparedness, prevention, response, and recovery (US General Accounting Office 2003). Following the disasters, state, local, and federal public health agencies began to identify weaknesses in the nation's public health infrastructure and to reevaluate existing disaster response plans (Baker and Koplan 2002, p. 15).

The shortcomings revealed in the nation's disaster response plans elevated public health to an important national instrument for anticipating and dealing with terrorism, infectious disease outbreaks, and natural disasters. The guidance on responses to chemical, biological, radiological, nuclear, and explosive threats provided by the CDC, and by other national organizations and Universities, helped individual state governments to develop statewide policies that took their unique concerns into account (Ziskin and Harris 2007, p. 1584; Shah 2006, p. 1414; Gebbie and Turnock 2006, p. 923).

Public health plans to deal with terrorist threats, infectious diseases, and natural disasters now involve public health agencies at the federal, state, and local levels of government; other government and private agencies, such as the Departments of Justice and Defense; the Food and Drug Administration; private, public, and non-profit hospitals, clinics, and nursing homes; private and public practitioners, such as nurses and physicians; blood supply organizations, such as the American Red Cross; police and fire departments; and individuals and groups throughout the country. As would be expected, expenditures for government public health activities, while still low relative to expenditures for medical care, rose from \$47 billion in 2001 to about \$69.4 billion in 2008, an increase of 47.6% from 2001 (Centers for Medicare and Medicaid Services (CMS) 2010). It remains to be seen if this enthusiasm for public health, demonstrated by increased funding since 2001, can be sustained.

The law that is used as the basis for most of the new emergency preparedness measures is the Homeland Security Act of 2002. In addition to the strengthening of the public health infrastructure, the law also called for improved inspections of food products entering the United States. It calls for better measures to contain attacks on food and water supplies, to protect vital infrastructures, such as nuclear facilities, and to track biological materials anywhere in the country. Further, the provisions of the law have been used to justify tough and controversial interrogation techniques, such as waterboarding. Similarly, Presidential Executive Order 13295, signed by George W. Bush on April 4, 2003, authorizes the apprehension, detention, or conditional release of individuals with suspected communicable diseases, such as SARS, cholera, diphtheria, infectious tuberculosis, plague, smallpox, yellow fever, and viral hemorrhagic fevers such as Ebola (The Free Dictionary 2008).

In summation, international trade and finance, infectious disease epidemics, global warming and climate change, population mobility, and natural disasters and terrorism significantly affect the United States health care delivery and policymaking systems. In addition, medical technology and US health care professionals and consumers are also affected by global factors. For example, because the United States is widely believed to be the world leader in the development and utilization of high-technology medical protocols, foreign dignitaries come here for specialty care. Also, nurses and foreign medical school graduates (FMGs) move to the United States to acquire licenses to practice in the country. This so-called brain drain causes shortages of medical practitioners in the developing countries and alleviates some of the shortages in the health professional shortage areas of the United States.

Furthermore, telemedicine allows US physicians to transmit radiological images to other countries where they are analyzed at lower costs. On the other hand, US consulting pathologists and radiologists provide their services to other parts of the world. Also, advanced medical equipment and supplies that are abandoned here a few years after deployment are shipped to the developing and less technology-intensive developed countries at low costs. The high costs paid by US consumers are used to subsidize the low costs paid by the developing countries (Ubokodom and Khubchandani 2010, p. 21).

## Conclusion

This chapter has identified the impacts of physical, social, cultural, and global factors on health and health policymaking. Health can be defined under the medical or wellness models. The health status of the US population, or the population of any other country for that matter, is largely determined by factors that have important physical, social, and economic dimensions. These include preventive medicine, genetic disposition, social and economic circumstances, environmental conditions, lifestyles and behaviors, and medical care. These determinants of health are associated, in various degrees, with the real or actual causes of death in the country. Research demonstrates that most of the deaths in the country are attributable to a small number of largely controllable behaviors and exposures, or due to factors that fall under the preventive, social, economic, environmental, and lifestyle and behavioral determinants of health. These determinants of health are not only affected by the broad national and personal factors identified in the chapter, they are also affected by global or international factors, including trade and finance, outbreaks of infectious diseases, climate change, natural disasters, and the threats of terrorism and population mobility.

But even though most of the deaths in the country are the result of social, cultural, economic, environmental, and global factors, medical care is also an important determinant of health that cannot be ignored. An insurance card is one of the important factors that influence access to medical services. Consequently, the next chapter examines demographic factors, most especially Americans' ability to access medical services, and the disparities in health among segments of the population.

## Review Questions

1. What are the likely policy implications of defining health under the medical and wellness models?
2. Why have the US health policies relied extensively on the medical model and what are the implications?
3. What is holistic health and what factors does the concept embody?
4. Identify the major determinants of health.
5. What are the differences between medical care and health care, and what should be the prudent implications of these differences for health care policy and delivery?
6. Define and give examples of primary, secondary, and tertiary prevention measures.
7. What are the functions of the USPSTF and how does the agency go about performing these functions?
8. What are the different pathways through which social and economic circumstances affect health?

9. What are the physical environmental factors that affect health and what attempts are made to mitigate the effects of these factors?
10. What are the most likely causes of death in the United States and how much influence has this knowledge had on the formulation of the nation's health care policies?

## References

- Adler, N.E., W.T. Boyce, M.A. Chesney, S. Folkman, and S.L. Syme. 1993. "Socioeconomic Inequalities in Health: No Easy Solution." *JAMA* 269(24): 3140–3145.
- \_\_\_\_\_ and K. Newman. 2002. "Socioeconomic Disparities in Health: Pathways and Policies." *Health Affairs* 21(2) (March/April): 60–76.
- Angel, R., L. Lein, and J. Henrici. 2006. *Poor Families in America's Health Care Crisis*. New York, NY: Cambridge University Press.
- Appel, L.J., T.J. Moore, E. Obarzanek, W.M. Vollmer, L.P. Svetkey, F.M. Sacks, G.A. Bray, T.M. Vogt, J.A. Cutler, M.M. Windhauser, P. Lin, and N. Karanja. 1997. "A Clinical Trial of the Effects of Dietary Patterns on Blood Pressure." *The New England Journal of Medicine* 336(16) (April 17): 1117–1124.
- Baird, P.A. 1994. "The Role of Genetics in Population Health." In *Why are Some People Healthy and Others Not?*, eds. R.G. Evans, M.L. Barer, and T.R. Marmor. New York, NY: Aldine de Gruyter, 133–159.
- Baker, E.L., and J.P. Koplan. 2002. "Strengthening the Nation's Public Health Infrastructure: Historic Challenge, Unprecedented Opportunity." *Health Affairs* 21(6): 15–27.
- Banta, David H., and S. Jonas. 1995. "Health and Health Care." In Jonas's *Health Care Delivery in the United States*, 5th ed., ed. A. Kovner. NY: Springer Publishing Co., 11–33.
- Barr, D.A. 2008. *Health Disparities in the United States: Social Class, Race, Ethnicity and Health*. Baltimore, MD: The Johns Hopkins University Press.
- Bartley, M. 1994. "Unemployment and Ill Health: Understanding the Relationship." *Journal of Epidemiology and Community Health* 48(4) (August): 333–337.
- Bell, J., and M. Standish. 2005. "Communities and Health Policy: A Pathway for Change." *Health Affairs* 24(2): 339–342. DOI: 10.1377/hlthaff.24.2.339.
- Belloc, N.B., and L. Breslow. 1972. "Relationship of Physical Health Status and Health Problems." *Preventive Medicine* 1(1): 409–421.
- Berkman, L.F., and L. Breslow. 1983. *Health and Ways of Living: The Alameda County Study*. New York, NY: Oxford University Press.
- \_\_\_\_\_ and K.A. Lochner. 2002. "Social Determinants of Health: Meeting at a Crossroads." *Health Affairs* 21(2) (March/April): 291–293.
- Blum, H.L. 1981. *Planning for Health*, 2nd ed., New York, NY: Human Sciences Press.
- Bunker, J.P., D.S. Gomby, and B.H. Kehrer, eds. 1989. *Pathways to Health: The Role of Social Factors*. Menlo Park, CA: The Henry Kaiser Family Foundation.
- \_\_\_\_\_ H.S. Frazier, and F. Mosteller. 1995. "The Role of Medical Care in Determining Health: Creating an Inventory of Benefits." In *Society and Health*, eds. B.C. Amick, S. Levine, A.R. Tarlov, and D.C. Walsh. New York, NY: Oxford University Press, 305–341.
- Burnett, M. 1971. *Genes, Dreams, and Realities*. New York, NY: Basic Books.
- Campbell-Lendrum, D., C. Corvalan, and M. Neira, 2007. "Global Climate Change: Implications for International Public Health Policy." *Bulletin of the World Health Organization* 85(3) (March): 235–237.
- Centers for Disease Control and Prevention (CDC). 1979. *Healthy People: The Surgeon General's Report on Health Promotion and Disease Prevention*. Washington, DC: Public Health Service, U.S. Department of Health and Human Services.

- \_\_\_\_\_. 2009. "Key Facts About Swine Influenza." Retrieved May 20, 2009, from [http://www.cdc.gov/h1n1flu/key\\_facts.htm](http://www.cdc.gov/h1n1flu/key_facts.htm).
- Centers for Medicare and Medicaid Services (CMS). 2010. "National Health Expenditure Projections 2009-2019." Retrieved November 10, 2010, from [http://www.cms.gov/NationalHealthExpendData/downloads/NHEProjections\\_2009\\_to\\_2019.pdf](http://www.cms.gov/NationalHealthExpendData/downloads/NHEProjections_2009_to_2019.pdf).
- Coffield, A.B., M.V. Maciosek, M. McGinnis, J.R. Harris, N.B. Caldwell, S.M. Teutsch, D. Atkins, J.H. Richland, and A. Haddix. 2001. "Priorities Among Recommended Clinical Preventive Services." *American Journal of Preventive Medicine* 21(1): 1-9.
- Cohen, J.J., B.A. Gabriel, and C. Terrell. 2002. "The Case for Diversity in the Health Care Workforce." *Health Affairs* 21(5): 90-102.
- Cornia, G.A. 2005. *Policy Reform and Income Distribution*, ST/ESA/2005/DWP/3. New York, NY: United Nations Department of Economics and Social Affairs.
- Daniels, N., B. Kennedy, and I. Kawachi, 2000. *Is Inequality Bad for Our Health?* Boston, MA: Beacon Press.
- Davey Smith, G., D. Blane, and M. Bartley. 1994. "Explanations for Socioeconomic Differentials in Mortality: Evidence from Britain and Elsewhere." *European Journal of Public Health* 4(2): 131-144.
- Davis, D.L., and P.S. Webster. 2002. "The Social Context of Science: Cancer and the Environment." *The Annals of the American Academy of Political and Social Science* 584(1) (November): 13-34.
- Deaton, A. 2002. "Policy Implications of the Gradient of Health and Wealth." *Health Affairs* 21(2) (March/April): 13-30.
- de Ferranti, D., G. Perry, F.H. Ferreira, and M. Walton. 2004. *Inequality in Latin America & the Caribbean: Breaking with History?* Washington, DC: The World Bank.
- Encyclopedia of Public Health*. 2010. Environmental Determinants of Health." Retrieved January 2, 2011, from <http://www.enotes.com/public-health-encyclopedia/environmental-determinants-health>.
- Eng, T.R., and W.T. Butler, eds. 1997. *The Hidden Epidemic: Confronting Sexually Transmitted Diseases*. Washington, DC: National Academy Press.
- Faber, D.R., and D. McCarthy. 2001. *Green of Another Color: Building Effective Partnerships Between Foundations and the Environmental Justice Movement*. Washington, DC: Aspen Institute.
- Fidler, D.P. 2007. "Reflections On the Revolution in Health and Foreign Policy." *Bulletin of the World Health Organization* 85(3) (March): 243-244.
- Flores, G., E. Fuentes-Afflick, O. Barbot, O. Carter-Pokras, L. Chaudio, M. Lara, J. McLaurin, L. Pachter, F.J. Ramos-Gomez, F. Mendoza, R.B. Valdez, A.M. Villarruel, R.E. Zambrana, R. Greenberg, and M. Weitzman. 2002. "The Health of Latino Children: Urgent Priorities, Unanswered Questions, and a Research Agenda." *JAMA* 288(1) (July 3): 82-90.
- Friis, R.H. 2007. *Essentials of Environmental Health*. Sudbury, MA: Jones and Bartlett Publishers.
- Gebbie, K.M., and B.J. Turnock. 2006. "The Public Health Workforce, 2006: New Challenges." *Health Affairs* 25(4) (July/August): 923-933. DOI: 10-1377/hlthaff.25.4.923.
- Giddens, A. 1990. *The Consequences of Modernity*. Stanford, CA: Stanford University Press.
- Giles-Corti, B., and R.J. Donovan. 2002. "Socioeconomic Status Differences in Recreational Physical Activity Levels and Real and Perceived Access to a Supportive Physical Environment." *Preventive Medicine* 35: 601-611. DOI: 10.1006/pmed.2002.1115.
- Gittelsohn, A.M. 1982. "On the Distribution of Underlying Causes of Death." *American Journal of Public Health* 72(2): 133-140.
- Grant Makers in Health. 2010. "Social Determinants of Health." Retrieved December 10, 2010, from [http://www.gih.org/usr\\_doc/knowledge\\_to\\_action\\_-\\_social\\_determinants\\_of\\_health.pdf](http://www.gih.org/usr_doc/knowledge_to_action_-_social_determinants_of_health.pdf).
- Gray, J. 1998. *False Dawn: The Delusions of Global Capitalism*. London, England: Granta.
- Grunbaum, J.A., L. Kann, S.A. Kinchen, B. Williams, J.C. Ross, R. Lowry, and L. Kolbe. 2002. "Youth Risk Behavior Surveillance—United States, 2001." *Journal of School Health* 72(8) (October): 313-328.



- Guralnik, J.M., K.C. Land, D. Blazer, G.G. Fillenbaum, and L.G. Branch. 1993. "Educational Status and Active Life Expectancy Among Older Blacks and Whites." *The New England Journal of Medicine* 329 (July 8): 110–116.
- Harris, S. 2004. "Marrying Foreign Policy and Health: Feasible or Doomed to Fail?" *Medical Journal of Australia* 180(4): 171–173.
- Healthy People 2010: Understanding and Improving Health*, United States Department of Health and Human Services (USDHHS). Retrieved January 2, 2011, from <http://www.health.gov/healthypeople>.
- Heron, M. 2011. "Deaths: Leading Causes for 2007." *National Vital Statistics Reports* 59(8). Hyattsville, MD: National Center for Health Statistics, 1–96.
- Homeland Security Act of 2002, Public Law 107-296 (H.R. 5005), November 25, 2002.
- Institute of Medicine. 2003. *The Future of the Public's Health in the 21st Century*. Washington, DC: National Academy Press, 20.
- Institute of Medicine, Committee on Prevention and Control of Sexually Transmitted Diseases. 1997.
- Institute of Medicine (US) Committee on Health and Behavior: Research, Practice, and Policy. Health and Behavior: The Interplay of Biological, Behavioral, and Societal Influences. (2001): Washington, DC: National Academies Press, 1–27. Retrieved November 20, 2011, from <http://www.ncbi.nlm.nih.gov/books/NBK43744/?report=printable>.
- Isaacs, S.L., and S.A. Schroeder. 2004. "Class—The Ignored Determinant of the Nation's Health." *The New England Journal of Medicine* 351(11): 1137–1142.
- Joint Center for Political and Economic Studies and PolicyLink. 2004. "Breathing Easier: Community-based Strategies to Prevent Asthma," 1-9. Retrieved January 10, 2011, from <http://www.jointcenter.org/hpi/sites/allfiles/JointCenter-Asthma.pdf>.
- Jubany, F., and J. Meltzer. 2004. *The Achilles' Heel of Latin America: The State of the Debate on Inequality*, FPP 04-5. Ottawa, Canada. Canadian Foundation for the Americas (FOCAL).
- Kannel, W.B., L.A. Cupples, R. Ramaswami, J. Stokes, III, B.E. Kreger, and M. Higgins. 1991. "Regional Obesity and Risk of Cardiovascular Disease: The Framingham Study." *Journal of Clinical Epidemiology* 44(2): 183–190.
- Kaplan, G.A., and J.E. Keil. 1993. "Socioeconomic Factors and Cardiovascular Disease: A Review of the Literature." *Circulation* 88(4): 1973–1998.
- Kassalow, J.S. 2001. *Why Health Is Important to U.S. Foreign Policy*. Washington, DC: Council on Foreign Relations/Milbank Memorial Fund. Retrieved January 27, 2011, from [http://www.cfr.org/publication/8315/why\\_health\\_is\\_important\\_to\\_us\\_foreign\\_policy.html](http://www.cfr.org/publication/8315/why_health_is_important_to_us_foreign_policy.html).
- Katz, R., and D.A. Singer. 2007. "Health and Security in Foreign Policy." *Bulletin of the World Health Organization* 85(3) (March): 233–234.
- Kawachi, I., and L.F. Berkman, eds. 2003. *Neighborhoods and Health*. New York, NY: Oxford University Press.
- Kendler, K.S. 1983. "Overview: A Current Perspective on Twin Studies of Schizophrenia." *American Journal of Psychiatry* 140 (November): 1413–1425.
- Khoury, M.J., T.H. Beaty, and B.H. Cohen. 1993. *Fundamentals of Genetic Epidemiology*. New York, NY: Oxford University Press.
- Kilbourne, A.M., G. Switzer, K. Hyman, M. Crowley-Matoka, and M.J. Fine. 2006. "Advancing Health Disparities Research Within the Health Care System: A Conceptual Framework." *American Journal of Public Health* 96(12) (December): 2113–2121.
- Kinnon, C.M. 1998. "World Trade: Bringing Health Into the Picture." *World Health Forum* 19:397–406.
- Kinsman, D. 2009. "Statement on the Politicization of Evidence-Based Clinical Research." Retrieved January 2, 2011, from <http://www.medicalnewstoday.com/articles/172101.php>.
- Koivusalo, M., and M. Mackintosh. 2005. "Health Systems and Commercialization: In Search of Good Sense." In *Commercialization of Health Care: Global and Local Dynamics and Policy Responses*, eds. M. Mackintosh and K.M. Basingstoke. Houndmills, England: Palgrave Macmillan, 3–21.

- Labonte, R., T. Schrecker, C. Packer, and V. Runnels, eds. 2009. *Globalization and Health: Pathways, Evidence and Policy*. New York, NY: Routledge.
- \_\_\_\_\_. 2007. "Globalization and the Social Determinants of Health: The Role of the Global Marketplace (part 2 of 3)." *Globalization and Health* 2007 3 (19 June): 6. DOI: 10.1186/1744-860-3-6. Retrieved November 29, 2010, from <http://www.globalizationandhealth.com/content/3/1/6>.
- Lantz, P.M., J. House, J.M. Lepkowski, D.R. Williams, R.P. Mero, and J. Chen. 1998. "Socioeconomic Factors, Health Behaviors, and Mortality: Results from a Nationally Representative Prospective Study of U.S. Adults." *JAMA* 279(21) (June 3): 1703–1708.
- Lee, K., A. Ingram, K. Lock, and C. McInnes. 2007. "Bridging Health and Foreign Policy: The Role of Health Impact Assessments." *Bulletin of the World Health Organization* 85(3) (March): 207–211.
- Levin, J.S. 1994. "Religion and Health: Is There an Association, Is it Valid, and Is it Causal?" *Social Science and Medicine* 38(11): 1475–1482.
- Lin, K., R. Lipsitz, T. Miller, and S. Janakiraman. 2008. "Benefits and Harms of Prostate-Specific Antigen Screening for Prostate Cancer: An Evidence Update for the U.S. Preventive Services Task Force." *Annals of Internal Medicine* 149(3): 192–199.
- MacPherson, D.W., B.D. Gushulak, and L. Macdonald. 2007. "Health and Foreign Policy: Influences of Migration and Population Mobility." *Bulletin of the World Health Organization* 85(3) (March): 200–206.
- \_\_\_\_\_. 2001. "Human Mobility and Population Health: New Approaches in a Globalizing World." *Perspectives in Biology and Medicine* 44(3) (Summer): 390–401.
- Marmot, M.G., S. Stansfield, C. Patel, F. North, J. Head, I White, E. Brunner, A. Feeney, and G. Davey Smith. 1991. "Health Inequalities Among British Civil Servants: The Whitehall II Study." *Lancet* 337 (8758) (July 6): 1387–1393.
- \_\_\_\_\_, M.J. Shipley, and G. Rose. 1984. "Inequalities in Death-Specific Explanations of a General Pattern?" *Lancet* 1 (8384) (5 May). 1003–1006.
- \_\_\_\_\_. 2006. "Status Syndrome: A Challenge to Medicine." *JAMA* 295(11) (March 15): 1304–1307.
- Maugans, T.A. 1996. "The SPIRITual History." *Archives of Family Medicine* 5(1): 11–16.
- McCullough, M.E., and D.B. Larson. 1999. "Religion and Depression: A Review of the Literature." *Twin Research* 2: 126–136.
- \_\_\_\_\_, W.T. Hoyt, D.B. Larson, H.G. Koenig, and C. Thorsen. 2000. "Religious Involvement and Mortality: A Meta-Analytic Review." *Health Psychology* 19(3): 211–222.
- McDonough, P., G.J. Duncan, D.R. Williams, and J. House. 1997. "Income Dynamics and Adult Mortality in the United States, 1972 Through 1989." *American Journal of Public Health* 87(9): 1476–1483.
- McGinnis, J.M., P. Williams-Russo, and J.K. Knickman. 2002. "The Case for More Active Policy Attention to Health Promotion." *Health Affairs* 21(2) (March/April): 78–93.
- \_\_\_\_\_, and W. H. Foege. 1993. "Actual Causes of Death in the United States." *JAMA* 270(18) (November 10): 2207–2212
- McInnes, C., and K. Lee. 2006. "Health, Foreign Policy and Security." Review of *International Studies* 32(01): 5–23.
- McKeown, T. 1976. *The Role of Medicine: Dream, Mirage, or Nemesis?* London, England: Nuffield Provincial Hospitals Trust.
- McLeod, J.D., and R.C. Kessler. 1990. "Socioeconomic Status Differences in Vulnerability to Undesirable Life Events." *Journal of Health and Social Behavior* 31 (June): 162–172.
- McMichael, A.J., and R. Beaglehole. 2000. "The Changing Global Context of Public Health." *The Lancet* 356 (9228) (August 5): 495–499.
- MedlinePlus. 2011. "Septicemia." Retrieved November 20, 2011, from <http://www.nlm.nih.gov/medlineplus/ency/article/001355.htm>
- Metzler, M. 2007. "Social Determinants of Health: What, How, Why, and Now." *Public Health Research, Practice, and Policy* 4(4) (October): 1–4.
- Mirowsky, J., and C.E. Ross. 1986. "Social Patterns of Distress." *Annual Review of Sociology* 12: 23–45.

- Minino, A.M. 2010. "Mortality Among Teenagers Aged 12-19 years: United States, 1999-2006." Hyattsville, MD (NCHS Data Brief, No. 37), 1-8.
- Mokdad, A.H., J.S. Marks, D.F. Stroup, and J.L. Gerberding. 2004. "Actual Causes of Death in the United States, 2000." *JAMA* 291(10) (March 10): 1238-1245.
- Moyer, V.A. on behalf of the U.S. Preventive Services Task Force. 2011. "Screening for Bladder Cancer: U.S. Preventive Services Task Force Recommendation Statement." *Annals of Internal Medicine* 155(4): 246-251.
- Muller, H. 2000. "Hereditary Colorectal Cancer: From Bedside to Bench and Back!" *Annals of Oncology* 11(4) (Suppl., October): 7.
- Murray, C.J.L., C.M. Michaud, M.T. McKenna, and J.S. Marks. 1998. *U.S. Patterns of Mortality by County and Race: 1965-94*. Cambridge, MA: Harvard Center for Population and Development Studies, 1-97.
- \_\_\_\_\_ and A.D. Lopez. 1997. "Alternative Projections of Mortality and Disability by Cause 1990-2020: Global Burden of Disease Study." *The Lancet* 349 (May 24): 1498-1504.
- National Aeronautics and Space Administration (NASA), Goddard Institute for Space Studies. 2010. "GISS Surface Temperature Analysis: 2010 Global Temperature and Europe's Frigid Air." Retrieved January 17, 2011, from <http://data.giss.nasa.gov/gistemp/2010november/>.
- National Center for Health Statistics. 1998. "Health, United States: With Socioeconomic Status and Health Chart." Hyattsville, MD (DHHS Publication No. (PHS) 98-1232), 1-464.
- \_\_\_\_\_ 2002. "Health, United States: With Chartbook on Trends in the Health of Americans." Hyattsville, MD (DHHS Publication No. (PHS) 2002-1232), 1-430.
- National Institutes of Health. 1992. *A Mortality Study of 1.3 Million Persons by Demographic, Social, and Economic Factors: 1979-1985 Follow-up: U.S. National Longitudinal Mortality Study*, eds., E. Rogot, et al. Bethesda, MD.
- Navarro, V. 2009. "What We Mean by Social Determinants of Health." *International Journal of Health Services* 39(3): 423-441. DOI: 10.2190/HS.39.3.a.
- Paes de Barros, R., D. Contreras, J.C. Feres, F.H.G. Ferreira, E. Ganuza, E. Hansen, P.G. Leite, L.F. Lopez-Calva, X. Mancero, F. Medina, et al. 2002. *Meeting the Millennium Poverty Reduction Targets in Latin America and the Caribbean*. Santiago, Chile: United Nations Economic Commission for Latin America and the Caribbean.
- Panjukanta, P., I. Nuotio, J.D. Terwilliger, K.V.K. Porkka, K. Ylitalo, Pihlajamaki, et al., 1998. "Letter: Linkage of Familial Combined Hyperlipidaemia to Chromosome 1q21-q23." *Nature Genetics* (18) (April): 369-373.
- Patz, J.A., D. Campbell-Landrum, T. Holloway, and J.A. Foley. 2005. "Impact of Regional Climate Change on Human Health." *Nature* 438(17) (November): 310-317. DOI: 10.1038/nature04188.
- Petchesky, R.P. 2003. *Global Prescriptions: Gendering Health and Human Rights*. London, England: Zed Books.
- Pratt, M., C.A. Macera, and C. Blanton. 1999. "Levels of Physical Activity and Inactivity in Children and Adults in the United States: Current Evidence and Research Issues." *Medicine & Science In Sports & Exercise* 31(11) (Supplement): S526-S533.
- PubMed Health. 2011a. "Nephrotic Syndrome: Nephrosis." Retrieved November 22, 2011, from <http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0001520/>.
- \_\_\_\_\_ "Alzheimer's Disease; Senile Dementia-Alzheimer's Type (SDAT); SDAT." Retrieved November 22, 2011, from <http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0001767/>.
- Reich, T. 1988. "Biologic-Marker Studies in Alcoholism." *The New England Journal of Medicine* 318 (January 21): 180-182.
- Roberts, J.A., D. Brown, T. Elkins, and D.B. Larson. 1997. "Factors Influencing the View of Patients with Gynecologic Cancer About End-of-Life Decisions." *American Journal of Obstetrics and Gynecology* 176(1): 166-172.
- Rose, G. 1994. *The Strategy of Preventive Medicine*. New York, NY: Oxford University Press.
- Rowe, J.W., and R.L. Kahn. 1998. *Successful Aging*. New York, NY: Pantheon Books.
- Sacks, F.M., L.P. Svetkey, W.M. Vollmer, L.J. Appel, G.A. Bray, D. Harsha, E. Obarzanek, P.R. Conlin, E.R. Miller III, D.G. Simons-Morton, N. Karanja, and P. Lin. 2001. "Effects on

- Blood Pressure of Reduced Dietary Sodium and the Dietary Approaches to Stop Hypertension (DASH) Diet." *The New England Journal of Medicine* 344(1) (January 4): 3–10.
- Satcher, D. 2010. "Commentary: Include a Social Determinants of Health Approach to Reduce Health Inequities." *Public Health Reports* 125 (Supplement 4): 6–7.
- Sen, A. 1992. *Inequality Reexamined*. Oxford, England: Oxford University Press.
- \_\_\_\_\_. 1999. *Development as Freedom*. New York, NY: Alfred A. Knopf.
- Shah, M.N. 2006. "The Formation of the Emergency Medical Services." *American Journal of Public Health* 96(3) (March): 414–423.
- Shi, L., and D.A. Singh. 2008. *Delivering Health Care in America: A Systems Approach*, 4th ed. Sudbury, MA: Jones and Bartlett Publishers.
- Sigerist, H. 1970. *Medicine and Human Welfare*. College Park, MD: McGrath Publishing Co.
- Smith, G.D., J.D. Neaton, D. Wentworth, R. Stamler, and J. Stamler. 1996. "Socioeconomic Differentials in Mortality Risk Among Men Screened for the Multiple Risk Factor Intervention Trial: I. White Men." *American Journal of Public Health* 86(4) (April): 486–496.
- Stonich, S.C., and C. Bailey. 2000. "Resisting the Blue Revolution: Contending Coalitions Surrounding Industrial Shrimp Farming." *Human Organization* 59: 23–36.
- Starfield, B. 1973. "Health Services Research: A Working Model." *The New England Journal of Medicine* 289(2): 132–136.
- Svetkey, L.P., D. Simmons-Morton, W.M. Vollmer, L.J. Appel, P.R. Conlin, D.H. Ryan, J. Ard, M. Kennedy, for the DASH Research Group. 1994. "Effects of Dietary Patterns on Blood Pressure: Subgroup Analysis of the Dietary Approaches to Stop Hypertension (DASH) Clinical Trial." *Archives of Internal Medicine* 159 (February 8): 285–293.
- Szreter, S. 2002. "Rethinking McKeown: The Relationship Between Public Health and Social Change." *American Journal of Public Health* 92(5): 722–725.
- The Free Dictionary. 2008. "Severe Acute Respiratory Syndrome (SARS)." Retrieved January 22, 2011, from <http://medical-dictionary.thefreedictionary.com/Severe+Acute+Respiratory+S...>
- The Robert Wood Johnson Foundation. 2004. "Poor Diets, Little Exercise Leading Cause of Preventable Illness and Deaths." Retrieved November 20, 2011, from <http://www.rwjf.org/reports/grr/032016.htm>.
- The World Bank. 1995. *World Development Report 1995: Workers in an Integrating World*. New York, NY: Oxford University Press.
- \_\_\_\_\_. 2006. "World Development Indicators" (online). Retrieved November 29, 2010, from <http://devdata.worldbank.org/wdi2006/contents/index2.htm>.
- Timmreck, T.C. 1994. *An Introduction to Epidemiology*. Boston, MA: Jones and Bartlett Publishers.
- Ubokudom, S.E., and J. Khubchandani. 2010. "The Ecology of Health Policymaking and Reform in the United States of America." *World Medical & Health Policy* 2(1), Article 19. DOI: 10.2202/1948-4682.1010.
- United States Department of Health and Human Services (USDHHS). 1988. *The Surgeon General's Report on Nutrition and Health*. Washington, DC (DHHS Publication No. (PHS) 88-50210), 1–750.
- \_\_\_\_\_. 1996. *Physical Activity and Health: A Report of the Surgeon General*. Atlanta, GA (Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion Publication No. S/N 017-023-00196-5).
- U.S. General Accounting Office. 2003. *Bioterrorism: Public Health Response to Anthrax Incidents of 2001*. Washington, DC: (GAO Report No. 04-152), 1–44.
- United States Preventive Services Task Force (USPSTF) Procedure Manual, 2011. "Section 1: Overview of U.S. Preventive Services Task Force Structure and Processes." Retrieved January 2, 2011, from <http://www.uspreventiveservicestaskforce.org/uspstf08/methods/procmanual1.htm>.
- Ventura, S.J., W.D. Mosher, S.C. Curtin, J.C. Abma, and S. Henshaw. 2001. "Trends in Pregnancy Rates for the United States, 1976-97: An Update." *National Vital Statistics Report* 49(4): 1–10.

- Watts, S. 1997. *Epidemics in History: Disease, Power and Imperialism*. New Haven, CT: Yale University Press.
- Wikipedia. 2010. "Health." Retrieved December 8, 2010, from <http://en.wikipedia.org/wiki/Health>.
- Wilkinson, R.G. 1996. *Unhealthy Societies: The Affliction of Inequality*. London, England: Routledge.
- Williams, D.R., and P.B. Jackson. 2005. "Social Sources of Racial Disparities in Health." *Health Affairs* 24(2): 325–334.
- \_\_\_\_\_. 1990. "Socioeconomic Differences in Health: A Review and Redirection." *Social Psychology Quarterly* 53(12) (June): 81–99.
- Winkelstein, W., Jr. 1993. "Letter: Medical Care is not Health Care." *JAMA* 269(19): 2504.
- Womenshealth.gov. 2011. "Men's Health: Chronic Lower Respiratory Diseases." Retrieved November 20, 2011, from <http://www.womenshealth.gov/mens-health/top-health-concerns-for-men/chronic-lower-r...>
- Woodall, P. 2006. "The New Titans: A Survey of the World Economy." *The Economist* (September 14, 2006). Retrieved January 16, 2011, from <http://www.economist.com/node/7877959/print>.
- World Health Organization (WHO). 1948. Preamble to the Constitution of the World Health Organization as adopted by the International Health Conference, New York, 19-22 June 1946; signed on 22 July 1946 by the representatives of 61 States (Official Records of the World Health Organization, no. 2, p. 100) and entered into force on 7 April 1948.
- \_\_\_\_\_. 2004. *The World Health Report 2004: Changing History*. Geneva, Switzerland, 1–157.
- Ziskin, L.Z., and D.A. Harris. 2007. "State Health Policy for Terrorism Preparedness." *American Journal of Public Health* 97(9) (September): 1583–1586.