

PART I

System Foundations



Chapter 2

Beliefs, Values, and Health

Learning Objectives

- To understand the concepts of health and sickness
- To examine the determinants of health
- To explore the American beliefs and values governing the delivery of health care
- To appreciate the implications of the above concepts for medical care delivery and for the promotion of health and prevention of disease
- To develop a position on the equitable distribution of health services
- To understand some basic measures of health status and health services utilization



"This is the market justice system. Social justice is over there."

Introduction

From an economic perspective, curative medicine seems to produce decreasing returns in health improvement with increased health care expenditures (Saward and Sorensen 1980), and there is increased recognition of the benefits to society from the promotion of health and prevention of disease, disability, and premature death. Although the financing of health care has mainly focused on curative medicine, some strides are being made toward an emphasis on health promotion and disease prevention. Progress in this direction has been slow because of the social values and beliefs that emphasize disease rather than health. The common definitions of health, as well as measures for evaluating health status, reflect similar inclinations. This chapter proposes a holistic approach to health, although such an ideal would be very difficult to fully achieve. For example, it is not easy for a system to enact a change in self-imposed risk behaviors among the population. Regardless, the health care delivery system must allocate resources and take other measures to set a change in course. The 10-year *Healthy People* initiatives, undertaken by the US Department of Health and Human Services since 1980, illustrate steps taken in this direction, even though these initiatives generally have been strong in rhetoric but weak in strategy.

Beliefs and values ingrained in the American culture have also been influential in laying the foundations of a system that has remained predominantly private, as opposed to a tax-financed national health care program. Discussion on this theme begins in this chapter and continues in Chapter 3 where failures of past proposals to create a nationalized health care system are discussed in the

context of cultural beliefs and values. Social norms also help explain how society views illness and the expectations it has of those who are sick.

This chapter further explores the issue of equity in the distribution of health services using the contrasting theories of market justice and social justice. The conflict between market and social justice is reflected throughout US health care delivery. For the most part, strong market justice values prevail, particularly during economic recessions. However, some components of health care delivery in the United States do reflect strong social justice values. This chapter concludes with an overview of measures commonly used to understand the health status of a population.

Significance for Managers and Policymakers

Materials covered in this chapter have several implications for health services managers and policymakers. (1) The health status of a population has a tremendous bearing on the utilization of health services, assuming that the services are readily available. Planning of health services must be governed by demographic and health trends and initiatives toward reducing disease and disability. (2) The concepts of health, its determinants, and health risk appraisal should be used to design appropriate educational, preventive, and therapeutic initiatives. (3) There is a growing emphasis on evaluating the effectiveness of health care organizations based on the contributions they make to community and population health. The concepts discussed in this chapter can guide administrators in implementing programs of most value to their

communities. (4) The exercise of justice and equity in making health care available to all Americans remains a lingering concern. This monumental problem will require a joint undertaking from providers, administrators, policymakers, and other key stakeholders. (5) Quantified measures of health status and utilization can be used by managers and policymakers to evaluate the adequacy and effectiveness of existing programs, plan new strategies, measure progress, and discontinue ineffective services.

Basic Concepts

Health

In the United States, the concepts of health and health care have largely been governed by the *medical model*, or more specifically, the biomedical model. The medical model presupposes the existence of *illness* or *disease*. It, therefore, emphasizes clinical diagnosis and medical interventions to treat disease or symptoms of disease. The medical model defines health as the absence of illness or disease. The implication is that optimum health exists when a person is free of symptoms and does not require medical treatment. However, it is not a definition of health in the true sense, but a definition of what ill health is not (Wolinsky 1988, 76). Accordingly, prevention of disease and health promotion is relegated to a secondary status. Therefore, when the term “health care delivery” is used, in reality, it refers to medical care delivery.

Medical sociologists have gone a step further in defining health as the state of optimum capacity of an individual to perform his or her expected social roles and tasks, such as work, school, and doing household

chores (Parsons 1972). A person who is unable (as opposed to unwilling) to perform his or her social roles in society is considered sick. However, this concept also tends to view health negatively because many people continue to engage in their social obligations despite suffering from pain, cough, colds, and other types of temporary disabilities, including mental distress. In other words, a person’s engagement in social roles does not necessarily signify that the individual is in optimal health.

An emphasis on both physical and mental dimensions of health is found in the definition of health proposed by the Society for Academic Emergency Medicine, according to which health is “a state of physical and mental well-being that facilitates the achievement of individual and societal goals” (Ethics Committee, Society for Academic Emergency Medicine 1992). This view of health recognizes the importance of achieving harmony between the physiological and emotional dimensions.

Currently, the World Health Organization’s (WHO) definition of health is most often cited as the ideal for health care delivery systems. WHO defines health as “a complete state of physical, mental, and social well-being, and not merely the absence of disease or infirmity” (WHO 1948). WHO’s definition specifically identifies social well-being as a third dimension of health. In doing so, it emphasizes the importance of positive social relationships. Having a social support network is positively associated with life stresses, self-esteem, and social relations. The social aspects of health also extend beyond the individual level to include responsibility for the health of entire communities and populations. WHO’s definition recognizes that optimal health is more than a mere absence of disease or infirmity. Since it

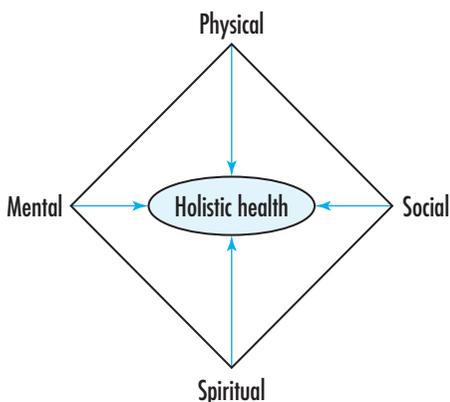
includes the physical, mental, and social dimensions, WHO's model can be referred to as the biopsychosocial model of health. WHO has also defined a health care system as all the activities whose primary purpose is to promote, restore, or maintain health (McKee 2001). As this chapter points out, health care should include much more than medical care. Thus, *health care* would include a variety of services believed to improve a person's health and well-being.

In recent years, a growing interest has emerged in *holistic health*, which emphasizes the well-being of every aspect of what makes a person whole and complete. Thus, *holistic medicine* seeks to treat the individual as a whole person (Ward 1995). Holistic health incorporates the spiritual dimension as a fourth element—in addition to the physical, mental, and social aspects—as necessary for optimal health (Figure 2–1). A growing volume of medical literature points to the healing effects of a person's religion and spirituality on morbidity and mortality (Levin 1994). Numerous studies point to an inverse association between religious involvement and all-cause mortality (McCullough et al. 2000). Religious and spiritual

beliefs and practices have shown a positive impact on a person's physical, mental, and social well-being. They may affect the incidences, experiences, and outcomes of several common medical problems (Maugans 1996). For instance, people with high levels of general religious involvement are likely to suffer less from depressive symptoms and disorders (McCullough and Larson 1999). Spiritual well-being has been recognized as an important internal resource for helping people cope with illness. For instance, a study conducted at the University of Michigan found that 93 percent of the women undergoing cancer treatment indicated that their religious lives helped them sustain their hopes (Roberts et al. 1997). Studies have found that a large percentage of patients want their physicians to consider their spiritual needs, and almost half expressed a desire that the physicians should pray with them if they could (see Post et al. 2000). However, many physicians feel that spiritual matters fall outside their expertise, or that they would be intruding into patients' private lives. Also, caution about ethical issues and religious coercion are valid concerns. Referral to a chaplain or pastoral leader is often a more appropriate alternative (Post et al. 2000).

The spiritual dimension is frequently tied to one's religious beliefs, values, morals, and practices. More broadly, it is described as meaning, purpose, and fulfillment in life; hope and will to live; faith; and a person's relationship with God (Marwick 1995; Ross 1995; Swanson 1995). A clinically tested scale to measure spiritual well-being includes categories such as belief in a power greater than oneself, purpose in life, faith, trust in providence, prayer, meditation, group worship, ability to forgive, and gratitude for life (Hatch et al. 1998).

Figure 2–1 The Four Dimensions of Holistic Health.



Some of the nation's leading medical schools now offer courses that explore spiritual issues in health care and how to address such issues in patient care delivery (American Physical Therapy Association 1997). Spiritual assessment instruments have been developed to assist physicians and other clinicians in spiritual history taking (Maugans 1996; Puchalski and Romer 2000). The Committee on Religion and Psychiatry of the American Psychological Association has issued a position statement to emphasize the importance of maintaining respect for a patient's religious/spiritual beliefs. For the first time, "religious or spiritual problem" has been included as a diagnostic category in DSM-IV.* The holistic approach to health also alludes to the need for incorporating alternative therapies (discussed in Chapter 7) into the predominant medical model.

Tamm (1993) observed that different groups in society—including physicians, nurses, and patients—look at health and disease from partly different vantage points, those that are holistic and those that emphasize illness and disease. Such tensions can have significant implications for the delivery of health services, especially in a pluralistic society such as the United States. Although the medical model plays a key role in the delivery of health care, integration of the concepts of holistic health can optimize well-being and promote early recovery from sickness.

Illness and Disease

Once the existence of illness and/or disease is recognized, it triggers care seeking and care utilization behaviors. Health services

professionals diagnose illness and prescribe treatment mainly to ease symptoms. In most cases, once relief is obtained, the individual is declared well, regardless of whether or not the underlying cause of disease is cured.

The terms "illness" and "disease" are not synonymous, although they are often used interchangeably as they will be throughout this book. Illness is recognized by means of a person's own perceptions and evaluation of how he or she feels. For example, an individual may feel pain, discomfort, weakness, depression, or anxiety, but a disease may or may not be present. From a sociocultural standpoint, people consider themselves ill when they feel they are not quite able to perform the tasks or roles that society expects from them (Wolinsky 1988, 82). For example, due to a severe headache, a person may feel unable to go to work or attend school. The person may take pain medication and rest. If symptoms persist, the person may seek professional medical help. During an initial visit, a primary care physician may find nothing wrong physically. The person may still suffer from pain and discomfort and may forego engagement in social roles, but the person is not declared diseased. He or she may subsequently be referred to a neurologist—a specialist in diseases of the nervous system—who may discover some nervous disorder and prescribe treatment. At this point, the person is declared diseased. Thus, the determination that disease is present is based on professional evaluation, rather than the patient's. It reflects the highest state of professional knowledge, particularly that of the physician, and it requires therapeutic intervention (May 1993). In this example, both illness and disease were found to be present, but that is not always the case. Certain diseases, such as hypertension (high blood pressure), are asymptomatic and not always

*Diagnostic and Statistical Manual of Mental Disorders is the most widely recognized system of classifying mental disorders.

manifested through illness. A hypertensive person has a disease but may not know it. Thus, it is possible to be diseased without feeling ill. Likewise, one may feel ill and yet not have a disease.

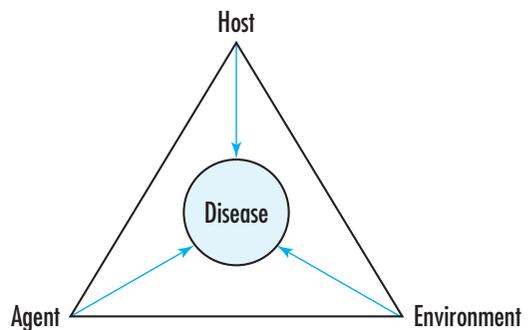
Diseases are often caused by more than a single factor. For example, the mere presence of tubercle bacillus does not mean that the infected person will develop tuberculosis. Other factors, such as poverty, overcrowding, and malnutrition, may be essential for the disease to develop (Friedman 1980, 3). One useful explanation of disease occurrence (for communicable diseases in particular) is provided by the tripartite model sometimes referred to as the Epidemiology* Triangle (Figure 2–2). Of the three elements in the model, the *host* is the organism—generally, a human—that becomes sick. However, for the host to become sick, at least one factor, an *agent*, must be present, although presence of an agent does not ensure that disease will occur. In the above example, tubercle bacillus is the agent for tuberculosis. Other examples are chemical agents, radiation, tobacco smoke, dietary indiscretions, and nutritional deficiencies. Factors associated with the host include genetic makeup, level of immunity, fitness, and personal habits and behaviors. Such factors are associated with the contracting of an agent or making the agent active. The third factor, *environment*, is external to the host. The environment is a moderating factor that can either enhance or reduce susceptibility to disease. It includes the physical, social, cultural, and economic aspects of the environment. Sanitation, air pollution, cultural

beliefs, social equity, social norms, and economic status are examples. Because the three factors commonly interact to produce disease, the model has important implications for disease prevention. *Risk factors*—attributes that increase the likelihood of developing a particular disease or negative health condition at some time in the future—can be traced to the agent, the host, and/or the environment. A risk factor can be associated with any of the factors listed earlier, such as tobacco smoke or poor diet (associated with the agent), genetic makeup or levels of fitness (associated with the host), and poor sanitation or low socioeconomic status (associated with the environment). Preventive interventions to eliminate risk factors constitute an important strategy to reduce occurrence of disease and to promote better health.

Behavioral Risk Factors

Certain individual behaviors and personal lifestyle choices represent important risk factors for illness and disease. For example, smoking has been identified as the leading cause of preventable disease and death in the United States because it significantly increases the risk of heart disease, stroke, lung

Figure 2–2 The Epidemiology Triangle.



*The study of the nature, cause, control, and determinants of the frequency and distribution of disease, disability, and death in human populations (Timmreck 1994, 2).

cancer, and chronic lung disease (Centers for Disease Control and Prevention 1999). Substance abuse, inadequate physical exercise, a high-fat diet, irresponsible use of motor vehicles, and unsafe sex are additional examples of behavioral risk factors. (Table 2–1 presents the percentage of the US population with selected behavioral risks.)

Acute, Subacute, and Chronic Conditions

Disease can be classified as acute, subacute, or chronic. An *acute condition* is relatively severe, episodic (of short duration), and often treatable (Timmreck 1994, 26). It is subject to recovery. Treatments are generally provided in a hospital. Examples of acute conditions are a sudden interruption of kid-

ney function or a myocardial infarction (heart attack). A *subacute condition* is between acute and chronic but has some acute features (Thomas 1985). It can be a postacute condition requiring treatment after discharge from a hospital. Examples include ventilator and head trauma care. A *chronic condition* is less severe but of long and continuous duration (Timmreck 1994, 26). The patient may not fully recover. The disease may be kept under control through appropriate medical treatment, but if left untreated, the condition may lead to severe and life-threatening health problems. Examples are asthma, diabetes, and hypertension. Contributors to chronic disease include ethnical, cultural, and behavioral factors, and the social and physical environment, discussed later in this chapter.

Table 2–1 Percentage of Population with Behavioral Risks

Behavioral Risks	Percentage of Population	Year
Alcohol (12 years and over)	50.3	2004
Marijuana (12 years and over)	6.1	2004
Cocaine use (12th graders)	2.3	2005
Cocaine use (10th graders)	1.5	2005
Cocaine use (8th graders)	1.0	2005
Cigarette smoking (18 years and over)	20.8	2004
Hypertension (20–74 years)	25.3	2001–04
Overweight (20–74 years)	66.0	2001–04
Serum cholesterol (20–74 years)	16.0	2001–04

Note: Data are based on household interviews of a sample of the civilian noninstitutionalized population 12 years of age and over in the coterminous United States.

Source: Data from National Center for Health Statistics. *Health, United States, 2006*. Hyattsville, MD: Department of Health and Human Services, 2006. pp. 266, 271, 273, 279, 287.

Health Promotion and Disease Prevention

As discussed earlier, the medical model of health and health care emphasizes clinical interventions once disease has been diagnosed. The *wellness model*, on the other hand, emphasizes efforts and programs geared toward prevention of disease and maintenance of an optimum state of well-being. It is well recognized that medical care alone cannot promote health. To promote optimum health, a health care delivery system must provide medical treatment but also use disease prevention and health promotion strategies. The two should complement each other.

The concept of health promotion and disease prevention is built on three factors: (1) An understanding of risk factors associated with host, agent, and/or environment. Risk factors and their health consequences are evaluated through a process called *health risk appraisal*. Only when the risk factors and their health consequences are known can interventions be developed to help individuals adopt healthier lifestyles. (2) Interventions for counteracting the key risk factors include two main interventions: (a) behavior modification geared toward the goal of adopting healthier lifestyles and (b) therapeutic interventions. Both are discussed in the next paragraph. (3) Adequate public health and social services, as discussed later in this chapter, includes all health-related services designed to minimize risk factors and their negative effects in order to prevent disease, control disease outbreaks, and contain the spread of infectious agents. The goal is to maximize the health of a population.

Various avenues can be used for motivating individuals to alter behaviors that may contribute to disease, disability, or death. Behavior can be modified through educational programs and incentives directed at specific high-risk populations. In the case of cigarette

smoking, for example, health promotion aims at building people's knowledge, attitudes, and skills to avoid or quit smoking. It also involves reducing advertisements and other environmental inducements that promote nicotine addiction. Financial incentives, such as a higher cigarette tax, are used to discourage purchase of cigarettes.

Therapeutic interventions generally fall into three areas of preventive effort: primary prevention, secondary prevention, and tertiary prevention.

Primary prevention refers to activities undertaken to reduce the probability that a disease will develop at some point in the future (Kane 1988). Its objective is to restrain the development of a disease or negative health condition before it occurs. Therapeutic intervention would include physicians' efforts to assist their patients in smoking cessation (Breslow 1989). Smoking cessation can prevent lung cancer; an increase in physical activity can prevent heart disease; teen driver education can prevent disability and death from auto accidents; and safety practices can reduce serious injuries in the workplace. Prenatal care is associated with lower infant mortality rates. Immunization has had a greater impact on prevention against childhood diseases and mortality reduction than any other public health intervention, besides clean water (Plotkin and Plotkin 1999). Hand washing, refrigeration of foods, garbage collection, and protection of the water supply are other examples of primary prevention (Timmreck 1994, 15). There have been numerous incidents where emphasis on food safety and proper cooking could have prevented outbreaks of potentially deadly episodes, such as those caused by E coli.

Secondary prevention refers to early detection and treatment of disease. Health screenings and periodic health examinations are examples. The main objective of sec-

ondary prevention is to block the progression of disease or an injury from developing into an impairment or disability (Timmreck 1994, 17). Screening tests, such as hypertension screening, Pap smears, and mammograms, have been instrumental in prescribing early treatment.

Tertiary prevention refers to rehabilitative therapies and the monitoring of health care processes to prevent complications or to prevent further illness, injury, or disability. For example, regular turning of bed-bound patients prevents pressure sores; infection control practices in hospitals and nursing homes are designed to prevent **iatrogenic illnesses**, that is, illnesses or injuries caused by the process of health care. Tertiary prevention may also involve patient education and behavior change to prevent recurrence of disease (Timmreck 1994, 17). Examples include nutrition counseling or smoking cessation to keep disease in check.

As shown in Table 2–2, prevention, early detection, and treatment efforts helped reduce cancer mortality quite significantly between 1991 and 1995. This decrease was the first sustained decline since recordkeeping was instituted in the 1930s. The decline

in breast cancer has been credited to early detection and treatment advances. The drop in cervical cancer has been attributed to the widespread use of Pap screening. Later data, however, show that the declines in cancer death rates are moderating, most likely due to other factors, such as aging.

Developmental Health

Development refers to growth in skill and capacity to function normally (Hancock and Mandle 1994). Early childhood development influences a person’s health in later years. The foundations laid in the early years often determine the individual’s future adjustments to life (Berger 1988) and shape individual behaviors. Children who fail to acquire certain skills in childhood often have real difficulties as adults (Wynder and Orlandi 1984). The importance of early childhood development has important implications for health services delivery in two main areas: (1) Expectant mothers need adequate prenatal care. The health promotional needs of the expectant mother and the fetus are so closely intertwined that they must be considered a unit (Hancock and Mandle 1994). (2) Adequate childcare is needed, especially during the first few years of growth. Immunization, nutrition, family and social interaction, and health care are key developmental elements until a child reaches adulthood. Preventable developmental disabilities impose an undue burden on the health care delivery system.

Public Health

Almost all Americans consider public health important. However, public health remains poorly understood by its prime beneficiaries, the public, as well as by many of its dedicated

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Table 2–2 Annual Percent Decline in Cancer Mortality 1991–2003

Type of Cancer	1991–95	1994–2003
All cancers	3.0	1.1
Breast cancer	6.3	2.5
Cervical cancer	9.7	3.6
Ovarian cancer	4.8	0.5
Prostate cancer	6.3	3.5

Source: Data from National Center for Health Statistics of the Centers for Disease Control and Prevention, National Cancer Institute, SEER Cancer Statistics Review, 1975–2003 (Table I–7).

practitioners. For some people, public health evokes images of a massive social enterprise or welfare system. To others, the term describes the professionals and workforce responsible for dealing with important health problems that confront the population. Still another image of public health is that of a body of knowledge and techniques that can be applied to health-related problems (Turnock 1997, 2–7). None of these ideas adequately reflects what *public health* is.

Two definitions have been found to be particularly helpful in characterizing public health. The first, by the Institute of Medicine (IOM), proposes that the mission of public health is to fulfill “society’s interest in assuring conditions in which people can be healthy” (IOM 1988, 7). Public health deals with broad societal concerns about ensuring conditions that promote optimum health for society as a whole.

The practices of medicine and public health have followed divergent paths, mainly due to a lack of an infrastructure to support collaboration between the two sectors (Lasker et al. 1998). As a point of distinction, it can be said that medicine focuses on the individual patient—diagnosing symptoms, treating and preventing disease, relieving pain and suffering, and maintaining or restoring normal function. Public health, on the other hand, focuses on populations (Lasker 1997, 3). The emphases in modern medicine are on the biological causes of disease and developing treatments and therapies. Public health focuses on identifying the environmental, social, and behavioral risk factors that cause disease and on developing and implementing population-based interventions to minimize the risk factors (Peters et al. 2001). While medicine focuses on the treatment of disease and recovery of health, public health deals with various efforts to prevent disease and promote health.

To promote and protect society’s interest in health and well-being, public health must influence the social, economic, political, and medical care factors that affect health and illness. Public health activities can range from providing education on nutrition to passing laws that enhance automobile safety. Public health includes dissemination to the public and to health professionals of timely and appropriate information about important health issues. Another distinguishing characteristic of public health is the broader range of professionals involved, compared to the delivery of medical services. The medical sector encompasses physicians, nurses, dentists, therapists, social workers, psychologists, nutritionists, health educators, pharmacists, laboratory technicians, health services administrators, and so forth. In addition to these professionals, public health also involves professionals such as sanitarians, epidemiologists, statisticians, industrial hygienists, environmental health specialists, food and drug inspectors, toxicologists, and economists (Lasker 1997, 3).

The second definition, given more than eight decades ago, characterizes public health as the science and art of preventing disease, prolonging life, and promoting health and efficiency through organized community effort (Winslow 1920). Accordingly, public health is a broad social enterprise that seeks to apply the current knowledge pertaining to health and disease in ways that will have the maximum impact on the health status of a population (Turnock 1997, 10).

Health Protection

Environmental health has been an integral component of public health ever since John Snow, in the 1850s, successfully traced the risk of cholera outbreaks in London to the

Broad Street water pump (Rosen 1993). Since then, *environmental health* has specifically dealt with preventing the spread of disease through water, air, and food (Schneider 2000). Environmental health science, along with other public health measures, was instrumental in reducing the risk of infectious diseases during the last century. For example, in 1900, pneumonia, tuberculosis, and diarrhea along with enteritis were the top three killers in the United States (Centers for Disease Control and Prevention 1999); that is no longer the case today (see Table 2–3). With the rapid industrialization during the 20th century, environmental health faced new challenges due to serious health hazards from chemicals, industrial waste, infectious waste, radiation, asbestos, and other toxic substances. Due to actual and potential industrial accidents, a third major role of public health emerged—that of health protection (in addition to prevention and health promo-

tion). However, due to the complexity of dealing with numerous toxins, many environmental responsibilities were specifically assigned to newly created agencies, such as the Environmental Protection Agency (EPA) and the Occupational Safety and Health Administration (OSHA). Rapid cleanup, evacuation of the affected population, and transfer of victims to medical care facilities have been the main types of response when accidents occur. Firefighters, police, paramedics, and other civil defense agencies cooperate in such efforts and coordinate functions with local medical centers and public health agencies.

Since the horrific events of what is now commonly referred to as 9/11 (September 11, 2001), America has opened a new chapter in health protection. As the nation was still recovering from the shock of the attacks on New York’s World Trade Center, attempts to disseminate anthrax through the US Postal

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Table 2–3 Leading Causes of Death, 2003

Cause of Death	Deaths	Percentage
All causes	2,448,288	100.0
Diseases of the heart	685,089	28.0
Malignant neoplasms	556,902	22.7
Cerebrovascular diseases	157,689	6.4
Chronic lower respiratory diseases	126,382	5.2
Unintentional injuries	109,277	4.5
Diabetes mellitus	74,219	3.0
Influenza and pneumonia	65,163	2.7
Alzheimer’s disease	63,457	2.6
Nephritis, nephrotic syndrome, and nephrosis	42,453	1.7
Septicemia	34,069	1.4

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 Source: Data from National Center for Health Statistics. *Health, United States, 2006*. Hyattsville, MD: Department of Health and Human Services, 2006, p. 187.

Service were discovered. In June 2002, President Bush signed into law the Public Health Security and Bioterrorism Response Act of 2002. The term *bioterrorism* encompasses the use of chemical, biological, and nuclear agents to cause harm to relatively large civilian populations. Dealing with such a threat requires large-scale preparations, which include appropriate tools and training for workers in medical care, public health, emergency care, and civil defense agencies at the federal, state, and local levels. It requires national initiatives to develop countermeasures, such as new vaccines, a robust public health infrastructure, and coordination between numerous agencies. It requires an infrastructure to handle large numbers of casualties and isolation facilities for contagious patients. Hospitals, public health agencies, and civil defense need to be linked together through information systems. Containment of infectious agents, such as smallpox, would require quick detection, treatment, isolation, and organized efforts to protect the unaffected population. To address these issues, President Bush has proposed substantial increases in funding for bioterrorism.

Even broader provisions are contained in the Homeland Security Act of 2002, signed into law in November 2002. The legislation calls for a major restructuring of the nation's resources with the primary mission of helping prevent, protect against, and respond to any acts of terrorism in America. The legislation is also designed to enhance the nation's ability to prevent and detect bioterrorist attacks. For example, it calls for improved inspections of food products entering the United States. It provides for better tools to contain attacks on the food and water supplies, protect the nation's vital infrastructures, such as nuclear facilities, and track biological materials anywhere in the

United States. Chapter 14 discusses future trends and the changing role of public health to address such potential threats.

To prevent the introduction, transmission, and spread of severe acute respiratory syndrome (SARS), a contagious disease that is accompanied by fever and symptoms of pneumonia or other respiratory illness, President Bush signed an Executive Order on April 4, 2003, to designate SARS as a communicable disease for the apprehension, detention, or conditional release of individuals with SARS. The order also covers other suspected communicable diseases that include cholera, diphtheria, infectious tuberculosis, plague, smallpox, yellow fever, and viral hemorrhagic fevers such as Ebola.

The global threat of avian influenza has also solicited a public health and government response. The Centers for Disease Control and Prevention launched a website dedicated to educating the public about avian influenza, how it is spread, and past and current outbreaks. The website contains specific information for health professionals, travelers, the poultry industry, state departments of health, and people with possible exposures to avian influenza (Centers for Disease Control and Prevention 2007). In January 2006, President Bush pledged \$334 million to support the global campaign against avian influenza through improved surveillance and response systems, assistance to countries threatened by the virus, and public awareness campaigns (White House 2006).

Quality of Life

The term *quality of life* is used in a denotative sense to capture the essence of overall satisfaction with life during and following a

person's encounter with the health care delivery system. Thus, the term is employed in two different ways. First, it is an indicator of how satisfied a person was with the experiences while receiving health care. Specific life domains, such as comfort factors, respect, privacy, security, degree of independence, decision-making autonomy, and attention to personal preferences are significant to most people. These factors are now regarded as rights that patients can demand during any type of health care encounter. Second, quality of life can refer to a person's overall satisfaction with life and with self-perceptions of health, particularly after some medical intervention. The implication is that desirable processes during medical treatment and successful outcomes would subsequently have a positive effect on an individual's ability to function, carry out social roles and obligations, and have a sense of fulfillment and self-worth.

Determinants of Health

The determinants of health—factors that influence individual and population health status—are well established. Starfield (1973)

suggested that health status is determined by a confluence of factors that can be classified into four major categories: (1) a person's individual behaviors, (2) genetic makeup, (3) medical practice, and (4) the environment. The Centers for Disease Control and Prevention (CDC) (1979) estimated that 50 percent of premature death in the US population was directly related to individual lifestyle and behaviors, 20 percent was attributed to an individual's inherited genetic profile, and only 10 percent could be ascribed to inadequate access to medical care. The remaining 20 percent of premature mortality could be attributed to social and environmental factors (Figure 2–3).

In 1974, Blum (1981) proposed an “Environment of Health” model later called the “Force Field and Well-Being Paradigms of Health” (Figure 2–4). Blum proposed four major inputs that contributed to health and well-being. These main influences (called “force fields”) are the environment, lifestyle, heredity, and medical care, all of which must be considered simultaneously when addressing the health status of an individual or a population. The four wedges in Figure 2–4 represent the four major force fields. The size of each wedge signifies its relative

Figure 2–3 Relative Contribution of the Four Health Determinants to Premature Death.

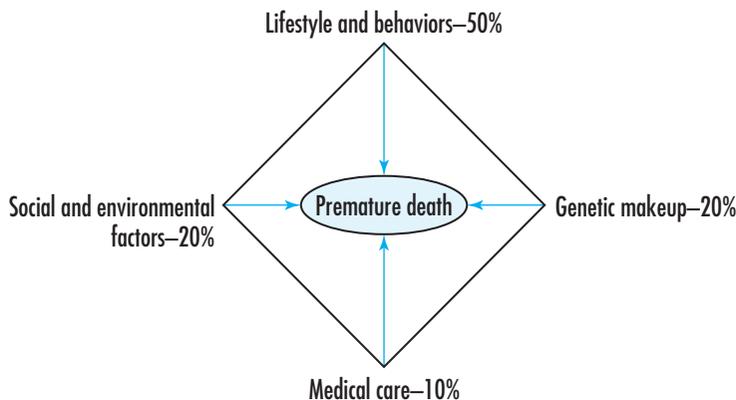
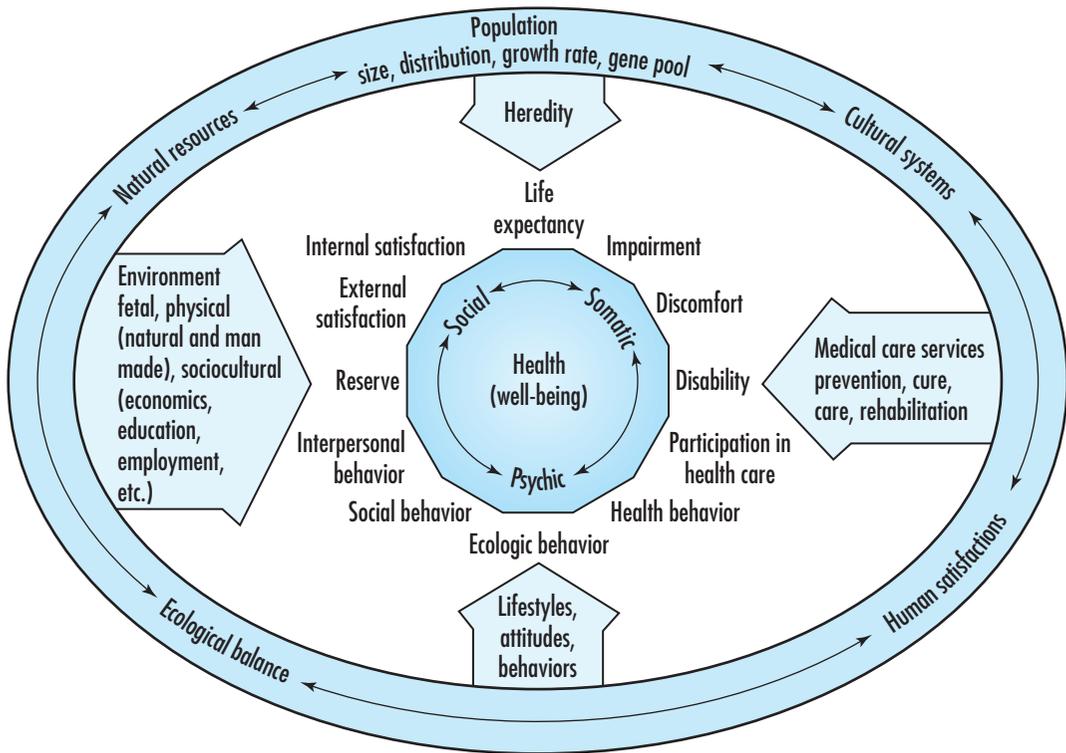


Figure 2-4 The Force Field and Well-Being Paradigms of Health.



Source: Reprinted with permission from H.L. Blum, *Planning for Health*, © 1981, Human Sciences Press.

importance. Thus, the most important force field according to this model is the environment, followed by lifestyles and heredity. Medical care has the least impact on health and well-being. Although both CDC and Blum models point to the same four factors, they are slightly different. The CDC model emphasizes causes leading to premature death and points to individual lifestyle behaviors as the main contributor. Blum's model emphasizes overall well-being, including health, and points to environmental factors as the main contributors.

The determinants of health have made a major contribution to the understanding that

a singular focus on medical care delivery is unlikely to improve the health status of any given population. Instead, a more balanced approach to public policy addresses broad social and economic concerns in society. The following discussion and examples show that, regardless of the type of health care system a nation may have, social policies must address a multiple of factors for improving the health and well-being of a population. From a health care delivery perspective, the goal of providing adequate primary care to everyone may be more important than providing access to the latest technology.

Environment

Environmental factors encompass the physical, socioeconomic, sociopolitical, and sociocultural dimensions. Among physical environmental factors are air pollution, food and water contaminants, radiation, toxic chemicals, wastes, disease vectors, safety hazards, and habitat alterations. The relationship of socioeconomic status (SES) to health and well-being may be explained by the general likelihood that people who have better education also have higher incomes. They live in better homes and locations where they are less exposed to environmental risks, have better access to health care, and are more likely to avoid risk behaviors, such as smoking and drug abuse. The relationship between education and health status has been well established. Less educated Americans die younger compared to their better educated counterparts. Diseases mainly responsible for this disparity in mortality are ischemic heart disease, lung cancer, stroke, pneumonia, congestive heart failure, and lung disease, which are, incidentally, all smoking-related diseases (Tanne 2002). Unemployment may affect social health because of reduced social functioning, mental health because of increased levels of stress, and physical health due to various stress-related illnesses.

A significant body of literature in recent years has demonstrated the association of income inequality with a variety of health indicators, such as life expectancy, age-adjusted mortality rates, and leading causes of death (Kaplan et al. 1996; Kawachi et al. 1997; Kennedy et al. 1996; Mackenbach et al. 1997). The greater the economic gap between the rich and the poor in a given geographic area, the worse the health status of the population in that area will be. It has been

suggested that wide income gaps produce less social cohesion and greater psychosocial stress and, consequently, poorer health (Wilkinson 1997). For example, social cohesion, characterized by a hospitable social environment in which people trust each other and participate in communal activities, is linked to lower overall mortality and better self-rated health (Kawachi et al. 1997; Kawachi et al. 1999). Researchers have postulated that the political and policy context that creates income inequality is a precursor to health inequalities (Dye 1991). Political traditions more committed to redistributive policies, such as those followed by social democratic governments, are generally more successful in improving the health of populations, such as reducing infant mortality (Navarro and Shi 2001). However, even countries, such as Britain, Australia, Denmark, and Sweden, with national health insurance programs experience persistent and widening disparities in health according to socioeconomic status (Pincus et al. 1998). Pincus and colleagues proposed that poor health in sociologically disadvantaged populations results more from unfavorable social conditions and ineffective self-management than from limitations in access to medical care.

The availability of primary care may serve as one alternative pathway through which income inequality influences population-level health outcomes. Shi and colleagues (1999, 2001) examined the joint relationships among income inequality, availability of primary care, and certain health indicators. The results indicate that the availability of primary care physicians, in addition to income inequality, significantly correlates with reduced mortality, increased life expectancy, and improved birth outcome. In another study using the 1996 Robert Wood Johnson Community Tracking Study household

survey, they also examined whether income inequality and primary care, measured at the state level, predict individual morbidity, as measured by self-rated health status while adjusting for potentially confounding individual variables (Shi et al. 2002). The results of the study indicate that the distributions of income and primary care in states were significantly associated with individuals' self-rated health. There was a gradient effect of income inequality on self-rated health, and individuals living in states with a higher primary care physician-to-population ratio were more likely to report good health than those living in states with a lower ratio. These studies made the authors conclude that from a policy perspective, improvement in individuals' health is likely to require a multipronged approach that addresses individual socioeconomic determinants of health, social, and economic policies that affect income distribution and strengthens primary care aspects of health services.

The environment can also have a significant influence on developmental health. It has been shown, for example, that children who are isolated and do not socialize much with their peers tend to be overrepresented in groups of delinquents and adults with mental health problems (Wynder and Orlandi 1984). Current research points out that the experiences that children receive and the way adults interact with them in the early years have a major impact on children's mental and emotional development. Neuroscientists have found that good nurturing and stimulation in the first three years of life—a prime time for brain development—activate neural pathways in the brain that might otherwise atrophy, and may even permanently increase the number of brain cells. Hence, the impor-

tance of quality of childcare provided in the first three years of life is monumental (Shellenbarger 1997).

Lifestyle

Lifestyle or behavioral risk factors were discussed earlier. This section provides some illustrations of how lifestyle factors are related to health. Studies have shown that diet and foods, for example, play a major role in most of the significant health problems of today. Heart disease, diabetes, stroke, and cancer are but some of the diseases with direct links to dietary choices. Throughout the world, incidence and mortality rates for many forms of cancer are rising. Yet research has clearly indicated that a significant portion of cancer is preventable. The role of diet and nutrition in cancer prevention has been one of the most exciting and promising research areas over the past few years. Researchers now estimate that 40 percent to 60 percent of all cancers, and as many as 35 percent of cancer deaths, are linked to diet (American Institute for Cancer Research 1996). Current research also shows that a diet rich in fruits, vegetables, and low-fat dairy foods, and with reduced saturated and total fat can substantially lower blood pressure. Thus, a nutritional approach can be effective in both preventing and treating hypertension (Appel et al. 1997). The role of exercise and physical activity as a potentially useful, effective, and acceptable method for reducing the risk of colon cancer is also significant (Macfarlane and Lowenfels 1994). Research findings have also confirmed the association between recreational and/or occupational physical activity and a reduced risk of colon cancer (White et al. 1996).

Heredity

Heredity is a key determinant of health because genetic factors predispose individuals to certain diseases. For example, cancer occurs when the body's healthy genes lose their ability to suppress malignant growth or when other genetic processes stop working properly, although this does not mean that cancer is entirely a disease of the genes (Davis and Webster 2002).

A person can do little about the genetic makeup one has inherited. However, lifestyles and behaviors that a person may currently engage in can have significant influences on future progeny. Advances in gene therapy hold the promise of treating a variety of inherited or acquired diseases.

Medical Care

Even though the other three factors are more important in the determination of health, well-being, and susceptibility to premature death, medical care is nevertheless a key determinant of health. Both individual and population health are closely related to having access to adequate preventive and curative health care services. Despite the fact that medical care, compared to the other three force fields, has the least impact on health and well-being, the American public's attitudes toward improving health are based on more medical research, development of new medical technology, and spending more on high-tech medical care. Yet, significant declines in mortality rates were achieved well before the modernization of Western medicine and the escalation in medical care expenditures.

Overarching Factors and Implications for Health Care Delivery

The force fields illustrated in Blum's model (Figure 2–4) are affected by broad national and international factors, such as a nation's population characteristics, natural resources, ecological balance, human satisfactions, and cultural systems. Among these factors can be included the type of health care delivery system. Historically, public health and environmental interventions, such as improved nutrition, sanitation, and immunization, have contributed to significant declines in mortality. Currently, tobacco use, diet and activity patterns, microbial and toxic agents, alcohol and drug abuse, firearms, sexual behavior, and motor vehicle accidents continue to impose a substantial public health burden. Yet the preponderance of health care expenditures is devoted to the treatment of medical conditions (e.g., heart disease, cancer, and stroke) rather than to the prevention and control of factors that produce those medical conditions in the first place. This misdirection can be traced to the conflicts that often result from the beliefs and values ingrained in the American culture.

Cultural Beliefs and Values

Cultural beliefs and values are among the overarching factors that influence the key determinants of health, according to Blum's model. A value system orients the members of a society toward defining what is desirable for that society. It has been observed that even a society as complex and highly differentiated as the United States can be said to have a relatively well-integrated

system of institutionalized common values at the societal level (Parsons 1972). Although such a view may still prevail, the American society now has several different subcultures that have grown in size due to a steady influx of immigrants from different parts of the world. There are sociocultural variations in how people view their health and, more important, how such differences influence people's attitudes and behaviors concerning health, illness, and death (Wolinsky 1988, 39).

As pointed out in Chapter 1 (see Figure 1–2), societal values and cultural beliefs are among the external forces that influence how health care is delivered. Decisions about who will receive what type of services can often be culture based. For example, cross-cultural perspectives show wide variations among countries in the way people prioritize who should receive scarce medical resources. In traditional Indian and Chinese cultures, boys are valued more than girls are. Girls are more likely to suffer from poor nutrition and lack of health care. Other culture-based differences exist among some African tribes in how they distribute scarce medical resources among those who may be in equal need of those services (Brown 1992). Modernization, education, and adoption of Western values are changing some of the cultural orientations toward the use of health care in these countries. On the other hand, certain beliefs and values remain firmly ingrained despite modern influences. In a multicultural society such as the United States, beliefs and values in certain groups that are foreign to the Western culture need to be treated with sensitivity by the providers of health care.

The current system of health services delivery traces its roots to the traditional beliefs and values espoused by the American people. The value and belief system governs

the training and general orientation of health care providers, type of health delivery settings, financing and allocation of resources, and access to health care. Health care systems in other countries also reflect deeply rooted beliefs and values that, largely, make people oppose any major reforms. For example, Canadians are very much opposed to some recent proposals recommending an increased role of private sector companies in the delivery of health services. Canadians also prefer increased spending on health and social programs than receiving a tax cut from the government. Americans, on the other hand, are skeptical of any heavy-handed government involvement in the health care system.

Some of the main beliefs and values predominant in the American culture are outlined below:

1. A strong belief in the advancement of science and the application of the scientific method to medicine were instrumental in creating the medical model that primarily governs health care delivery in the United States. In turn, the medical model has fueled the tremendous growth in medical science and technological innovation. As a result, the United States has been leading the world in new medical breakthroughs. These developments have had numerous implications for health services delivery:
 - a. They increase the demand for the latest treatments and raise patients' expectations of finding a cure.
 - b. Medical professionals have been preoccupied almost exclusively with clinical interventions, whereas the holistic aspects of health and

- use of alternative therapies have been deemphasized.
- c. Health care professionals have been trained to focus on physical symptoms.
 - d. Few attempts have been made to integrate diagnosis and treatment with health education and disease prevention.
 - e. The concern with nonhealth has funneled most research efforts away from the pursuit of health into development of sophisticated medical technology. Commitment of resources to the preservation and enhancement of health and well-being has lagged far behind.
 - f. Medical specialists using the latest technology have been held in higher esteem and have earned higher incomes than general practitioners and health educators.
 - g. The desirability of health care delivery institutions, such as hospitals, is often evaluated by their acquisition of advanced technology.
 - h. While biomedicine has taken central stage, diagnosis and treatment of mental health have been relegated to a lesser status. Difficulties linking certain behaviors to mental disorders have been at least partially responsible for the secondary status of mental health services in the health care delivery system.
 - i. The biomedical model has also isolated the social and spiritual elements of health.
2. America has been a champion of capitalism. Due to a strong belief in capitalism, health care has largely been viewed as an economic good (or service), not as a public resource.
 3. A culture of capitalism promotes entrepreneurial spirit and self-determination. Hence, individual capabilities to obtain health services have largely determined the production and consumption of health care—which services will be produced, where, and in what quantity, and who will have access to those services. Some key implications are:
 - a. Financing of health care through individual health insurance coverage has made access to health care a social privilege.
 - b. A clear distinction exists between the types of services for poor and affluent communities and between those in rural and urban locations.
 - c. The culture of individualism emphasizes individual health rather than population health. Medical practice, therefore, has been directed at keeping the individual healthy rather than keeping the entire community healthy.
 4. A concern for the most underprivileged classes in society—the poor, the elderly, the disabled, and children—led to the creation of the public programs Medicare, Medicaid, and SCHIP.
 5. Principles of free enterprise and a general distrust of big government have kept the delivery of health care largely in private hands. Hence, a separation also exists between public health functions and private practice of medicine.

A Social Model of Health

The social model of health views health and well-being in terms of a person's capacity to function socially and to perform the expected societal roles was discussed earlier. A person unable to perform the social roles is declared sick and is expected to adopt the sick role (Wolinsky 1988, 82). Parsons (1972) also viewed illness as a socially institutionalized role type that has four specific features: (1) The sick individual is not held responsible for his or her sickness. (2) Being sick is recognized as the legitimate basis for society to exempt the individual from his or her social role obligations. (3) The individual is exempted from social roles on the condition that he or she recognizes that being sick is undesirable and that the individual has the obligation to try to get well. (4) The sick individual must seek competent help and cooperate with medical agencies trying to help the individual get well.

The model has two important implications for health care delivery. First, the primary focus is on the individual. Societal roles are mainly passive and consensual: agreeing to release the individual from his or her social obligations and, because illness is only partially and conditionally legitimated (Parsons 1972), maintaining some sort of surveillance over the individual to ensure that he or she is carrying through with the sick role obligations. More important, society is not required to furnish medical services. The sick individual must seek appropriate medical care and comply with the prescribed regimen. Family members or significant others may assist the individual.

Second, the social model assumes that the sick role obligations are carried out within the context of the medical model of health services delivery. Parsons implied that even

though people have an obligation to prevent threatened illness (Parsons 1972), society does not hold the individual responsible for his or her diseased condition. Even though personal lifestyles and behaviors can substantially increase the risk of high-cost illness, society does not impose any sanctions on the individual for diseases acquired as a direct result of personal indiscretions. The reason, perhaps, is that society also does not assume any responsibility for providing medical care. It is interesting to note that in recent debates and court cases seeking damages for treatment costs for certain groups of smokers who developed lung disease, society has put the entire blame on the tobacco industry while absolving the individual smokers of any personal responsibility.

Equitable Distribution of Health Care

Scarcity of economic resources is a central economic concept. From this perspective, health care can be viewed as an economic good. Two fundamental questions arise with regard to how scarce health care resources ought to be used. (1) How much health care should be produced? (2) How should health care be distributed? The first question concerns the appropriate combination in which health services ought to be produced in relation to all other goods and services in the overall economy. If more health care is produced, people will have to forgo some other goods, like food, clothing, and transportation. The second question affects individuals at a more personal level. It deals with who can receive which type of medical services and who will be restricted from accessing services.

The production, distribution, and subsequent consumption of health care must be

perceived as equitable. No society has found a perfectly equitable method to distribute limited economic resources. In fact, any method of resource distribution leaves some inequalities. Societies, therefore, try to allocate resources according to some guiding principles acceptable to each society. Such principles are generally ingrained in a society's value and belief system. It is generally recognized that not everyone can receive everything medical science has to offer. The fundamental question that deals with distributive justice or equity is who should receive the medical goods and services that society produces (Santerre and Neun 1996, 7). By extension, this basic question about equity includes not only who should receive medical care but also which type of services and in what quantity.

A just and fair allocation of health care poses conceptual and practical difficulties; hence, a theory of justice needs to resolve the problem of health care allocation (Jonsen 1986). The principle of justice derives from ethical theories, especially those advanced by John Rawls, who defined justice as fairness (Darr 1991). Even though various ethical principles can be used to guide decisions pertaining to just and fair allocation of health care in individual circumstances, the broad concern about equitable access to health services is addressed by the theories referred to as *market justice* and *social justice*. These two contrasting theories govern the production and distribution of health care services.

Market Justice

The principle of market justice ascribes the fair distribution of health care to the market forces in a free economy. Medical care and its benefits are distributed based on people's

willingness and ability to pay (Santerre and Neun 1996, 7). In other words, people are entitled to purchase a share of the available goods and services that they value. They are to purchase these valued goods and services by means of wealth acquired through their own legitimate efforts. This is how most goods and services are distributed in a free market. The free market implies that giving people something they have not earned would be morally and economically wrong.

Chapter 1 discussed several characteristics that describe a pure market. Those market characteristics are a precondition because market justice requires that health care be delivered in a free market. In addition, the principle of market justice is based on the following key assumptions:

- Health care is like any other economic good or service. If health care was considered different from other economic products, it could not be governed by free market forces of supply and demand.
- Individuals are responsible for their own achievements. When individuals pursue their own best interests, the interests of society as a whole are best served (Ferguson and Maurice 1970).
- People make rational choices in their decisions to purchase health care products and services. People demand health care because it can rectify a health problem and restore health, can reduce pain and discomfort and make people feel better, and can reduce anxiety about their health and well-being. Therefore, people are willing to purchase health care services. Grossman (1972) proposed that health is also an investment commodity. People consider the purchase of health services

as an investment. For example, the investment has a monetary payoff when it reduces the number of sick days, making extra time available for productive activities, such as earning a living. Or it can have a utility payoff—that is, a payoff in terms of satisfaction—when it makes life more enjoyable and fulfilling.

- People, in consultation with their physicians, know what is best for themselves. This assumption implies that people place a certain degree of trust in their physicians and that the physician-patient relationship is ongoing.
- The marketplace works best with minimum interference from the government. In other words, the market rather than the government can allocate health care resources in the most efficient and equitable manner.

The classical ethical theory known as *deontology* may be applied to market justice. Deontology asserts that it is an individual's duty (from the Greek word "deon") to do what is right. The results are not important. Deontology emphasizes individual responsibilities as in a physician-patient relationship. A physician is duty-bound to do whatever is necessary to restore a patient's health. The patient is responsible for compensating the physician for his or her services. The destitute and poor may be served by charity, but deontology largely tends to ignore the importance of societal good. It does not address what responsibilities people have toward the society.

Market justice may also be associated with the libertarian view that equity is achieved when resources are distributed according to merits. That is, health care should be distributed according to minimum stan-

dards and financed according to willingness to pay. According to this view, equality in health status need not be a central priority (Starfield 1998).

Under market justice, the production of health care is determined by how much the consumers are willing and able to purchase at the prevailing market prices. It follows that in a pure market system, individuals without sufficient income face a financial barrier to obtaining health care (Santerre and Neun 1996, 7). Thus, prices and ability to pay ration the quantity and type of health care services people would consume. The uninsured and those who lack sufficient income to pay privately generally face barriers to obtaining health care. Such limitations to obtaining health care are referred to as "rationing by ability to pay" (Feldstein 1994, 45), *demand-side rationing*, or price rationing.

The key characteristics and their implications under the system of market justice are summarized in Table 2–4. Market justice emphasizes individual rather than collective responsibility for health. It proposes private rather than government solutions to social problems of health.

Social Justice

The idea of social justice is at odds with the principles of capitalism and market justice. The term "social justice" was invented in the 19th century by the critics of capitalism to describe the good society (Kristol 1978). According to the principle of social justice, the equitable distribution of health care is a societal responsibility. This can best be achieved by letting a central agency, generally the government, take over the production and distribution functions. Social justice regards health care as a social good—as opposed to an economic good—that should be

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Table 2–4 Comparison of Market Justice and Social Justice

Market Justice	Social Justice
<i>Characteristics</i>	
<ul style="list-style-type: none"> • Views health care as an economic good • Assumes free-market conditions for health services delivery • Assumes that markets are more efficient in allocating health resources equitably • Production and distribution of health care determined by market-based demand • Medical care distribution based on people’s ability to pay • Access to medical care viewed as an economic reward of personal effort and achievement 	<ul style="list-style-type: none"> • Views health care as a social resource • Requires active government involvement in health services delivery • Assumes that the government is more efficient in allocating health resources equitably • Medical resource allocation determined by central planning • Ability to pay inconsequential for receiving medical care • Equal access to medical services viewed as a basic right
<i>Implications</i>	
<ul style="list-style-type: none"> • Individual responsibility for health • Benefits based on individual purchasing power • Limited obligation to the collective good • Emphasis on individual well-being • Private solutions to social problems • Rationing based on ability to pay 	<ul style="list-style-type: none"> • Collective responsibility for health • Everyone is entitled to a basic package of benefits • Strong obligation to the collective good • Community well-being supersedes that of the individual • Public solutions to social problems • Planned rationing of health care

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collectively financed and available to all citizens regardless of the individual recipient’s ability to pay for that care. Canadians and Europeans, for example, long ago reached a broad social consensus that health care was a social good (Reinhardt 1994). Public health also has a social justice orientation (Turnock 1997). Under the social justice system, inability to obtain medical services because of a lack of financial resources is considered unjust. A just distribution of benefits must be based on need, not simply on one’s ability to purchase in the marketplace (demand).

Need for health care is determined either by the patient or by a health professional. The principle of social justice is also based on certain assumptions:

- Health care is different from most other goods and services. Health-seeking behavior is governed primarily by need rather than by how much it would cost.
- Responsibility for health is shared. Individuals are not held totally responsible for their condition because factors outside their control may have brought on

the condition. Society feels responsible for a lack of control of certain environmental factors, such as economic inequalities, unemployment, unsanitary conditions, or air pollution.

- Society has an obligation to the collective good. The well-being of the community is superior to that of the individual. An unhealthy individual is a burden on society. A person carrying a deadly infection, for example, is a threat to society. Society, therefore, is obligated to cure the problem by providing health care to the individual because by doing so the whole society would benefit.
- The government, rather than the market, can better decide, through rational planning, how much health care to produce and how to distribute it among all citizens.

Social justice is consistent with the theory of *utilitarianism*, a teleological principle (from the Greek, “telos,” meaning end). Utilitarianism emphasizes happiness and welfare for the masses; it ignores the individual. Society’s goal is to achieve the greatest good for the greatest number of people. In this case, the greatest good for the greatest number of people is thought to be achieved when the well-being of the whole community supersedes the well-being of individuals. By implication, the government is thought to distribute health care resources more equitably than the market.

Social justice finds its ethical roots in the egalitarian view that equity is achieved when resources are distributed according to needs. That is, more resources are made available to populations that need more services because of their greater social or health disadvantage (Starfield 1998).

Under social justice, how much health care to produce is determined by the government; however, no country can afford to provide unlimited amounts of health care to all its citizens (Feldstein 1994, 44). The government then also finds ways to limit the availability of certain health care services by deciding, for instance, how technology will be dispersed and who will be allowed access to certain types of high-tech services, even though basic services may be available to all. This concept refers to *planned rationing*, *supply-side rationing*, or nonprice rationing. The government makes deliberate attempts, often referred to as “health planning,” to limit the supply of health care services, particularly those beyond the basic level of care. The main characteristics and implications of social justice are summarized in Table 2–4.

Justice in the US Health Delivery System

As discussed in Chapter 1, the market for health care delivery in the United States cannot be regarded as a pure market. It is characterized as a quasi or imperfect market. Hence, elements of both market justice and social justice exist, but the principles of market justice prevail. In some areas, the principles of market justice and social justice complement each other. In other areas, the two conflict.

Health Insurance

In a society with strong market justice values, individuals paying for their own care would predominantly finance the medical care system. A multitude of private health insurance plans would prevail. In a society with strong social justice principles, the government

through general tax revenues would finance the medical care system (Long 1994, 30).

In the United States, the principles of market justice and social justice complement each other with private, employer-based health insurance for mainly middle-income Americans (market justice), publicly financed Medicaid, Medicare, and SCHIP coverage for certain disadvantaged groups, and workers' compensation for those injured at work (social justice). The two principles collide, however, regarding the large number of uninsured who cannot afford to purchase private health insurance and do not meet the eligibility criteria for Medicaid, Medicare, SCHIP, or other public programs. Americans have not been able to resolve the question of who should provide health insurance to the uninsured.

Organization of Health Care Delivery

In a market justice-dominant society, the number and type of physicians produced by the educational system are determined by the desires of would-be physicians and their assessment of the chances of future success. Physicians themselves decide where they will be located to practice, without necessarily taking into account the needs of the population (Long 1994, 31–32). Physicians are compensated mostly on a fee-for-service basis, the fees being established by the physicians themselves. Similarly, hospital location and operations are influenced by financial viability without regard to duplication or shortages of services and technology. In a society with strong social justice values, the number, type, and location of physicians and hospitals, reimbursement to providers, and distribution of medical technology are determined by the government, supposedly based on the health needs of the populations.

In the United States, private and government health insurance programs enable the covered populations to have access to health care services delivered by private practitioners and private institutions (market justice). Tax-supported county and city hospitals, public health clinics, and community health centers can be accessed by the uninsured in areas where such services are available (social justice). Publicly run institutions generally operate in large inner cities and certain rural areas. Conflict between the two principles of justice arises in small cities and towns and large rural sections where such services are not available. Medicare and Medicaid make their own determinations on how much to pay for the services. These characteristics do not fully harmonize with the pure market justice principles.

Equality in the US Health Care Delivery System

Equity advocates argue that health insurance should be universally extended to all Americans (Santerre and Neun 1996, 7). Major health care reform proposals to establish universal access were advanced shortly after Bill Clinton became president in 1992. The first lady, Hillary Rodham Clinton, took the lead in championing the cause. In a speech delivered to the American Medical Association on June 13, 1993, Mrs. Clinton said, "We must guarantee all Americans access to a comprehensive package of [health] benefits, no matter where they work, where they live, or whether they have ever been sick before" (Clinton 1995, 6). In response to such proposals, a market advocate labeled the Clinton health plan as radical because under

such a policy proposal “every person would have the same comprehensive coverage designed by the government, regardless of their health status, health habits, and preferences for insurance coverage. The only individual choice would be to select more or less expensive versions of this same coverage, like the opportunity to choose first class or coach but not the destination of a flight” (Niskanen 1995, 15). As discussed earlier, such American ideals reflect strong individualistic values underlying market justice.

The health policy agenda of George W. Bush, the president succeeding Bill Clinton, has adhered to these individualistic values. The major elements of Bush’s health platform include: (1) the promotion of Health Savings Accounts (HSAs), which allow people to create tax-free accounts to pay for out-of-pocket medical expenses; (2) efforts to increase “transparency” (i.e., readily available information) in health care pricing and quality, to allow people to make better decisions about their health care choices; and (3) the endorsement of Health Information Technology (HIT) to “facilitate the rapid exchange of health information” (White House 2007). The President has also called for expansion of the Community Health Center program providing preventive and primary health care services to an estimated 16 million people in underserved communities who otherwise would lack access to care. This initiative seems more oriented toward social justice than Bush’s other initiatives. However, community health centers derive a significant proportion of their operating revenues from Medicaid reimbursements. During Bush’s tenure as president, Medicaid cuts at the federal and state levels, coupled with rising health care costs and increasing numbers of uninsured people, have threatened health centers’ efforts to provide care

to vulnerable populations (National Association of Community Health Centers 2005).

Americans have a tradition of reliance on individual responsibility and a commitment to the ideal of a limited national government, which are more in accord with the principles of market justice than social justice. In contrast, Western Europe, Canada, and most developed countries have adopted a public policy of universal access. Even though they reflect social justice values, such policies were not motivated primarily by concerns about justice and equality but by social objectives: to have a more productive labor force, to have a healthy citizenry for national defense, and to bring stability against social unrest (President’s Commission 1983, 14).

Equality of individuals has always been a prominent American value, but “the traditional emphasis has been on equal civil and political liberties rather than on economic equality” (President’s Commission 1983, 14). Social justice represents an effort to stretch the idea of justice to cover economic equality as well (Kristol 1978). If health care is regarded as a basic right, then an important measure of a just system of health care allocation would be equal access to medical services. In the United States, this ideal of equality obscures when it comes to equal access to comprehensive medical care (Brown 1992).

Distributional Efficiency

Equity requires distributional efficiency, which deals with the amount of resources to allocate and how to distribute them. Since resources are scarce, equity requires that their distribution be efficient, otherwise some people may be denied the benefit of the wasted resources. At a more practical lev-

el, resources equate to total expenditures for delivering health care. Market justice assumes that the market would handle the distribution of resources most efficiently, that is, market forces would govern allocation of health dollars. Market justice advocates would also argue that the government is inefficient and resorts to rationing to cover up its inefficiencies. However, in evaluating efficiency, a greater emphasis is being placed on health outcomes. From this perspective, the United States has failed to achieve distributional efficiency, compared to other industrialized nations. The United States tops all other countries in per capita expenditures on health care (see Table 12–2), but the American population as a whole lags far behind in key indicators of health, such as life expectancy and infant mortality. This largely attributes to significant disparities in health within US subpopulation groups (e.g., racial/ethnic groups, socioeconomic groups, etc.; see Chapter 11).

Limitations of Market Justice

The principles of market justice work well in the allocation of economic goods when their unequal distribution does not affect the larger society. For example, based on individual success, people live in different sizes and styles of homes, drive different types of automobiles, and spend their money on a variety of things, but the allocation of certain resources has wider repercussions for society. In these areas, market justice has severe limitations:

1. Market justice principles generally fail to rectify critical human concerns. Pervasive social problems, such as crime, illiteracy, and homelessness, can significantly weaken the fabric of

a society. Indeed, the United States has recognized such issues and instituted programs based on social justice to combat the problems through added police protection, publicly supported education, subsidized housing, and, more recently, national initiatives against terrorism. Health care is an important social issue because it not only affects human productivity and achievement, but it also provides basic human dignity.

2. Market justice does not always protect a society. Individual health issues can have negative consequences for society because ill health is not always confined to the individual. The acquired immune deficiency syndrome (AIDS) epidemic is an example in which society can be put at serious risk. Initial spread of the SARS epidemic in Beijing was largely due to patients with SARS symptoms being turned away by hospitals since they were not able to pay in advance for the cost of the treatment. Similar to clean air and water, health care is a social concern that, in the long run, protects against the burden of preventable disease and disability, a burden that is ultimately placed on the shoulders of society.
3. Market justice does not work well in health care delivery. The decade of the 1990s was characterized by unprecedented economic growth and creation of wealth in the United States. This period of prosperity, however, did not reduce the number of Americans without health insurance. In a nation where the benefits of health care are employment based,

this condition is truly a paradox given a low rate of unemployment compared to many other industrialized nations. The experience clearly shows that equitable delivery of health care requires social justice-based solutions.

Integration of Individual and Community Health

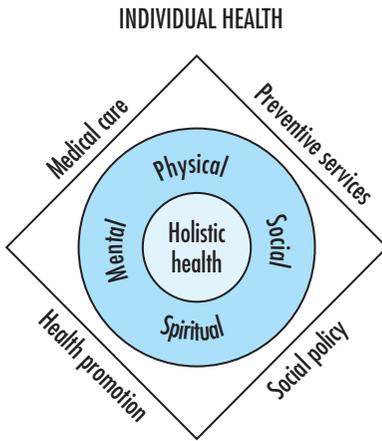
In recent years, it has been recognized that the typical emphasis on the treatment of acute illness in hospitals, biomedical research into disease, and high technology has not improved the population's health. The notable concern to contain rising health care costs and a paradigm shift toward delivery of health services through managed care have also prompted a reevaluation of the traditional medical model. It has been proposed that the medical model should be replaced with a disease-prevention, health-promotion, or primary care model (Shortell et al. 1995). More precisely, this is a call for integration of the two models rather than a total abandonment of the medical model in favor of the other. Society continues to need the benefits of modern science and technology for the treatment of disease. Disease prevention, health promotion, and primary care can prevent certain health problems from occurring, delay the onset of disease, and prevent disability and premature death. An integrated approach will not make disease, disability, and death go away; but it will improve the overall health of the population, enhance people's quality of life, and conserve health care resources.

An integrated approach must go beyond a simple merger of the medical and wellness models. The real challenge for the health

care delivery system is to incorporate these models within the holistic context of health. The Ottawa Charter for Health Promotion, for instance, mentions caring, holism, and ecology as essential issues in developing strategies for health promotion (de Leeuw 1989). "Holism" and "ecology" refer to the complex relationships that exist among the individual, the health care delivery system, and the physical, social, cultural, and economic environmental factors. "Environment," in this context, could be viewed as an extension of the social dimension of health discussed earlier in this chapter. In addition, as the increasing body of research points out, the spiritual dimension must be incorporated into the integrated model.

Another equally important challenge for the health care delivery system is to focus on both individual and population health outcomes. The nature of health is complex, and the interrelationships among the physical, mental, social, and spiritual dimensions are not well understood. How to translate this multidimensional framework of health into specific actions that are efficiently configured to achieve better individual and community health is the greatest challenge any health care system could possibly face.

For an integrated approach to become reality, resource limitations would make it necessary to deploy the best US ingenuity toward health-spending reduction, elimination of wasteful care, promotion of individual responsibility and accountability for one's health, and improved access to services. In a broad sense, these services include medical care, preventive services, health promotion, and social policy to improve education, lifestyles, employment, and housing (Figure 2–5). The Ottawa Charter has proposed achieving health objectives through social public policy and community

Figure 2–5 Integrated Model for Holistic Health.

action. An integrated approach also necessitates creation of a new model for training health care professionals by forming partnerships with the community (Henry 1993). The following paragraphs describe examples of community partnership reflected in community health assessment and Healthy People initiatives.

Community Health Assessment

Community health assessment is a method used to conduct broad assessments of populations at a local or state level. For integrating individual and community health, the assessment is best conducted by collaboration among public health agencies, hospitals, and other health care providers. Community hospitals in particular are increasingly held accountable for the health status of the communities in which they are located. To fulfill this mission, hospitals must first conduct a health assessment of their communities. Such an assessment provides a broad perspective of a population's health, and it also points to specific needs that health care providers can address. It can help pinpoint

interventions that should be given priority to improve the population's health status, or to address critical issues pertaining to certain groups within the population. Measures of health status discussed later in this chapter are essential to conduct a community health assessment. It also requires an evaluation of health determinants and utilization of medical care services.

Healthy People Initiatives

Since 1980, the United States has undertaken 10-year plans outlining certain key national health objectives to be accomplished during each of the 10-year periods. These initiatives have been founded on the integration of medical care with preventive services, health promotion, and education; integration of personal and community health care; and increased access to integrated services. Accordingly, the objectives are developed by a consortium of national and state organizations, under the leadership of the US Surgeon General. The first of these programs, with objectives for 1990, provided national goals for reducing premature deaths and for preserving the independence of older adults. Next, *Healthy People 2000: National Health Promotion and Disease Prevention Objectives*, released in 1990, identified health improvement goals and objectives to be reached by the year 2000. As part of this process, standardized Health Status Indicators (HSIs) were developed to facilitate the comparison of health status measures at national, state, and local levels over time. According to the final review published by the National Center for Health Statistics (2001), the major accomplishments of Healthy People 2000 included: surpassing the targets for reducing deaths from coronary heart disease and cancer; meeting the targets for incidence rates

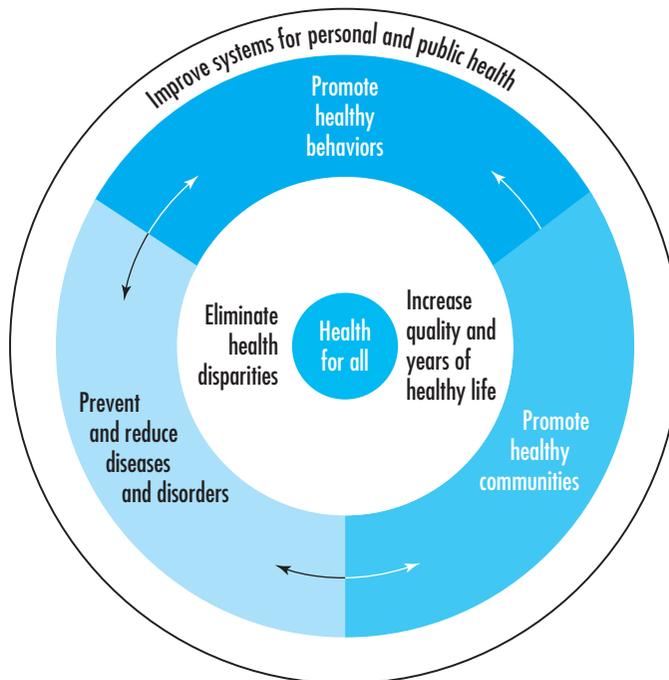
for AIDS and syphilis, mammography exams, violent deaths, and tobacco-related deaths; nearly meeting the targets for infant mortality and number of children with elevated levels of lead in blood; and making progress in reducing health disparities among special populations.

Healthy People 2010: Healthy People in Healthy Communities, launched in January 2000, continues in the earlier traditions as an instrument to improve the health of the American people in the first decade of the 21st century. The context developed in national objectives for *Healthy People 2010* differs from the framework of *Healthy People 2000*. Advanced preventive therapies, vaccines and pharmaceuticals, and improved surveillance and data systems are now available. Demographic changes in the United

States reflect an older and more racially diverse population. Global forces, such as food supplies, emerging infectious diseases, and environmental interdependence, present new public health challenges. The objectives also define new relationships between public health departments and health care delivery organizations (Department of Health and Human Services 1998). *Healthy People 2010* specifically emphasizes the role of community partners—such as businesses, local governments, and civic, professional, and religious organizations—as effective agents for improving health in their local communities. In addition, the objectives for 2010 specifically focus on the determinants of health discussed earlier.

Figure 2–6 presents the graphic framework for *Healthy People 2010*. The two over-

Figure 2–6 Healthy People 2010: Healthy People in Healthy Communities.



Source: Reprinted from *Healthy People 2010 Objectives: Draft for Public Comment*, Department of Health and Human Services.

arching goals designed for achievement by *Healthy People 2010* are (Department of Health and Human Services 2000):

- ***Increase Quality and Years of Healthy Life.*** The first goal is to help individuals of all ages increase life expectancy and improve their quality of life. In particular, differences in life expectancy among populations suggest a substantial need and opportunity for improvement. At least 18 countries with populations of one million or more have life expectancies greater than the United States for both men and women. Similar to life expectancy, various population groups show dramatic differences in quality of life. A disproportionate number of Americans in low-income households, women, and those living in rural areas

report their health status as fair or poor. These findings lead to the second goal.

- ***Eliminate Health Disparities.*** The second goal of *Healthy People 2010* is to eliminate health disparities among different segments of the population. These include differences that occur by gender, race or ethnicity, education or income, disability, living in rural localities, or sexual orientation. The greatest opportunities for reducing health disparities are in empowering individuals to make informed health care decisions and in promoting communitywide safety, education, and access to health care.

To realize these two broad goals, 28 focus areas were identified as measureable targets by the year 2010 (see Exhibit 2–1).

Exhibit 2–1 *Healthy People 2010* Focus Areas

- | | |
|---|--|
| 1. Access to Quality Health Services | 15. Injury and Violence Prevention |
| 2. Arthritis, Osteoporosis, and Chronic Back Conditions | 16. Maternal, Infant, and Child Health |
| 3. Cancer | 17. Medical Product Safety |
| 4. Chronic Kidney Disease | 18. Mental Health and Mental Disorders |
| 5. Diabetes | 19. Nutrition and Overweight |
| 6. Disability and Secondary Conditions | 20. Occupational Safety and Health |
| 7. Educational and Community-Based Programs | 21. Oral Health |
| 8. Environmental Health | 22. Physical Activity and Fitness |
| 9. Family Planning | 23. Public Health Infrastructure |
| 10. Food Safety | 24. Respiratory Diseases |
| 11. Health Communication | 25. Sexually Transmitted Diseases |
| 12. Heart Disease and Stroke | 26. Substance Abuse |
| 13. HIV | 27. Tobacco Use |
| 14. Immunization and Infectious Diseases | 28. Vision and Hearing |

Source: Department of Health and Human Services. *Healthy People 2010* (Conference Edition, in Two Volumes). Washington, DC: January 2000.

Using data gathered through January 2005, the Department of Health and Human Services released a Midcourse Review of progress toward achieving the *Healthy People 2010* goals. With regard to the initiative's first overarching goal (Increase Quality and Years of Healthy Life), the Midcourse Review reported life expectancy continues to increase, but significant gender and racial/ethnic differences remain. In addition, the United States continues to have lower life expectancy than many other developed nations. Two quality of life measures (i.e., expected years in good or better health and expected years free of activity limitations) improved slightly while a third quality of life measure (i.e., expected years free of selected chronic diseases) declined slightly (Department of Health and Human Services 2006).

With regard to the second overarching goal of *Healthy People 2010* (Eliminate Health Disparities), the Midcourse Review reported very little progress has been made. While there were reductions in several health areas with disparities, there were increases in disparities in other health areas. The Midcourse Review noted that the lack of data on education, income, and other socioeconomic factors for many *Healthy People 2010* objectives has limited our capabilities to plan programs that are effective in reducing and eliminating disparities (Department of Health and Human Services 2006).

Measures of Health Status

Certain quantitative measurements commonly apply to health, health status, and the utilization of health care. It is one thing to conceptually define health but quite a different thing to measure health status or the health state of a population. The conceptual

approaches for defining health and its distribution help form a vision for the future, but objective measures are needed to evaluate the success of various programs and to direct future planning activities. Practical approaches for measuring health are, however, quite limited, and mental health is more difficult to quantify and measure than physical health. Measures of physical and mental health presented in this section are basic measures in common use. An objective evaluation of social and spiritual health is even more obscure. Approaches presented for quantifying the latter are mere illustrations.

The concept of population as it applies to population health has been borrowed from the disciplines of statistics and epidemiology. The term "population" is not restricted to describing the total population. Although commonly used in that way, the term may also apply to a defined subpopulation, for example, age groups, marital categories, income levels, occupation categories, racial or ethnic groups, a group of people having a common disease, people in a certain risk category, or people in a certain community or geographic region of a country. The main advantage of studying subpopulations is that it traces the existence of health problems to a defined group in the total population. It avoids concealing serious problems in a minority group within the favorable statistics of the majority. By pinpointing health problems in certain well-defined groups, appropriate interventions and new policy initiatives can be deployed in the most effective manner.

Evaluation of Health Status

Measures in health status are determined largely by how health is defined (Siegmann 1979). Mainly because of the emphasis on

the biomedical dimensions, measurement of health status is disease oriented. Health status is often interpreted through *morbidity* (disease and disability) and *mortality* (death) rates because positive health indicators are lacking. Health status and longevity are two positive indicators in common use.

Health Status

Self-perceived health status commonly uses an indicator of health and well-being. For example, respondents are asked to rate their health as excellent, very good, good, fair, or poor. Self-perceived health status is highly correlated with many objective measures of health status. It is also a good predictor of patient-initiated physician visits, including general medical and mental health visits.

Longevity

Life expectancy, or a prediction of how long a person will live, is widely used as a basic measure of health status. The two common measures are life expectancy at birth (Table 2–5), or how long a newborn can expect to live, and life expectancy at age 65, or expected remaining years of life for someone at age 65. These measures are actuarially determined and published by government agencies, such as the National Center for Health Statistics.

Morbidity

The measurement of morbidity or disease, such as cancer or heart disease, is expressed as a ratio or proportion of those who have the problem and the population at risk. The *population at risk* includes all the people in the same community or population group who can acquire a disease or a condition

Table 2–5 Life Expectancy at Birth—
1999 and Future Projections

Year	Total	Male	Female
1999	76.7	73.9	79.4
White	77.3	74.6	79.9
Black	71.4	67.8	74.7
2003	77.5	74.8	80.1
White	78.0	75.3	80.5
Black	72.7	69.0	76.1
2010	77.9	74.1	80.6

Sources: Data from National Center for Health Statistics, *Health, United States, 1996–97; Injury Chartbook*. Hyattsville, MD: Public Health Service, 1997, p. 108; *Health, United States, 2002*, p. 116; and *Health, United States, 2006*, p. 176.

(Smith 1979). Incidence and prevalence are two widely used indicators for the number of *cases*, that is, people who acquire a negative health condition, such as victims of disease or disability. *Incidence* counts the number of new cases occurring in the population at risk within a certain period, such as a month or a year (Smith 1979) (see Formula 2–1). Incidence describes the extent to which, in a given population, people who do not have a disease develop the disease during the specified period (Timmreck 1994, 5). Incidence is particularly useful in estimating the magnitude of conditions of relatively short duration. Successful health promotion and disease prevention programs are those that result in decreased incidence because they prevent new cases (Ibrahim 1985, 20). High levels of incidence may suggest an impending *epidemic*, that is, a large number of people who get a specific disease from a common source. The second measure of

morbidity, *prevalence* determines the total number of cases at a specific point in time in a defined population (see Formula 2–2). Prevalence is useful in quantifying the magnitude of illnesses of a relatively long duration. Successful treatment programs are those that result in decreased prevalence by shortening the duration of illness (Ibrahim 1985, 20–21). Both incidence and prevalence rates can apply to disease, disability, or death.

The calculation of rates often requires dividing a small number by a large number representing a defined population. The result is a fraction. To make the fractions meaningful and interpretable, they are multiplied by 100 (to get a percentage), 1,000 (to get a rate per 1,000), 10,000 (to get a rate per 10,000), or a higher multiple of 10.

Formula 2–1

Incidence = Number of new cases during a specified period/Population at risk

Formula 2–2

Prevalence = Total number of cases at a specific point in time/Specified population

Disability

Disease and injury can lead to temporary or permanent, as well as partial or total, disability. Although the idea of morbidity includes disabilities as well as disease, there are some specific measures of disability (or dysfunction). Some of the common measures are days of bed confinement, number of days missed from work or school, and number of days of restricted activity. All measures are in reference to a specific time period, such as one year.

One of the most widely used measures of physical dysfunction among the elderly is the *activities of daily living (ADL)* scale. The

ADL scale is appropriate for evaluating disability in both community-dwelling and institutionalized adults. The classic ADL scale, developed by Katz and colleagues, included six basic activities to determine whether an individual needs assistance. The six basic activities were eating, bathing, dressing, using the toilet, maintaining continence, and transferring from bed to chair (Katz and Akpom 1979). To evaluate disability in community-dwelling adults, a modified Katz scale is commonly used. It consists of seven items (Ostir et al. 1999). Five of these items—feeding, bathing, dressing, using the toilet, and transferring—have been retained from the original Katz scale. The additional two items are grooming and walking a distance of eight feet. Thus, it includes items measuring self-care and mobility. The ADLs identify personal care functions with which a disabled person may need assistance. Depending on the extent of disability, met personal care needs through adaptive devices, care rendered by another individual, such as a family member, or care in a nursing facility.

Another commonly used measure of physical function is the *instrumental activities of daily living (IADL)*. This scale measures activities that are necessary for living independently in the community, such as using the telephone, driving a car or traveling alone in a bus or taxi, shopping, preparing meals, doing light housework, taking medicine, handling money, doing heavy housework, walking up and down stairs, and walking a half-mile without help. These 10 items categorize activities the person is (a) able or (b) unable to do. IADLs typically require higher cognitive functioning than ADLs and, as such, are not purely physical tests of functional disability. IADLs are not generally used in institutional settings because institutionalized persons are not re-

quired to perform many IADL tasks (Ostir et al. 1999). The IADL scale measures the level of functioning in activities that are important for self-sufficiency but are less basic than ADLs.

Mortality

Death rates are computed in different forms as indicators of population health. **Crude rates** refer to the total population; they are not specific to any age groups or disease categories (Formula 2–3).

Formula 2–3

Crude death rate = Total deaths (usually in one year)/Total population

Specific rates are useful because death rates vary greatly by race, sex, age, and type of disease or condition. Specific rates allow health care managers to target their programs at the appropriate population subgroups (Dever 1984, 75). Examples of specific rates are age-specific mortality rate (Formula 2–4) and cause-specific mortality rate (Formula 2–5). The age-specific mortality rate provides a measure of the risk (or probability) of dying when a person is in a certain age group. The cause-specific mortality rate provides a measure of the risk (or probability) of dying from a specific cause. Table 2–3 provides the 10 leading causes of death in the United States.

Formula 2–4

Age-specific mortality rate = Number of deaths within a certain age group/Total number of persons in that age group

Formula 2–5

Cause-specific mortality rate = Number of deaths from a specific disease/Total population

Infant mortality rate (actually a ratio, Formula 2–6) is another important indicator. It reflects the health status of the mother and the child through pregnancy and the birth process. It also reflects the level of prenatal and post-natal nutritional care (Timmreck 1994, 106).

Formula 2–6

Infant mortality rate = Number of deaths from birth to one year of age (in one year)/Number of live births during the same year

Demographic Change

In addition to measures of disease and mortality, changes in the composition of a population over time are also important in planning of health services. For example, the migration of the elderly to the southern states requires planning of adequate retirement and long-term care services in those states. Population change involves three components: births, deaths, and migration (Dever 1984). Longevity is also an important factor that determines demographic change. For example, lower death rates, lower birth rates, and greater longevity together indicate an aging population. Measures of death were discussed previously. This section presents measures of births and migration.

Births

Natality and fertility are two measures associated with births. **Natality**, or birth rate, is useful in assessing the influence of births on demographic change and measured by the crude birth rate (Formula 2–7).

Formula 2–7

Crude birth rate = Number of live births (usually in one year)/Total population

Fertility refers to the capacity of a population to reproduce (see Formula 2–8 for fertility rate). It is a more precise measure than natality because it relates actual births to the sector of the population capable of giving birth.

Formula 2–8

Fertility rate = Number of live births (usually in one year)/Number of females aged 15–44

Migration

Migration refers to the geographic movement of populations between defined geographic units and involves a permanent change of residence. The net migration rate (Formula 2–9) defines the change in the population as a result of **immigration** (in migration) and **emigration** (out migration) (Dever 1984, 249). The rate is calculated for a specified period, such as one year, two years, five years, and so on.

Formula 2–9

Net migration rate = (Number of immigrants × Number of emigrants)/Total population (during a specific period of time)

Measures of Mental Health

Measurement of mental health is less objective than measurement of mortality and morbidity because mental health often encompasses feelings that cannot be observed. Physical functioning, by contrast, reflected in behaviors and performances can be more readily observed. Hence, measurement of mental health more appropriately refers to assessment rather than measurement. Mental health can be assessed by the presence of certain symptoms, including both psycho-

physiologic and psychological symptoms. Examples of psychophysiological symptoms are low energy, headaches, and upset stomach. Examples of psychological symptoms are nervousness, depression, and anxiety.

Self-assessment of one's own psychological state may also be used for mental health assessment. Examples are self-reports of the frequency and intensity of psychological distress, anxiety, depression, and psychological well-being.

Measures of Social Health

Measures of social health extend beyond the individual to encompass the extent of social contacts across various facets of life, such as family life, work life, and community life. Breslow (1972) attempted to measure social health along four dimensions: (1) employability, based on educational achievement, occupational status, and job experience; (2) marital satisfaction; (3) sociability, determined by the number of close friends and relatives; and (4) community involvement, which encompasses attendance at religious services, political activity, and organizational membership.

Social health status is sometimes evaluated in terms of social contacts and social resources. **Social contacts** are evaluated in terms of the number of social contacts or social activities a person engages in within a specified period. Examples are visits with friends and relatives and attendance at social events, such as conferences, picnics, or other outings. **Social resources** refer to social contacts that can be relied on for support, such as family, relatives, friends, neighbors, and members of a religious congregation. They are indicative of adequacy of social relationships. Social contacts can be observed,

and they represent the more objective of the two categories; however, one criticism of social contact measures is their focus on events and activities, with little consideration of how the events are personally experienced. Unlike social contacts, social resources cannot be directly observed. They are best measured by asking the individuals directly. Evaluative questions include whether these individuals can rely on their social contacts to provide tangible support and needed companionship, and whether they feel cared for, loved, and wanted.

Measures of Spiritual Health

Within a person's individual, social, and cultural context, spiritual well-being can have a large variety of connotations. Such variations make it extremely difficult to propose standardized approaches for measuring the spiritual dimension. Attempts to measure this dimension are illustrated in the General Social Survey, which includes people's self-perceptions about happiness, religious experiences, and degree of involvement in activities such as prayer and church attendance. The spiritual well-being scale developed by Vella-Brodrick and Allen (1995) evaluates items such as reaching out for spiritual intervention; duration of meditation or prayer for inner peace; engaging in meditation, yoga, or prayer; frequency of meditation or prayer; reading about religion; and discussions or readings about ethical and moral issues.

Measures of Health Services Utilization

Utilization refers to the consumption of health care services or the extent to which health care services are used. Measures of

utilization can be used to determine which individuals, in a population group, receive certain types of medical services, which ones do not receive services, and why. A health care provider, such as a hospital, can find out the extent to which its services are used. Measures of utilization can help managers decide whether certain services should be added or eliminated. Health planners can determine whether programs have been effective in reaching their targeted populations. Measures of utilization therefore play a critical role in the planning of health care delivery capacity, for example, how many hospital beds are required to meet the acute care needs of a given population (Pasley et al. 1995). Measures of utilization are too numerous to be covered here, but some selected common measures are given below (Formulas 2–10 to 2–16).

Crude Measures of Utilization

Formula 2–10

Access to primary care services = Number of persons in a given population who visited a primary care provider in a given year/Size of the population

(This measure is generally expressed as a percentage; i.e., the fraction is multiplied by 100.)

Formula 2–11

Utilization of primary care services = Number of primary care visits by people in a given population in a given year/Size of the population

(This measure is generally expressed as number of visits per person per year.)

Specific Measures of Utilization

Formula 2–12

Utilization of targeted services = Number of people (visits) using special services targeted at a specific population group/Size of the targeted population group

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(The fraction obtained is multiplied by 100, 1,000, or a higher multiple of 10 to facilitate interpretation of the result.)

Formula 2–13

Utilization of specific inpatient services = Number of bed (inpatient) days/Size of the population

(The fraction obtained is multiplied by 100, 1,000, or a higher multiple of 10 to facilitate interpretation of the result.)

Measures of Institution-Specific Utilization

Formula 2–14

Average daily census = Total number of inpatient days in a given time period/Number of days in the same time period

Formula 2–15

Occupancy rate = Total number of inpatient days in a given time period/Total number of available beds during the same time period

or

Average daily census/Total number of beds in the facility

(This measure is generally expressed as a percentage; i.e., the fraction is multiplied by 100.)

Formula 2–16

Average length of stay = Total number of inpatient days during a given time period/Total number of patients during the same time period

Summary

The system of health care delivery in the United States is predominantly private. Many of the peculiarities of this system trace back to the beliefs and values underlying the American culture. The delivery of health care is primarily driven by the medical model, which emphasizes illness rather than wellness. Even though major efforts and expenditures have been directed toward the delivery of medical care, they have failed to produce a proportionate impact on the improvement of health status. Holistic concepts of health care, along with integration of medical care with preventive and health promotional efforts, need to be adopted to significantly improve the health of Americans. Such an approach would require a fundamental change in how Americans view health. It would also require individual responsibility for one's own health-oriented behaviors as well as community partnerships to improve both personal and community health. An understanding of the determinants of health, health education, community health assessment, and national initiatives, such as *Healthy People 2010*, are essential to accomplishing these goals. The emphasis on market justice in the US health care delivery system, however, leaves the critical problem of access unaddressed. Commonly used measures of health status and health care utilization provide quantitative means for evaluating health status and measuring progress.

Terminology

activities of daily living
(ADL)
acute condition

agent
bioterrorism
cases

Test Your Understanding

chronic condition
community health
assessment

<i>crude rates</i>	<i>iatrogenic illnesses</i>	<i>prevalence</i>
<i>demand-side rationing</i>	<i>illness</i>	<i>primary prevention</i>
<i>deontology</i>	<i>immigration</i>	<i>public health</i>
<i>development</i>	<i>incidence</i>	<i>quality of life</i>
<i>disease</i>	<i>instrumental activities of</i>	<i>risk factor</i>
<i>emigration</i>	<i>daily living (IADL)</i>	<i>secondary prevention</i>
<i>environment</i>	<i>life expectancy</i>	<i>social contacts</i>
<i>environmental health</i>	<i>market justice</i>	<i>social justice</i>
<i>epidemic</i>	<i>medical model</i>	<i>social resources</i>
<i>fertility</i>	<i>migration</i>	<i>subacute condition</i>
<i>health care</i>	<i>morbidity</i>	<i>supply-side rationing</i>
<i>health risk appraisal</i>	<i>mortality</i>	<i>tertiary prevention</i>
<i>holistic health</i>	<i>natality</i>	<i>utilitarianism</i>
<i>holistic medicine</i>	<i>planned rationing</i>	<i>utilization</i>
<i>host</i>	<i>population at risk</i>	<i>wellness model</i>

Review Questions

1. Distinguish between illness and disease. How are these concepts related to the medical model of health care delivery?
2. What is the role of health risk appraisal in health promotion and disease prevention?
3. Health promotion and disease prevention may require both behavioral modification and therapeutic intervention. Discuss.
4. Discuss the definitions of health presented in this chapter in terms of their implications for the health care delivery system.
5. What implications does early childhood development have for health care delivery?
6. What are the main objectives of public health?
7. Discuss the significance of an individual's quality of life from the health care delivery perspective.
8. The Blum model points to four key determinants of health. Discuss their implications for health care delivery.
9. What has been the main cause of the dichotomy in the way physical and mental health issues have traditionally been addressed by the health care delivery system?
10. Discuss the main cultural beliefs and values in American society that have influenced health care delivery and how they have shaped the health care delivery system.
11. Discuss the main elements of Parsons's sick role model. What implications does the sick role model have for health services delivery?
12. Briefly describe the concepts of market justice and social justice. In what way do the two principles complement each other and in what way are they in conflict in the US system of health care delivery?

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13. Describe how health care is rationed in the market justice and social justice systems.
14. To what extent do you think the objectives set forth in Healthy People initiatives can achieve the vision of an integrated approach to health care delivery in the United States?
15. How can health care administrators and policymakers use the various measures of health status and service utilization? Please illustrate your answer.
16. Describe how health care is rationed in the market justice and social justice systems.

From the data given below:

- a. Compute crude birth rates for 1990 and 1995.
- b. Compute crude death rates for 1990 and 1995.
- c. Compute cancer mortality rates for 1990 and 1995.
- d. Answer the following questions:
 - (i) Did the infant death rates improve between 1990 and 1995?
 - (ii) What conclusions can you draw about the demographic change in this population?
 - (iii) Have efforts to prevent death from heart disease been successful in this population?

Population:	1990	1995
Total	248,710	262,755
Male	121,239	128,314
Female	127,471	134,441
Whites	208,704	218,086
Blacks	30,483	33,141
Number of live births	4,250	3,840
Number of infant deaths (birth to one year)	39	35
Number of total deaths	1,294	1,324
Deaths from heart disease	378	363
Deaths from cancer	336	342

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