

V QUESTIONS

is the sociological perspective?
 do the questions sociologists ask differ from those asked by
 ologists or by health care workers?
 does this textbook mean by a critical approach?
 is the epidemiological transition?
 is the difference between acute and chronic diseases?
 factors caused the decline in mortality between the nineteenth and
 twentieth centuries?
 are some ways a reader can tell if a journal article or Internet website is
 able source of data?

CAL THINKING QUESTIONS

can knowing the history of disease help us to understand a) current
 th problems and b) how health patterns might change in the future?
 te three research questions about the causes of cancer. The first should
 question that a doctor might ask, the second a question a psychologist
 ht ask, and the third a question that a sociologist might ask.
 gine that you have found a website that argues for Vitamin C as a cure
 the common cold. List three questions you would want to ask before
 iding whether to believe the website or not.

The Social Sources of Modern Illness



AP Photo/Efrem Lukatsky

Judy Cude and her daughter Jenny live in the small city of Dickson, Tennessee. When Jenny was about to give birth to her first child, Judy went with her to the hospital. At first, everything seemed fine:

The attending physician kept up a cheerful, reassuring stream of talk as he assisted Jenny with her labor. "Peyton came out face down. When Dr. Booker turned [the baby] over, he stopped talking," Judy recalled. "He had his back to us, but when the nurse gave him a shove, he turned around and he had tears running down his cheeks."

The baby's face was badly disfigured with a cleft lip and a bilateral cleft palate. And though they did not know it immediately, Peyton also had a damaged heart, a valve that failed to close properly....

Two weeks after Peyton was born, Jenny was given the name of another mother in Dickson whose child, born a couple of months earlier, also had a cleft lip and palate. Then a woman called Judy at her day care center and asked if she could accommodate children with special needs because ultrasound tests found that her child was about to be born with a cleft palate. "That made three," Judy said. She and the other mothers kept a tally. Soon they had counted six. Judy placed a newspaper advertisement asking families with similar defects to contact her. And, as it turned out, nineteen children had been born in Dickson with a cleft lip and palate in a little over two years. The odds against such a series of identical birth defects were almost certainly too high to be coincidental. [Moreover,] within a brief period, four babies were born with a rare brain malformation, where the two hemispheres of the brain are not connected. There have been a large number of cases of hypospadias, a condition in male children where the urethra is inverted. Dickson families also reported a high incidence of heart defects and leukemia among their babies.

Eventually Judy would learn that most of the affected children lived near the Dickson County landfill and that toxic wastes, including chemicals known to cause cancers and birth defects, had been dumped there for years (Shabecoff and Shabecoff, 2010:4–5).

At one level, disease is a biological process existing within an individual body. Yet as Judy's story suggests, disease can stem from social conditions as well as from individual biology. In this chapter, we explore the *social* sources of disease. After reviewing the basic concepts needed to discuss diseases, we review modern disease patterns. Then we focus on the major social sources of premature death in the United States today (including environmental toxins). Finally, we explore social factors that affect whether people will adopt healthier behaviors and whether individuals will remain healthy regardless of their behaviors.

AN INTRODUCTION TO EPIDEMIOLOGY

The first essential concepts that students of health and illness need to understand are disease and illness. To researchers working in health care, **disease** refers to a biological problem within an organism. In contrast, **illness** refers to the social experience and consequences of living with a disease. Using these terms, we might say that a man who is infected with the poliomyelitis virus must adapt to physical disability caused by the *disease* called polio and to changes in how others view him because he has the *illness* called polio. (Chapter 5 will discuss the meaning of illness in more detail.)

The study of the distribution of disease within a population is known as **epidemiology**. This chapter and the next focus more specifically on **social epidemiology**, or how social behaviors and factors (such as social class or use of tobacco) affect the distribution of disease within a population. For example, whereas biologists might investigate whether heart disease is more common among those with high cholesterol levels, social epidemiologists might investigate whether it is more common among those with high incomes.

But what do we mean when we say a disease is "more common" among one group than another? Data on infection with **human immunodeficiency virus (HIV)**, the virus that in its later stages causes **acquired immunodeficiency syndrome (AIDS)**, provide a useful example. (This book uses the term **HIV/AIDS** to refer to the full range of illness from the earliest stages of infection with HIV to full-blown AIDS.)

Currently, more than twice as many Brazilians have HIV/AIDS than do Botswanans (Population Reference Bureau, 2010). At first glance, this might suggest that HIV/AIDS is a much greater problem in Brazil than in Botswana. However, Brazil's population is much larger than that of Botswana. To take this difference into account, epidemiologists typically look at the *rate* rather than the *number* of HIV/AIDS cases in a population. **Rate** refers to the *proportion* of a specified population that experiences a given circumstance. We use the following formula to calculate the rate of any event (whether disease, disability, birth, or death):

$$\frac{\text{Number of events in a given time period}}{\text{Number in specified population during that period}} \times 10^n$$

Using this formula, we find that the 2009 rate of adults with HIV/AIDS (calculated as the number of such persons in a country divided by that country's population) was six per 1,000 adults in Brazil compared with 240 per 1,000 adults in Botswana (Population Reference Bureau, 2010). This tells us that HIV/AIDS affects a greater proportion of the population in Botswana than in Brazil. It also demonstrates the advantage of using rates rather than raw numbers.

Two particularly useful types of rates are incidence and prevalence rates. **Incidence** refers to the number of *new* occurrences of an event (disease, births,

deaths, and so on) within a specified population during a specified period. **Prevalence** refers to the *total* number of cases within a specified population at a specified time—both those newly diagnosed (incidence) and those diagnosed in previous years but still living with the condition under study. So, for example, to calculate the *incidence* rate of lung cancer per 100,000 persons in the United States this year, we would use the formula:

$$\frac{\text{Number of new cases of lung cancer diagnosed this year in U.S.}}{\text{Total U.S. population this year}} \times 100,000$$

To calculate the *prevalence* rate of lung cancer, we would use the formula:

$$\frac{\text{Number of persons living with lung cancer this year in U.S.}}{\text{Total U.S. population this year}} \times 100,000$$

In general, incidence better measures the spread of **acute disease**. The term *incidence* also better measures rapidly spreading diseases such as HIV/AIDS. For example, to see how HIV/AIDS has spread, we might compare its incidence in 1981 with its incidence today. Prevalence, on the other hand, better measures the frequency of **chronic diseases**.

Two final terms often used in epidemiology are *morbidity* and *mortality*. **Morbidity** refers to symptoms, illnesses, and impairments; **mortality** refers to deaths. To assess the overall health of a population, epidemiologists typically calculate the rate of serious morbidity in a population (that is, the proportion with serious illness), the rates of infant mortality and maternal mortality (that is, the proportion of infants and childbearing women who die during or soon after childbirth), and **life expectancy** (the average number of years individuals born in a certain year are likely to live).

But what if one population is much older than another? Because younger people have very different health risks than do older people, it would be misleading to compare these populations without taking this into account. For example, Arizona's population is younger on average than is North Dakota's, so we would expect Arizona to have more deaths from drunk driving and fewer from heart disease than would North Dakota. To deal with this issue, epidemiologists use **age-adjusted rates**. These rates are calculated using standard statistical procedures that, as Chapter 1 described, **control** for the effect of age differences among populations.

The next section uses epidemiological concepts and data to describe current disease patterns.

THE MODERN DISEASE PROFILE

As the previous chapter discussed, by the beginning of the twentieth century, patterns of disease had shifted markedly. No longer did most people in Western nations die young of infectious or parasitic diseases (even though such diseases

still ravaged poorer nations). Instead, most children survived childhood without major illnesses, and most adults died in old age of chronic disease. Yet infectious disease once again is on the rise.

The New Rise in Infectious Disease

The rising threat from infectious diseases first made medical news in 1981, when the first cases of what would become known as HIV/AIDS were identified. Since then, other new infectious diseases (such as Ebola hemorrhagic fever) have been identified, previously known diseases (such as cholera and streptococcus) have become deadlier, and previously harmless microorganisms (such as the virus that causes avian influenza, or "bird flu") have caused important disease outbreaks (Armelagos and Harper, 2010; Oldstone, 2010).

The renewed dangers posed by infectious disease partly reflect basic principles of natural selection. Just as natural selection favors animals whose camouflaging coloration hides them from predators long enough to reproduce, natural selection favors microorganisms that can resist drug treatments. As doctors prescribed antibiotics more widely, often under pressure from patients who feel "cheated" if they do not receive a prescription at each visit, the drugs killed all susceptible variants of disease-causing microorganisms while allowing variants resistant to the drugs to flourish. Similarly, drug-resistant tuberculosis is increasing in nations where both HIV/AIDS and poverty leave individuals both more susceptible to infection and less able to afford consistent, effective treatment. Meanwhile, the growing use of antibiotics in everything from cutting boards to kitty litter, chicken feed, and soaps also encourages the rise of drug-resistant bacteria.

Other forces also promoted the rise in infectious diseases (Oldstone, 2010). In the same way that population growth and the rise of cities once fostered the spread of infectious diseases in Europe, they now are causing new epidemics in the rapidly growing cities of Africa, Asia, and Latin America (Armelagos and Harper, 2010). Meanwhile, older cultural traditions often erode among those who move to these cities, making health-endangering activities such as tobacco smoking and sexual experimentation more likely. At the same time, as industrial sites and cities replace forests and farmlands and drive out animal populations, some microorganisms that previously had infected only animals are now infecting humans.

All of these factors have been heightened by **globalization**, the process through which ideas, resources, people, and trade increasingly operate in a worldwide rather than local framework. The erosion of cultural traditions in Asia, Africa, and Latin America reflects, among other things, the increasingly global spread of Western ideas by tourists, the mass media, businesspeople, and nongovernmental organizations such as the United Nations and the International Monetary Fund. Similarly, environmental changes that encourage disease partly stem from actions taken by Western-based industries and corporations, which now find it easy to operate internationally because of NAFTA (the North American Free Trade Agreement) and other such agreements. In addition, the globalization of business investment and tourism has globalized disease simply

by increasing the number of people traveling from one region to another (Oldstone, 2010).

The Emergence of HIV/AIDS HIV/AIDS provides the premiere example of the new rise in infectious disease. Beginning in 1979, a few doctors in New York, San Francisco, and Los Angeles had noticed small outbreaks in young gay men of rare diseases that typically affect only persons whose immune systems have been damaged by disease or chemotherapy. By 1982, the Centers for Disease Control and Prevention (CDC) had officially recognized AIDS (now recognized as the last stage of HIV/AIDS) as a new disease. (The **Centers for Disease Control and Prevention** is the federal agency charged with tracking and preventing the spread of disease.)

HIV/AIDS can be spread through sexual intercourse, unclean intravenous needles, blood, or from mother to child via breast milk or during birth. It cannot be spread through any form of non-intimate contact such as sneezing, hugging, or food preparation (Stine, 2005).

The rapid spread of HIV/AIDS since 1981 reflects political decisions as much as biological realities. For example, the U.S. government has supported laws that make it illegal to sell or distribute needles. Yet most research indicates that such laws do *not* reduce drug use but *do* increase the chances that drug users will share needles and thus spread HIV/AIDS (Epstein, 1996; Holtgrave and Curran, 2006).

Current trends in HIV/AIDS also illustrate the social sources of illness. For many Americans, the greatest risk of HIV/AIDS now comes not from their own “risky” behaviors but from residence in poor, socially marginalized neighborhoods where infection is common (El-Sadr, Mayer and Hodder, 2010). In the poorest U.S. neighborhoods, where poverty has led many to seek escape through illegal drugs and has kept people hungry, ill, and less able to fight off infections of all sorts, HIV/AIDS is as common as it is in some African nations. Thus, anyone who lives—and finds his or her sexual partners—in these neighborhoods faces elevated risks of HIV/AIDS even if he or she does not use drugs and has few sexual partners.

Today's Top Killers

Despite the recent reemergence of infectious diseases, however, such diseases still play a relatively small role in U.S. mortality rates. Table 2.1 shows the top ten causes of death in the United States in 2008 (the latest data available as of 2011) and illustrates how these causes have changed since 1900.

As the table demonstrates, whereas the top killers in 1900—influenza, pneumonia, and tuberculosis—were infectious diseases that could strike at any age, several of today's top killers—heart disease, cancer, Alzheimer's, and strokes—are chronic diseases primarily associated with older populations. These diseases now far outpace infectious diseases as causes of death.

But infectious diseases have not disappeared. Influenza and pneumonia remain significant causes of death, although mostly they kill elderly people already

TABLE 2.1 Main Causes of Deaths, 1900 and 2008

1900	Rate per 100,000	2008	Rate per 100,000
Influenza and pneumonia	202	Heart disease	199
Tuberculosis	194	Cancer	181
Diarrhea, enteritis, intestinal ulcers	143	Cerebrovascular disease (strokes)	44
Disease of the heart	137	Chronic respiratory disease	41
Cerebrovascular diseases	107	Accidents	39
Chronic kidney disease	89	Diabetes	23
Accidents	72	Alzheimer's disease	23
Cancer	64	Influenza and pneumonia	18
Senility	50	Kidney disease	14
Diphtheria	40	Septicemia	11

SOURCE: National Center for Health Statistics (2010a).

in poor health. More importantly, HIV/AIDS is now a leading cause of death among persons ages 25 to 44 years, especially among African Americans (National Center for Health Statistics, 2010b). The newest drugs for treating HIV/AIDS, the protease inhibitors, do seem to increase life expectancy but only for those who can tolerate the drugs' side effects, manage the required regimen of as many as 20 pills per day taken at strictly regulated times, and afford the cost of about \$15,000 per year.

Finally, Table 2.1 illustrates the role that social factors play in mortality rates. Accidental deaths mostly stem from motor vehicle accidents (many of them linked to alcohol use), while tobacco use is the main cause of chronic respiratory disease and is a common contributor to heart disease, cancer, and cerebrovascular disease (strokes). Similarly, diabetes (which is a main cause of kidney disease) largely reflects diet and exercise patterns. Each of these causes of death reflects social behaviors rooted in social conditions. The remainder of this chapter discusses the role social forces play in mortality and morbidity.

THE SOCIAL SOURCES OF PREMATURE DEATHS

In a widely cited article titled “A Case for Refocusing Upstream,” sociologist John McKinlay (1994) offered the following oft-told tale as a metaphor for the modern doctor's dilemma:

Sometimes it feels like this. There I am standing by the shore of a swiftly flowing river and I hear the cry of a drowning man. So I jump into the river, put my arms around him, pull him to shore and apply artificial

respiration. Just when he begins to breathe, there is another cry for help. So I jump into the river, reach him, pull him to shore, apply artificial respiration, and then just as he begins to breathe, another cry for help. So back in the river again, reaching, pulling, applying, breathing, and then another yell. Again and again, without end, goes the sequence. You know, I am so busy jumping in, pulling them to shore, applying artificial respiration, that I have no time to see who the hell is upstream pushing them all in (McKinlay, 1994 509–510).

This story illustrates the traditional emphasis within medicine on **tertiary prevention**: strategies designed to minimize physical deterioration and complications among those who are already ill. Tertiary prevention includes such tactics as providing kidney dialysis to persons whose kidneys no longer function or insulin to those who have diabetes. Doctors much less commonly focus on **secondary prevention**: strategies designed to reduce the prevalence of disease through early detection and prompt intervention. Examples of secondary prevention include screening patients for cervical cancer or glaucoma so these diseases can be detected while still treatable. Those who focus on secondary prevention typically work in public health, family practice, pediatrics, or internal medicine. Finally, only a small fraction of doctors focus “upstream” on **primary prevention**: strategies designed to keep people from becoming ill or disabled, such as discouraging drunk driving, lobbying for stricter highway safety regulations, and promoting vaccination.

Even when doctors and researchers (or, for that matter, the public) have focused on primary prevention, they typically have looked only far enough upstream to see how individual psychological or biological characteristics make some people more susceptible than others to disease or unhealthy behaviors. For example, an increasing number of medical researchers now focus on identifying genes that might cause alcoholism. Similarly, many psychologists focus on understanding the psychodynamic forces that lead individuals to adopt unhealthy behaviors such as smoking or unsafe sex, and the popular media typically focus on the health consequences of individual “lifestyle choices” such as drunk driving.

Sociologists recognize that biological and psychological factors affect health. But they also note that these factors do not operate in a vacuum. For example, adolescents are most likely to drink alcohol dangerously if their friends and family do so. Similarly, the high rates of diabetes found among contemporary Native Americans partially reflect individual decisions regarding exercise and diet. But they also reflect the effects of living on reservations with ready access to fatty and sugary foods, limited access to fresh fruits and vegetables, and high rates of poverty, which can lead to poor nutrition and in the long run to diabetes (Benyshek, Martin, and Johnston, 2001). In both cases, to blame unhealthy behavior patterns on individual choices seems simplistic.

As these examples suggest, truly refocusing upstream requires us to look beyond individual behavior or characteristics to what McKinlay refers to as the **manufacturers of illness**: those groups that promote illness-causing behaviors and social conditions. These groups include alcohol distributors, auto manufacturers

TABLE 2.2

Estimates of Underlying Causes of Premature Death in the United States

Cause	Number	Percentage of All Deaths
Tobacco	435,000	18
Diet or activity patterns ^a	100–400,000	17
Medical errors ^b	>100,000	>13
Alcohol	85,000	4
Bacteria and viruses ^c	75,000	3
Toxic agents	55,000	2
Motor vehicles ^d	43,000	2
Firearms	29,000	1
Sexual behavior	20,000	1
Illicit use of drugs	17,000	1

^aEstimates vary.

^bThe number of deaths is a rough estimate because different studies have looked at different locations (in hospital versus out of hospital) and different types of errors (surgical, medical, pharmacological).

^cDoes not include deaths related to HIV, tobacco, alcohol, illicit drugs, or infections caused by nonmicrobial diseases.

^dIncludes motor vehicle accidents linked to drug use, but not to alcohol use.

SOURCES: Mokdad et al., 2004; HealthGrades, 2004; Kohn et al., 1999.

that fight against vehicle safety standards, and politicians who vote to subsidize tobacco production.

An article by Ali Mokdad and his colleagues (2004) published in the *Journal of the American Medical Association* provides a useful starting point for refocusing upstream. The article synthesizes the available literature on the major underlying causes of premature deaths (that is, deaths caused neither by old age nor by genetic disease) to identify causes that we can most readily control.

Mokdad and his colleagues identify nine causes that, they believe, together account for almost half of all premature deaths in the United States. Table 2.2 shows these causes and their prevalences (listed not by disease but by the factors that cause disease) as well as a tenth cause that other researchers have identified. The next section looks at these ten causes of illness, including legal and illegal drug use, diet, sexual behaviors, and medical errors.

Tobacco

As Table 2.2 shows, tobacco causes far more premature deaths in the United States than does any other legal or illegal drug. Whether smoked, chewed, or used as snuff, tobacco can cause an enormous range of disabling and fatal diseases, including heart disease, strokes, emphysema, and numerous cancers (World Health Organization, 2008). Up to half of all smokers will die because of their tobacco use, losing an average of 15 years from their normal life expectancy. Tobacco use

also increases morbidity and mortality among “passive smokers,” those who live and work around smokers (World Health Organization, 2011). Similarly, both active and passive smoking can cause birth defects and infant mortality. Unfortunately, quitting smoking is difficult because nicotine (the active ingredient in tobacco) is more addictive than heroin (Weil and Rosen, 1998).

Given nicotine’s addictiveness, it’s easy to understand why individuals continue smoking once they have started. But why do individuals begin smoking in the first place, especially when many initially find tobacco vile tasting and even nauseating? To answer this question, we need to look at the role played by tobacco manufacturers.

Since the 1960s, when research first proved the link between smoking and lung cancer, tobacco manufacturers have labored to convince the public—especially youths, women, and minorities—to associate tobacco with positive attributes rather than with death and disability (Luke, Esmundo, and Bloom, 2000). To target youths and minorities, manufacturers have advertised in movie theatres and at sports events. To target women, manufacturers have played on women’s desire for equality, excitement, personal fulfillment, and weight loss. This strategy was exemplified by the campaign for Virginia Slims—the name was not accidental—and its slogan, “You’ve come a long way, baby.”

Over the past decade, successful legal attacks on tobacco manufacturers and advertisers have begun to erode their ability to attract new customers. For example, tobacco companies can no longer use cartoon characters in advertisements and now must limit their sponsorship of sports and entertainment events. Smoking by both teenagers and adults has declined slowly but steadily since the late 1990s, and the American public increasingly supports the idea of “smoke-free” areas and a smoke-free culture (Givel and Glantz, 2004; National Center for Health Statistics, 2010b).

Alcohol

Like tobacco, alcohol kills far more people than do all illegal drugs combined. Heavy alcohol use can cause irreversible brain damage, hepatitis, heart disease, cirrhosis of the liver, and cancers of the digestive system while reducing the body’s ability to fight infections such as tuberculosis and pneumonia. In addition, by diminishing individuals’ ability to make rational choices, alcohol use contributes to deaths from drownings, fires, violence, and accidents and increases the odds of engaging in unsafe sexual behavior. Yet the U.S. government’s “War on Drugs” targets only illegal drugs.

To ensure that the government continues to treat alcohol as a beverage rather than a drug, alcohol manufacturers contribute heavily to political campaigns (Center for Responsive Politics, 2011). Manufacturers also have worked to define the individual drinker rather than alcohol itself as the problem by promoting the idea that alcoholism only affects susceptible individuals, funding research on presumed biological roots of alcoholism, supporting laws that make it illegal for minors to drink, and opposing laws that would make it illegal to sell alcohol to minors (Mosher, 1995).

At the same time, alcohol manufacturers have endeavored to sell drinking to the public as a pleasurable “lifestyle.” Much of this marketing either directly or indirectly targets youths. For example, manufacturers are most likely to advertise in magazines, on television and radio shows, and during athletic events that attract large youth audiences (CDC, 2006; Garfield, Chung, and Rathouz, 2003; Kwate, Jernigan, and Lee, 2007; Zwarun, 2006). In addition, alcohol manufacturers have increased sales to youths by developing “alcopops”: extra-sweet, fruit-flavored alcoholic beverages such as Hard Lemonade, Blast, and Skyy Blue. Advertisements for these and other alcoholic beverages typically associate alcohol with adulthood, sexual adventure, status, freedom, excitement, and pleasure.

Illegal Drugs

Although far less deadly than tobacco or alcohol, illegal drugs nevertheless rank among the top ten causes of premature death. Illegal drugs can kill users through overdose, suicide, motor vehicle injury, HIV infection, pneumonia, hepatitis, and endocarditis (heart infections). In addition, they can kill nonusers by contributing to homicide and birth defects (Mokdad et al., 2004). Similarly, illegal drug use can contribute to dangerous behaviors. *Ethical Debate: Drug Testing in Schools and Workplaces* discusses some policies that have emerged in response to concerns about illegal drug use.

Heroin and Cocaine The two illegal drugs that most often cause mortality and morbidity are heroin and cocaine (including “crack” cocaine). Both heroin and cocaine can cause physical addiction, although cocaine is usually used in quantities too small to do so (Weil and Rosen, 1998). Cocaine provides such great pleasure so briefly, however, that some individuals use it as often as possible, creating the appearance that they are addicted. As a result, both heroin and cocaine can cause people’s lives to spin out of control. Although heroin causes no direct damage to the human body, cocaine can cause severe sleep disturbances, which in turn can lead to paranoia and, occasionally, to violence (Liska, 1997; Weil and Rosen, 1998). Cocaine also may increase the risk of heart failure or stroke, although evidence is limited.

Methamphetamine Most recently, public concern has focused on problems caused by illegal use of methamphetamine (“meth”). Methamphetamine is an addictive drug that can cause serious health problems, including heart disease, severe dental disease, paranoia, and suicidal depressions (Gonzales, Mooney, and Rawson, 2010). Moreover, and unlike most other illicit drugs, methamphetamine use often results in violent behavior, which can lead to death and injury not only for users but also for their families and neighbors. Furthermore, illegal production of methamphetamine can cause dangerous fires and release dangerous toxins into the soil and water, potentially harming the health of entire communities (Gonzales et al., 2010).

Despite these dangers, many use methamphetamine because it provides a sense of euphoria as well as increased sexual desire and pleasure (Gonzales et al., 2010).

ETHICAL DEBATE**Drug Testing in Schools and Workplaces**

Currently, the federal government requires all federal job applicants, as well as randomly selected federal employees who hold "safety sensitive" positions, to take urine or blood tests to detect illegal drug use. Similarly, many businesses use tests to identify employees or job applicants who use either illegal drugs or legally prescribed drugs (such as hydrocodone) that can impair performance (Zezima and Goodnough, 2010). Many schools, too, require students to test negative for illegal drugs, and sometimes for alcohol and tobacco, before they can participate in extracurricular activities such as sports, chess clubs, and language clubs (Steinberg, 1999).

U.S. courts generally have found that use of drug tests by government agencies breaches the Fourth Amendment right to privacy unless the tests are necessary to protect public safety or unless other evidence suggests that an individual uses drugs. Courts generally have placed no restrictions on private employers' use of drug tests. Nor have they restricted schools from requiring drug tests for extracurricular activities, although schools may not use drug tests to determine eligibility for academic courses.

At first glance, the benefits of drug testing seem obvious. Students, employees, and potential employees who know they will be tested may refrain from using drugs, potentially reducing rates of accidents and violence. Moreover, reducing drug use may reduce absenteeism, tardiness, and insurance costs while improving student and worker performance.

But drug testing comes with a price. Those opposed to drug testing argue that testing inherently invades privacy because it involves taking urine or blood from an individual's body. Moreover, the only way to ensure a urine sample comes from a specific individual is to watch that individual urinate—an obvious invasion of Western norms of privacy. In addition, drug testing constitutes an invasion of privacy because it can reveal much more than just illegal drug use. For example, the same tests that identify use of illegal drugs can identify legal use of drugs to control epilepsy, manic depression, or schizophrenia. Individuals identified in this way may experience not only social embarrassment but also discrimination and even loss of employment.

Importantly, it also helps individuals stay awake and concentrate even after long hours on the job. For these reasons, it is the "drug of choice" among long-distance truck drivers, factory workers, and other blue-collar workers who must work long hours, often despite chronic injuries. Consequently, although methamphetamine use is uncommon in the United States overall, it has thrown many rural communities (especially economically declining Midwestern towns) into turmoil (Substance Abuse and Mental Health Services Administration, 2009; Reding, 2010).

The Impact of Illegality Added to the inherent dangers of heroin, cocaine, methamphetamine, and other illegal drugs are the dangers caused by their illegality. As mentioned earlier, when drug users cannot obtain clean needles legally, they are likely to share needles and thus increase their risks of HIV/AIDS, hepatitis, and other infections. Similarly, users who buy drugs on the street cannot know how powerful the drugs are. For example, individuals who typically inject heroin that is 30% pure can die if they accidentally buy heroin that is 60% pure, thus doubling their usual dosage.

Finally, drug testing invades privacy because it measures not only what a person does in school or on the job but also what he or she does during his or her free time because some drugs can linger in the body for months.

In addition, those who oppose drug testing in the workplace also question why, if the purpose of testing is to identify workers whose performance is impaired, we measure drug use rather than job performance. After all, some individuals who use drugs nevertheless perform adequately, and some who *abstain* from drugs perform poorly; many doctors believe, for example, that the vast majority of those who use legally prescribed narcotics under medical supervision experience no impairment. At any rate, most drug-related impairment in the workplace stems from alcohol use, which goes untested.

Finally, opponents of drug testing argue that the potential benefits of testing are far outweighed by the potential for harm when individuals are falsely labeled as drug users. In fact, as many as 40% of those identified as drug users by urine tests have not actually used such drugs.

As these problems suggest, developing a responsible policy regarding drug testing will require us to find a balance between public safety and protection of individual rights.

Sociological Questions

1. What social views and values about medicine, society, and the body are reflected in current drug testing policies? Whose views are these?
2. Which social groups are in conflict over this issue? Whose interests are served by strict drug testing policies? Whose interests are served by more lenient policies?
3. Which of these groups has more power to enforce its view? What kinds of power do they have?
4. What are the intended consequences of this policy? What are the unintended social, economic, political, and health consequences of this policy?

Similarly, individuals who must purchase drugs at the extraordinarily high prices charged by illegal sellers are quickly ground into poverty. Once they no longer can afford proper food, clothing, or shelter, their vulnerability to all sorts of illnesses increases. Moreover, the high prices of illegal drugs can pressure users to engage in crime, including violent crimes that can damage the health of others.

Research consistently shows that prevention and treatment programs are both cheaper and more effective than criminal sanctions in reducing the use and social costs of illegal drugs (Amaro, 1999). Unfortunately, about two-thirds of government funding for drug control goes to the criminal justice system, and only one-third goes to prevention and treatment.

Diet, Exercise, and Obesity

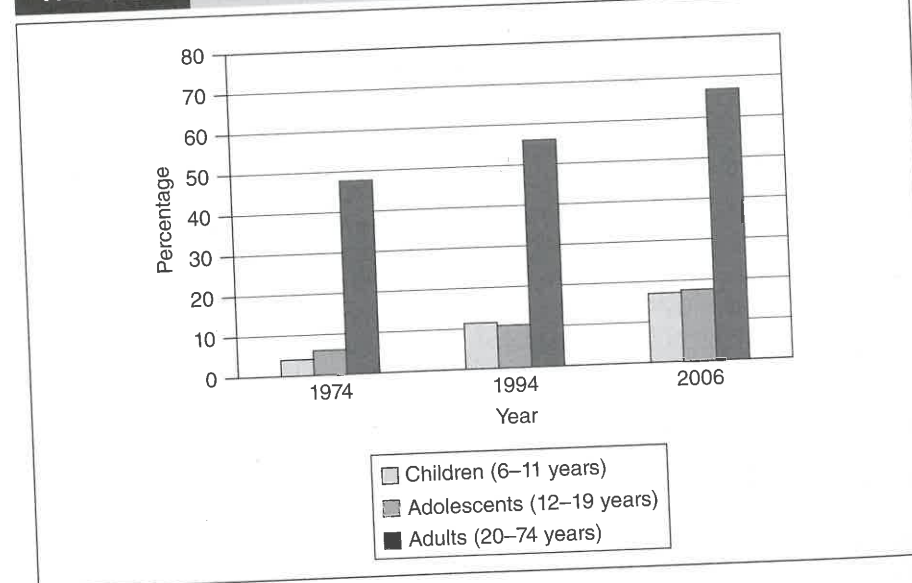
The second most common cause of premature deaths, according to Mokdad and his colleagues (2004), is a high-fat diet, sedentary lifestyle, and resulting obesity, which the authors argue increases the odds of developing cardiovascular disease, strokes, certain cancers, and diabetes, among other problems.

The Obesity Myth? As Figure 2.1 shows, rates of overweight and obesity in the United States have skyrocketed in recent decades (National Center for Health Statistics, 2010a). These changes have led the federal government to declare obesity a top national priority.

Without question, life is more difficult for overweight people. In contemporary America, overweight persons are considered not only less attractive but also less intelligent, responsible, and moral than others. Heavier persons—especially if they are women—are less likely to get dates, job promotions, marriage proposals, and so on. Physically, too, life becomes more difficult above a certain weight. Chairs and clothes don't fit, exercise becomes uncomfortable, and finding the energy for life's daily tasks and pleasures becomes problematic. Moreover, individuals who are obese, rather than just overweight, are more likely to develop heart conditions, diabetes, sleep difficulties, and other problems that diminish their quality of life even if their weight doesn't kill them (CDC, 2005).

Nevertheless, some scholars believe the dangers of excess weight have been overstated (Campos, 2004; Flegal et al., 2005; Gibbs, 2005). In 2005, the CDC reduced its estimate of yearly mortality due to obesity from 360,000 to 112,000 deaths per year (which still leaves it the second highest cause of premature deaths). This new estimate came from an article, published by Katherine Flegal and her colleagues (2005) in the *Journal of the American Medical Association*, that combined data from five national **random samples** conducted over a 30-year period. The article concluded that the dangers of obesity had been greatly overestimated by previous researchers. In addition, it found that being overweight

FIGURE 2.1 Percentage of Americans Who Are Overweight or Obese



SOURCE: National Center for Health Statistics (2010a).

(but not obese) actually *reduces* death rates in most cases. The highest death rates overall occurred among those who were obese (e.g., 5'6" and more than 180 pounds), but the second highest death rates occurred among those who were *underweight* (e.g., 5'6" and less than 112 pounds). Moreover, above the age of 60, and among nonsmokers (regardless of age), *underweight* persons had the highest death rate.

Why have studies disagreed so dramatically about the impact of weight on mortality? Earlier studies were based on narrow populations (such as middle-aged nurses) relied on self-reported weights and heights, controlled statistically for few variables, and may not reflect current conditions. In addition, earlier studies compared obese Americans with normal-weight Americans, whereas Flegal and her colleagues explored the full weight range, from underweight to obese. Finally, the diet industry funded almost all earlier research, which may have colored those data. In contrast, Flegal and her colleagues relied solely on federally funded research studies.

Other researchers have suggested that the real issue is not obesity, but physical activity and fitness (Blair and Church, 2004). Reviews of previous research indicate that obese but physically fit individuals have half the death rate of normal weight but *unfit* individuals. Moreover, research consistently suggests that significant, sustained weight loss is nearly impossible but that 150 minutes a week of moderate physical activity can substantially reduce a person's health risks (Blair and Church, 2004; Kolata, 2004a). Consequently, from a health perspective, it seems more important and realistic to encourage Americans to exercise rather than to diet.

Despite these debates about the consequences of being overweight, scientists agree that Americans would be fitter, feel healthier, and perhaps live longer if they increased their activity levels; reduced consumption of fats, sugars, salt, and meat; and increased consumption of fruits, vegetables, and whole grains. Such changes would most benefit poor Americans, who often rely on sweet or fatty foods to inexpensively obtain energy and satisfy hunger (James et al., 1997).

"Supersizing" Americans Why have Americans gained so much weight over the past generation? To answer this question, we need to look at how biology, economics, and politics interact (Critser, 2003).

Biologically, humans naturally desire sweet and fatty foods. In past eras, when food was scarce, these cravings helped humans stay alive. Now, though, most Americans have plentiful access to food and eat more calories than their bodies can use, leading in the long run to weight gain. In addition, the rapid adoption by food manufacturers of high-fructose corn syrup (an inexpensive sweetener) and palm oil (an inexpensive fat) may have spurred rapid weight gains because the former is metabolized by the body differently than are other sugars, and the latter is an especially saturated fat (Critser, 2003).

To these changes in *what* Americans eat were added changes in *how much* Americans eat. Longer work weeks and the increase in two-earner and single-parent families have led Americans to eat out more than ever before: Between 1970 and 2009, the percentage of Americans' food expenditures devoted to

eating out increased from 25% to 41% (Bureau of Labor Statistics, 2010a). Yet restaurant foods typically include far more fat and sugar than do homemade meals. Moreover, since the 1970s, restaurants increasingly have offered "super-sized" portions, buffet tables, and packaged "value meals." Unfortunately, few individuals can restrict their calorie intake when offered large, varied meals, so this trend has increased calorie consumption. For these reasons, the rise in eating away from home has increased Americans' calorie consumption by an average of 1,400 calories per person per week (Critser, 2003:33). For example, teenage boys who eat at fast-food restaurants three or more times a week consume 800 more calories *per day* than do those who avoid fast food (French, et al., 2001). (The current recession, however, has led many Americans to cut back on eating out and on eating more generally.)

Food manufacturers and the fast-food industry have used advertising to further encourage Americans to eat a sweet, fatty, high-calorie diet. Because manufacturers earn far less money selling healthy foods (such as fruits and vegetables) than by selling highly refined products loaded with fat, sugar, and salt (such as soft drinks and convenience foods), they spend 30 times more money on advertising the latter foods (Nestlé, 2002:22). Such advertising has grown increasingly insidious and now pervades every sphere of our society—especially those where children can be found. Soft-drink companies, for example, encourage sales of their products to children not only by advertising on television, in magazines, and on the Internet but also through such tactics as placing their products in movies, sponsoring school sports teams, and offering cash bonuses to schools that place soda machines (provided by manufacturers) at cafeteria entrances. Consumption of sugar-sweetened soft drinks is directly and substantially related to obesity and diabetes among both adults and children (Apovian, 2004).

Meanwhile, as caloric consumption has increased, physical exercise has decreased. Because of budget cuts, almost half of all U.S. high school students no longer take any physical education classes (Gerberding and Marks, 2004). And at home, few children these days are allowed to spend their afternoons running free or playing non-organized sports. Instead, poor children are admonished to stay indoors to stay safe, and more-affluent children are shepherded from tutors to classes to the occasional sports activity. Finally, few children or adults nowadays commute by foot or bicycle to work, play, or shopping, so physical activity is no longer built into most Americans' daily lives.

Motor Vehicles

Mokdad and his colleagues (2004) attribute 2% of all premature deaths to motor vehicle accidents (including accidents involving drug but not alcohol use). These deaths are not a necessary byproduct of modern life. Rather, they reflect in part a series of decisions regarding the design of automobiles and transportation systems.

Changes in car design can dramatically reduce the chances that an accident will cause death or serious injury. The rate of deaths from motor vehicle accidents has declined substantially since 1966, when Congress established the National Highway Traffic Safety Administration to regulate motor vehicle design

and oversee highway safety programs. Yet automobile manufacturers continue to oppose inexpensive improvements that could save thousands of lives yearly, such as strengthening bumpers or covering instrument panels with softer materials to prevent head injuries. Equally important, legislators and government regulators have continued to exempt vans, multipurpose vehicles, and light trucks—which now account for more than 50% of all noncommercial vehicle sales—from passenger car safety regulations even though most consumers use these vehicles as family cars.

Another way to reduce deaths and disability from motor vehicles is to get people out of cars. Americans die in motor vehicle accidents more often than do Europeans primarily because Americans drive more. Although the size of the United States partially explains this difference, Americans also drive so much because they lack other options. Through a series of local and federal decisions, public transportation in this country has declined significantly since its apex in the 1920s (Hayden, 2003). Trains and railroad tracks have decayed while federal dollars have subsidized highway construction and motor vehicle production. Long-distance bus systems run for profit have eliminated money-losing connections to many smaller communities. Meanwhile, cities spend billions for parking facilities, road construction, and road maintenance but offer bus service only to limited locations, during limited hours, and on a limited schedule. Consequently, whereas a French citizen can use publicly subsidized trains or buses to go to any town or city in France on any given day and probably at several different times, an American citizen often has no way to go by public transportation from one town to the next. For example, Phoenix, Arizona is the sixth largest city in the United States but has no passenger rail service.

Nevertheless, despite these problems, the rate of motor vehicle deaths declined by almost 10% from 1990 to 2000. Mokdad and colleagues (2004) attribute this decrease to greater enforcement coupled with public education campaigns against drunk driving.

Firearms

According to Mokdad and his colleagues (2004), firearms account for 1% of all premature deaths in the United States: 16,586 suicides, 10,801 homicides, 776 accidental deaths, and 270 deaths by police. Importantly, firearms ownership and death from firearms are exceptionally common in the United States (Krug, Powell, and Dahlberg, 1998). Studies have found that having a gun in the home significantly increases the odds of suicide, homicide, and unintentional shooting deaths of children (Kellerman et al., 1993).

Those who support firearm ownership typically argue that guns protect honest citizens from attacks by criminals. Yet guns are used far more often against noncriminals than against criminals. Furthermore, owning a gun increases the chances of being killed even when a home is forcibly entered or a victim attempts to resist (Kellerman et al., 1993).

Although interest in gun control rises sharply after each mass murder (such as the 2011 shootings that killed six and wounded 14 in Tucson, Arizona), this

interest has not translated into widespread legislative changes. Those favoring gun control face heavy financial odds, for the “gun rights” lobby routinely donates about ten times more to federal candidates than does the “gun control” lobby (Center for Responsive Politics, 2010). Moreover, in June 2008, the U.S. Supreme Court affirmed for the first time that individuals have a right (although not an absolute right) to own guns. Nevertheless, the battle against gun violence still continues.

Sexual Behavior

Mokdad and his colleagues (2004) attribute 1% of premature deaths to sexual behavior, primarily via hepatitis B, HIV/AIDS, and cervical cancer; the first two are directly transmitted through sex, the last is most often caused by human papillomavirus (HPV), a sexually transmitted virus. Mokdad and his colleagues also include in this category infant mortality after unplanned and unwanted pregnancies.

No “manufacturer of illness” benefits from convincing people to engage in sexual activity without protecting themselves against disease or pregnancy, but social conditions can encourage such behavior. First, those forced by economic necessity to turn to prostitution to support themselves, whether male or female, often find that they cannot suggest safer sex to clients without losing business or risking violence. Similarly, those whose intimate relationships are not based on mutual respect and equality sometimes find that suggesting safer sex to their romantic partners results in violence or abandonment (Wingood and DiClemente, 1997). Finally, those who have learned to have little hope for the future—a sentiment particularly common among youths in communities wracked by racism and poverty—sometimes believe they have little to lose by engaging in unsafe sexual activity (Plotnick, 1992).

Other sexually active individuals, however, do fear sexually transmitted diseases and pregnancy but lack knowledge about safer sexual practices or access to birth control. Most U.S. schools now solely provide “abstinence-only” education even though research overwhelmingly suggests it doesn’t work (Kohler, Manhart, and Lafferty, 2007). This chapter’s *Contemporary Issues* discussion describes the consequences of this policy for the spread of sexually transmitted diseases.

Meanwhile, access to birth control and abortion has declined. Cuts in public funding for contraceptive services have reduced options for teenagers and low-income women, the groups most at risk for unplanned pregnancies and infant mortality. Similarly, the federal government will pay for abortions for women on **Medicaid** (the government-funded health insurance program for poor persons) only if the woman’s life is endangered. Meanwhile, cutbacks in government funding for abortions, coupled with harassment and even violence against abortion providers, have reduced the number and geographic distribution of abortion providers. Moreover, few medical schools now teach how to perform abortions, making it the only medical procedure that doctors can refuse to learn. Currently, 35% of U.S. women live in counties without any abortion provider (Allan Guttmacher Institute, 2010). Other restrictions, such as requiring waiting

CONTEMPORARY ISSUES

The Epidemic of Sexually Transmitted Diseases

Sexually transmitted diseases (STDs) have reached epidemic levels among young people in the United States. According to federal researchers, about one-quarter of teenage girls and boys (ages 14–19) have an STD—more than in any other age group (Centers for Disease Control and Prevention, 2009).

These conclusions were based on the National Health and Nutrition Examination Survey, a large-scale study using a national random sample. The survey’s researchers tested for infection with the four most common STDs: Chlamydia, trichomoniasis, genital herpes, and human papillomavirus (HPV). Both chlamydia and trichomoniasis can be cured, and with proper medical attention, HPV and genital herpes can be kept from causing serious health problems. Nevertheless, none of these diseases should be taken lightly. Many girls infected with these diseases do not develop any symptoms until long after they are infected. By that time, the diseases are far harder to treat and may already have caused serious health problems. Among the long-term consequences of these STDs are infertility, cervical cancer, and potentially life-threatening pelvic inflammatory disease, as well as more minor but still life-altering problems such as genital warts and vaginal discomfort.

Chlamydia and trichomoniasis can be prevented through condom use, and HPV infection can be prevented through vaccination. But the majority of Americans become sexually active as teenagers (Kohler et al., 2007), and so vaccination and sex education would be most effective if given to preteens—a prospect that many parents find abhorrent. Moreover, abstinence-only education—the norm in U.S. schools—is largely ineffective (Kohler et al., 2007). Thus, to reduce rates of STD infection, Americans will need to grapple more seriously with the realities of youth sexuality.

periods or parental consent before abortions, also limit access, especially for poor and young women. Yet despite these restrictions, abortion remains common: An estimated one-third of all U.S. women will have an abortion at some time during their lives (Allan Guttmacher Institute, 2010). As a result, preserving the safety of abortion services is an important health issue.

Medical Errors

According to a report released by the federal Institute of Medicine (Kohn, Corrigan, and Donaldson, 1999), between 44,000 and 98,000 Americans die each year from preventable medical errors in hospitals, and at least as many die from errors outside of hospitals. Subsequent research has suggested that these numbers greatly underestimate the problem (HealthGrades, 2004; Leape and Berwick, 2005). Medical errors include conducting surgery on the wrong patient, giving a patient two drugs that interact dangerously, or misdiagnosing and hence mistreating a patient. Such errors cost the nation approximately \$17 billion per year.

When errors occur, it is natural to focus on identifying who is to blame. Yet most errors occur despite the best efforts of health care workers (Kohn et al., 1999). Consequently, most researchers argue that we need to shift our focus from individual errors to problematic systems. For example, many hospitals stock

certain drugs only at full strength even though the drugs must be diluted to use safely. Stocking these drugs in diluted form would eliminate this source of death much more effectively than trying to identify every doctor or nurse who might administer the wrong dosage. Similarly, fatal errors can easily occur when different drugs have similar names: Someone with epilepsy, for example, who receives the antifungal drug Lamisil instead of the antiepileptic Lamictal can die if his seizures continue unabated. As this suggests, most fatalities result from the combination of human error with systems that facilitate errors.

The lack of a system for identifying deaths caused by medical errors has hampered efforts to prevent such deaths. During the 1950s and 1960s, hospitals routinely autopsied most patients who died in their care. Now, because of a combination of economic costs and fear that identifying errors might lead to malpractice claims, hospitals autopsy fewer than 10% of patients who die, thus virtually eliminating one of medicine's most basic tools for identifying medical errors (Lundberg, 2001:253).

Medical culture, too, makes it difficult to control medical errors. Research consistently finds that doctors rarely focus on identifying such errors (Bosk, 2003; Orlander and Fincke, 2003; Pierluissi et al., 2003). Instead, because of professional etiquette, the need to maintain good relations with colleagues, and a medical culture that values individual doctors' right to make their own decisions, most errors are ignored, labeled unavoidable, blamed on nonmedical staff, or blamed on doctors in other divisions (Pierluissi et al., 2003).

Despite all of these problems, the Institute of Medicine's report did help (Leape and Berwick, 2005). Most importantly, there is now widespread agreement among doctors, insurers, researchers, the public, and the government that medical errors are a problem, and there is growing agreement that systemic changes are needed. For example, Veterans Administration hospitals now use a computerized record system that gives nurses and doctors access to comprehensive information on their patients. In addition, the record system generates bar-coded strips that are attached to each nurse, patient, and medication. Before administering medications, nurses must scan their own bar code, their patients' bar codes, and the medications' bar codes into a computer. The computer then checks that the nurse has the right drug for the right patient and that the drug will not interact dangerously with any other drug taken by that patient. Since adopting this system, medication errors have dropped 70% (Leape and Berwick, 2005). The federal government now provides this record system for free to all U.S. doctors who treat patients under **Medicare**, the federally funded insurance program for elderly and permanently disabled individuals.

Bacteria and Viruses

Bacteria and viruses surround us all the time. Yet only rarely do individuals become infected, and even more rarely do these infections lead to deaths. Under what conditions do these deaths occur?

First, individuals will not develop fatal diseases if they are vaccinated against them. Virtually all U.S. children are vaccinated before they begin school, but

about one-quarter do not receive all the required vaccinations by the recommended ages (National Center for Health Statistics, 2010b).

Second, even in the absence of vaccinations, individuals exposed to microorganisms may not become infected unless they already are physically weakened. For example, a significant percentage of all persons admitted to hospitals—a population that obviously is already physically vulnerable—develop infections while in the hospitals, some of them life threatening. Similarly, individuals are far more susceptible to infection if age, malnutrition, poor housing, insufficient clothing, or other difficulties weaken their bodies. This explains why American tourists rarely contract tropical diseases when they travel to countries where disease is endemic even if they do not get vaccinated and do not take drugs to prevent infection.

Third, the same factors that leave some susceptible to infection help explain why, among those who do become infected with a given disease, some die but others experience only minor health problems. Measles, for example, is a minor childhood disease in the United States but a major killer in poorer countries (as described in Chapter 4).

Fourth, among those who become ill, death or long-term disability may not occur if individuals have ready access to good health care. For example, doctors can cure most bacterial infections in otherwise healthy individuals, and simply providing intravenous nutrition and fluids can save the lives of many infants who experience life-threatening diarrhea.

Toxic Agents and Risk Societies

Mokdad and his colleagues (2004) trace 2% of premature deaths to **toxic agents**: substances that can harm or kill people or other organisms. These agents can be divided into occupational hazards and environmental pollutants. In "light" industries such as electronics, workers are often exposed to a wide variety of potentially toxic solvents, such as trichloroethylene (TCE); in traditional industries such as mining and construction, welders often face substantially increased risks of lung cancer caused by toxic levels of chromium and nickel. Similarly, agricultural workers are often exposed to dangerous pesticides (as described in Chapter 3).

Unlike occupational hazards, environmental pollution most threatens children because of their still-growing bodies and immune systems, the time they spend playing outdoors, and their tendency to play on the ground and put things in their mouths (U.S. Environmental Protection Agency, 2008). Many forms of environmental pollution threaten children. Flaking lead paint in old houses or apartments, which can be tempting to very young children, can cause mental retardation, learning disabilities, hearing deficiencies, hyperactivity, and other problems. Pesticides on fruits and vegetables or in the air near farm fields can cause cancers and other disabilities. Air pollution can lead to asthma, bronchitis, and other respiratory problems. And hazardous waste sites and contaminated water can cause birth defects, bacterial infections, and other health problems.

In the long run, the greatest environmental health threat may be climate change. During the past quarter century, carbon dioxide and synthetic gases, especially chlorofluorocarbons (CFCs) such as Freon, have mushroomed. According to the Intergovernmental Panel on Climate Change (2007), a joint venture of the World Meteorological Organization and the United Nations Environment Programme, these chemical byproducts of industrial manufacturing have damaged the ozone level surrounding the planet and have caused increased smog, dangerously erratic rainfall patterns, and extreme temperature changes—both up and down—around the globe. Debate continues about the consequences of climate change, but many scientists suspect that damage to the ozone layer will lead to more cancers (especially skin cancer), increased smog will lead to more cases of bronchitis and emphysema, and rising temperatures will lead to more mosquitoes and more people infected with tropical diseases such as malaria and dengue fever (Armstrong and Harper, 2010).

All of these hazards posed by toxic agents result directly from the modern risk society. Sociologists use the term **risk society** to refer to any society that depends so heavily on potentially dangerous modern technologies that the risks from such technologies become commonplace and accepted (Beck, 1992, 2006).

Individuals who become ill due to these risks face an uphill battle in gaining recognition for their illnesses (Brown et al., 2002; Brown, Kroll-Smith, and Gunter, 2000). By definition, these risks stem from technologies deemed crucial to a society, such as the production of oil, chemical fertilizers, and biological weapons. Because these technologies bring considerable wealth and power to governments and corporations, those institutions have a vested interest in maintaining the status quo. As a result, individuals can find it exceptionally difficult to win acknowledgement for their health problems, especially when they have access only to doctors who work for the government or corporations.

THE HEALTH BELIEF MODEL, HEALTH LIFESTYLES, AND HEALTH “PROJECTS”

It is no secret that tobacco, guns, and sex without condoms can kill. So why do some people engage in behaviors that place their health at risk? Conversely, why do others make maintaining their health an all-consuming project? To address these questions, sociologists turn to the concepts of the health belief model, health lifestyles, and health projects.

The Health Belief Model

The most commonly used framework for studying compliance to medical advice is the **health belief model** (Becker, 1974, 1993; Rosenstock, 1966). The model was developed to explain why healthy individuals adopt healthy behaviors. According to the model, four factors affect these decisions: Individuals must believe (a) that they are susceptible to a particular health problem, (b) that the

problem is serious, (c) that adopting preventive measures will reduce their risks significantly, and (d) that no significant barriers make it difficult for them to adopt those measures. For example, people are most likely to adopt a low-fat diet if they believe that otherwise they will face high risks of heart disease; that heart disease will substantially decrease their life expectancy; that a low-fat diet will substantially reduce their risk of heart disease; and that adopting such a diet will not be too costly, inconvenient, or unpleasant. In turn, according to the health belief model, these four factors are affected by demographic variables (such as the individual's gender and age), psychosocial variables (such as personality characteristics and peer group pressures), structural factors (such as access to knowledge about the problem and contact with those who experience the problem), and external cues to action (such as media campaigns about the problem or doctors' advice). *Key Concepts: The Health Belief Model* outlines how this model works.

Although this model recognizes that social factors as well as individual psychological factors affect health decision making, in practice, it is most often used to explain individual choices. In other words, researchers who use this model tend to emphasize **agency**—individual free will to make choices—over **structure**—social forces that limit the choices individuals realistically can make (Cockerham, 2005). As a result, such researchers, along with most policymakers, more often promote policies such as educating consumers about the dangers of smoking than policies such as banning smoking in public places. The debate over the relative importance of agency and structure—sometimes referred to as “life choices” versus “life chances”—is at the center of many theoretical discussions

KEY CONCEPTS

The Health Belief Model

People Are Most Likely to Adopt Healthy Behaviors When They:	Example: Adopting Healthy Behaviors Likely	Example: Adopting Healthy Behaviors Unlikely
Believe they are susceptible	40-year-old smoker with chronic bronchitis who believes he is at risk for lung cancer	16-year-old boy who believes he is too healthy and strong to contract a sexually transmitted disease
Believe risk is serious	Believes lung cancer would be painful and fatal and does not want to leave his young children fatherless	Believes that sexually transmitted diseases can all be easily treated
Believe compliance will reduce risk	Believes he can reduce risk by stopping smoking	Doesn't believe that condoms really prevent sexual diseases
Have no significant barriers to compliance	Friends and family urge him to quit smoking, and he can save money by so doing	Enjoys sexual intercourse more without condoms

within sociology and, even more so, between sociology and other fields such as psychology and medicine.

Health Lifestyles

All human behavior is affected by both agency and structure. No one blindly follows every social rule and expectation. Nor is anyone fully free of socialization, cultural expectations, and social limitations on what options are truly available. Nevertheless, knowing the social groups that individuals belong to helps us predict their odds of adopting various health behaviors: Lower class citizens are far more likely than upper class citizens to smoke, men are far more likely than women to drink heavily, and so on. Consistent patterns such as these led sociologist William Cockerham to propose a new **health lifestyle theory** that acknowledges both agency and structure but emphasizes group rather than individual behaviors. Compared with the health belief model, this new theory offers a more comprehensive analysis of why healthy behaviors are or are not adopted. (See *Key Concepts: Health Lifestyle Theory*.)

Cockerham (2005:55) defines health lifestyles as “collective patterns of health-related behavior based on [life] choices from options available to people according to their life chances.” (Emphasis mine.) According to this theory, decisions about healthy and unhealthy behavior begin with demographic circumstances, cultural memberships, and living conditions. These factors *directly* affect individuals’ life chances, such as whether they have the education needed to avoid physically dangerous jobs. In addition, demographic circumstances, cultural memberships, and living conditions *indirectly* affect life choices through their effect on socialization and life experiences. Those who grow up with parents who consider all alcohol use immoral, for example, will be less likely to drink as adults than those whose parents considered alcohol to be just another beverage.

At the same time, life choices affect life chances and vice versa. For example, those who choose to drive safely (a life choice) are more likely to avoid injury (a life chance). Conversely, those who live in poverty (a life chance) may choose to drive fast (a life choice) because it is fun and because they don’t expect to live long anyway. As this theory suggests, life choices and life chances come together to create **habitual dispositions** toward health behaviors—routine, almost instinctual ways of thinking about whether certain behaviors are or are not worth adopting. These dispositions are crucial to the health lifestyles adopted by individuals and groups.

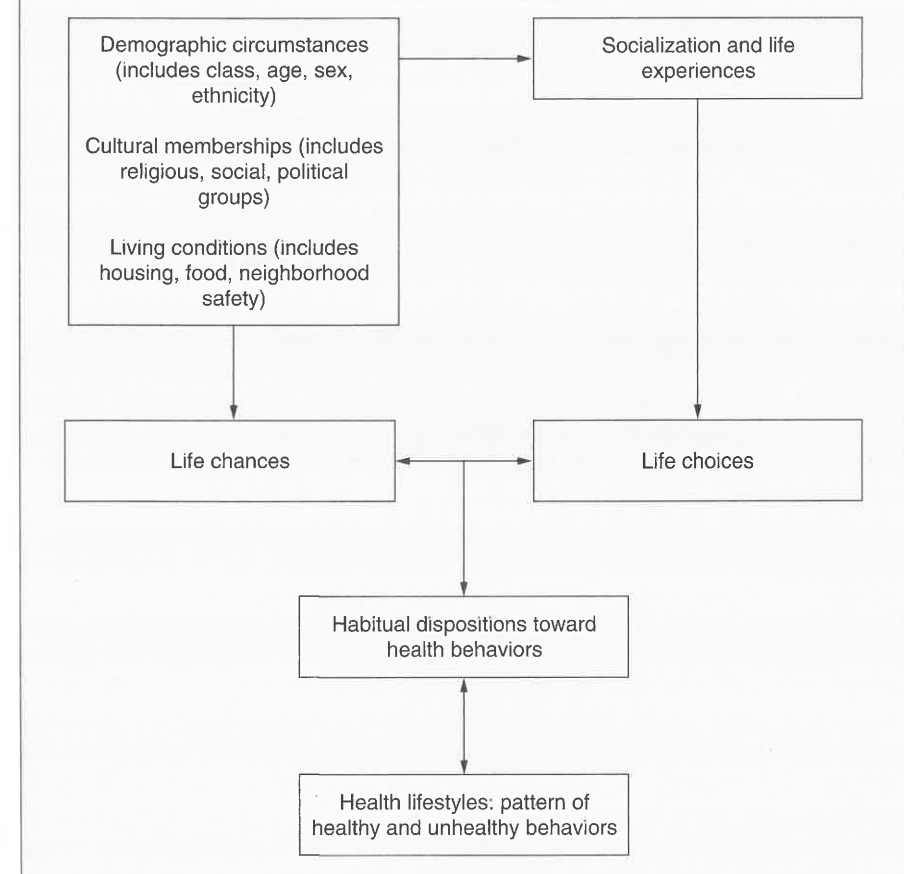
Finally, Cockerham notes, not only do dispositions affect health lifestyles, but health lifestyles affect dispositions. As people’s ways of thinking about behaviors such as smoking change, so do their behaviors. And as their behaviors change, so do their dispositions.

Health Projects

One outgrowth of the health lifestyle currently common among middle- and upper-class Americans is the rise of the “health project.” The idea of a health

KEY CONCEPTS

Health Lifestyle Theory



SOURCE: Cockerham (2005).

project draws on the idea of a **body project**. As originally developed, the latter term referred to the intense focus that many young women now bring to shaping their bodies and to the ways that those activities are now considered both important work and central to individual identity (Brumberg, 1997). Similarly, we can speak of a modern **health project**, common among many affluent Americans, that requires individuals to actively protect their health and defines this as important work, central to individual identity (Shilling, 2002). This health project reflects both the modern emphasis on appearance and the long-standing American emphasis on the virtues of hard work.

Embedded in the concept of the health project is the idea that good health comes not from God, nature, or genes but rather from individual hard work. Similarly, the health project is based on the assumption that the body is both unfinished and highly malleable, so individuals can always choose to shape and

control it (Dworkin and Wachs, 2009). Conversely, the health project suggests that those who do not take on this work are “slackers,” less morally worthy than those who do so. For this reason, it’s not at all unusual to hear lawyers, businesspeople, and others offhandedly mention their various athletic injuries, not only to elicit sympathy but also to subtly suggest their “moral” worth. These ideas are reinforced by a wide range of media (television shows, magazines, advertisements, and others) that constantly exhort us to work on our diets, “abs,” and cholesterol levels (Dworkin and Wachs, 2009).

SOCIAL STRESS AND SOCIAL NETWORKS

Even among those who smoke, drink, or engage in other risky behaviors, some individuals are more likely to survive to old age than others. And even among those who do everything “right,” some will die earlier than others even if those others share their genes, physical environment, and living conditions. To understand this paradox, sociologists have looked at the concepts of social stress and social networks.

Social Stress

The Nature of Social Stress The term **stress** has three major meanings. First, stress refers to *situations* that make individuals feel anxious and out of balance. Second, stress refers to the *emotions* that result from exposure to such situations. Finally, stress refers to the *bodily changes* that occur in response to these situations and emotions. For example, a fight with a friend is a stress; can produce the emotion of stress; and can lead to the physical stress of tensed muscles, rapid heartbeats, and heavy breathing. Stress can be either acute (such as the death of a spouse) or chronic (such as long-term loneliness or financial difficulties resulting from a spouse’s death). Importantly, stress is often cumulative. An individual’s **cumulative stress burden**—the sum of acute and chronic stresses that one has experienced—is a powerful predictor of ill health (Thoits, 2010).

The Impact of Social Stress Stress is a natural, unavoidable, and sometimes beneficial part of life. Thousands of years ago, hunters experienced stress as they anxiously prepared to track wild animals. That emotional stress put physical stress on their bodies, but it also kept their minds focused on their tasks. If, for example, a wild animal suddenly attacked, a hunter might survive because the emotional stress resulted in the physical stress response known as the fight-or-flight syndrome. The same quick heartbeat we experience while fighting with a friend could have saved the life of someone fighting a lion because these physical changes help our bodies produce additional energy and oxygen and hence respond more quickly and effectively to threats.

Although the fight-or-flight response works well for dealing with sudden threats such as rampaging lions, speeding cars, and last-minute quizzes, it is far

less useful for dealing with chronic stresses such as poverty or an ill child. Each time the body responds to a threat, it uses muscles, energy, and other resources. Over the long run, such stresses can wear out the body; lead to heart disease, diabetes, and other illnesses; and encourage individuals to adopt unhealthy behaviors such as smoking tobacco or having sex without condoms (Avison and Thomas, 2010; Sapolsky, 2004).

The impact of the stress, however, depends heavily on the nature of the stress: Studying for a short quiz, for example, is less stressful than failing a final exam. Stress is particularly likely to affect health when it stems from a “fateful loss,” is physically exhausting, or disrupts social support systems (Avison and Thomas, 2010). For example, an accountant who loses his job; has to work exhausting double shifts as a cashier to replace his lost income; and no longer has the time, money, or energy to hang out with friends may experience dangerous levels of stress. As this suggests, chronic stress is especially important, diminishing individuals’ abilities to ward off infections, depression, and other health problems (Avison and Thomas, 2010; House, 2002; Siegrist, 2010).

But even when exposed to similar levels of stress, some individuals are more susceptible to illness than others. The likelihood that stress will affect health depends in part on how individuals *appraise* the stress and how they cope with the stress. In turn, both of these responses to stress depend on the *social resources* individuals bring to the situation (Avison and Thomas, 2010). For example, flunking an exam is far more stressful for a student who risks losing his scholarship than for other students. It will also be less stressful if the student copes by quickly seeking out a good tutor rather than by getting high or blaming his grade on an incompetent teacher. But the student’s ability to respond effectively will also be determined in part by his social resources: Has he learned from a young age to turn to alcohol as a coping measure? Do his friends encourage him to continue trying or to drop out? Does he have the funds needed to hire a tutor and the contacts needed to find a good one? The answers to each of these questions will affect whether this acute stress leads to chronic stress and, in the end, to ill health.

Gender, Race, Class, and Social Stress As this suggests, the likelihood of experiencing traumatic social stress depends in part on one’s position in society (a topic described in more detail in Chapter 3). Men, for example, more often experience traumatic physical injuries on the job, but women more often experience chronic stress from holding jobs while raising children. Women, however, typically have a greater *cumulative* stress burden, which may explain their higher rates of disability (Thoits, 2010).

Minorities, too, have higher cumulative stress burdens and resulting ill health. That stress burden includes the emotional burden of living with racist discrimination and prejudice (Thoits, 2010). In addition, discrimination and prejudice increase the odds that such individuals will be poor and (even if not poor) will live in neighborhoods characterized by poverty, neglect, crime, and pollution—all factors that can contribute to stress, illness, and injury. Immigrants, too, may face similar problems, especially if they belong to a stigmatized minority or have entered the country illegally.

Similarly, individuals with lower incomes and education levels experience more stress overall than more affluent, better educated individuals (Thoits, 2010). Poverty exposes individuals to a wide range of stresses, including hunger, worries over bills, poor living conditions, and physically exhausting work. Moreover, poor people are far more likely to hold jobs that combine *high demand*—bosses constantly pressuring workers to produce more and faster—with *low control*—bosses who offer workers' few choices, even over seemingly small issues such as when to take bathroom breaks. Such working conditions are particularly likely to result in dangerous levels of stress (Siegrist, 2010).

Social Networks

Whereas social stress can promote illness regardless of individuals' behaviors, social networks can help to *prevent* illness (Smith and Christakis, 2008; Thoits, 2010). **Social networks** are the webs of social relationships that link people to each other, whether as friends, relatives, acquaintances, co-workers, or in some other way. Because most social networks are relatively homogeneous—primarily linking people who share ethnicity, social class status, personality traits, political views, and so on—they tend to amplify the advantages and disadvantages that different social groups already experience.

Social networks affect health in various ways. Among other things, social networks offer individuals access to social support, financial assistance, health information, and other forms of aid that can help them stay (or become) healthy. In general, people with smaller social networks; only weak ties to others in their networks; or networks that tie them to poor, marginalized individuals will be less able to avoid or recover from illness, injury, or substance abuse (Smith and Christakis, 2008).

Networks also affect health by exposing individuals to specific social norms. If, for example, several individuals in a social network smoke tobacco, others who join that network may conclude that smoking is acceptable (Kaplan et al., 2001). Similarly, a groundbreaking study by Nicholas Christakis and James Fowler (2007), which traced all the social networks in one community for 32 years, found that obesity spread much like the flu within networks. Not only were individuals more likely to become obese over time if their friends became obese, but their chances of obesity increased if *friends of their friends' friends* became obese! The authors hypothesize that when one person became obese, that person's friends became more accepting of weight gain (including their own), and that acceptance then spread to their friends and their friends' friends. Conversely, joining new social networks can *reduce* individuals' health risks when, for example, a student from a poor family transfers to a middle-class school and gains access to a new social group that frowns on tobacco use or encourages athletic activity.

IMPLICATIONS

Recent years have seen an increasing tendency to blame individuals for their own health problems (a topic discussed further in Chapter 5). Yet as we have

seen, patterns of disease stem from social conditions as much as, if not more than, they stem from individual behaviors or biological characteristics. As Marshall Becker, a sociologist and one of the researchers who has done the most to help elucidate why people engage in health-endangering activities, writes:

I would argue, first, that health habits are acquired within social groups (i.e., family, peers, the subculture); they are often supported by powerful elements in the general society (e.g., advertising); and they have proven to be extremely difficult to change. Second, for most people, personal behavior is not the primary determinant of health status and it will not be very effective to intervene at the individual level without concomitant attempts to alter the broader economic, political, cultural, and structural components of society that act to encourage, produce, and support poor health (1993:4).

In sum, to improve the public's health we must look beyond individual behavior and personal troubles to structural issues and, in C. Wright Mills's terms, public issues. Such a change in focus will enable us to address the underlying causes of illness and to ensure that national health policy is driven by concern for the public rather than concern for special interests.

SUMMARY

1. *Epidemiology* refers to the distribution of illness in a population. Epidemiologists rely on concepts such as life expectancy, mortality and morbidity rates, incidence, and prevalence. *Incidence* refers to the number of new occurrences of an event (disease, births, deaths, and so on) within a specified population during a specified period. *Prevalence* refers to the total of both new cases existing in a population at a given time and older cases that are still surviving.
2. Infectious illnesses again have become a growing source of illness and death in the Western world, partly because of overuse of antibiotics, changing physical environments, and globalization. HIV/AIDS is an example of the resurgence of infectious diseases.
3. *Tertiary prevention* refers to strategies designed to minimize deterioration and complications among those who are already ill. *Secondary prevention* refers to strategies designed to reduce the prevalence of disease through early detection and prompt intervention. *Primary prevention* refers to strategies designed to keep people from becoming ill in the first place. Modern medicine primarily emphasizes secondary and tertiary prevention.
4. Sociologists suggest that to improve the population's health, we should look beyond individual behavioral choices to the manufacturers of illness: groups that promote illness-causing behaviors and social conditions.
5. Research suggests that ten factors account for at least 50% of all preventable deaths. These factors, in order of importance, are tobacco, diet and exercise,

- medical errors, alcohol, bacteria and viruses, toxic agents, motor vehicles, firearms, sexual behavior, and illegal drugs. The dangers posed by toxic agents reflect life in a risk society, one in which dangerous modern technologies and the risks they pose have become commonplace and accepted.
6. The health belief model predicts that individuals will be most likely to adopt healthy behaviors if they believe they are susceptible to a problem, believe the problem is serious, believe changing their behaviors will decrease the risk, and face no significant barriers to so doing. Health lifestyle theory offers a more comprehensive analysis of why healthy behaviors are adopted by emphasizing social structure as well as personal agency.
 7. Social stress has three meanings: (1) situations that make individuals feel anxious and out of balance, (2) the emotions that result from exposure to such situations, and (3) the bodily changes that occur in response to these situations and emotions. Social stress, especially when chronic, can cause physical and mental health problems.
 8. The likelihood that stress will affect health depends on how individuals appraise the stress and on how they cope with the stress, both of which depend on individuals' social resources.
 9. Social networks are the webs of social relationships that link people to each other. Health risks are greatest among those with small social networks; only weak ties to others in their networks; or networks that tie them to poor, marginalized individuals.

REVIEW QUESTIONS

1. What is the difference between morbidity and mortality and between incidence and prevalence?
2. What factors have caused the recent increases in infectious diseases, including tuberculosis and HIV/AIDS?
3. How is globalization affecting rates of disease?
4. How have the "manufacturers of illness" increased deaths caused by tobacco? By alcohol? By toxic agents? By diet?
5. How have social forces and political decisions increased deaths caused by sexual behavior? By illegal drugs?
6. What system-level factors help to explain medical errors? How does medical culture keep doctors from identifying medical errors?
7. Think of someone you know who smokes or engages in another unhealthy behavior. Use the health belief model to explain what would have to change for him or her to change his or her behavior. Then use health lifestyle theory to explain why you do or do not have a generally healthy lifestyle.

8. What are the benefits of the modern health project? What problems does the health project cause for those who adopt it? For those who don't?
9. How does social stress affect health? How do gender, race, and class affect average levels of social stress?
10. How can social networks reduce individuals' health risks? How can they increase those risks?

CRITICAL THINKING QUESTIONS

1. What are the *political* consequences of focusing on how social factors cause illness rather than focusing on biological factors?
2. Your text identifies tobacco and alcohol as two of the most important underlying causes of premature death in the United States. What social policies would help stop the manufacture of illnesses by alcohol and tobacco in the first place? (Be sure you do *not* confuse this with policies that would stop individuals from using these substances or would treat the health consequences of using these substances.)
3. Think of something you do (or believe you should do) to protect your health such as wearing seat belts, wearing bike helmets, drinking alcohol only moderately, eating five portions of fruits and vegetables daily, or flossing your teeth. Use the health belief model to explain why you do or do not take these precautions. (If you can't think of an example from your own experience, use an example from a friend or relative's life.)
4. First, use *each* of the *four* elements of the health belief model to explain why so few Americans eat five portions of fruits and vegetables daily. Second, explain why policy makers who want to improve Americans' diets need to *additionally* pay attention to *one* element from health lifestyle theory (you can choose any element).
5. Think of someone you know whose health is poor. How might social stress have worsened his or her health? How might his or her health problems have increased his or her stress?
6. Think of a social network you belong to (such as a fraternity, religious organization, athletic team) and discuss the effect of that social network on your health and health behaviors.

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