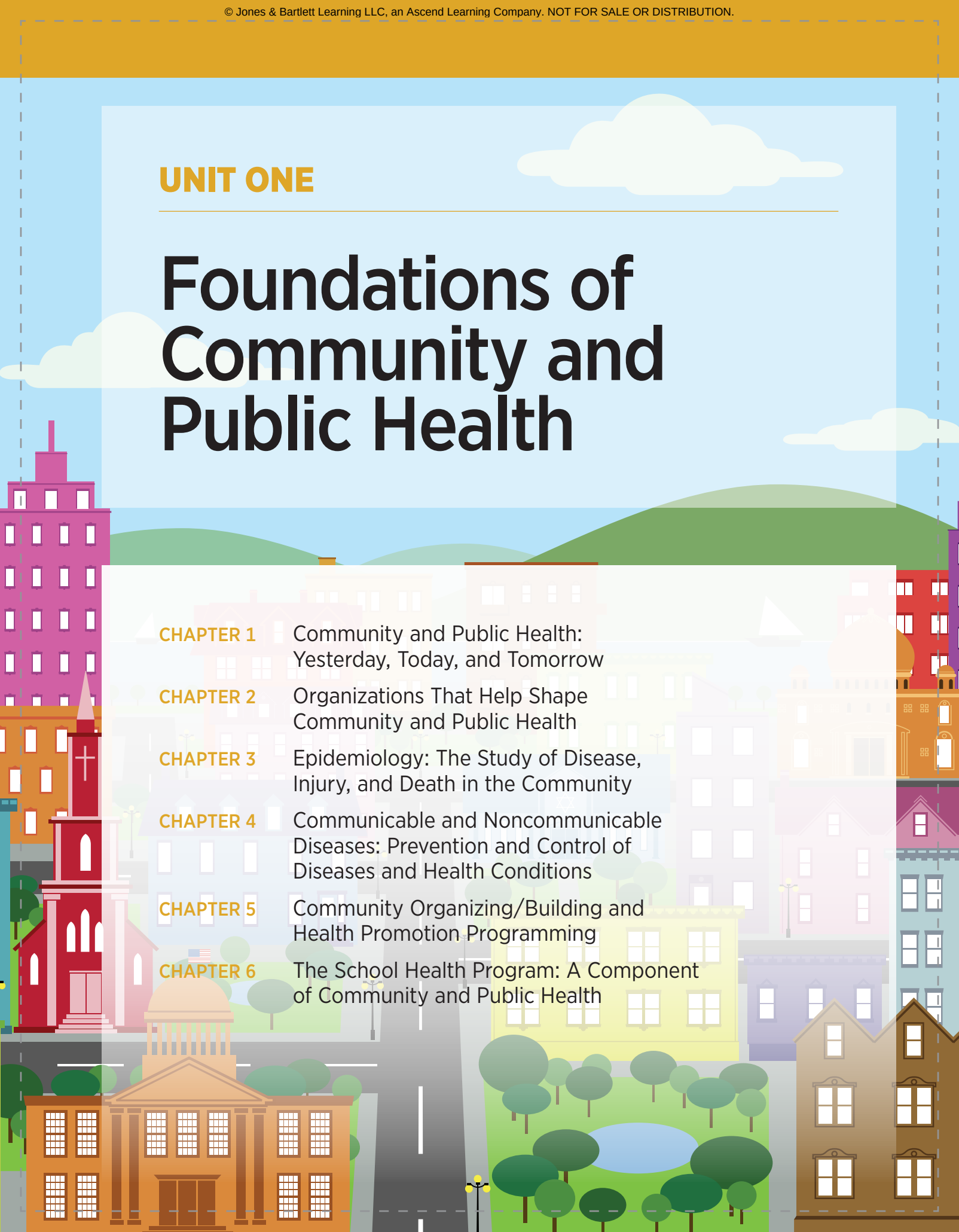
UNIT ONE

Foundations of Community and Public Health



CHAPTER 1 Community and Public Health: Yesterday, Today, and Tomorrow

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CHAPTER 1

Community and Public Health: Yesterday, Today, and Tomorrow

Chapter Outline

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Chapter Objectives

After studying this chapter, you will be able to:

1. Define the terms *health, community, community health, population health, public health, public health system,* and *global health*.
2. Briefly describe the five major determinants of health.
3. Explain the difference between personal and community health activities.
4. List and discuss the factors that influence a community's health.
5. Briefly relate the history of community and public health, including the recent U.S. history of community and public health in the twentieth and early twenty-first centuries.
6. Provide a brief overview of the current health status of Americans.
7. Describe the purpose of the *Healthy People 2020* goals and objectives as they apply to the planning process of the health of Americans.
8. Summarize the major community and public health problems facing the United States and the world today.

Scenario

Amy and Eric are a young working couple who are easing into a comfortable lifestyle. They have good-paying jobs, drive nice cars, have two healthy preschool children, and, after living in an apartment for several years, are now buying a home in a good neighborhood. When Amy picked her children up from day care earlier in the day she was told that another parent had reported that his child was diagnosed with hepatitis. This news frightened Amy and made her begin to question the quality of the day care center. Amy told Eric of this situation when he got home. As the couple discussed whether or not they should take their children to day care as usual the following day, they discovered that they had many unanswered questions. How serious is hepatitis? What is the likelihood that their children will be at serious risk for getting the disease? What steps are being taken to control the outbreak? Is any state or local agency responsible for standardizing health practices at private day care centers in the community? Does the city, county, or state carry out any type of inspection when they license these facilities? And, if the children do not attend day care, which parent will stay home with them?

Introduction

Since 1900, tremendous progress had been made in the health and life expectancy of those in the United States (see **Box 1.1**) and of many people of the world since 1900. Infant mortality dropped, many of the infectious diseases have been brought under control, and better family planning became available. However, much still needs to be done to improve health especially when it comes to health disparities found in certain ethnic and racial groups. Individual health behaviors, such as the use of tobacco, poor diet, and physical inactivity, have given rise to an unacceptable number of cases of illness and death from noninfectious diseases such as cancer, diabetes, and heart disease. Continued use of an outdated infrastructure, such as the old water pipes in Flint, Michigan, has exposed many to unnecessary health risks. New and emerging infectious diseases, such as Zika virus disease and those caused by superbugs (i.e., drug-resistant pathogens), are stretching resources available to control them. And events stemming from natural disasters such as floods, tornadoes, and hurricanes; human-made disasters such as the Gulf oil spill; and terrorism, such as the 2013 bombings at the Boston Marathon have caused us to refocus our priorities. All of these events have severely disrupted Americans' sense of security[1] and sense of safety in the environment. In addition, many of these events revealed the vulnerability of the United States' and the world's ability to respond to such circumstances and highlighted the need for improvement in emergency response preparedness and infrastructure of the public health system.

Even with all that has happened in recent years in the United States and around the world, the achievement of good health remains a worldwide goal of the twenty-first century. Governments, private organizations, and individuals throughout the world are working to improve health. Although individual actions to improve one's own personal health certainly contribute to the overall health of the community, organized community actions are often necessary when health problems exceed the resources of any one individual. When such actions are not taken, the health of the entire community is at risk.

This chapter introduces the concepts and principles of community and public health, explains how community and public health differ from personal health, and provides a brief history of community and public health. Some of the key health problems facing Americans are also described, and an outlook for the twenty-first century is provided.

Definitions

The word health means different things to different people. Similarly, there are other words that can be defined in various ways. Some basic terms we will use in this book are defined in the following paragraphs.

BOX 1.1 Ten Great Public Health Achievements—United States, 1900–1999 and 2001–2010

As the twentieth century came to a close, the overall health status and life expectancy in the United States were at all-time highs. Between 1900 and 2000 life expectancy at birth of U.S. residents increased by 62% from 47.3 years to 76.8 years;[2] 25 of these years have been attributed to advances in public health.[3] U.S. life expectancy is now at 78.8 years.[2] Many public health achievements can be linked to this gain in life expectancy, however. The Centers for Disease Control and Prevention (CDC), the U.S. government agency charged with protecting the public health of the nation, singled out "Ten Great Public Health Achievements" in the United States between 1900 and 1999. Here is the list[4]:

1. *Vaccination*
2. *Motor vehicle safety*
3. *Safer workplaces*
4. *Control of infectious diseases*
5. *Decline of deaths from coronary heart disease and stroke*
6. *Safer and healthier foods*
7. *Healthier mothers and babies*
8. *Family planning*
9. *Fluoridation of drinking water*
10. *Recognition of tobacco use as a health hazard*

At the conclusion of 2010, public health scientists at CDC were asked to nominate noteworthy public health achievements that occurred in the United States during 2001–2010. Below, in no specific order, are the ones selected from the nominations.[5]

- *Vaccine-Preventable Deaths*. Over the 10-year period there was a substantial decline in cases, hospitalizations, deaths, and health care costs associated with vaccine-preventable diseases.
- *Prevention and Control of Infectious Diseases*. Improvements in public health infrastructure along with innovative and targeted prevention efforts yielded significant progress in controlling infectious diseases (e.g., tuberculosis cases).
- *Tobacco Control*. Tobacco still remains the single largest preventable cause of death and disease in the United States but the adult smoking prevalence dropped to 16.8% in 2014[6] and approximately half of the states have comprehensive smoke-free laws.
- *Maternal and Infant Health*. During the 10-year period there were significant reductions in the number of infants born with neural tube defects and an expansion of screening of newborns for metabolic and other heritable disorders.
- *Motor Vehicle Safety.* There were significant reductions in motor vehicle deaths and injuries, as well as pedestrian and bicyclist deaths. All attributed to safer vehicles, roads, and safer road use.
- *Cardiovascular Disease Prevention*. Death rates for both stroke and coronary heart disease continue to trend down. Most can be attributed to reduction in the prevalence of risk factors, and improved treatments, medications, and quality of care.
- *Occupational Safety*. Much progress was made in improving working conditions and reducing the risk for workplace-associated injuries over the 10 years.
- *Cancer Prevention.* A number of death rates due to various cancers dropped during the 10 years and much of the progress can be attributed to the implementation of the evidence-based screening recommendations.
- *Childhood Lead Poisoning Prevention*. There was a steep decline in the percentage of children ages 1–5 years with blood levels $\geq$ 10 micrograms/dL. Much of the progress can be traced to the 23 states in 2010 that had comprehensive lead poisoning prevention laws. As of 2016, experts now use a reference level of 5 micrograms/dL to identify children with high blood lead levels.[7]
- *Public Health Preparedness and Response*. Following the terrorists' attacks of 2001 on the United States great effort was put into both expanding and improving the capacity of the public health system to respond to public health threats.

Data from: Centers for Disease Control and Prevention (1999). "Ten Great Public Health Achievements—United States, 1900–1999." *Morbidity and Mortality Weekly Report, 48*(12): 241–243; and U.S. Department of Health and Human Services, Centers for Disease Control and Prevention (2011). "Ten Great Public Health Achievements—United States, 2001–2010." *Morbidity and Mortality Weekly Report*, 60(19): 619–623.

Health

Health a dynamic state or condition of the human organism that is multidimensional in nature, a resource for living, and results from a person's interactions with and adaptations to his or her environment; therefore, it can exist in varying degrees and is specific to each individual and his or her situation

The word *health* is derived from *hal*, which means "hale, sound, whole." When it comes to the health of people, the word health has been defined in a number of different ways—often in its social context, as when a parent describes the health of a child or when an avid fan defines the health of a professional athlete. The most widely quoted definition of health was the one created by the World Health Organization (WHO) in 1946, which states "health is a state of complete physical, mental, and social well-being and not merely the absence of disease and infirmity."[8] Further, the WHO has indicated that "health is a resource for everyday life, not the object of living, and is a positive concept emphasizing social and personal resources as well as physical capabilities."[8] Others have stated that health cannot be defined as a state because it is ever changing. Therefore, we have chosen to define **health** as a dynamic state or condition of the

human organism that is multidimensional (i.e., physical, emotional, social, intellectual, spiritual, and occupational) in nature, a resource for living, and results from a person's interactions with and adaptations to his or her environment. Therefore, it can exist in varying degrees and is specific to each individual and his or her situation. "A person can have a disease or injury and still be healthy or at least feel well. There are many examples, but certainly Olympic wheelchair racers fit into this category."[9]

A person's health status is dynamic in part because of the many different factors that determine one's health. It is widely accepted that health status is determined by the interaction of five domains: gestational endowments (i.e., genetic makeup), social circumstances (e.g., education, employment, income, poverty, housing, crime, and social cohesion), environmental conditions where people live and work (e.g., toxic agents, microbial agents, and structural hazards), behavioral choices (e.g., diet, physical activity, substance use and abuse), and the availability of quality medical care.[10] "Ultimately, the health fate of each of us is determined by factors acting not mostly in isolation but by our experience where domains interconnect. Whether a gene is expressed can be determined by environmental exposures or behavioral patterns. The nature and consequences of behavioral choices are affected by social circumstances. Our genetic predispositions affect the health care we need, and our social circumstances affect the health care we receive"[11] (see **Figure 1.1**).

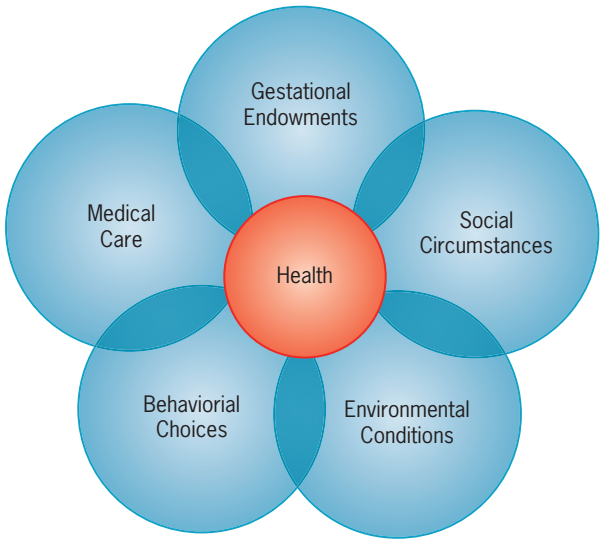

FIGURE 1.1 Interconnections of the determinants of health.

Community

Traditionally, a community has been thought of as a geographic area with specific boundaries—for example, a neighborhood, city, county, or state. However, in the context of community and public health, a **community** is "a collective body of individuals identified by common characteristics such as geography, interests, experiences, concerns, or values."[12] Communities are characterized by the following elements: (1) membership—a sense of identity and belonging; (2) common symbol systems—similar language, rituals, and ceremonies; (3) shared values and norms; (4) mutual influence—community members have influence and are influenced by each other; (5) shared needs and commitment to meeting them; and (6) shared emotional connection—members share common history, experiences, and mutual support.[13] Examples of communities include the people of the city of Columbus (location), the Asian community of San Francisco (race), the Hispanic community of Miami (ethnicity), seniors in the church (age), the business or the banking communities (occupation), the homeless of Indiana (specific problem), those on welfare in Ohio (particular outcome), local union members (common bond), or those who are members of an electronic social network (cyber). A community may be as small as the group of people who live on a residence hall floor at a university or as large as all of the individuals who make up a nation. "A healthy community is a place where people provide leadership in assessing their own resources and needs, where public health and social infrastructure and policies support health, and where essential public health services, including quality health care, are available."[14]

Public, Community, Population, and Global Health

Prior to defining the four terms public health, community health, population health, and global health, it is important to note that often the terms are used interchangeably by both laypeople and professionals who work in the various health fields. When the terms are used interchangeably, most people are referring to the collective health of those in society and the actions or activities taken to obtain and maintain that health. The definitions provided here for the four terms more precisely define the group of people in question and the origin of the actions or activities.

Community a collective body of individuals identified by common characteristics such as geography, interests, experiences, concerns, or values

Public health actions that society takes collectively to ensure that the conditions in which people can be healthy

Public health system the organizational mechanism of those activities undertaken within the formal structure of government and the associated efforts of private and voluntary organizations and individuals

Community health the health status of a defined group of people and the actions and conditions to promote, protect, and preserve their health

Population health "the health outcomes of a group of individuals, including the distribution of such outcomes within the group."[16]

Global health describes health problems, issues, and concerns that transcend national boundaries, may be influenced by circumstances or experiences in other countries, and are best addressed by cooperative actions and solutions

Of the four terms, public health is the most inclusive. The Institute of Medicine (IOM) defined **public health** in 1988 in its landmark report *The Future of Public Health* as "what we as a society do collectively to assure the conditions in which people can be healthy."[15] The **public health system**, which has been defined as "activities undertaken within the formal structure of government and the associated efforts of private and voluntary organizations and individuals,"[15] is the organizational mechanism for providing such conditions. Even with these formal definitions, some still see public health activities as only those efforts that originate in federal, state, and local governmental public health agencies such as the Centers for Disease Control and Prevention and local (i.e., city and county) health departments.

Community health refers to the health status of a defined group of people and the actions and conditions to promote, protect, and preserve their health. For example, the health status of the people of Elizabethtown, Pennsylvania, and the private and public actions taken to promote, protect, and preserve the health of these people would constitute community health.

The term population health is similar to community health. Although the term has been around for a number of years, it is appearing more commonly in the literature today. As such it has been defined in several different ways. The most common definition used for **population health** is "the health outcomes of a group of individuals, including the distribution of such outcomes within the group."[16]

Another term that has been used increasingly more in recent years is global health. **Global health** is a term that describes "health problems, issues, and concerns that transcend national boundaries, may be influenced by circumstances or experiences in other countries, and are best addressed by cooperative actions and solutions."[17] Therefore, an issue such as Zika virus disease can be viewed as a global health issue. Much of the rise in concern about global health problems comes from the speed of international travel and how easy it is for people who may be infected with a disease to cross borders into another country.

Personal Health Activities versus Community and Public Health Activities

To further clarify the definitions presented in this chapter, it is important to distinguish between the terms personal health activities and community and public health activities.

Personal Health Activities

Personal health activities are individual actions and decision-making that affect the health of an individual or his or her immediate family members or friends. These activities may be preventive or curative in nature but seldom directly affect the behavior of others. Choosing to eat wisely, to regularly wear a safety belt, and to visit the physician are all examples of personal health activities.

Community and Public Health Activities

Community and public health activities are activities that are aimed at protecting or improving the health of a population or community. Maintenance of accurate birth and death records, protection of the food and water supply, and participating in fund drives for voluntary health organizations such as the American Lung Association are examples of community health activities.

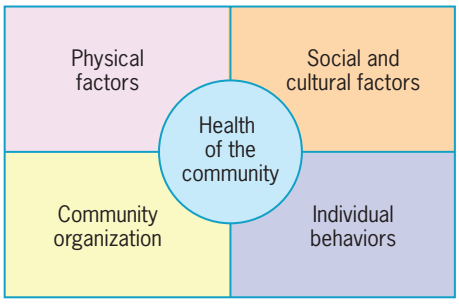

FIGURE 1.2 Factors that affect the health of the community.

Factors That Affect the Health of a Community

Many factors affect the health of a community. As a result, the health status of each community is different. These factors may be physical, social, and/or cultural. They also include the ability of the community to organize and work together as a whole as well as the individual behaviors of those in the community (see **Figure 1.2**).

Physical Factors

Physical factors include the influences of geography, the environment, community size, and industrial development.

Geography

A community's health problems can be directly influenced by its altitude, latitude, and climate. In tropical countries where warm, humid temperatures and rain prevail throughout the year, parasitic and infectious diseases are a leading community health problem (see **Figure 1.3**). In many tropical countries, survival from these diseases is made more difficult because poor soil conditions result in inadequate food production and malnutrition. In temperate climates with fewer parasitic and infectious diseases and a more than adequate food supply, obesity and heart disease are important community and public health problems.

FIGURE 1.3 In tropical countries, parasitic and infectious diseases are leading community health problems.

Courtesy of Lian Bruno.

Environment

The quality of our natural environment is directly related to the quality of our stewardship of it. Many experts believe that if we continue to allow uncontrolled population growth and continue to deplete nonrenewable natural resources, succeeding generations will inhabit communities that are less desirable than ours. Many feel that we must accept responsibility for this stewardship and drastically reduce the rate at which we foul the soil, water, and air.

When speaking about the environment we must also consider the impact the built environment has on community and public health. The term **built environment** refers to "the design, construction, management, and land use of human-made surroundings as an interrelated whole, as well as their relationship to human activities over time."[18] It includes but is not limited to: transportation systems (e.g., mass transit); urban design features (e.g., bike paths, sidewalks, adequate lighting); parks and recreational facilities; land use (e.g., community gardens, location of schools, trail development); building with health-enhancing features (e.g., green roofs, stairs); road systems; and housing free from environmental hazards.[18,19,20] The built environment can be structured to give people more or fewer opportunities to behave in health enhancing ways.

Community Size

The larger the community, the greater its range of health problems and the greater its number of health resources. For example, larger communities have more health professionals and better health facilities than smaller communities. These resources are often needed because communicable diseases can spread more quickly and environmental problems are often more severe in densely populated areas. For example, the amount of trash generated by the approximately 8.5 million people in New York City is many times greater than that generated by the entire state of Wyoming, with its population of 584,153.

It is important to note that a community's size can have both a positive and negative impact on that community's health. The ability of a community to effectively plan, organize, and utilize its resources can determine whether its size can be used to good advantage.

Industrial Development

Industrial development, like size, can have either positive or negative effects on the health status of a community. Industrial development provides a community with added resources for community health programs, but it may bring with it environmental pollution and occupational injuries and illnesses. Communities that experience rapid industrial development must eventually regulate (e.g., laws and ordinances) the way in which industries (1) obtain raw materials, (2) discharge by-products, (3) dispose of wastes, (4) treat and protect their employees, and (5) clean up environmental accidents. Unfortunately, many of these laws are usually passed only after these communities have suffered significant reductions in the quality of their life and health.

Built environment "the design, construction, management, and land use of human-made surroundings as an interrelated whole, as well as their relationship to human activities over time."[18]

Social and Cultural Factors

Social factors are those that arise from the interaction of individuals or groups within the community. For example, people who live in urban communities, where life is fast paced, experience higher rates of stress-related illnesses than those who live in rural communities, where life is more leisurely. On the other hand, those in rural areas may not have access to the same quality

or selection of health care (i.e., hospitals or medical specialists) that is available to those who live in urban communities.

Cultural factors arise from guidelines (both explicit and implicit) that individuals "inherit" from being a part of a particular society. Some of the factors that contribute to culture are discussed in the following sections.

Beliefs, Traditions, and Prejudices

The beliefs, traditions, and prejudices of community members can affect the health of the community. The beliefs of those in a community about such specific health behaviors as exercise and smoking can influence policy makers on whether or not they will spend money on bike lanes on the roads and recreational bike trails and work toward no-smoking ordinances. The traditions of specific ethnic groups can influence the types of food, restaurants, retail outlets, and services available in a community. Prejudices of one specific ethnic or racial group against another can result in acts of violence and crime. Racial and ethnic disparities will continue to put certain groups, such as black Americans or certain religious groups, at greater risk.

Economy

Both national and local economies can affect the health of a community through reductions in health and social services. An economic downturn means lower tax revenues (fewer tax dollars) and fewer contributions to charitable groups. Such actions will result in fewer dollars being available for programs such as welfare, food stamps, community health care, and other community services. This occurs because revenue shortfalls cause agencies to experience budget cuts. With fewer dollars, these agencies often must alter their eligibility guidelines, thereby restricting aid to only individuals with the greatest need. Obviously, many people who had been eligible for assistance before the economic downturn become ineligible.

Employers usually find it increasingly difficult to provide health benefits for their employees as their income drops. Those who are unemployed and underemployed face poverty and deteriorating health. Thus, the cumulative effect of an economic downturn significantly affects the health of the community.

Politics

Those who happen to be in political office can improve or jeopardize the health of their community by the decisions (i.e., laws and ordinances) they make. In the most general terms, the argument is over greater or lesser governmental participation in health issues. For example, there has been a longstanding discussion in the United States on the extent to which the government should involve itself in health care. Historically, Democrats have been in favor of such action while Republicans have been against it. State and local politicians also influence the health of their communities each time they vote on health-related measures brought before them, such as increasing the minimum legal sales age (MLSA) for tobacco products to 21 years.

FIGURE 1.4 Religion can affect a community's health either positively or negatively.

©James McKenzie.

Religion

A number of religions have taken a position on health care and health behaviors. For example, some religious communities limit the type of medical treatment their members may receive. Some do not permit immunizations; others do not permit their members to be treated by physicians. Still others prohibit certain foods. For example, kosher dietary regulations permit Jews to eat the meat only of animals that chew cud and have cloven hooves and the flesh only of fish that have both gills and scales, while still others, like the Native American Church of the Morning Star, use peyote, a hallucinogen, as a sacrament.

Some religious communities actively address moral and ethical issues such as abortion, premarital intercourse, and homosexuality. Still other religions teach health-promoting codes of living to their members. Obviously, religion can affect a community's health positively or negatively (see **Figure 1.4**).

Social Norms

The influence of social norms on community and public health can be positive or negative and can change over time. Cigarette smoking is a good example. During the 1940s, 1950s, and 1960s, it was socially acceptable to smoke in most settings. As a matter of fact, in 1965, 51.2% of American men and 33.7% of American women smoked. Thus, in 1965 it was socially acceptable to be a smoker, especially if you were male. Now, in the second decade of the twenty-first century, those percentages have dropped to 18.8% (for males) and 14.8% (for females),[6] and in most public places it has become socially unacceptable to smoke. The lawsuits against tobacco companies by both the state attorneys general and private citizens provide further evidence that smoking has fallen from social acceptability. Because of this change in the social norm, there is less secondhand smoke in many public places, and in turn the health of the community has improved.

Unlike smoking, alcohol consumption represents a continuing negative social norm in America, especially on college campuses. The normal expectation seems to be that drinking is fun (and almost everyone wants to have fun). Despite the fact that most college students are too young to drink legally, approximately 59.5% of college students drink.[21] In the same survey, when college students were asked what percentage of other college students consumed alcohol the mean response was 92.1%.[21] It seems fairly obvious that the American alcoholic-beverage industry has influenced our social norms.

Socioeconomic Status

Differences in socioeconomic status (SES), whether "defined by education, employment, or income, both individual- and community-level socioeconomic status have independent effects on health."[22] There is a strong correlation between SES and health status—individuals in lower SES groups, regardless of other characteristics, have poorer health status. This correlation applies both across racial groups and within racial groups.[23]

Community Organizing

The way in which a community is able to organize its resources directly influences its ability to intervene and solve problems, including health problems. **Community organizing** is "the process by which community groups are helped to identify common problems or change targets, mobilize resources, and develop and implement strategies for reaching their collective goals."[24] It is not a science but an art of building consensus within a democratic process.[25] If a community can organize its resources effectively into a unified force, it "is likely to produce benefits in the form of increased effectiveness and productivity by reducing duplication of efforts and avoiding the imposition of solutions that are not congruent with the local culture and needs."[14] For example, many communities in the United States have faced community-wide drug problems. Some have been able to organize their resources to reduce or resolve these problems, whereas others have not.

Individual Behavior

The behavior of the individual community members contributes to the health of the entire community. It takes the concerted effort of many—if not most—of the individuals in a community to make a program work. For example, if each individual consciously recycles his or her trash each week, community recycling will be successful. Likewise, if each occupant would wear a safety belt, there could be a significant reduction in the number of facial injuries and deaths from car crashes for the entire community. In another example, the more individuals who become immunized against a specific communicable disease, the slower the disease will spread and the fewer people will be exposed. This concept is known as **herd immunity**.

Community organizing the process by which community groups are helped to identify common problems or change targets, mobilize resources, and develop and implement strategies for reaching their collective goals

Herd immunity the resistance of a population to the spread of an infectious agent based on the immunity of a high proportion of individuals

A History of Community and Public Health

The history of community and public health is almost as long as the history of civilization. This summary provides an account of some of the accomplishments and failures in community and public health. It is hoped that knowledge of the past will enable us to better prepare for future challenges to our community's health.

Spiritual era of public health a time during the Middle Ages when the causation of communicable disease was linked to spiritual forces

Earliest Civilizations

In all likelihood, the earliest community health practices went unrecorded. Perhaps these practices involved taboos against defecation within the tribal communal area or near the source of drinking water. Perhaps they involved rites associated with burial of the dead. Certainly, the use of herbs for the prevention and curing of diseases and communal assistance with childbirth are practices that predate archeological records.

Excavations at sites of some of the earliest known civilizations, dating from about 2000 B.C.E., have uncovered archeological evidence of community health activities (see **Figure 1.5**). A combination of additional archeological findings and written history provides much more evidence of community and public health activities through the seventeenth century. **Box 1.2** provides a timeline and some of the highlights of that history for the Ancient Societies (before 500 B.C.E.), the Classical Cultures (500 B.C.E.–500 C.E.), the Middle Ages (500–1500 C.E.), and the period of Renaissance and Exploration (1500–1700 C.E.).

BOX 1.2 Timeline and Highlights of Community and Public Health Prior to 1700 C.E.

A. Early Civilizations
   1. Ancient Societies (before 500 B.C.E.)
      a. Prior to 2000 B.C.E.: Archeological findings provide evidence of sewage disposal and written medical prescriptions.
      b. Circa 1900 B.C.E.: Perhaps the earliest written record of public health was the Code of Hammurabi; included laws for physicians and health practices.[26]
      c. Circa 1500 B.C.E.: Bible's Book of Leviticus written; includes guidelines for personal cleanliness and sanitation.[26]
   2. Classical Cultures (500 B.C.E.–500 C.E.)
      a. Fifth and sixth centuries B.C.E.: Evidence that Greek men participated in games of strength and skill and swam in public facilities.[27]
      b. Greeks were involved in practice of community sanitation; involved in obtaining water from sources far away and not just local wells.[28]
      c. Romans were community minded; improved on community sanitation of Greeks; built aqueducts to transport water from miles away; built sewer systems; created regulation for building construction, refuse removal, and street cleaning and repair;[27] created hospitals as infirmaries for slaves.[29]
      d. Christians created hospitals as benevolent charitable organizations.[29]
      e. 476 C.E.: Roman Empire fell and most public health activities ceased.

B. Middle Ages (500–1500 C.E.)
   1. 500–1000 C.E. (Dark Ages): Growing revulsion for Roman materialism and a growth of spirituality; health problems were considered to have both spiritual causes and spiritual solutions,[29] a time referred to as the **spiritual era of public health**.
   2. Failure to take into account the role of the physical and biological environment in the causation of communicable diseases resulted in many unrelenting epidemics in which millions suffered and died.
      a. Deadliest epidemics were from plague ("Black Death"); occurred in 543 C.E. and 1348 C.E. (this one killed 25 million; half of population of London lost and in some parts of France only 1 in 10 survived).[26]
      b. 1200 C.E.: More than 19,000 leper houses.
      c. Other epidemics of period: Smallpox, diphtheria, measles, influenza, tuberculosis, anthrax, and trachoma.
      d. 1492 C.E.: Syphilis epidemic was last epidemic of the period.

C. Renaissance and Exploration (1500–1700 C.E.)
   1. Rebirth of thinking about the nature of world and humankind.
   2. Belief that disease was caused by environmental, not spiritual, factors; for example, the term *malaria*, meaning *bad air*, is a direct reference to humid or swampy air.
   3. Observation of ill led to more accurate descriptions of symptoms and outcomes of diseases; observations led to first recognition of whooping cough, typhus, scarlet fever, and malaria as distinct and separate diseases.[28]
   4. 1662: John Graunt published the *Observations on the Bills of Mortality*, which was the beginning of vital statistics.
   5. Epidemics (e.g., smallpox, malaria, and plague) still rampant; plague epidemic killed 68,596 (15% of the population) in London in 1665.
   6. Explorers, conquerors, and merchants and their crews spread disease to colonists and indigenous people throughout the New World.

The Eighteenth Century

Modern era of public health the era of public health that began in 1850 and continues today

The eighteenth century was characterized by industrial growth. Despite the beginnings of recognition of the nature of disease, living conditions were hardly conducive to good health. Cities were overcrowded, and water supplies were inadequate and often unsanitary. Streets were usually unpaved, filthy, and heaped with trash and garbage. Many homes had unsanitary dirt floors.

Workplaces were unsafe and unhealthy. A substantial portion of the workforce was made up of the poor, which included children, who were forced to work long hours as indentured servants. Many of these jobs were unsafe or involved working in unhealthy environments, such as textile factories and coal mines (see **Box 1.3**).

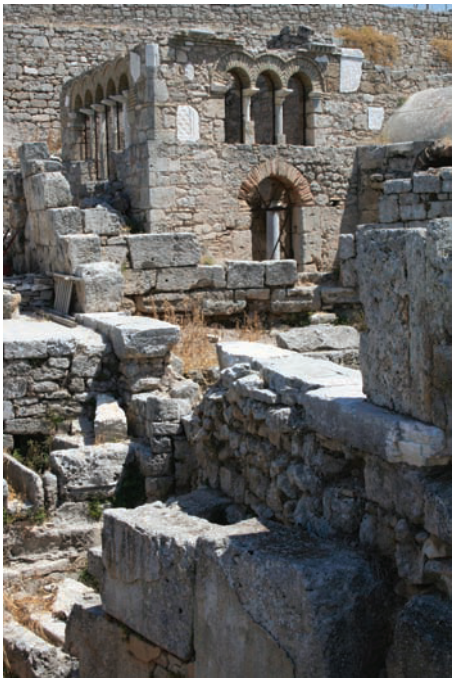

FIGURE 1.5 Archeological findings reveal community and public health practices of the past.

The Nineteenth Century

Epidemics continued to be a problem in the nineteenth century, with outbreaks in major cities in both Europe and America. In 1854, another cholera epidemic struck London. Dr. John Snow studied the epidemic and hypothesized that the disease was being caused by the drinking water from the Broad Street pump. He obtained permission to remove the pump handle, and the epidemic was abated (see **Figure 1.6**). Snow's action was remarkable because it predated the discovery that microorganisms can cause disease. The predominant theory of contagious disease at the time was the "miasmas theory," which postulated vapors, or miasmas, were the source of many diseases. The miasmas theory remained popular throughout much of the nineteenth century.

In the United States in 1850, Lemuel Shattuck drew up a health report for the Commonwealth of Massachusetts that outlined the public health needs for the state. It included recommendations for the establishment of boards of health, the collection of vital statistics, the implementation of sanitary measures, and research on diseases. Shattuck also recommended health education and controlling exposure to alcohol, smoke, adulterated food, and nostrums (quack medicines).[26] Although some of his recommendations took years to implement (the Massachusetts Board of Health was not founded until 1869), the significance of Shattuck's report is such that 1850 is a key date in American public health; it marks the beginning of the **modern era of public health**.

Real progress in the understanding of the causes of many communicable diseases occurred during the last third of the nineteenth century. One of the obstacles to progress was the theory of spontaneous generation, the idea that living organisms could arise from inorganic or nonliving matter. Akin to this idea was the thought that one type of contagious microbe could change into another type of organism.

In 1862, Louis Pasteur of France proposed his germ theory of disease. Throughout the 1860s and 1870s, he and others carried out experiments and made observations that supported this

BOX 1.3 Timeline and Highlights of Community and Public Health from 1700 to 1848

A. Eighteenth Century (1700s)
   1. 1790: First U.S. census.
   2. 1793: Yellow fever epidemic in Philadelphia.[30]
   3. 1796: Dr. Edward Jenner successfully demonstrated smallpox vaccination.
   4. 1798: Marine Hospital Service (forerunner to U.S. Public Health Service) was formed.
   5. By 1799: Several of America's largest cities, including Boston, Philadelphia, New York, and Baltimore, had municipal boards of health.

B. First Half of the Nineteenth Century (1800–1848)
   1. U.S. government's approach to health was *laissez faire* (i.e., noninterference).
   2. 1813: First visiting nurse in United States.

Bacteriological period of public health the period of 1875–1900, during which the causes of many bacterial diseases were discovered

theory and disproved spontaneous generation. Pasteur is generally given credit for providing the deathblow to the theory of spontaneous generation.

It was the German scientist Robert Koch who developed the criteria and procedures necessary to establish that a particular microbe, and no other, causes a particular disease. His first demonstration, with the anthrax bacillus, was in 1876. Between 1877 and the end of the century, the identity of numerous bacterial disease agents was established, including those that caused gonorrhea, typhoid fever, leprosy, tuberculosis, cholera, diphtheria, tetanus, pneumonia, plague, and dysentery. This period (1875–1900) has come to be known as the **bacteriological period of public health**.

FIGURE 1.6 In London, England, in 1854, John Snow helped interrupt a cholera epidemic by having the handle removed from this pump, located on Broad Street.

© Robert Pinger.

Although most scientific discoveries in the late nineteenth century were made in Europe, significant public health achievements were occurring in America as well. The first law prohibiting the adulteration of milk was passed in 1856, the first sanitary survey was carried out in New York City in 1864, and the American Public Health Association was founded in 1872. The Marine Hospital Service gained new powers of inspection and investigation under the Port Quarantine Act of 1878.[26] In 1890, the pasteurization of milk was introduced, and in 1891 meat inspection began. It was also during this time that nurses were first hired by industries (in 1895) and schools (in 1899). Also in 1895, septic tanks were introduced for sewage treatment. In 1900, Major Walter Reed of the U.S. Army announced that mosquitoes transmitted yellow fever (see **Box 1.4**).

The Twentieth Century

As the twentieth century began, life expectancy was still less than 50 years.[2] The leading causes of death were communicable diseases—influenza, pneumonia, tuberculosis, and infections of the gastrointestinal tract. Other communicable diseases, such as typhoid fever, malaria, and diphtheria, also killed many people.

There were other health problems as well. Thousands of children were afflicted with conditions characterized by noninfectious diarrhea or by bone deformity. Although the symptoms of pellagra and rickets were known and described, the causes of these ailments remained a mystery at the turn of the century. Discovery that these conditions resulted from vitamin deficiencies was slow because some scientists were searching for bacterial causes.

Vitamin deficiency diseases and one of their contributing conditions, poor dental health, were extremely common in the slum districts of both European and American cities. The unavailability of adequate prenatal and postnatal care meant that deaths associated with pregnancy and childbirth were also high.

Health Resources Development Period (1900–1960)

Much growth and development took place during the 60-year period from 1900 to 1960. Because of the growth of health care facilities and providers, this period of time is referred to as the

BOX 1.4 Timeline and Highlights of Community and Public Health for the Second Half of Nineteenth Century (1848–1900)

1. 1849,1854: London cholera epidemics.
2. 1850: Modern era of public health begins.
3. 1850: Shattuck's report was published.
4. 1854: Snow had pump handle removed from Broad Street pump.
5. 1863: Pasteur proposed germ theory.
6. 1872: American Public Health Association founded.
7. 1875–1900: Bacteriological period of public health.
8. 1876: Koch established relationship between a particular microbe and a particular disease.
9. 1900: Reed announced that yellow fever was transmitted by mosquitos.

health resources development period. This period can be further divided into the reform phase (1900–1920), the 1920s, the Great Depression and World War II, and the postwar years.

Health resources development period the years of 1900–1960, a time of great growth in health care facilities and providers

Reform phase of public health the years of 1900–1920, characterized by social movements to improve health conditions in cities and in the workplace

The Reform Phase (1900–1920)

During the first 20 years of the twentieth century (i.e., the **reform phase of public health**), there was a growing concern about the many social problems in America. The remarkable discoveries in microbiology made in the previous years had not dramatically improved the health of the average citizen. By 1910, the urban population had grown to 45% of the total population (up from 19% in 1860). Much of the growth was the result of immigrants who came to America for the jobs created by new industries (see **Figure 1.7**). Northern cities were also swelling from the northward migration of black Americans from the southern states. Many of these workers had to accept poorly paying jobs involving hard labor. There was also a deepening chasm between the upper and lower classes, and social critics began to clamor for reform.

In 1906 the plight of the immigrants working in the meat packing industry was graphically depicted by Upton Sinclair in his book *The Jungle*. Sinclair's goal was to draw attention to unsafe working conditions. What he achieved was greater governmental regulation of the food industry through the passage of the Pure Food and Drugs Act of 1906.

The reform movement was broad, involving both social and moral as well as health issues. In 1909 it was noted that "[i]ll health is perhaps the most constant of the attendants of poverty."[31] The reform movement finally took hold when it became evident to the majority that neither the discoveries of the causes of many communicable diseases nor the continuing advancement of

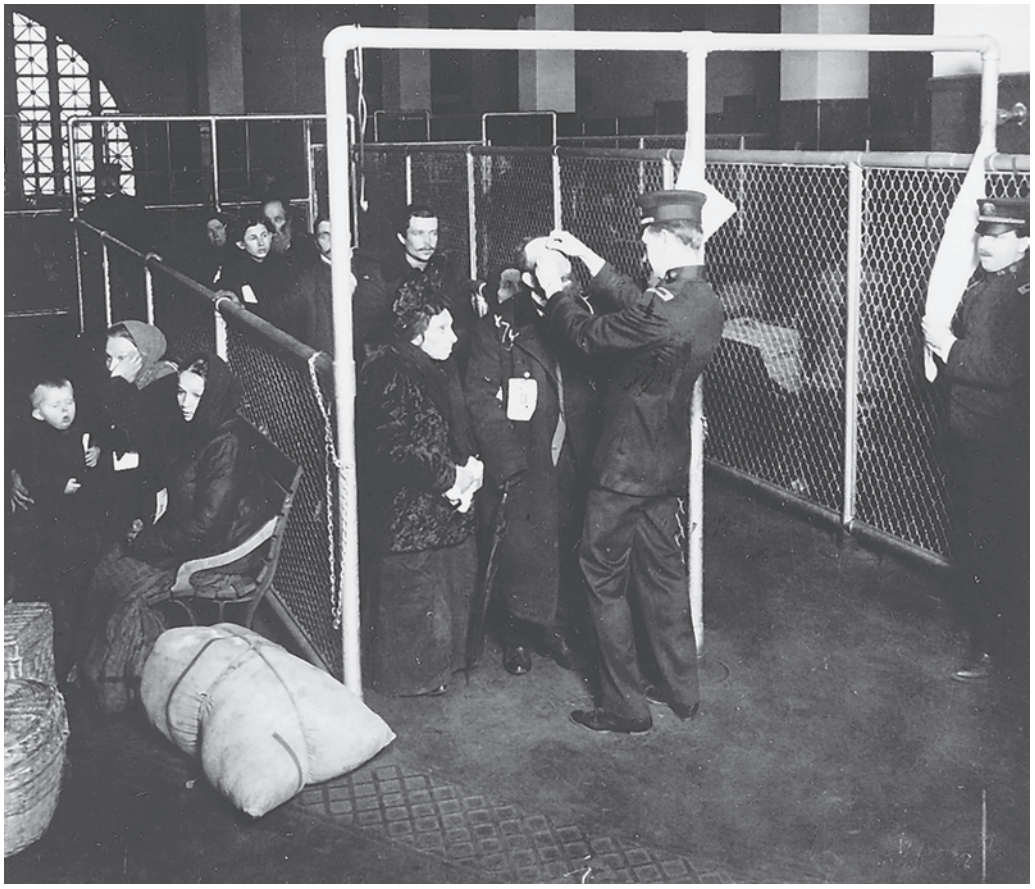

FIGURE 1.7 Ellis Island immigration between 1860 and 1910 resulted in dramatic increases in urban population in America.

Courtesy of Library of Congress, Prints & Photographs Division [reproduction number LC-USZ62-7386].

industrial production could overcome continuing disease and poverty. Even by 1917, the United States ranked fourteenth of 16 "progressive" nations in maternal death rate.[31]

Although the relationship between occupation and disease had been pointed out 200 years earlier in Europe, occupational health in America in 1900 was an unknown quantity. However, in 1910 the first International Congress on Occupational Diseases was held in Chicago.[32] That same year, the state of New York passed a tentative Workman's Compensation Act, and over the next 10 years most other states passed similar laws. Also in 1910, the U.S. Bureau of Mines was created and the first clinic for occupational diseases was established in New York at Cornell Medical College.[31] By 1910, the movement for healthier conditions in the workplace was well established.

This period also saw the birth of the first national-level volunteer health agencies. The first of these agencies was the National Association for the Study and Prevention of Tuberculosis (TB), which was formed in 1902. It arose from the first local voluntary health agency, the Pennsylvania Society for the Prevention of Tuberculosis, organized in 1892.[33] The American Cancer Society, Inc. was founded in 1913. That same year, the Rockefeller Foundation was established in New York. This philanthropic foundation has funded a great many public health projects, including work on hookworm and pellagra, and the development of a vaccine against yellow fever.

Another movement that began about this time was that of public health nursing. The first school nursing program was begun in New York City in 1902. In 1918, the first School of Public Health was established at Johns Hopkins University in Baltimore. This was followed by establishment of the Harvard School of Public Health in 1923. Also in 1918 was the birth of school health instruction as we know it today.

These advances were matched with similar advances by governmental bodies. The Marine Hospital Service was renamed the Public Health and Marine Hospital Service in 1902 in keeping with its growing responsibilities. In 1912, it became the U.S. Public Health Service.[26]

By 1900, 38 states had state health departments. The rest followed during the first decades of the twentieth century. The first two local (county) health departments were established in 1911, one in Guilford County, North Carolina, and the other in Yakima County, Washington.

The 1920s

In comparison with the preceding period, the 1920s represented a decade of slow growth in public health, except for a few health projects funded by the Rockefeller and Millbank Foundations. Prohibition resulted in a decline in the number of alcoholics and alcohol-related deaths. Although the number of county health departments had risen to 467 by 1929, 77% of the rural population still lived in areas with no health services.[33] However, it was during this period in 1922 that the first professional preparation program for health education specialists was begun at Columbia University by Thomas D. Wood, MD, whom many consider the father of health education. The life expectancy in 1930 had risen to 59.7 years.

The Great Depression and World War II

Until the Great Depression (1929–1935), individuals and families in need of social and medical services were dependent on friends and relatives, private charities, voluntary agencies, community chests, and churches. By 1933, after 3 years of economic depression, it became evident that private resources could never meet the needs of all the people who needed assistance. The drop in tax revenues during the Depression also reduced health department budgets and caused a virtual halt in the formation of new local health departments.[33]

Beginning in 1933, President Franklin D. Roosevelt created numerous agencies and programs for public works as part of his New Deal. Much of the money was used for public health, including the control of malaria, the building of hospitals and laboratories, and the construction of municipal water and sewer systems.

The Social Security Act of 1935 marked the beginning of the government's major involvement in social issues, including health. This legislation provided substantial support for state health departments and their programs, such as maternal and child health and sanitary facilities. As progress against the communicable diseases became visible, some turned their attention toward other health problems, such as cancer. The National Cancer Institute was formed in 1937.

America's involvement in World War II resulted in severe restrictions on resources available for public health programs. Immediately following the conclusion of the war, however, many

of the medical discoveries made during wartime made their way into civilian practice. Two examples are the antibiotic penicillin, used for treating pneumonia, rheumatic fever, syphilis, and strep throat, and the insecticide DDT, used for killing insects that transmit diseases.

During World War II, the Communicable Disease Center was established in Atlanta, Georgia. Now called the Centers for Disease Control and Prevention (CDC), it has become the premier epidemiological center of the world.

Medicare government health insurance for older adults and those with certain disabilities

Medicaid government health insurance for the poor

The Postwar Years

Following the end of World War II, there was still concern about medical care and the adequacy of the facilities in which that care could be administered. In 1946, the U.S. Congress passed the National Hospital Survey and Construction Act (the Hill-Burton Act). The goal of the legislation was to improve the distribution of medical care and to enhance the quality of hospitals. From 1946 through the 1960s, hospital construction occurred at a rapid rate with relatively little thought given to planning. Likewise, attempts to set national health priorities or to establish a national health agenda were virtually nonexistent.

The two major health events in the 1950s were the development of a vaccine to prevent polio and President Eisenhower's heart attack. The latter event helped America to focus on its number one killer, heart disease. When the president's physician suggested exercise, some Americans heeded his advice and began to exercise on a regular basis.

Period of Social Engineering (1960–1973)

The 1960s marked the beginning of a period when the federal government once again became active in health matters. The primary reason for this involvement was the growing realization that many Americans were still not reaping any of the benefits of 60 years of medical advances. These Americans, most of whom were poor or elderly, either lived in underserved areas or simply could not afford to purchase medical services.

In 1965, Congress passed the Medicare and Medicaid bills (amendments to the Social Security Act of 1935). **Medicare** assists in the payment of medical bills for older adults and certain people with disabilities, and **Medicaid** assists in the payment of medical bills for the poor. These pieces of legislation helped provide medical care for millions who would not otherwise have received it; this legislation also improved standards in health care facilities. Unfortunately, the influx of federal dollars accelerated the rate of increase in the cost of health care for everyone. As a result, the 1970s, 1980s, and the 1990s saw repeated attempts and failures to bring the growing costs of health care under control (see **Box 1.5**).

BOX 1.5 Timeline and Highlights of Community and Public Health for the Health Resources Development Period (1900–1960)

A. The Reform Phase (1900–1920)
   1. 1902: First national-level voluntary health agency created.
   2. 1906: Sinclair's *The Jungle* published.
   3. 1910: First International Congress on Diseases of Occupation.
   4. 1910: 45% of U.S. population was in the cities.
   5. 1911: First local health department established.
   6. 1913: American Cancer Society founded.
   7. 1917: United States ranked 14th of 16 in maternal death rate.
   8. 1918: Birth of school health instruction.
   9. 1918: First school of public health established in United States.

B. 1920s
   1. 1922: Wood created first professional preparation program for health education specialists.
   2. 1930: Life expectancy in the United States was 59.7 years.

C. The Great Depression and World War II
   1. 1933: New Deal; included unsuccessful attempt at national health care program.
   2. 1935: Social Security Act passed.
   3. 1937: National Cancer Institute formed.

D. Postwar Years
   1. 1946: National Hospital Survey and Construction (Hill-Burton) Act passed.
   2. 1952: Development of polio vaccine.
   3. 1955: Eisenhower's heart attack.

E. Period of Social Engineering (1960–1973)
   1. 1965: Medicare and Medicaid bills passed.

Healthy People 2020 the fourth set of health goals and objectives for the U.S that defines the nation's health agenda and guides its health policy

Period of Health Promotion (1974–Present)

By the mid-1970s, it had become apparent that the greatest potential for saving lives and reducing health care costs in America was to be achieved through means other than health care.

> Most scholars, policymakers, and practitioners in health promotion would pick 1974 as the turning point that marks the beginning of health promotion as a significant component of national health policy in the twentieth century. That year Canada published its landmark policy statement, *A New Perspective on the Health of Canadians*.[34] In [1976] the United States Congress passed PL 94-317, the Health Information and Health Promotion Act, which created the Office of Health Information and Health Promotion, later renamed the Office of Disease Prevention and Health Promotion.[35]

In the late 1970s, the Centers for Disease Control conducted a study that examined premature deaths (defined then as deaths prior to age 65, but now as deaths prior to age 75) in the United States in 1977. That study revealed that approximately 48% of all premature deaths could be traced to one's lifestyle or health behavior—choices that people make. Lifestyles characterized by a lack of exercise, unhealthy diets, smoking, uncontrolled hypertension, and the inability to control stress were found to be contributing factors to premature mortality.[36] This led the way for the U.S. government's publication *Healthy People: The Surgeon General's Report on Health Promotion and Disease Prevention*.[37] "This document brought together much of what was known about the relationship of personal behavior and health status. The document also presented a 'personal responsibility' model that provided Americans with the prescription for reducing their health risks and increasing their chances for good health."[38]

Healthy People was then followed by the release of the first set of health goals and objectives for the nation, called *Promoting Health/Preventing Disease: Objectives for the Nation*.[39] ***Healthy People 2020*** is the fourth edition of these goals and objectives. Since their inception, these *Healthy People* documents have defined the nation's health agenda and guided its health policy since their inception (see **Box 1.6**).

All four editions of the *Healthy People* documents include several overarching goals and many supporting objectives for the nation's health. The goals provide a general focus and direction, while the objectives are used to measure progress within a specified period of time. Formal reviews (i.e., measured progress) of these objectives are conducted both at midcourse (i.e., halfway through the 10-year period) and again at the end of 10 years. The midcourse review provides an opportunity to update the document based on the events of the first half of the decade for which the objectives are written.

Healthy People 2020 was released in December 2010, and includes a vision statement, a mission statement, four overarching goals (see **Table 1.1**), and almost 1,200 science-based objectives spread over 42 different topic areas (see **Table 1.2**).[40] On the Healthy People.gov website each topic has its own Web page. At a minimum each page contains a concise goal statement, a brief overview of the topic that provides the background and context for the topic, a statement about the importance of the topic backed up by appropriate evidence, and references.

BOX 1.6 Timeline and Highlights of Community and Public Health for the Period of Health Promotion (1974–Present)

A. Late Twentieth Century
   1. 1974: Nixon's unsuccessful attempt at national health care program.
   2. 1974: *A New Perspective on the Health of Canadians* published.
   3. 1976: Health Information and Health Promotion Act passed.
   4. 1979: *Healthy People* published.
   5. 1980: *Promoting Health/Preventing Disease: Objectives of the Nation* published.
   6. 1990: *Healthy People 2000* published.
   7. 1997: Clinton's unsuccessful attempt at a national health care program.

B. Early Twenty-First Century
   1. 2000: *Healthy People 2010* published.
   2. 2010: Affordable Care Act becomes law.
   3. 2010: *Healthy People 2020* published.

TABLE 1.1 *Healthy People 2020* Vision, Mission, and Goals

Vision
A society in which all people live long, healthy lives.
Mission
Healthy People 2020 strives to: • Identify nationwide health improvement priorities. • Increase public awareness and understanding of the determinants of health, disease, and disability and the opportunities for progress. • Provide measurable objectives and goals that are applicable at the national, state, and local levels. • Engage multiple sectors to take actions to strengthen policies and improve practices that are driven by the best available evidence and knowledge. • Identify critical research, evaluation, and data collection needs.
Overarching Goals
• Attain high-quality, longer lives free of preventable disease, disability, injury, and premature death. • Achieve health equity, eliminate disparities, and improve the health of all groups. • Create social and physical environments that promote good health for all. • Promote quality of life, healthy development, and healthy behaviors across all life stages.

Data from: U.S. Department of Health and Human Services (2016). *About Healthy People*. Available at https://www.healthypeople.gov/2020/About-Healthy-People.

TABLE 1.2 *Healthy People 2020* Topic Areas

1. Access to Health Services	22. HIV
2. Adolescent Health	23. Immunization and Infectious Diseases
3. Arthritis, Osteoporosis, and Chronic Back Conditions	24. Injury and Violence Prevention
4. Blood Disorders and Blood Safety	25. Lesbian, Gay, Bisexual, and Transgender Health
5. Cancer	26. Maternal, Infant, and Child Health
6. Chronic Kidney Disease	27. Medical Product Safety
7. Dementias, Including Alzheimer's Disease	28. Mental Health and Mental Disorders
8. Diabetes	29. Nutrition and Weight Status
9. Disability and Health	30. Occupational Safety and Health
10. Early and Middle Childhood	31. Older Adults
11. Educational and Community-Based Programs	32. Oral Health
12. Environmental Health	33. Physical Activity
13. Family Planning	34. Preparedness
14. Food Safety	35. Public Health Infrastructure
15. Genomics	36. Respiratory Diseases
16. Global Health	37. Sexually Transmitted Diseases
17. Health Communication and Health Information Technology	38. Sleep Health
18. Health-Related Quality of Life and Well-Being	39. Social Determinants of Health
19. Health care-Associated Infections	40. Substance Abuse
20. Hearing and Other Sensory or Communication Disorders	41. Tobacco Use
21. Heart Disease and Stroke	42. Vision

Data from U.S. Department of Health and Human Services (2016). 2020 *Topics and Objectives – Objectives A–Z*. Available at https://www.healthypeople.gov/2020/topics-objectives.

FIGURE 1.8 The action model to achieve healthy people goals.

Data from: U.S. Department of Health and Human Services (2016). *Program Planning*. Available at https://www.healthypeople.gov/2020/tools-and-resources/Program-Planning.

The developers of *Healthy People 2020* think that the best way to implement the national objectives is with the framework referred to as MAP-IT (see **Figure 1.8**). MAP-IT stands for Mobilize, Assess, Plan, Implement, and Track. The Mobilize step of MAP-IT deals with bringing interested parties together within communities to deal with health issues. The second step, Assess, is used to find out who is affected by the health problem and examine what resources are available to deal with the problem. In the Plan step, goals and objectives are created and an intervention is planned that has the best chances of dealing with the health problem. The Implement step deals with putting the intervention into action. And the final step, Track, deals with evaluating the impact of the intervention on the health problem.[40]

In addition to the *Healthy People* initiative, the United States also has its National Prevention Strategy, which was released in 2011. The Affordable Care Act (ACA) "created the National Prevention Council (NPC) and called for the development of the National Prevention Strategy to realize the benefits of prevention for all Americans' health. The National Prevention Strategy is critical to the prevention focus of the Affordable Care Act and builds on the law's efforts to lower health care costs, improve the quality of care, and provide coverage options for the uninsured."[41]

The NPC provides leadership for the Strategy and is comprised of representatives from 20 federal departments, agencies, and offices and is chaired by the U.S. Surgeon General. Although the NPC "provides coordination and leadership at the federal level and identifies ways that agencies can work individually, as well as together, to improve our nation's health,"[41] public and private partners have provided much input in creating the National Prevention Strategy. Such input has been provided by the Advisory Group on Prevention, Health Promotion, and Integrative and Public Health referred to as the Prevention Advisory Group. This group was also created by the ACA and is comprised of 21 nonfederal members appointed by the President.[41]

The goal of the Strategy is to "increase the number of Americans who are healthy at every stage of life."[41] At the foundation of the Strategy are four Strategic Directions that include Healthy and Safe Community Environments, Clinical and Community Preventive Services, Empowered People, and Elimination of Health Disparities (see **Figure 1.9**). "Each Strategy Direction can stand alone and can guide actions that will demonstrably improve health. Together, the Strategic Directions create the web needed to fully support Americans in leading longer and healthier lives."[41] The Strategy also has seven targeted Priorities (Tobacco-Free Living, Preventing Drug Abuse and Excessive Alcohol Use, Healthy Eating, Active Living, Injury and Violence Free Living, Reproductive and Sexual Health, and Mental and Emotional Well-Being). The "Priorities are designed to improve health and wellness for the entire U.S. population, including those groups disproportionately affected by disease and injury."[41] "Preference has been given to efforts that will have the greatest impact on the largest number of people and can be sustained over time."[41]

The Strategy includes: key facts and documents, a list of recommended policies, programs, and system approaches to address each of the Strategic Directions and Priorities, and actions for both the federal government and for the partners. The actions for the partners are specific to type of partners which include: (1) state, tribal, local, and territorial governments, (2) employers, (3) health care organizations, insurers, and clinicians, (4) educational organizations, (5) community groups, and (6) faith-based organizations. Also, within each of the Strategic Directions and Priorities are key indicators that will be used to measure the progress toward the overarching goal based on 10-year targets. In addition to measuring progress in prevention, the indicators "will be used to plan and implement future prevention efforts. Key indicators will be reported for the overall population and by subgroups as data become available. Indicators and 10-year

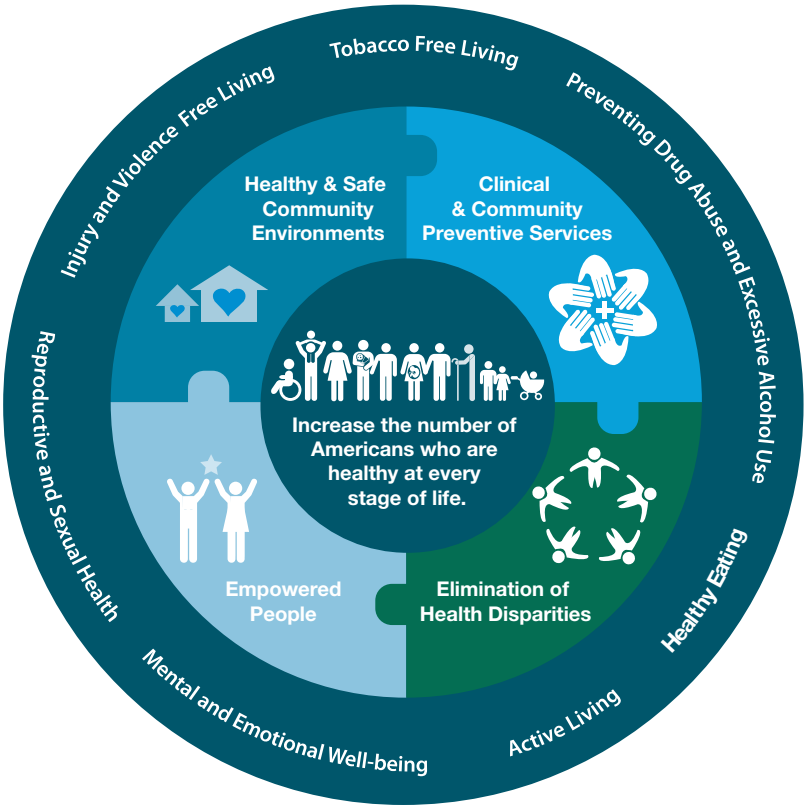

FIGURE 1.9 National Prevention Strategy.

Reproduced from: National Prevention Council, U.S. Department of Health and Human Services, Office of the Surgeon General (2011). *National Prevention Strategy.* Available at http://www.surgeongeneral.gov/priorities/prevention/strategy/index.html.

targets are drawn from existing measurement efforts, especially *Healthy People 2020.* As data sources and metrics are developed or enhanced, National Prevention Strategy's key indicators and targets will be updated."[41]

The Twenty-First Century

Now in the second decade of the twenty-first century the need to improve community and public health continues. Below we have outlined some of the major problems still facing the United States and the world.

U.S. Community and Public Health in the Twenty-First Century

With a little more than one-sixth of the twenty-first century behind us, it is widely agreed that although decisions about health are an individual's responsibility to a significant degree, society has an obligation to provide an environment in which the achievement of good health is possible and encouraged. Furthermore, many recognize that certain segments of our population whose disease and death rates exceed the general population may require additional resources, including education, to achieve good health.

The American people face a number of serious public health problems. These problems include the continuing rise in health care costs, growing environmental concerns, the ever-present lifestyle diseases, emerging and reemerging communicable diseases, serious substance abuse problems, and disasters, both natural and human-made. In the paragraphs that follow, we have elaborated on each of these problems briefly because they seem to represent a significant portion of the community and public health agenda for the years ahead.

Health Care Delivery

In 2010, significant changes were made to the U.S. health care system with the passage of the Patient Protection and Affordable Care Act (PPACA; Public Law 111-148) and the Health Care and Education Reconciliation Act of 2010 (HCERA; Public Law 111-152). These two acts were consolidated shortly thereafter with other approved legislation and are now referred to as the *Affordable Care Act* (or ACA, nicknamed ObamaCare). Though the law has many components, the primary focus was to increase the number of Americans with health insurance. The ACA does this, but by providing health insurance to millions of Americans who did not have it before, the costs will also go up, which will continue to make U.S. health care the most expensive in the world. In 2016, health expenditures were projected to be just over $3.35 trillion, consume 18.1% of the gross domestic product (GDP), and were expected to reach $5.63 trillion and 20.1% of the GDP by 2025.[42] The United States spends more per capita annually on health care (estimated at $10,345 in 2016)[42] than any other nation. The cost of health care is an issue that still needs to be addressed.

Environmental Problems

Millions of Americans live in communities where the air is unsafe to breathe, the water is unsafe to drink, or solid waste is disposed of improperly. With a few minor exceptions, the rate at which we pollute our environment continues to increase. Many Americans still believe that our natural resources are unlimited and that their individual contributions to the overall pollution are insignificant. In actuality, we must improve on our efforts in resource preservation and energy conservation if our children are to enjoy an environment as clean as ours. These environmental problems are compounded by the fact that the world population continues to grow; it is now more than 7.3 billion people and expected to reach 8 billion by the year 2025.[43]

Lifestyle Diseases

The leading causes of death in the United States today are not the communicable diseases that were so feared 100 years ago but chronic illnesses. The four leading causes of death in the second decade of the twenty-first century are heart disease, cancer, chronic lower respiratory diseases, and unintentional injuries.[44] Although it is true that everyone has to die from some cause sometime, too many Americans die prematurely. Seven out of every 10 deaths among Americans each year are from chronic diseases, while heart disease, cancer, and stroke account for approximately 50% of deaths annually.[45] In addition, more than 86% of all health care spending in the United States is on people with chronic conditions.[45] Chronic diseases are not only the most common, deadly, and costly conditions, they are also the most preventable of all health problems in the United States.[45] They are the most preventable because four modifiable risk behaviors—lack of exercise or physical activity, poor nutrition, tobacco use, and excessive alcohol use—are responsible for much of the illness, suffering, and early death related to chronic diseases.[45] In fact, one study estimates that all causes of mortality could be cut by 55% by never smoking, engaging in regular physical activity, eating a healthy diet, and avoiding being overweight.[46] (See **Table 1.3.**)

Communicable Diseases

Although communicable (infectious) diseases no longer constitute the leading causes of death in the United States, they remain a concern for several reasons. First, they are the primary reason for days missed at school or at work. The success in reducing the life-threatening nature of these diseases has made many Americans complacent about obtaining vaccinations or taking other precautions against contracting these diseases. With the exception of smallpox, none of these diseases has been eradicated, although several should have been, such as measles.

Second, as new communicable diseases continue to appear, old ones such as tuberculosis reemerge, sometimes in drug-resistant forms (i.e., caused by superbugs), demonstrating that communicable diseases still represent a serious community health problem in America. Legionnaires' disease, toxic shock syndrome, Lyme disease, acquired immunodeficiency syndrome (AIDS), severe acute respiratory syndrome (SARS), and Zika virus disease are diseases that were unknown only 60 years ago. The first cases of AIDS were reported in June 1981.[47] By August 1989, 100,000 cases had been reported,[48] and it took only an additional two years to report the second 100,000 cases.[49] By 2015, more than 1.2 million cases of the disease had

TABLE 1.3 Comparison of Most Common Causes of Death and Actual Causes of Death

Most Common Causes of Death, United States, 2013	Actual Causes of Death, United States, 2000
1. Heart disease	1. Tobacco
2. Cancer	2. Poor diet and physical inactivity
3. Chronic lower respiratory diseases	3. Alcohol consumption
4. Unintentional injuries	4. Microbial agents
5. Stroke	5. Toxic agents
6. Alzheimer's disease	6. Motor vehicles
7. Diabetes	7. Firearms
8. Influenza and pneumonia	8. Sexual behavior
9. Nephritis, nephrotic syndrome, and nephrosis	9. Illicit drug use
10. Intentional self-harm (suicide)	

Data from National Center for Health Statistics (2016). *Deaths and Mortality.* Available at http://www.cdc.gov/nchs/fastats/deaths.htm; Mokdad, A. H., J. S. Marks, D. F. Stroup, and J. L. Gerberding (2004). "Actual Causes of Death, in the United States, 2000." *Journal of the American Medical Association*, 291(10): 1238–1245; and Mokdad, A. H., J. S. Marks, D. F. Stroup, and J. L. Gerberding (2005). "Correction: Actual Causes of Death, in the United States, 2000." *Journal of the American Medical Association*, 293(3): 293–294.

Bioterrorism the threatened or intentional release of biological agents for the purpose of influencing the conduct of government or intimidating or coercing a civilian population to further political or social objectives

been reported to the CDC[50] (see **Figure 1.10**). The total number of cases continues to grow with close to 50,000 new HIV cases being diagnosed each year.[50] Also, diseases that were once only found in animals are now crossing over to human populations and causing much concern and action. Included in this group of diseases are avian flu, *Escherichia coli* O157:H7, hantavirus, mad cow disease, and SARS.

Third, and maybe the most disturbing, is the use of communicable diseases for bioterrorism. **Bioterrorism** involves "the threatened or intentional release of biological agents (virus, bacteria, or their toxins) for the purpose of influencing the conduct of government or intimidating or coercing a civilian population to further political or social objectives. These agents can be released by way of the air (as aerosols) food, water or insects."[9] Concern in the United States over bioterrorism was heightened after September 11, 2001 (9/11) and the subsequent intentional distribution of *Bacillus anthracis* spores through the U.S. postal system (the anthrax mailings).

> Since then, a heightened awareness of potential threats posed by chemical and biological weapons and low-grade nuclear materials have prompted public officials nationwide to review and revamp the [public health] system. Large-scale bioterrorism has not yet occurred, but global unrest amid the rise of extremism makes it a real possibility in the future.[51]

FIGURE 1.10 AIDS is one of the most feared communicable diseases today.

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Alcohol and Other Drug Abuse

Drug abuse and addiction due to the use of tobacco, alcohol, and illegal drugs have a number of negative effects on individuals and society including but not limited to failure in school, child abuse, disintegration of the family, domestic violence, loss of employment, violent crimes, and even death. Estimates of the total overall costs of substance abuse in the United States, including lost productivity, and health and crime-related costs, exceed $700 billion annually.[52] Federal, state, and local governments as well as private agencies attempt to address the

Health disparities the difference in health among different populations

supply and demand problems associated with the abuse of alcohol and other drugs, but a significant challenge remains for America. A recent example of this challenge has been the response to opioid pain reliever overdose. "In 2014, more than 18,000 people died from an opioid pain reliever overdose, or nearly 50 people per day, and over 10,000 died from heroin-related overdoses, a rate that has more than quadrupled since 2002."[53] In response two major steps have been taken. The first was the U.S. Food and Drug Administration (FDA)'s approval of intranasal naloxone—a nasal spray formulation of the medication designed to rapidly reverse opioid overdose—which provides family members, caregivers, and first responders with an alternative to injectable naloxone for use during a suspected opioid overdose.[54] The second was the development by the CDC of guidelines for prescribing opioids for chronic pain that provide "recommendations for the prescribing of opioid pain medication for patients 18 and older in primary care settings."[55]

Health Disparities

It has long been "recognized that some individuals lead longer and healthier lives than others, and that often these differences are closely associated with social characteristics such as race, ethnicity, gender, location, and socioeconomic status."[56] These gaps between groups have been referred to as health disparities (also call health inequalities in some countries). More formally, **health disparities** have been defined as the difference in health among different populations. Health disparities are a problem in the United States in that many minority groups' health status, on many different measures, is not as good as the white population. Efforts have been put forth to eliminate the disparities, as evidenced by one of the *Healthy People 2020* overarching goals to "achieve health equity, eliminate disparities, and improve the health for all groups."[40] Many experts think these differences have been caused by two health inequities—lack of access to health care, and/or when health care is received the quality has not been as good for those in minority groups. Whatever the reason, health disparities continue to be a problem and much more needs to be done.

Disasters

Disasters can be classified into two primary categories—natural (or conventional) and human-made (or technological disasters).[1] Whereas natural disasters are the result of the combination of the forces of nature (e.g., hurricane, flood, blizzard, tornado, earthquake, landslide) and human activities,[57] human-made disasters result from either unintentional (e.g., spill of a toxic substance into the environment) or intentional (e.g., bioterrorism) human activities, often associated with the use or misuse of technology. Both types of disasters have the potential to cause injury, death, disease, and damage to property on a large scale.[1] In recent years, the United States has felt the large-scale impact of both types of disasters via wildfires, the BP Gulf oil spill, Hurricanes Katrina and Rita, severe flooding, and the bombings in Paris, Brussels, and at the 2013 Boston Marathon (see **Figure 1.11**). All of these events showed us that the preparation for such disasters was not adequate and that each type of disaster required different resources and a different response.

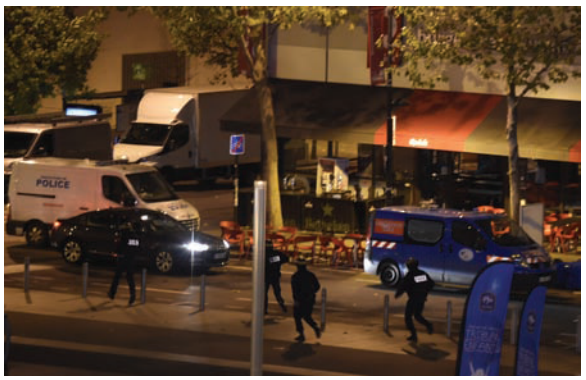

FIGURE 1.11 Terrorism has become a concern throughout the world.

Even though the causes of the two categories of disasters are different, preparedness for them has many common elements. It has been noted that preparedness for natural disasters is the foundation for preparedness for human-made disasters.[58] That is, in preparing for natural disasters, the basic components of an adequate disaster response system have been defined, and the steps necessary to build disaster preparedness capacity have been established.[58] What needs to be added are specific steps to deal with the peculiarity of the human-made disasters. An example of this would be the need for decontamination following exposure to a biological agent.

Even given the devastating consequences of natural disasters, such as hurricanes, flooding, or the forest fires that consume many thousands of acres of woodlands each year, it has been the intentional human-made disasters—specifically terrorism—that have occupied much of our attention in recent years.

Mention was made earlier of the use of a communicable disease as part of terrorism. In fact a number of agents could be used as part of terrorism. Since the anthrax mailings, community and public health professionals have focused on the possibility that future terrorism could include chemical, biological, radiological, and/or nuclear (CBRN) agents, resulting in mass numbers of casualties. Such concern led to an evaluation of community and public health emergency preparedness and response. "Determining the level of state and local health departments' emergency preparedness and response capacities is crucial because public health officials are among those, along with firefighters, emergency medical personnel, and local law enforcement personnel, who serve on 'rapid response' teams when large-scale emergency situations arise."[14] Results of that evaluation showed that the public health infrastructure was not where it should be to handle large-scale emergencies, as well as a number of more common public health concerns.

> The . . . public health infrastructure has suffered from political neglect and from the pressure of political agendas and public opinion that frequently override empirical evidence. Under the glare of a national crisis, policy makers and the public became aware of vulnerable and outdated health information systems and technologies, an insufficient and inadequately trained public health workforce, antiquated laboratory capacity, a lack of real-time surveillance and epidemiological systems, ineffective and fragmented communications networks, incomplete domestic preparedness and emergency response capabilities, and communities without access to essential public health services.[14]

Based on the results of several different evaluations that exposed many weaknesses in emergency preparedness in general and in the public health infrastructure more specifically, investment in public health preparedness has increased since 9/11. Those federal departments that have been responsible for most of the effort have been the U.S. Departments of Homeland Security (DHS) and Health and Human Services (HHS). The DHS has the responsibility of protecting America, whereas the HHS has taken the leadership for public health and medical preparedness. **Public health preparedness** has been defined as "the ability of the *public health system, community*, and *individuals* to prevent, protect against, quickly respond to, and recover from health emergencies, particularly those in which scale, timing, or unpredictability threatens to overwhelm routine capabilities";[59] **Medical preparedness** has been defined as "the ability of the *health care system* to prevent, protect against, quickly respond to, and recover from health emergencies, particularly those whose scale, timing, or unpredictability threatens to overwhelm routine capabilities."[59] Information about emergency preparedness and response can be found on the websites of all HHS agencies; however, those that have been most visible have been the Centers for Disease Control and Prevention (CDC), the Health Resources and Services Administration (HRSA), and the Agency for Health Care Research and Quality (AHRQ).

Public health preparedness the ability of the public health system, community, and individuals to prevent, protect against, quickly respond to, and recover from health emergencies, particularly those in which scale, timing, or unpredictability threatens to overwhelm routine capabilities

Medical preparedness the ability of the health care system to prevent, protect against, quickly respond to, and recover from health emergencies, particularly those whose scale, timing, or unpredictability threatens to overwhelm routine capabilities

After 9/11, the federal government, through a variety of funding sources and programs, has worked to strengthen homeland security, emergency preparedness, and response at all levels. The funding was used to create or enhance the various components needed in disaster situations (i.e., communication, coordination, and the workforce). The funding also had to be used to bring much of the public health system up to date (e.g., laboratories, personnel, and surveillance) after many years of neglect. However, in part because of the lull in the economy, there has been a decrease in public health preparedness funding the past few years,[60] which has started to erode a decade's worth of progress.[56]

Though the United States is better prepared than prior to 9/11, much still needs to be done. In December 2012, the Trust for America's Health (TFAH), a nonprofit, nonpartisan organization, and the Robert Wood Johnson Foundation released their tenth report on the state of public health preparedness in the United States.[61] The authors of the report noted "that while there has been significant progress toward improving public health preparedness over the past 10 years, particularly in core capabilities, there continue to be persistent gaps in the country's ability to respond to health emergencies, ranging from bioterrorist threats to serious disease outbreaks to extreme weather events."[61] Central to the report is a scorecard that rates

all 50 states and the Washington, D.C. based on 10 key indicators to assess health emergency preparedness capabilities.

In the most recent report, scores ranged from three (in Kansas and Montana) to eight (in Maryland, Mississippi, North Carolina, Vermont, and Wisconsin). Thirty-five states scored six or lower. Data from the report showed that 29 states cut public health funding from fiscal years 2010–2011 to 2011–2012. Only two states met the national goal for vaccinating 90% of young children (i.e., 19 to 36 months old) against pertussis (whooping cough). Thirty-five states and Washington, D.C., do not have complete climate change adaption plans that include dealing with extreme weather events. Twenty states do not mandate licensed child care facilities to have a multi-hazard written evacuation plan. Thirteen state public health laboratories report they do not have sufficient capacity to work 5 12-hour days for 6 to 8 weeks in response to an infectious disease outbreak.[61] Obviously, there is still much work to be done.

World Community and Public Health in the Twenty-First Century

Like the United States, much progress has been made in the health of the people throughout the world in recent years. Life expectancy has increased by 6 years globally since 1990,[62] due primarily to (1) social and economic development, (2) the wider provision of safe water and sanitation facilities, and (3) the expansion of national health services. And, like in the United States a number of public health achievements took place in the first 10 years of the twenty-first century (see **Box 1.7**). However, all people of the world do not share in this increased life expectancy and better health. "There is still a major rich–poor divide: people in high-income countries continue to have a much better chance of living longer than people in low-income countries."[63]

In the paragraphs below we have identified some of the community and public health issues that the peoples of the world will be facing in years ahead.

Communicable Diseases

Even though information presented in Box 1.7 suggests that there have been a number of achievements with regard to communicable diseases throughout the world between 2001 and 2010, the burden of communicable diseases worldwide is still great. It is most vivid when looking at mortality. The leading causes of death in the world do not look much different than the leading causes of death in the United States. In fact, heart disease and cerebrovascular disease are the number one and two killers worldwide. However, when the leading causes of death are broken down by the wealth of the countries big differences appear. Five of the 10 leading causes of death are infectious diseases (e.g., lower respiratory infections, HIV/AIDS, diarrhoeal disease, malaria, and tuberculosis) in low- and middle-income countries, while nine of the 10 leading causes are noncommunicable diseases in high-income countries.[67] Similar trends appear when life expectancy is compared with the wealth of the countries. "A boy born in 2012 in a high-income country can expect to live to 75.8 years—more than 15 years longer than a boy born in a low-income country (60.2 years). For girls, the difference is even more marked; a gap of 18.9 years separates life expectancy in high-income (82.0 years) and low-income countries (63.1 years)."[62]

Poor Sanitation and Unsafe Drinking Water

Closely related to the problem of communicable diseases and related death are unsafe drinking water and poor sanitation. Worldwide, one out of every five deaths in children under the age of 5 years is due to a water-related disease.[68] Further, approximately 80% of all illnesses in developing countries are linked to poor water quality and unsanitary conditions.[68] For those individuals who grew up in a high-income country the thought of not having clean water and sanitary conditions is hard to understand. Yet, worldwide one in nine people, almost 900 million people,[69] do not have access to safe and clean drinking water, with over a third of those people living in sub-Saharan Africa.[68] In addition, an estimated 2.5 million people (more than 35% of the world's population) lack basic sanitation.[69] Access to safe drinking water, adequate sanitation, and proper hygiene education are essential to reducing illness and death, which in turn leads to improved health, poverty reduction, and socioeconomic development.[70]Access to safe drinking water, sanitation, and hygiene (WASH) are basic human rights.

BOX 1.7 Ten Great Public Health Achievements—Worldwide 2001–2010

At the conclusion of 2010, experts in global public health were asked to nominate noteworthy public health achievements that occurred outside of the United States during 2001–2010. From them, 10 were selected. Below, in no specific order, are the ones selected from the nominations.[64]

- *Reductions in Child Mortality*. Currently, an estimated 8.1 million children die each year before reaching their fifth birthday, a decrease of approximately 2 million between 2001–2010. Almost all (~99%) childhood deaths occur in low-income and middle-income countries, with 49% occurring in sub-Saharan Africa and 33% in southern Asia.
- *Vaccine-Preventable Deaths*. Over the 10-year period an estimated 2.5 million deaths were prevented each year among children less than 5 years of age through the use of measles, polio, and diphtheria-tetanus-pertussis vaccines.
- *Access to Safe Water and Sanitation.* Diarrhea, most of which is related to inadequate water, sanitation, and hygiene (WASH), kills 1.5 million children younger than 5 years of age annually. The proportion of the world's population with access to improved drinking water sources increased from 83% to 87% (covering an additional 800 million persons), and the proportion with access to improved sanitation increased from 58% to 61% (covering an additional 570 million persons).
- *Malaria Prevention and Control*. Malaria is the fifth leading cause of death from infectious disease worldwide and the second leading cause in Africa. Increased coverage with insecticide-treated bednets, indoor residual spraying, rapid diagnosis and prompt treatment with artemisinin combination therapy, and intermittent preventive treatment during pregnancy resulted a 21% decrease in estimated global malaria deaths between 2000 and 2009.
- *Prevention and Control of HIV/AIDS.* The HIV epidemic continues to be a global health challenge with 35.0 million people living with HIV at the end of 2013.[65] However, a number of public health interventions including provider-initiated HIV testing and counseling, prevention of mother-to-child HIV transmission, expanded availability and use of condoms and sterile injection equipment, improved blood safety, and antiretroviral therapy (ART) have helped to reduce the number of new infections.
- *Tuberculosis Control*. Due in large part to the World Health Organization's (WHO) directly observed therapy, short-course (DOTS) strategy for TB control, focusing on finding and successfully treating TB cases with standardized regimens and rigorous treatment, and program monitoring during the decade, case detection and treatment success rates each have risen nearly 20%, with incidence and prevalence declining in every region.
- *Control of Neglected Tropical Diseases.* Neglected tropical diseases affect approximately one billion persons worldwide. Three of these diseases have been targeted for elimination or eradication: dracunculiasis (Guinea worm disease), onchocerciasis (river blindness) in the Americas, and lymphatic filariasis. Those programs targeting dracunculiasis and onchocerciasis in the Americas are on the verge of success, while the lymphatic filariasis programs are making progress.
- *Tobacco Control*. The global tobacco epidemic kills approximately six million people each year.[66] However, during the decade 168 countries adopted WHO's first global health treaty aimed at tobacco, 163 countries tracked tobacco use via surveys, and the total global population covered by smoke-free laws increased.
- *Increased Awareness and Response for Improving Global Road Safety*. Approximately 1.3 million persons die on the world's roads each year (3,000 every day), and this number is projected to double by 2030. Though the number of road deaths did not slow down during the past 10 years, a significant global effort was made to create a plan to reduce the forecasted growth in road fatalities.
- *Improved Preparedness and Response to Global Health Threats*. During the 10-year period of time, the public health community has improved preparedness for and detection of pandemic threats and is now responding more effectively than before. This is due in part to modernization of the international legal framework, better diseases surveillance techniques, better public health networking, and better global disease detection systems.

Data from: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention (2011). "Ten Great Public Health Achievements —Worldwide, 2001–2010." *Morbidity and Mortality Weekly Report*, 60(24): 814–818. Available at http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6024a4.htm.

Hunger

Hunger can be defined in several different ways but the definition that applies here is the severe lack of food.[71] World hunger is not a problem of the amount of food but rather the maldistribution of the available food. Too many people are too poor to buy the available food, but lack the land and resources to grow it themselves,[72] or live in a climate that is not conducive to food production. Despite a 27% reduction in hunger worldwide since 2000[73] and an 11% decline in malnourished children in developing countries since 1990,[74] an estimated 795 million people, or about one in nine people in the world, are suffering from chronic undernourishment. Almost all these hungry people, 780 million, live in developing

countries.[73] Furthermore, "malnutrition remains the underlying cause of death in an estimated 35% of all deaths among children under 5 years of age."[74]

Migration and Health

Recent political events in the Middle East and North Africa have ignited a dramatic increase in migration and the number of displaced people. By the end of 2013, 51.2 million individuals were displaced worldwide as a result of persecution, conflict, generalized violence, or human rights violations. Of this number, 16.7 million were refugees, 33 million were internally displaced persons (IDPs), and close to 1.2 million were asylum seekers.[75] Millions of people have lost everything.

The surge of refugees and migrants creates challenges that require adequate preparedness, rapid humanitarian responses, and increased technical assistance.[76] "It also causes unexpected pressure on health systems, especially at the local level where influx is first managed. Responding quickly and efficiently to the arrival of large groups of people in a country can be complex, resource-intensive, and challenging, especially when host countries are affected by economic crisis or are not fully prepared and local systems are not adequately supported."[76] Consider how difficult it is sometimes to get the appropriate health care in a resource-rich country like the United States, then consider how difficult it might be to receive appropriate health care in a new country where you are not familiar with the structure of the health care system, where you do not speak the language, where you lack transportation, and where you lack resources to pay for the services. What makes this situation even worse is that many of the refugees and migrants are in countries that lack enough resources for their own residents and are therefore overwhelmed by the influx of people.

Chapter Summary

- A number of key terms are associated with the study of community and public health, including health, community, community health, population health, public health, public health system, and global health.
- The four factors that affect the health of a community are physical (e.g., community size), social and cultural (e.g., religion), community organization, and individual behaviors (e.g., exercise and diet).
- It is important to be familiar with and understand the history of community health to be able to deal with the present and future community and public health issues.
- The earliest community and public health practices went unrecorded; however, archeological findings of ancient societies (before 500 B.C.E.) show evidence of concern for community and public health. There is evidence during the time of the classical cultures (500 B.C.E.–500 C.E.) that people were interested in physical strength, medicine, and sanitation.
- The belief of many living during the Middle Ages (500–1500 C.E.) was that health and disease were associated with spirituality. Many epidemics were seen during this period.
- During the Renaissance period (1500–1700 C.E.), there was a growing belief that disease was caused by the environment, not spiritual factors.
- The eighteenth century was characterized by industrial growth. Science was being used more in medicine and it was during this century that the first vaccine was discovered.
- The nineteenth century ushered in the modern era of public health. The germ theory was introduced during this time, and the last fourth of the century is known as the bacteriological period of public health.
- The twentieth century can be divided into several periods. The health resources development period (1900–1960) was a time when many public and private resources were used to improve health. The period of social engineering (1960–1973) saw the U.S. government's involvement in health insurance through Medicare and Medicaid. The health promotion period began in 1974 and continues today.
- *Healthy People 2020* and the National Prevention Strategy are important components of the community and public health agenda in the United States.
- In the second decade of twenty-first century great concern still exists in the United States for health care, the environment, diseases caused by an impoverished lifestyle, the spread of communicable diseases (such as AIDS, Legionnaires' disease, toxic shock syndrome,

and Lyme disease), the harm caused by alcohol and other drug abuse, and terrorism.

- Although the health of the world population is improving, communicable diseases, poor sanitation and unsafe drinking water, hunger, and migration are burdens for many and impact the people who are poor much more than those who are not poor.

Scenario: Analysis and Response

The Internet has many sources of information that could help Amy and Eric with the decisions that they will have to make about the continued use of the day care center for their children. Use a search engine (e.g., Google, Bing) and enter (a) hepatitis and (b) hepatitis and day care centers. Print out the information that you find and use it in answering the following questions.

1. Based on the information you found on the Internet, if you were Amy or Eric would you take your children to the day care center the next day? Why or why not?
2. Do you believe the hepatitis problem in day care centers is a personal health concern or a community health concern? Why?
3. Which of the factors noted in this chapter that affect the health of a community play a part in the hepatitis problem faced by Amy and Eric?
4. Why does the hepatitis problem remind us of the health problems faced by people in this country prior to 1900?
5. Under which of the focus areas in the *Healthy People 2020* would hepatitis fall? Why?

Review Questions

1. How did the WHO define health in 1946? How has that definition been modified?
2. What is public health?
3. What are the differences among community health, population health, and global health?
4. What are the five major domains that determine a person's health?
5. What is the difference between personal health activities and community and public health activities?
6. Define the term *community*.
7. What are four major factors that affect the health of a community? Provide an example of each.
8. Identify some of the major events of community and public health in each of the following periods of time:

   Early civilizations (prior to 500 C.E.)

   Middle Ages (500–1500 C.E.)

   Renaissance and Exploration (1500–1700 C.E.)

   The eighteenth century

   The nineteenth century
9. Provide a brief explanation of the origins from which the following twentieth-century periods get their names:

   Health resources development period

   Period of social engineering

   Period of health promotion
10. What significance do the *Healthy People* documents have in community and public health development in recent years?
11. What significance do you think *Healthy People 2020* will have in the years ahead?
12. What is the National Prevention Strategy and who is responsible for it?
13. What are the major community and public health problems facing the United States and the World in the twenty-first century?

Activities

1. Write your own definition for health.
2. In a two-page paper, explain how the five major determinants of health could interact to cause a disease such as cancer.
3. In a one-page paper, explain why heart disease can be both a personal health problem and a community and public health problem.

4. Select a community and public health problem that exists in your hometown; then, using the factors that affect the health of a community noted in this chapter, analyze and discuss in a two-page paper at least three factors that contribute to the problem in your hometown.
5. Select one of the following individuals (all have been identified in this chapter). Using the Internet find three reliable websites that provide information on the individual, and then write a two-page paper on the person's contribution to community and public health.

   Edward Jenner

   John Snow

   Lemuel Shattuck

   Louis Pasteur

   Robert Koch

   Walter Reed
6. Review the *Healthy People 2020* website. Then, set up a time to talk with an administrator in your hometown health department. Find out which of the objectives the health department has been working on as priorities. Summarize in a paper what the objectives are, what the health department is doing about them, and what it hopes to accomplish by the year 2020.

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