CHAPTER 1

# INTRODUCTION TO COMMUNITY AND PUBLIC HEALTH



This chapter has been designed to give an overview of the field of community and public health. Included in this chapter are basic terms pertaining to community and public health, issues with which the field grapples, factors influencing the health of a community, and descriptions of key agencies in the field. A description of the genesis of community and public health and a timeline of key events in its history are also presented. The chapter concludes with a discussion of current challenges facing community and public health.

**LEARNING OBJECTIVES**

**After reading this chapter you should be able to**

- **Define basic terms in community and public health.**
- **Differentiate between *medicine* and *community and public health*.**
- **Identify issues in community and public health.**
- **Identify and classify factors affecting community and public health.**
- **Describe local, state, national, and global organizations in community and public health.**
- **Trace the historical timeline of community and public health.**
- **Explain the current challenges confronting community and public health.**

## Defining Community and Public Health

The constitution of the World Health Organization defines **health** as "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity" (World Health Organization [WHO], 1947, p. 29). This definition has several shortcomings, such as the fact that health is dynamic and not a state, the dimensions mentioned in the definition are insufficient (the spiritual, political, and economic dimensions are missing), the definition is subjective (making it difficult to measure health as defined here), the definition is idealistic rather than realistic, and the definition considers health to be an end product rather than a means. Another major limitation is that it treats health as a personal or individual-level construct as opposed to a community-level construct. Should health be considered only at the individual level, or does it also have meaning at the community level? The answer to this is clearly that health must be considered at both individual and

**health**

A means to achieve desirable goals in life while maintaining a multidimensional (physical, mental, social, political, economic, and spiritual) equilibrium that is operationalized for individuals as well as for communities.

**Figure 1.1** One of the Many Dimensions of Health

*Source*: Photo courtesy of the Centers for Disease Control and Prevention, ID# 14026, CDC/Amanda Mills, retrieved from http://phil.cdc.gov/phil/home.asp

community levels. Thus a more useful definition of health, given by Sharma and Romas (2012, p. 277), is, "a means to achieve desirable goals in life while maintaining a multidimensional (physical, mental, social, political, economic, and spiritual) equilibrium that is operationalized for individuals as well as for communities." Figure 1.1 shows one of health's many dimensions. Before we begin defining what community health means let us first define what community means.

**community**
A group of individuals who share common interests and characteristics.

A **community** is a group of individuals who share common interests and characteristics. Often they are living in the same geographical area and have a common cultural and historical heritage. Individuals in a community are bound to each other by social, religious, ethnic, occupational, or other characteristics that they have in common. They usually follow some shared rules. Hunter (1975) has identified three types of community units: (1) units that accomplish basic needs for sustenance, (2) units for social interaction, and (3) units of symbolic collective identity. Examples of communities are people living in Cincinnati (common geographical location), African Americans in Cincinnati (common race), Hispanics in Cincinnati (common

ethnicity), Mexican Americans in Cincinnati (common national origin), Christians in Cincinnati (common religion), health educators in Cincinnati (common occupation), adolescents in Cincinnati (common age), breast cancer survivors in Cincinnati (common problem), and users of Facebook (common social network, in this instance a cyber community).

Having defined *health* and *community* we are now ready to define *community health* and *public health*. **Community health** has been defined by Green and Ottoson (1999, p. 4) as "the health status of a community and . . . the organized responsibilities of public health, school health, transportation, safety, and other tax-supported functions, with voluntary and private actions to promote and protect the health of local populations identified as communities." Community health involves three fundamental functions: (1) promotion of good health in a defined group of individuals, (2) protection of good health in a defined group of individuals, and (3) maintenance of good health in a defined group of individuals. Promotion entails health education and the creation of environmental conditions conducive to good health. Figure 1.2 shows an example of promoting health for a group of individuals. Protection of good health entails functions such as water purification, preservation of air quality, environmental sanitation, food hygiene, drug safety, and related activities that reduce or eliminate harmful effects of environmental hazards. Maintenance of good health entails functions to prevent illness, control illness, and maintain maximal functioning for a group of individuals.

Community health involves three fundamental functions: (1) promotion of good health in a defined group of individuals, (2) protection of good health in a defined group of individuals, and (3) maintenance of good health in a defined group of individuals.

**community health**
An effort with three fundamental functions: (1) promotion of good health in a defined group of individuals, (2) protection of good health in a defined group of individuals, and (3) maintenance of good health in a defined group of individuals.

**Public health** was first defined by C.E.A. Winslow (1920, p. 23) as

> [T]he science and art of preventing disease, prolonging life, and promoting physical health and efficiency through organized community efforts for the sanitation of the environment, the control of community infections, the education of the individual in principles of personal hygiene, the organization of medical and nursing service for the early diagnosis and preventive treatment of disease, and the development of the social machinery which will ensure to every individual in the community a standard of living adequate for the maintenance of health, so organizing these benefits as to enable every citizen to realize his birth right of health and longevity.

**public health**
Organized community efforts, by the governmental and nongovernmental sectors, to prevent disease and promote good health within groups of people, from small communities to entire countries.

The Institute of Medicine (1988) in its *Future of Public Health* report identified three essential parts for a definition of public health. The first part is the mission of public health or a statement about goals and purposes.

**Figure 1.2** Community Health Is About Promoting Health for Groups of Individuals

*Source*: Photo courtesy of the Centers for Disease Control and Prevention, ID# 11550, CDC/Dawn Arlotta, retrieved from http://phil.cdc.gov/phil/home.asp

The report identified the mission of public health as the accomplishment of society's interest in maintaining the conditions for the health of the people. The second part is the substance or subject matter of public health. With regard to the substance of public health the report identified three things: (1) organized community effort, (2) prevention of disease, and (3) promotion of health. It also identified epidemiology as the core of public health. The third part is an organizational framework or a description of how public health is different from what public health agencies do. In this context the report identified that public health encompasses the activities of both governmental and nongovernmental (private and voluntary) organizations and individuals. Thus public health can be defined as organized community efforts, by the governmental and nongovernmental sectors, to prevent disease and promote good health within groups of people, from small communities to entire countries. (Figure 1.3 shows an example of treatment during an organized public health effort.) Thus we see that there is not much difference between the terms *community health* and *public health*. However, some people see public health as being government run and funded by tax dollars, and they consider that the key difference between public health and community health.

Public health can be defined as organized community efforts, by both the governmental and nongovernmental sectors, to prevent disease and promote good health within groups of people, from small communities to entire countries.

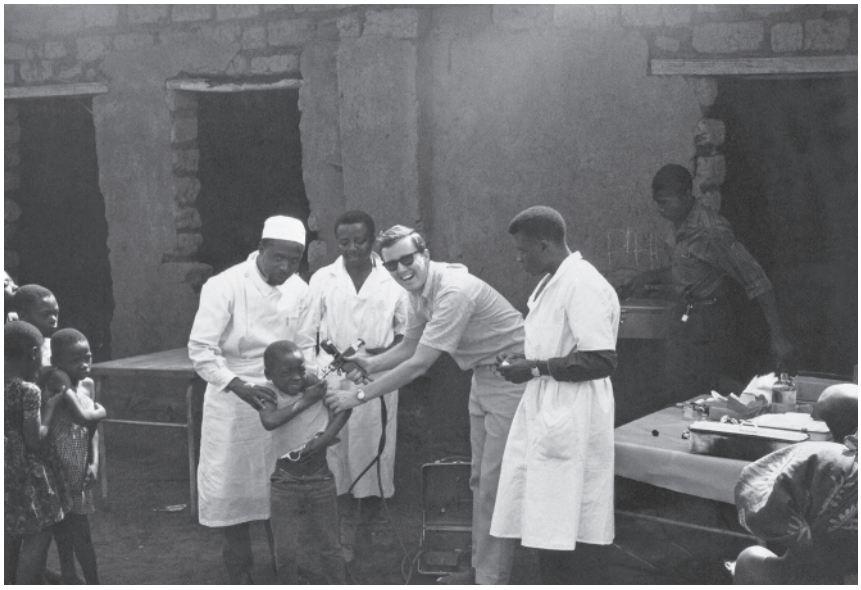

**Figure 1.3** A Nigerian Boy Receiving a Smallpox Vaccination in 1967, an Example of an Organized Public Health Effort
*Source*: Photo courtesy of the Centers for Disease Control and Prevention, ID# 13251, CDC/Dr. William Foege, retrieved from http://phil.cdc.gov/phil/home.asp

## Basic Terms in Community and Public Health

Several other terms used in community and public health contexts must also be clarified. The first of these is the term *population health*. **Population health** refers to the health status of a group of people who may or may not identify themselves as a community and the efforts and conditions directed toward that group by means that may or may not be organized. The group of people may consist of women, homeless people, or adults, for example. So population health differs from community and public health in that it may not be organized and the people involved may not have an identity as a community, yet like community and public health, it applies to a group of people as opposed to an individual.

**population health**
The health status of a group of people who may or may not identify themselves as a community and the efforts and conditions directed toward that group by means that may or may not be organized.

Another two terms that need to be defined are *international health* and *global health*. Paul Basch (1999) has defined **international health** as "a systematic comparison of the factors that affect the health of all human populations." Merson, Black, and Mills (2006, p. xiv) have defined international public health as "the application of principles of public health to health problems and challenges that affect low and middle income countries and to the complex array of global and local forces that influence them." Sharma and Atri (2010, p. 6) have defined international health as

**international health**
The science and art of examining health problems in multiple countries, primarily those that are developing, and finding population-based solutions to their problems.

"the science and art of examining health problems in multiple countries, primarily those that are developing, and finding population-based solutions to their problems." They have defined **global health** as "the study of health problems and solutions affecting all people of the world" (Sharma & Atri, 2010, p. 6). So both these terms expand the groups addressed by community and public health to multiple nations in the case of international health and all nations in the case of global health. But both international health and global health are also types of community and public health.

**global health**
The study of health problems and solutions affecting all people of the world.

Two more terms used in the context of community and public health are *health education* and *health promotion*. **Health education** has been defined by the World Health Organization (1998, p. 4) as "consciously constructed opportunities for learning involving some form of communication designed to improve health literacy, including improving knowledge, and developing life skills which are conducive to individual and community health." The *Ottawa Charter for Health Promotion* (WHO, 1986, p. 1) has defined **health promotion** as "the process of enabling people to increase control over, and to improve their health." The *Ottawa Charter* identified five key action strategies for health promotion:

**health education**
A means of facilitating voluntary behavior change to achieve good health in individuals, groups, and communities.

**health promotion**
Organizational, policy, and environmental efforts for improving the health of individuals, groups, and communities.

- Build healthy public policy.
- Create physical and social environments supportive of individual change.
- Strengthen community action.
- Develop personal skills such as increased self-efficacy and feelings of empowerment.
- Reorient health services to the population and partnership with patients.

Health education is a means of facilitating voluntary behavior change to achieve good health in individuals, groups, and communities. Health promotion consists of organizational, policy, and environmental efforts for improving the health of individuals, groups, and communities.

So we see that health education is a means of facilitating voluntary behavior change to achieve good health in individuals, groups, and communities. Community health education is an important and essential component of community and public health. (Figure 1.4 shows an example of health education intended to facilitate voluntary health behavior change.) Health promotion consists of organizational, policy, and environmental efforts for improving the health of individuals, groups, and communities. It is important to appreciate that health education is a subset of health promotion. Once again, community health promotion is an important and essential component of community and public health.

**Figure 1.4** Health Education Is About Facilitating Voluntary Health Behavior Change

*Source*: Photo courtesy of the Centers for Disease Control and Prevention, ID# 11580, CDC/Dawn Arlotta, retrieved from http://phil.cdc.gov/phil/home.asp

**primary health care**
Essential health care made accessible at a cost a country and community can afford, with methods that are practical, scientifically sound, and socially acceptable.

In 1978, a World Health Organization conference held in Alma-Ata, Kazakhstan, coined the term *primary health care*. **Primary health care** is "essential health care made accessible at a cost a country and community can afford, with methods that are practical, scientifically sound and socially acceptable" (WHO, 1998, p. 3). This term is in consonance with the goals, mission, and approaches of community and public health. The term *primary health care* has been used by the World Health Organization to signify a type of care that everyone must have access to and everyone must be involved in. The essential components of primary health care are (1) community participation, (2) equity in distribution, (3) affordable cost, (4) collaboration among different sectors, and (5) appropriate technology. Many of these components are also often found in community and public health efforts.

**preventive medicine**
The art and science of health promotion, disease prevention, disability limitation, and rehabilitation.

The essential components of primary health care are (1) community participation, (2) equity in distribution, (3) affordable cost, (4) collaboration among different sectors, and (5) appropriate technology.

Three terms from the medical field need some explanation here as well: *preventive medicine*, *social medicine*, and *community medicine*. **Preventive medicine** has been defined as the art and science of health promotion, disease prevention, disability limitation, and rehabilitation (Clark & MacMahon, 1981). The American Board of Preventive Medicine (2011) defines the goal of preventive medicine as being

"to protect, promote, and maintain health and well-being and to prevent disease, disability, and death." The basic sciences studied in training for work in preventive medicine and in community and public health are the same, but preventive medicine implies a more personal encounter between the individual and the health professional (Park & Park, 1986). The term **social medicine** originated in Europe. Social medicine has two foundations: medicine and sociology (Park & Park, 1986), and it examines more than the individual. Social medicine is sometimes equated with socialized medicine, which pertains to the provision of health care by various means to an entire society, including the underserved and disadvantaged communities. But social medicine is different from that. Social medicine seeks to understand how social and economic factors affect health and illness so that societal conditions can be created that foster good health. **Community medicine** is a branch of medicine that deals with populations, as opposed to individuals, and that provides health care at the community level. Its aim is to identify health needs in a community (community diagnosis) and to plan, implement, and evaluate health measures to address those needs. So this field is heavily influenced by public health, community health, preventive medicine, and social medicine.

**social medicine**
A field of medicine that seeks to understand how social and economic factors affect health and illness so that societal conditions can be created that foster good health.

**community medicine**
A branch of medicine that deals with populations, as opposed to individuals, and that provides health care at the community level.

Now that we have defined preventive medicine, social medicine, and community medicine, we can discuss the similarities and differences between *medicine* on the one hand and *community and public health* on the other. Both medicine and community and public health are interested in alleviating suffering and fostering good health. Many medical professionals practice both medicine and public health. But there are several differences between these fields. Medicine is concerned with the health of the individual patient, and all its methods are designed for working on an individual, whereas community and public health is concerned with the health of communities. In general the focus of medicine is on finding treatments for diseases, while the focus of community and public health is on preventing disease and promoting good health. In medicine the person who is the patient is freed of all responsibilities in the causation of the disease and is prescribed treatment that is an external agent in the form of drugs or a surgical procedure or some such means, while in community and public health the members of the community actively participate in finding the solution to their problems. As a result, the patient, as a user of medicine, becomes dependent on the provider, while the purpose of community and public health is to make the participants independent. The basic sciences that

are needed for practicing medicine are anatomy, physiology, biochemistry, pathology, pharmacology, and microbiology, while the basic sciences that are needed for practicing community and public health are biostatistics, epidemiology, the social and behavioral sciences, the managerial sciences, and environmental health. In medicine the physician is interested in helping one patient no matter how expensive it may be, while in public health priority is given to conditions that will benefit a large number of individuals in the community. The cost of treatment in medicine tends to be high and there is no limit on the price of saving a human life, while in community and public health the cost of an intervention per person tends to be low. Generally speaking, the practice of medicine is dependent on sophisticated technology, while the methods and approaches in community and public health often employ local and simple technologies, such as the oral rehydration solution used for treatment of diarrheal diseases. Further, in the field of medicine there is a high degree of commercialization, while in community and public health there is less commercialization. The differences between medicine and community and public health are summarized in Table 1.1.

**Table 1.1** Differences Between Medicine and Community and Public Health

| Criterion | Medicine | Community and Public Health |
|---|---|---|
| Concern | The individual | The community |
| Focus | Treating diseases | Preventing disease and promoting good health |
| Responsibility | Patient is freed of responsibility | Community members participate in finding solution to the problems |
| Basic sciences | Anatomy, physiology, biochemistry, pathology, pharmacology, and microbiology | Biostatistics, epidemiology, social and behavioral sciences, managerial sciences, and environmental health |
| Priority | Helping one patient, no matter how expensive it may be | Dealing with conditions that will benefit a large number of individuals in the community |
| Cost | High: for an individual patient the cost may go to a million dollars or more | Low: per capita cost is much less |
| Technology | Usually sophisticated | Usually local and simple |
| Commercialization | More | Less |

## Issues in Community and Public Health

This book is primarily concerned with issues confronting community and public health. Some of the questions that a student of community and public health needs to address are as follows:

- What are the factors affecting community and public health?
- What are some typical community and public health organizations? What role do these organizations play in maintaining health in communities?
- How are various aspects of community and public health measured? What are the health indicators?
- How are the times, places, persons, and distributions of health-related conditions determined?
- What is the role of epidemiology in community and public health?
- What is the role of biostatistics in community and public health?
- What is the role of the social and behavioral sciences in community and public health?
- How are health education and health promotion programs planned? What are the common theories and models?
- What are some methods used in health education and health promotion?
- What are some issues regarding world population? How can world population be controlled?
- How does environment affect health? How do air and water pollution affect the health of people in communities?
- How can intentional and unintentional injuries be controlled in communities?
- How are the health services and public health organized in the United States?
- How are community initiatives planned, managed, budgeted, and evaluated?
- What is systems thinking, and what leadership frameworks and styles are used in community and public health?

## FOCUS FEATURE 1.1 UNITED NATIONS MILLENNIUM DEVELOPMENT GOALS

Around the world, a lot of disparities exist between different communities. In order to reduce these disparities, the United Nations has developed eight millennium development goals to be completed by 2015, and these goals have been agreed on by all UN member nations. These eight goals can be briefly paraphrased as follows:

**Goal 1: To Stamp Out Excessive Poverty and Associated Hunger**

This goal sets targets to reduce the number of people whose income is less than $1 per day by half from 1990 to 2015, to ensure employment for all, and to reduce the prevalence of hunger by half from 1990 to 2015.

**Goal 2: To Ensure Primary Education for All**

This goal sets a target of ensuring that by 2015 all children will be able to complete at least a primary education.

**Goal 3: To Ensure the Equality of Both Genders and Empowerment of Women**

This goal sets a target of removing all disparities in the education of men and women by 2015.

**Goal 4: To Reduce Deaths in Children**

This goal sets a target of reducing by two thirds the rates of death in children below five years of age by 2015.

**Goal 5: To Enhance the Health of Mothers**

This goal's targets include reducing the maternal mortality ratio by two thirds and ensuring complete access to reproductive care.

**Goal 6: To Reduce Burden of HIV/AIDs, Malaria, and Other Diseases**

This goal's targets include reversing the trend in HIV/AIDS, ensuring complete treatment for patients suffering from HIV/AIDS, and reversing the trend in malaria and other diseases.

**Goal 7: To Make Sure That the Environment Is Sustainable**

This goal's targets include bringing principles of sustainable development into each country's mandate, reducing biodiversity loss, enhancing access to safe water and sanitation, and improving the lives of slum dwellers.

**Goal 8: To Promote a Global Partnership**

This goal's targets include building a nondiscriminatory trading and financial system, addressing the special needs of less developed countries, paying attention to the special needs of small landlocked and island countries, dealing with developing countries' debt problems, and ensuring supplies of essential drugs and equitable distribution of technological advancements.

*Note*: More information on these goals can be obtained from www.un.org/millenniumgoals/bkgd.shtml

## Factors Affecting Community and Public Health

Just like the health of an individual, the health of a community is affected by multiple factors. These factors are responsible for variations between the health of one community and another. We can classify these factors, ranging from the microlevel ones to the macrolevel ones, as (1) biological factors, (2) behavioral factors, (3) social factors, (4) cultural factors, (5) organizational factors, and (6) environmental factors (Figure 1.5).

### Biological Factors

There are several biological attributes, such as age distribution, gender distribution, genetic makeup distribution, and so on, that shape the health of a community. For example, a community that has an older population, such as a retirement community, will have health needs different from the needs of a community that has a younger population, such as many of the communities in a developing country. Certain diseases are more common in certain age groups; for example, measles occurs in childhood whereas coronary heart disease usually occurs after middle age. Likewise, some communities have adverse sex ratios, meaning there are more members of one gender than of the other, as in some communities in India where there are more males than females, and these communities have a different health profile than communities where males and females are in equal proportion have. Certain diseases are more common in one gender than the other; for example, rheumatoid arthritis affects women more than men, whereas gout is more common in men. The genetic makeup of each person is unique, and it cannot be altered after conception. Some communities do not engage in intercommunity marriages, and the relatively restricted genetic pool of such communities has implications for their health. Several diseases are genetically linked, including sickle cell anemia and hemophilia.

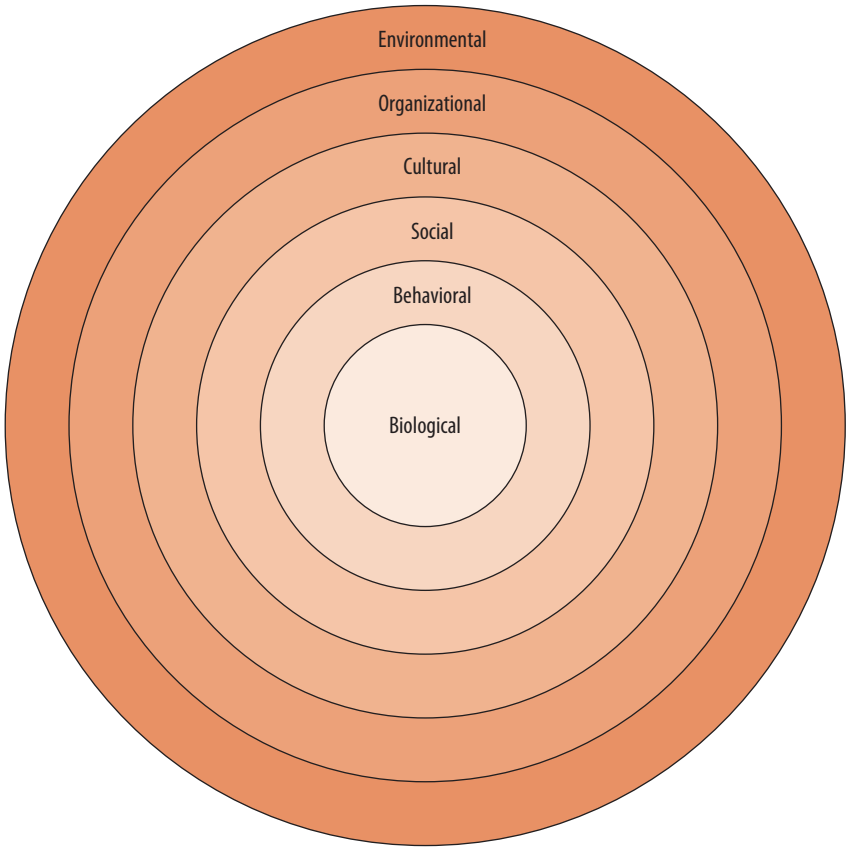


**Figure 1.5** Factors Affecting the Health of a Community

Another biological factor that plays a role in the health of a community is the community's immunity status. When a large number of people in a community are immunized against a particular disease, then those who are not vaccinated also have some protection because the disease will be slow to spread. This phenomenon is called **herd immunity**. It is important to appreciate that biological factors are not just factors people are born with but can also include later impacts, such as traumatic brain injuries or gunshot wounds.

**herd immunity**
A form of immunity that occurs when a large number of people in a community are immunized against a particular disease and those who are not vaccinated also have some protection because the disease will be slow to spread.

## Behavioral Factors

The second category of factors that impinge on the health of a community is behavioral factors. Behaviors are overt actions that have a specified frequency, intensity, and duration. They may be healthy behaviors or

unhealthy behaviors. Although these behaviors are carried out by the individual, they have effects on the entire community. When a large number of people in a community subscribe to healthy behaviors, then the health of that community will be good, but when a large number of people practice unhealthy behaviors, then the health of their community will be poor. Some of the healthy behaviors important to a community are being physically active or exercising daily, eating fruits and vegetables, eating smaller portion sizes at meals, drinking water instead of sweetened beverages, wearing a seat belt while driving or riding in an automobile, sleeping seven to eight hours every day for adults, practicing good dental hygiene by brushing and flossing, protecting the skin from ultraviolet rays, and eating foods rich in vitamins and minerals daily. Some of the unhealthy behaviors are smoking or using tobacco products, drinking alcohol, using illegal drugs, sleeping less than seven hours, skipping breakfast, consuming a lot of caffeine, and consuming unhealthy food products. The fields of community and public health that help people adopt healthy behaviors and reduce unhealthy behaviors are *health education* and *health promotion*.

## Social Factors

By *social factors* we mean those factors that result from the interaction of individuals, groups, or communities. One such social factor is the economic conditions in a community. The health of a community is intimately linked to its economic status. High-income communities can afford better health care and can create conditions more conducive to health, whereas members of low-income communities have a difficult time accessing health care or taking measures that promote good health. Poverty is associated with poorer performance on such health indicators as the infant mortality rate. Poverty is also associated with higher rates of crime, violence, drug abuse, alcoholism, and other such deviant behaviors. Another social factor is occupation. Certain occupations are prone to greater health risks as compared to other occupations. For example, a community of construction workers has a greater risk of injuries than a community of teachers does. Another social factor is the political milieu of a community. Democracy is generally associated with better health outcomes. Avritzer (2010) has shown how democracy made a difference in the living conditions of the urban poor in the city of Porto Alegre in Brazil after that country's democratization in 1985. Within a democracy different political parties with their differing mandates make policies that have differing impacts on the health of communities. For example, in the United States, Democrats see a greater role for government in health care while Republicans want

a lesser role. Another social factor is the influence of social norms on certain health practices, which in turn affect the health of communities. In some communities, such as the Native American community, cigarette smoking is part of the social fabric and therefore the rates of smoking are much higher than in other groups, a factor that in turn affects various health conditions in this community, producing, for example, higher rates of coronary heart disease.

## Cultural Factors

Culture comprises all the beliefs attributed to a particular social, ethnic, or age group. One of the cultural factors is religion. Several studies have been done that show a relationship between religion and health. One such study, by Schnall and colleagues (2010), shows that religiosity is related to positive health outcomes. This study involved 92,395 Women's Health Initiative Observational Study participants and found that higher self-report measures of religiosity were associated with reduced risk of all-cause mortality. Although religiosity has an overall effect on the health of communities, different religions with their varying dictums have different influences on the health of their followers. Some religions, such as Hinduism, advocate vegetarianism and fasting, which are good for health, while some religions use peyote, a hallucinogen, which can be detrimental to health. Another aspect of culture is the racial and ethnic profile of a community. Certain diseases are more common in certain races. For example, sickle cell anemia is more common in African Americans. Further, certain unique beliefs, customs, and practices are followed by each race. Some of these are good for health, and some of them may be detrimental to health.

## Organizational Factors

The ways in which and extents to which a community is organized and the various infrastructures in that community, such as health care, housing, and education, are organized have a bearing on the health of that community. If a community is well organized, with all its essential infrastructures in good shape, then the health of that community will be better than the health of a community that is not well organized. A well-organized community is able to make and enforce laws and policies that promote health. For example, in the United States, antitobacco legislation and policies have brought down the rates of cigarette smoking. From 1965 to 2010, the prevalence of cigarette smoking among adults in the United States decreased from 42.4% to 19.3% (Centers for Disease Control and Prevention [CDC], 2011c).

## Environmental Factors

The final level of influence on the health of a community consists of environmental factors. These include the quality of the air, of environmental sanitation, of the water supply, and of food and also protection against radiation and against noise pollution. When these environmental factors experience pollution, then the health of the community suffers. Environmental factors need to be considered not only for the present generation but for future generations as well. If countries continue with uncontrolled population growth and with depleting and polluting natural resources, then the future generations will also suffer. The six categories of factors affecting community health are summarized in Table 1.2.

**Table 1.2** Factors Affecting Community Health

| # | Category | Example |
|---|---|---|
| 1. | Biological | Age distribution |
| | | Gender distribution |
| | | Genetic makeup distribution |
| | | Immunity status |
| 2. | Behavioral | Prevalence of healthy behaviors |
| | | Prevalence of unhealthy behaviors |
| 3. | Social | Economic conditions |
| | | Occupational distribution |
| | | Political milieu |
| 4. | Cultural | Religion |
| | | Racial and ethnic profile |
| 5. | Organizational | Ways and extents of organization within the community |
| | | Health care |
| | | Housing |
| | | Education |
| 6. | Environmental | Quality of air |
| | | Quality of environmental sanitation |
| | | Quality of water supply |
| | | Quality of food |
| | | Protection against radiation |
| | | Protection against noise pollution |

## FOCUS FEATURE 1.2 *HEALTHY PEOPLE 2020*: SALIENT ASPECTS

The federal Healthy People initiative produces a report every ten years that sets the national objectives in the area of health for Americans. The vision of *Healthy People 2020* is to build a nation in which all people live long and healthy lives. This report identifies health priorities, enhances public awareness on health issues, sets measurable objectives, involves a variety of sectors, and identifies research and evaluation needs (US Department of Health and Human Services, 2011). *Healthy People 2020* presents four 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.

*Healthy People 2020* addresses 42 topic areas with approximately 600 objectives and 1,200 measures. The topic areas are summarized in Table 1.3.

From these 42 areas, 26 leading health indicators, arranged under 12 leading health indicator topics, have been identified as priorities. Grouped by topic, these indicators are

### Access to Health Services

- Persons with medical insurance
- Persons with a usual primary care provider

### Clinical Preventive Services

- Adults who receive a colorectal cancer screening based on the most recent guidelines
- Adults with hypertension whose blood pressure is under control
- Adult diabetic population with an A1c value greater than 9%
- Children aged 19 to 35 months who receive the recommended doses of DTaP, polio, MMR, Hib, hepatitis B, varicella, and PCV vaccines

### Environmental Quality

- Air Quality Index (AQI) exceeding 100
- Children aged 3 to 11 years exposed to secondhand smoke

### Injury and Violence

- Fatal injuries
- Homicides

**Table 1.3** Topic Areas in *Healthy People 2020*

| | | |
|---|---|---|
| 1. Access to health services | 15. Genomics | 29. Nutrition and weight status |
| 2. Adolescent health | 16. Global health | 30. Occupational safety and health |
| 3. Arthritis, osteoporosis, and chronic back conditions | 17. Health communication and health information technology | 31. Older adults |
| 4. Blood disorders and blood safety | 18. Healthcare-associated infections | 32. Oral health |
| 5. Cancer | 19. Health-related quality of life and well-being | 33. Physical activity |
| 6. Chronic kidney disease | 20. Hearing and other sensory or communication disorders | 34. Preparedness |
| 7. Dementias, including Alzheimer's disease | 21. Heart disease and stroke | 35. Public health infrastructure |
| 8. Diabetes | 22. HIV | 36. Respiratory diseases |
| 9. Disability and health | 23. Immunization and infectious diseases | 37. Sexually transmitted diseases |
| 10. Early and middle childhood | 24. Injury and violence prevention | 38. Sleep health |
| 11. Educational and community-based programs | 25. Lesbian, gay, bisexual, and transgender health | 39. Social determinants of health |
| 12. Environmental health | 26. Maternal, infant, and child health | 40. Substance abuse |
| 13. Family planning | 27. Medical product safety | 41. Tobacco use |
| 14. Food safety | 28. Mental health and mental disorders | 42. Vision |

*Source*: Adapted from *About Healthy People*, by US Department of Health and Human Services, 2011, retrieved from http://www.healthypeople.gov/2020/about/default.aspx

### Maternal, Infant, and Child Health

- Infant deaths
- Preterm births

### Mental Health

- Suicides
- Adolescents who experience major depressive episodes (MDEs)

### Nutrition, Physical Activity, and Obesity

- Adults who meet current federal physical activity guidelines for aerobic physical activity and muscle-strengthening activity
- Adults who are obese
- Children and adolescents who are considered obese
- Total vegetable intake for persons aged 2 years and older

**Oral Health**

- Persons aged 2 years and older who used the oral health care system in the past 12 months

**Reproductive and Sexual Health**

- Sexually active females aged 15 to 44 years who received reproductive health services in the past 12 months
- Persons living with HIV who know their serostatus

**Social Determinants**

- Students who graduate with a regular diploma four years after starting ninth grade

**Substance Abuse**

- Adolescents using alcohol or any illicit drugs during the past 30 days
- Adults engaging in binge drinking during the past 30 days

**Tobacco**

- Adults who are current cigarette smokers
- Adolescents who smoked cigarettes in the past 30 days

## Community and Public Health Organizations

There are a variety of community and public health organizations. These organizations may function at the local level, the state or provincial level, the national level, or the global level. At the *local level* there are both governmental and nongovernmental organizations. A governmental health agency is supported by tax funds; an example is the City of Cincinnati Health Department. A nongovernmental, or voluntary, agency is supported primarily by financial contributions from public or private entities. Among the local governmental organizations are county and city health departments. There are 2,700 local health departments across United States (National Association of County and City Health Officials, 2012). The size of these departments is dependent on the size of the population they are serving, the needs of their area, the availability of resources, and community support. So some departments may have only one official, while others may have several hundred. The functions that these departments serve can be classified into (1) assessment, (2) policy development, and

The functions of local departments can be classified into (1) assessment, (2) policy development, and (3) assurance functions.

(3) assurance functions (Institute of Medicine, 1988). Some of the specific functions in a full-fledged local health department are collection of vital statistics (births, deaths, marriages, disease incidence), control of communicable diseases (immunization, health education, control of disease carriers), maternal and child health (prenatal checkups, education), chronic disease control (screening, education), mental health promotion (counseling, education), environmental health protection (sanitation, food and water safety, insect infestation control, swimming pool inspection), dental public health (fluoridation, care for the indigent), nuisance abatement (lead paint in housing, rat infestations), and health education. (Figure 1.6 shows a local health inspector at work.) At the local level there are also nongovernmental, community-based organizations that work on health and related issues. These are also called voluntary organizations. Examples include local chapters of the American Red Cross and the American Heart Association, local groups that engage in community health care or education, and church groups focused on a community health issue. For example, to address the issue of childhood obesity the American Heart Association may have an educational program for children in elementary schools, the local community recreation club may have an after-school program for kids

**Figure 1.6** A Local Health Inspector Inspecting a Kitchen for Food Safety

*Source*: Photo courtesy of the Centers for Disease Control and Prevention, ID# 13849, CDC/Amanda Mills, retrieved from http://phil.cdc.gov/phil/home.asp

to promote physical activity, and the local church may have cooking and nutrition classes for parents.

At the *state or provincial level* also, several community and public health organizations can be found. These are also divided into governmental and nongovernmental (voluntary) organizations. In the United States each of the 50 states, the District of Columbia, and the 8 US territories has a governmental agency responsible for the administration of public health. Likewise in Canada each of the 10 provinces and two territories has a governmental public health agency. Most other countries also have governmental health departments at the state level. Usually they come under the purview of the governor of the state, with a board of health providing direction. Some of the functions of the state health department are maternal and child health (maternal clinics, child health clinics, family planning services, supplemental food programs for women, infants, and children), emergency medical services (ambulance vehicle licensing and inspection, emergency medical communications, standards for 911 services, ambulance personnel testing), communicable disease control (collecting and reporting data, educational support), chronic disease control (screening, education), public health nursing (home health care, education), training of local health department personnel, environmental health, organizational administration, and health education. There are also voluntary community and public health organizations that function at the state level.

At the *national or federal level* also, there are several community and public health agencies. These can be divided into governmental, voluntary, and professional organizations. The US Department of Health and Human Services (HHS) is the principal governmental agency responsible for protecting the health of Americans. It is composed of the Office of the Secretary and 11 operating divisions. The operating divisions are the (1) Administration for Children & Families (ACF), (2) Administration for Community Living (ACL), (3) Agency for Healthcare Research and Quality (AHRQ), (4) Agency for Toxic Substances and Disease Registry (ATSDR), (5) Centers for Disease Control and Prevention (CDC), (6) Centers for Medicare & Medicaid Services (CMS), (7) Food and Drug Administration (FDA), (8) Health Resources and Service Administration (HRSA), (9) Indian Health Service (IHS), (10) National Institutes of Health (NIH), and (11) Substance Abuse and Mental Health Services Administration (SAMHSA). There are a number of voluntary organizations focused on public health at the national level. A few examples are the American Heart Association, American Cancer Society, American Lung Association, and American Red Cross. At the national level there are also several professional organizations that represent professions focused on community and public health. Some examples

are the American Alliance for Health, Physical Education, Recreation, and Dance (AAHPERD), American College Health Association (ACHA), American Dental Association (ADA), American Medical Association (AMA), American Nurses Association (ANA), American Public Health Association (APHA; see Focus Feature 1.3), American School Health Association (ASHA), Directors of Health Promotion and Education (DHPE), National Environmental Health Association (NEHA), and Society for Public Health Education (SOPHE).

## FOCUS FEATURE 1.3 AMERICAN PUBLIC HEALTH ASSOCIATION

The American Public Health Association (APHA) was formed in 1872, making it the oldest professional public health organization in the United States. It is also the largest organization in the field of public health in this country. The organization's goal is to protect all people, their families, and their communities in the United States from threats to health that are preventable. It supports universally accessible, community-based health promotion, disease prevention, and preventive health services (American Public Health Association, 2012). It has about 25,000 members.

The APHA is organized into 29 sections that represent major public health disciplines or program areas. These sections are aging and public health; alcohol, tobacco, and other drugs; applied public health statistics; chiropractic health care; community health planning and policy development; community health workers; disability; environment; epidemiology; food and nutrition; health administration; health informatics information technology; HIV/AIDS; injury control and emergency health services; international health; law; maternal and child health; medical care; mental health; occupational health and safety; oral health; physical activity; podiatric health; population, reproductive, and sexual health; public health education and health promotion; public health nursing; public health social work; school health education and services; and vision care. In addition there are currently four special primary interest groups (SPIGs) that address alternative and complementary health practices, ethics, laboratory, and veterinary public health. In each state APHA has a state affiliate. In Ohio, for example, the Ohio Public Health Association is the affiliate. The association also has forums that cut across different sections and represent topical interests of its members. Among these forums are the breastfeeding forum, cancer forum, family violence prevention forum, genomics forum, healthy communities for healthy aging forum, and trade and health forum. Finally, the association has caucuses, each of which involves a group of 15 members addressing a topic of interest. Some examples of these caucuses are the academic public health caucus, the women's caucus, and the Latino caucus. More information about the APHA can be obtained from its website at www.apha.org.

Finally, at the *global level* there are several organizations that address community and public health. The most significant and primary organization is the World Health Organization (WHO). WHO is the United Nations' coordinating and directing agency for health. It is primarily responsible for providing leadership on matters related to global health, developing a global health research agenda, developing norms and standards, choosing evidence-based policy options, furnishing technical support to member countries, and watching and projecting health trends (WHO, 2012). WHO has a six-point agenda: (1) promoting development, especially among poor, disadvantaged, and vulnerable groups; (2) promoting health security by engaging the world collectively to fight outbreaks of disease; (3) amplifying health systems by strengthening trained staff and ensuring availability of drugs and other resources; (4) articulating evidence-based policies and strategies, (5) building partnerships among UN agencies, other international organizations, donors, private organizations, and so forth; and (6) improving WHO's performance. Some examples of the many other global public health organizations are CARE, Catholic Relief Services (CRS), the Food and Agriculture Organization of the United Nations (FAO), the International Committee of the Red Cross (ICRC), Oxfam International, the Pan American Health Organization (PAHO), Project HOPE, the United Nations Children's Fund (UNICEF), the United Nations Development Programme (UNDP), the United Nations Population Fund (UNFPA), the US Agency for International Development (USAID), the World Federation of Public Health Associations (WFPHA), and the World Food Programme (WFP).

WHO has a six-point agenda: (1) promoting development especially among poor, disadvantaged, and vulnerable groups; (2) promoting health security by engaging the world collectively to fight outbreaks of disease; (3) amplifying health systems by strengthening trained staff and ensuring availability of drugs and other resources; (4) articulating evidence-based policies and strategies; (5) building partnerships among UN agencies, other international organizations, donors, private organizations, and so forth; and (6) improving WHO's performance.

**CASE STUDY 1.1 HEALTH FOR ALL**

In 1978, the World Health Organization's World Health Assembly in Alma-Ata set up a goal of *health for all*. Health for all implies that health is to be brought within reach of everyone in every country in the world. This vision was to be achieved in the year 2000, but that date has passed and this goal remains elusive. However, inspired by this goal, in the year 2001 a group of community and public health professionals in Nebraska came together and formed a not-for profit organization that they named Health for All. The primary goal of this group was to promote, encourage, and contribute to the attainment of health, wellness, and peace for all people through education, practice, promotion, and research in ancient

and contemporary techniques, approaches, and systems. The group aimed at working for underserved, underprivileged, and vulnerable sections of the society.

In the initial years of its formation, in order to gain entry into the community, Health for All started conducting stress management and yoga workshops. It also started working on specific projects to reduce infant mortality in the inner city. Gradually it increased its work aimed toward reducing tobacco use among minority groups. After few years of direct work, Health for All shifted its strategy away from direct work with the vulnerable population and toward strengthening other projects and organizations that were conducting work with vulnerable populations. And that is what this organization is doing right now.

### Questions for Reflection and Discussion

1. What can a small community and public health organization do toward achieving the goal of health for all? Has this organization succeeded in doing that?
2. Do you agree with this organization's strategic change of moving from direct work to strengthening the work of other projects and organizations? Why or why not?
3. Do you think that conducting yoga and stress management workshops to gain entry into the community is a good approach? Why or why not?
4. If you were the CEO of this organization, what strategy would you undertake at this point? What should the mission and vision of this organization be?
5. What could be some sources of funding for the support activities that this organization is engaged in?

## Historical Timeline for Community and Public Health

The history of community and public health dates back to ancient times. We will trace that history from those ancient times to modern times.

### Influences from Ancient Civilizations

#### *Indian Subcontinent*

Among the first urban civilizations in the world is the Indus valley or Harappan civilization, which flourished from 3500 BCE to 1500 BCE. It was located on the Indus and Saraswati-Ghaggar-Hakra rivers, in the area of present-day Pakistan and northwestern India. Some of the cities in this civilization were Harappa, Mohenjo-daro, and Lothal. At its acme this civilization may have had a population of approximately five million people. The people in this civilization had domesticated animals and

harvested several crops that included barley, cotton, peas, and sesame. This civilization is known for having originated many features of community and public health. The cities were well planned, the houses were made of brick, the streets were wide, and there were bathing platforms and reservoirs. This civilization had the world's first sanitation system, characterized by both public and private drains (Marshall, 1931). For enforcement of cleanliness there were municipal laws (Sharma, 1956).

The Indus valley civilization had the world's first sanitation system, characterized by both public and private drains.

The Indus valley civilization was followed in this region by the Vedic civilization, or Indo-Aryan civilization (2000–600 BCE), whose name comes from the Vedas composed during this period. (*Veda* is a Sanskrit word meaning "knowledge.") The Vedas contain hymns, chants, and rituals and cover all aspects of human life. There are four Vedas: (1) *Rig Veda*, (2) *Sama Veda*, (3) *Yajur Veda*, and (4) *Atharva Veda*. *Rig Veda* is the oldest and its *Samhita* (collection of mantras) consists of 1,017 hymns, or *Suktas*. It details the social, religious, political, and economic background of the civilization. *Sama Veda* consists of hymns that can be considered the realization of the knowledge from *Rig Veda*. *Yajur Veda* is the book of rituals and contains all aspects of ceremonial religion. *Atharva Veda* includes a description of spells and charms prevalent at that time (Das & Sadasivan, 2012). The system of **yoga** that is used these days in community and public health for the prevention of various health problems originated during this time. All four *Vedas* refer either directly or indirectly to the practice of yoga. The term *yoga* is derived from a Sanskrit word meaning "union," and yoga is part of a way of life that includes physical and psychic practices to maintain harmony between the self and the environment.

**yoga**
The term *yoga* is derived from a Sanskrit word meaning "union," and yoga is part of a way of life that includes physical and psychic practices to maintain harmony between the self and the environment.

## *Egypt*

Ancient civilization in Egypt flourished around the Nile River, the longest river in the world, in the period 3000 BCE to 300 BCE. This civilization developed a unique script that used hieroglyphs, which were recorded on papyrus, a thick, paperlike material derived from the pith of the papyrus plant. As a result, this civilization produced a lot of written records, and those records have given us much information about this civilization. The Egyptians collected rainwater for community use. They also developed methods for disposing of sewage. They used mosquito nets for preventing mosquito bites. And they also paid great attention to personal hygiene, taking regular baths and using perfumes (Shaw, 2003). All these efforts were early influences on the development of community and public health.

### *Mesopotamia*

Another ancient civilization developed in Mesopotamia (present-day Iraq) along the Euphrates and Tigris rivers during the period from 6000 BCE to 400 BCE. One of the great kings of this civilization was Hammurabi (1810–1750 BCE), who formulated a set of laws called the Codex Hammurabi, or **Code of Hammurabi**. It contained 282 laws applicable to the different walks of life and was carved on a black stone eight feet high. Of significance to community and public health were the laws about conduct of physicians and laws that prescribed healthful living. One such law was, "If a physician heals the broken bone or diseased soft part of a man, the patient shall pay the physician five shekels in money" (King, 2008). So we see that this law specifies and regulates a fee for the services of a physician, something that had not been done prior to this code. The laws also made the physicians accountable for their work and imposed penalties if their practice resulted in death or other catastrophic outcomes.

**Code of Hammurabi**
A set of 282 laws formulated by Hammurabi (1810–1750 BCE), a king of the Mesopotamian civilization.

### *China*

In China, a fourth ancient civilization, established along the Yangtze river and the Yellow river, was at its height from 2200 BCE to 220 CE. An early emperor in this region, Huang Di (2695–2589 BCE), emphasized the importance of the principles of yang and yin, believed to be present everywhere in creation. **Yang** is the masculine principle, and **yin** is the feminine principle. Balance between these two denotes good health. This principle of balance is found in many forms of alternative and complementary health practices used in community and public health even today. Ancient Chinese civilization also shows early evidence of community and public health measures, such as digging wells for drinking water, constructing systems of ditches around homes for draining water, and devising means for containment of rodents (Green & Ottoson, 1999). Another influence of Chinese civilization on community and public health has been the teachings of Confucius (541–479 BCE). His teachings emphasized personal and governmental morality, sincerity in social relationships, and justice. His work laid the foundation of ethics in community and public health.

**yang**
In ancient Chinese civilization this is the masculine principle.

**yin**
In ancient Chinese civilization this is the feminine principle.

### *Greece*

Ancient Greek civilization is usually considered to have flourished between 1200 BCE and 323 BCE, when Alexander the Great died. This civilization made remarkable contributions in the areas of politics, philosophy, art, and medicine. Hippocrates (460–370 BCE) is considered the father of medicine, and he wrote several books on medicine. The Hippocratic Oath, which

concerns the ethical practice of medicine, serves as the foundation of ethical medical practice even today. He also wrote a book on linkages between the environment and health, *On Airs, Waters and Places*, which was an important contribution to the field of community and public health. The sewage and rainwater drainage systems in ancient Greece were quite sophisticated and formed another contribution to community and public health (Angelakis, Koutsoyiannis, & Tchobanoglous, 2005). The thinking of the three major philosophers of ancient Greece, Socrates (469–399 BCE), Plato (428–348 BCE), and Aristotle (384–322 BCE), has both directly and indirectly shaped the philosophy of community and public health. The Socratic method is the basis of scientific thinking in modern times. Plato was a supporter of holistic medicine, which combines treatment of the body, mind, and soul. This philosophy is used in many alternative and complementary systems of health in community and public health.

The Socratic method is the basis of scientific thinking in modern times.

### *Roman*

Ancient Roman civilization prospered between 753 BCE and 476 CE. The Romans were quite advanced in public health. They believed that cleanliness could lead to good health. The population of Rome had grown, and there was a need to provide fresh water and to dispose of waste to prevent pollution. So the Romans built aqueducts to bring water to the city. They built a total of nine aqueducts. One of the most famous of these is the Pont du Gard aqueduct at Nîmes in southern France. The aqueducts supplied about 50 gallons (225 liters) of water per person per day (Major, 1954). The Romans also built public baths (both hot and cold baths), and these were places for people to both bathe and meet. This was done to encourage personal hygiene. They built public toilets as well. They introduced street cleaning. And they also built a network of sewers to take waste and sewage to the river Tiber. One of these sewers was called the Cloaca Maxima (Cilliers & Retief, 2006). Another feature of Roman civilization was that it extended the public health programs to all, irrespective of ability to pay, which is very much in consonance with the practice of public health in modern times.

## Community and Public Health in the Middle Ages in Europe

The period from about 500 CE to about 1500 CE in Europe is referred to as the *Middle Ages*. During this period there was very little progress in science (and thus in public health) in Europe. Therefore this period is also known

as the Dark Ages. In this period the emphasis was on the spiritual aspects of life, and the spirit took priority over the body. The role of the Church and its doctrines gained prominence. Myths and superstitions about health and hygiene were prevalent. For example, people believed diseases resulted from sins of the soul. Relief from ailments was sought through prayers and pilgrimages. During this period crusades were mounted by the Christian West against the Islamic East in an attempt to win Jerusalem and the Holy Land. The health indicators during this period were dismal, and the average life expectancy was only 31 years (Glasscheib, 1964). There were periodic epidemics of diseases such as plague (particularly bubonic plague, known as the Black Death), leprosy, smallpox, tuberculosis, scabies, and anthrax. There were unsanitary conditions in the cities, and the only means of controlling diseases were quarantine and isolation. In 1348, a major epidemic of bubonic plague killed from one fourth to one third of the population in major European cities. Leprosy was another major disease. People suffering from leprosy (lepers) were removed from their communities. Rules and regulations were established for diagnosing and isolating these individuals. It is estimated that by the end of the twelfth century there were approximately 19,000 leper houses (*leprosaria*) in Europe (Ackerknecht, 1982).

## Community and Public Health During the Renaissance in Europe

Toward the end of the Middle Ages there was a cultural revolution in Europe that brought in an era commonly referred to as the Renaissance (1420–1630). During this period there was a revival of science, art, philosophy, and culture. As during the Middle Ages, however, there were also a number of epidemics. In Northern Italy during the Renaissance, several states developed public health systems to combat diseases such as plague (Cipolla, 1981). Special *magistracies* were created that combined legislative, judicial, and executive powers over matters concerning public health. The purview of these magistracies included such things as the recording of deaths, the manner of burials, the establishment of quarantine, the management of *lazarettos* (houses and institutions of quarantine), the marketing of food, sewage systems, water supplies, hospitals, and activities of beggars and prostitutes. The primary responsibility, however, was to prevent epidemics. By the early fifteenth century, the Italian magistracies had instituted a system of death registration, initially for contagious diseases and then for all diseases.

Scientific developments during this period laid the foundations of anatomy and physiology. Notable among these developments was the work

of Andreas Vasalius (1514–1564), who conducted several dissections of the human body. During this period Girolamo Fracastoro (1478–1553; who published under his Latin name, Hieronymus Fracastorius), an Italian physician, proposed a version of the germ theory of disease that predates by several hundred years the empirical formulation of this theory by Robert Koch and Louis Pasteur. Fracastoro proposed that germs were spread by direct contact (person to person), by contact with fomites (inanimate objects), and by distant transmission.

## Community and Public Health During Early Modern Times in Europe

The era from 1630 to 1800 is considered the early modern period in Europe. In 1662, John Graunt (1620–1674) published a book of statistics that presented numbers related to deaths and their causes. Unique to this book was a life table that presented mortality in terms of survivorship. Graunt is considered the founder of the science of demography. In 1665, there was a major plague outbreak in England (Lindemann, 2010). Plague is transmitted by disease-carrying fleas on the bodies of rats, but at that time this was not known, and it was thought that the disease was caused by dogs and cats. Isolation of the victims and the killing of dogs and cats was the accepted, although ineffectual and erroneous, way of attempting to prevent such epidemics in those days. Yet during this period Anton van Leeuwenhoek (1632–1723) developed the microscope, an invention that eventually led to subsequent discoveries about the causation of infectious diseases.

## Infectious Disease Vaccination

**vaccination**
The injection of killed or live attenuated microorganisms into the human body to produce immunity and thus specific protection against a disease.

Another important development during early modern times in Europe came from the work of Edward Jenner (1749–1823), a country doctor in England. During that time smallpox was a killer disease that was widespread. Jenner observed that milkmaids who got infected with cowpox (a weaker version of pox) did not get smallpox. So he took some pus from the hand of a milkmaid who had cowpox and injected it into a young boy, James Phipps. He then injected James with smallpox. James got a little sick but recovered completely, with no side effects of smallpox. This discovery of vaccination was a major milestone in public health, leading over time to the global eradication of smallpox and the prevention of many other diseases (see Figure 1.7). **Vaccination** is the injection of killed or live attenuated microorganisms into the human body to produce immunity and thus specific protection against a disease.

The discovery of vaccination was a major milestone in public health, leading over time to the global eradication of smallpox and the prevention of many other diseases.

**Figure 1.7** Vaccination Was a Major Milestone in the History of Community and Public Health
*Source*: Photo courtesy of the Centers for Disease Control and Prevention, ID# 9424, CDC/Judy Schmidt, retrieved from http://phil.cdc.gov/phil/home.asp

## Community and Public Health During the Industrial Revolution

The period between the late 1700s and late 1800s is described as the industrial revolution, which began in England and spread to other countries in Europe. During this time there were many technological, social, and economic changes. The society rapidly changed from an agricultural society to an industrial, technological society. Goods could be manufactured at mass levels. Transportation systems improved through steam-powered machines. There was growing urbanization. However, with this growth and urbanization, unsanitary conditions, overcrowding, and poverty increased for some sections of society. Diseases such as tuberculosis and cholera were rampant. In 1832, there was a cholera epidemic, followed by influenza and typhoid epidemics in 1837 and 1838. In 1838 and 1839, tuberculosis, then known as consumption, killed approximately 60,000 people in England and Wales (Brown, 2006). Edwin Chadwick (1800–1890) examined these epidemics and wrote a report, *The Sanitary Conditions of the Labouring Population*, that was published in 1842. Chadwick linked diseases to living conditions and advocated for public health reform. This report was followed by the passage of the Public Health Act of 1848 for England and Wales (Hamlin & Sheard, 1998). As a result of this act, the Central Board of Health

was established; corporate boroughs assumed responsibility for the water supply, drainage, and removal of nuisances in their areas; and noncorporate towns were asked to set up local boards of health.

Another important contribution during this period of time was made by physician John Snow (1813–1858). In 1854, there was an epidemic of cholera in London, centered in the area of Broad Street, Golden Square, and Soho Square. In between Golden Square and Soho Square was the Broad Street pump, from which area residents got their water. John Snow began mapping the deaths resulting from cholera. It was the first time in history that anyone had tried this approach. He found that most deaths had occurred near the Broad Street pump. He concluded that cholera was linked to the drinking water supplied from this pump. As a measure to prevent the spread of this disease, he had the handle of the Broad Street pump removed. This example shows one of the first applications of epidemiology, and its effect on preventing the spread of a communicable disease.

In America, Lemuel Shattuck (1793–1859) also made an important contribution to public health. He has been called the architect of American public health (Winklestein, 2008) and a prophet of American public health ("Editorial: Lemuel Shattuck," 1959). In 1850, while working for the Massachusetts Sanitary Commission, he wrote *Report of a General Plan for the Promotion of Public and Personal Health*, a document that surveyed the sanitary conditions in the state. In this report he recommended a decennial census, the use of a uniform nomenclature for recording diseases and deaths, the collection of data on various subgroups (such as groupings by age, sex, race, occupation, economic status, and locality), better environmental sanitation, control of food and drugs, control of communicable diseases, health education, control of alcoholism, smoke control, and the teaching of preventive medicine in medical schools ("Editorial: Lemuel Shattuck," 1959). All these principles have shaped the genesis and development of public health in the present-day United States.

Lemuel Shattuck (1793–1859) has been called the architect of American public health and a prophet of American public health.

The first International Sanitary Conference was organized in Paris in 1851, and delegates from 11 European countries and Turkey participated (Howard-Jones, 1974). Italy was at that time divided into four countries: the Papal States, Sardinia, Tuscany, and the Two Sicilies. The other European countries represented were Austria, Great Britain, Greece, Portugal, Russia, Spain, and France. The purpose of the conference was to develop uniformity in quarantine measures across countries, and the participants developed an international sanitary code. Although this code was not ratified by all the countries, this conference can be seen as the first step toward international collaboration in community and public health. This

conference was followed by 13 other conferences before the World Health Organization was formed (Paris, 1859; Constantinople, 1866; Vienna, 1874; Washington, 1881; Rome, 1885; Venice, 1892; Dresden, 1893; Paris, 1894; Venice, 1897; Paris, 1903; Paris, 1911–12; Paris, 1926; and Paris, 1938) (Howard-Jones, 1974).

## The Bacteriological Revolution and Its Impact on Community and Public Health

In the history of medicine one of the major periods is the bacteriological revolution in the late 1800s and early 1900s, a period when bacteria were discovered as causative agents for many infectious diseases. This discovery also had an impact on the way community and public health is practiced. During this period one of the significant contributions was made by Louis Pasteur (1822–1895), who provided evidence for the germ theory of disease. He showed that microorganisms were present in the air but were not produced by air. He also introduced the process called *pasteurization*, which is the heating of liquids, such as milk, to a temperature that kills most microorganisms and in that way prevents spoilage. Also during this period German scientist Robert Koch (1843–1910) discovered the causes of anthrax, tuberculosis, and cholera. He also set out what are now known as **Koch's postulates**. According to these four postulates a microorganism can be identified as the cause of an infectious disease if it can be found in persons with the infectious disease and not in healthy people, it can be isolated and grown in culture, if inoculated into a healthy person it can produce the disease, and it can once again be isolated from the person who was inoculated and developed the disease. Another contribution during this period came from Joseph Lister (1827–1912), who introduced chemical disinfectants, which were used for prevention and control of communicable diseases. In 1872, the American Public Health Association was founded. Details about this organization can be found in Focus Feature 1.3. From 1910 onward, serological testing for diagnosis and control of many infectious diseases was developed. Thus, for example, syphilis could be detected in its early stages.

**Koch's postulates**
Four postulates for identifying a microorganism as the cause of an infectious disease: it can be found in persons with the infectious disease and not in healthy people, it can be isolated and grown in culture, if inoculated into a healthy person it can produce the disease, and it can once again be isolated from the person who was inoculated and developed the disease.

By 1900, 40 of the 45 states then in the United States had established health departments, and the first county health department was started in 1908 (CDC, 1999b). Public health departments during this period began employing bacteriologists and laboratory technicians, who could help in the prevention of communicable diseases. A famous case that depicts public health intervention during this period was that of Mary Mallon,

who is popularly known as Typhoid Mary (Leavitt, 1996). She was a cook and a healthy carrier of *Salmonella typhi*, the causative agent of typhoid. She infected many people before public health authorities in New York identified her by blood and stool samples as a carrier and, in 1907, put her in isolation. She was released from isolation after three years and she promised to change her occupation. However, she changed her name and returned to her profession as a cook. She was once again discovered by public health authorities and, in 1915, put in isolation at a clinic on North Brother Island, where she lived for 23 years. Forty-seven illnesses and three deaths were attributed to her.

## Community and Public Health in the Mid-1900s

A major development in the mid-1900s was the discovery of antibiotics, which changed the practice of medicine and also influenced community and public health. Antibiotics could treat bacterial diseases and also carriers of diseases. Thus isolation was no longer required in most cases.

In 1946, the National Hospital Survey and Construction Act, popularly known as the **Hill-Burton Act**, was passed by the US Congress. This act was aimed at improving the quality of hospitals and making medical care more accessible. Following passage of this act, tax funds became available for the construction of health care facilities, and thus there was a proliferation of hospitals in the United States.

**Hill-Burton Act**
A 1946 law aimed at improving the quality of hospitals and making medical care more accessible (officially known as the National Hospital Survey and Construction Act).

Vaccinations became routine in the mid-1900s. The combined diphtheria, tetanus toxoids, and pertussis vaccine was licensed in 1949, and thereafter state and local health departments ran vaccination campaigns (CDC, 1999b). In 1955, the Salk polio vaccine was introduced. In 1962, the Vaccination Assistance Act was passed, which allowed federal coordination of vaccination programs.

Another development during this period was the formation of the World Health Organization as an agency of the United Nations on April 7, 1948. WHO is the directing and coordinating authority on health among the United Nations member countries. It supplies leadership on global health issues, sets the research agenda for global health, develops norms and standards in public health, identifies evidence-based policy decisions, monitors health trends, and furnishes technical support in community and public health to countries.

In 1965, the Medicare and Medicaid programs were introduced in the United States. **Medicare** is a governmental, single-payer program that provides a variety of hospital, physician, and other medical services for

**Medicare**
A governmental, single-payer program started in 1965 that provides a variety of hospital, physician, and other medical services for persons over 65, some disabled individuals, and those with end-stage renal disease.

persons over 65, some disabled individuals, and those with end-stage renal disease (Williams & Torrens, 2008). **Medicaid** is a program that provides medical assistance to certain low-income individuals and families and disabled individuals. Among the services covered by Medicaid are hospital inpatient care, hospital outpatient care, physician services, certified nurse practitioner services, laboratory and X-ray services, nursing facility services, home health services, family planning services, rural health clinic services, early and periodic screenings, nurse midwife services, and the services of a dentist.

**Medicaid**
A governmental program started in 1965 that provides medical assistance to certain low-income individuals and families and disabled individuals.

## Community and Public Health in the Late 1900s

In 1977, smallpox was eradicated from the world thanks to a worldwide effort against this disease. Smallpox is a contagious disease caused by the variola virus that kills approximately 30% of those infected. The reasons it was possible to eradicate smallpox were that (1) humans are the only reservoir for the disease, so if transmission from human to human could be stopped the disease could be eliminated; (2) diagnostic tests were available for detection and confirmation of cases; and (3) a vaccine was available that could protect against the disease for several years. The vaccine was freeze-dried and could remain potent in tropical climates and could be delivered using a bifurcated needle by people with minimal training. The eradication approach consisted of mass vaccination and case detection and containment.

In the late 1900s, as cases of infectious diseases declined, cases of chronic diseases (such as cardiovascular disease and cancer) increased (CDC, 1999a). During this period community and public health efforts identified risk factors for these diseases. The first systematic, longitudinal epidemiological study was initiated in Framingham, Massachusetts, in 1947 (Susser, 1985). This study explicated all the risk factors for heart disease. As a result, community and public health officials launched several preventive campaigns, such as the Stanford Three Community Study and the Stanford Five-City Project in the 1970s and the Minnesota Heart Health Program and the Pawtucket Heart Health Program in the 1980s (Sharma & Galletly, 1997). The advancements in treating and preventing heart disease that resulted from this research led to similar epidemiological studies for other chronic diseases.

In the late 1900s, national surveys of health and health-related conditions became established in United States. The first national health survey had been conducted in 1935, and the National Health Survey was formally established in 1956. This survey is now called the National Health

Interview Survey (NHIS) (CDC, 2011a). Since that time, several ongoing national surveys, including the Behavioral Risk Factor Surveillance System (BRFSS) (CDC, 2011b), National Health and Nutrition Examination Survey (NHANES) (CDC, 2009), and Youth Risk Behavior Surveillance System (YRBSS) (CDC, 2011d), have been instituted.

In 1990, the *Healthy People 2000* report was published (USHHS, 2000). This report established 227 objectives in 15 priority areas that were regularly monitored. This was an important effort at systematically gauging various health indicators spread across a variety of health concerns. One result of this report was a greater focus on accountability, the emergence of theory-based health education programs, and greater use of triangulation of qualitative and quantitative approaches in evaluating health education interventions. Since that time two more reports have been published: *Healthy People 2010* and *Healthy People 2020*.

The Centers for Disease Control and Prevention (1999a) has identified ten public health achievements between 1900 and 1999 in the United States that were successful responses to major causes of morbidity and mortality. These achievements are summarized in Table 1.4.

During the late 1900s, another field that has contributed to community and public health is molecular biology. It has given researchers new tools and techniques to detect and identify infectious pathogens. These techniques have been applied to diseases such as hepatitis C, hantavirus pulmonary syndrome, and acquired immunodeficiency syndrome (HIV/AIDS). A summary of the timeline of community and public health is presented in Table 1.5.

**Table 1.4** Ten Public Health Achievements Between 1900 and 1999 in the United States

| |
|---|
| Vaccination |
| Motor vehicle safety |
| Safer workplaces |
| Control of infectious diseases |
| Decline in deaths from coronary heart disease and stroke |
| Safer and healthier foods |
| Healthier mothers and babies |
| Family planning |
| Fluoridation of drinking water |
| Recognition of tobacco use as a health hazard |

*Source*: Adapted from "Achievements in Public Health, 1900–1999: Changes in the Public Health System," by Centers for Disease Control and Prevention, 1999, *Morbidity and Mortality Weekly Report*, *48*(29), pp. 1141–1147.

**Table 1.5** Summary of the Timeline of Community and Public Health

| Time Period | Event or Person | Contribution |
|---|---|---|
| 3500–1500 BCE | Indus valley civilization | Origin of community and public health in the form of sanitation efforts |
| 2000–600 BCE | Vedic civilization, or Indo-Aryan civilization | System of yoga |
| 3000–300 BCE | Egyptian civilization | Sewage systems; mosquito nets; great attention to personal hygiene |
| 6000–400 BCE | Mesopotamian civilization | Code of Hammurabi |
| 2200 BCE to 220 CE | Chinese civilization | Yang and Yin; digging of wells; system of ditches; containment of rodents; Confucius (541–479 BCE), who laid the foundation of ethics in community and public health |
| 1200–323 BCE | Greek civilization | Hippocrates (460–370 BCE), who formulated the Hippocratic Oath and wrote a book on environment and health, *On Airs, Waters and Places*; Socrates (469–399 BCE), Plato (428–348 BCE), and Aristotle (384–322 BCE), who shaped the philosophy of community and public health |
| 753 BCE to 476 CE | Roman civilization | Aqueducts and sewers |
| 500–1500 CE | Middle Ages (Dark Ages) | Several epidemics of diseases such as plague (particularly bubonic plague, or the Black Death), leprosy, smallpox, tuberculosis, scabies, and anthrax |
| 1420–1630 | Renaissance | Magistracies with power over public health systems in Italy |
| 1514–1564 | Andreas Vasalius | Conducted several dissections of the human body |
| 1478–1553 | Girolamo Fracastoro | Developed an early version of germ theory of disease |
| 1620–1674 | John Graunt | Published a book of mortality statistics |
| 1632–1723 | Anton van Leeuwenhoek | Discovered the microscope |
| 1749–1823 | Edward Jenner | Developed the smallpox vaccination |
| 1800–1890 | Edwin Chadwick | Wrote *The Sanitary Conditions of the Labouring Population* |
| 1848 | Public Health Act of 1848 for England and Wales | Established the Central Board of Health; made corporate boroughs responsible for water supply, drainage, and removal of nuisances; and asked noncorporate towns to set up local boards of health |
| 1813–1858 | John Snow | Used epidemiological techniques to stop the spread of cholera |
| 1793–1859 | Lemuel Shattuck | Wrote *Report of a General Plan for the Promotion of Public and Personal Health*, which served as a foundation for public health in the United States |
| 1851 | First International Sanitary Conference | Paved the way for international collaboration |
| 1822–1895 | Louis Pasteur | Developed the germ theory of disease; discovered pasteurization |
| 1843–1910 | Robert Koch | Developed Koch's postulates |
| 1827–1912 | Joseph Lister | Introduced chemical disinfectants |

**Table 1.5** Summary of the Timeline of Community and Public Health *(continued)*

| Time Period | Event or Person | Contribution |
|---|---|---|
| 1872 | American Public Health Association formed | Brought public health professionals together |
| 1910s | Serological testing for diagnosis and control of many infectious diseases | Early detection of syphilis became possible |
| 1946 | National Hospital Survey and Construction Act (Hill-Burton Act) | Led to more hospitals |
| 1947 | Framingham Heart Study initiated | First longitudinal epidemiological study to examine risk factors for heart disease |
| 1948 | World Health Organization (WHO) formed | Enabled global collaboration in community and public health |
| 1949 | Combined diphtheria, tetanus toxoids, and pertussis vaccine licensed | Vaccination campaigns launched |
| 1955 | Salk polio vaccine introduced | Vaccination campaigns launched |
| 1956 | National Health Survey established | Efforts to conduct national surveys on health |
| 1962 | Vaccination Assistance Act | Enabled government-sponsored campaign |
| 1965 | Medicare and Medicaid became law | Established health care coverage for older and for indigent people |
| 1977 | Smallpox eradicated | First disease to be eradicated through global cooperation |
| 1990 | *Healthy People 2000* | National health objectives developed and monitored |
| 2000 | *Healthy People 2010* | National health objectives developed and monitored |
| 2010 | *Healthy People 2020* | National health objectives developed and monitored |

## Current Challenges in Community and Public Health

There are several challenges in community and public health at the present time. One of these is the growing *prevalence of chronic diseases*. These diseases are also called *lifestyle diseases*. The leading causes of death in 2009 were heart disease, cancer, stroke, and chronic lower respiratory diseases (Minino, 2011). Several behavioral risk factors, such as poor dietary behaviors, lack of physical activity, use of tobacco, alcohol abuse, and the like, are among the causes of many of these chronic diseases. The challenge before community and public health organizations is to develop interventions that prevent unhealthy lifestyles from being formed and that alter unhealthy lifestyles where they have already been formed. There is a need for efficacious health education and health promotion interventions for prevention of chronic diseases.

Another challenge is that of *infectious diseases*, also called *communicable diseases*. Some of these infectious diseases are new and emerging and

others are showing a resurgence. An example of the latter is the reemergence of tuberculosis (including new, multidrug-resistant strains). Examples of the former are virulent strains of avian influenza, *Staphylococcus aureus* with a reduced susceptibility to vancomycin, and Legionnaires' disease. In modern times people are traveling to tropical rain forests and other remote areas that have insects and animals carrying unknown pathogens, and this could lead to newer diseases (CDC, 1999b). Also, as a result of modern medical treatment, people are surviving longer with weakened immune systems, and they are more prone to opportunistic pathogens. Further, cases of communicable diseases such as HIV/AIDS are still present in large numbers and continue to be a threat. There is a need to be vigilant with regard to infectious diseases and to institute measures that prevent the transmission and spread of these diseases.

Another challenge is to *strengthen mental health programs and services*. A lot of stigma is attached to mental illnesses, and this needs to be addressed through community and public health efforts. The Mental Health Parity and Addiction Equity Act of 2008 requires that mental illnesses not have greater financial requirements and treatment limitations than physical illnesses do, but there are still problems with the implementation of this policy and also gaps where mental health programs are falling short and lacunae where there are no programs at all. A challenge related to mental health is that of violence. More programs are also needed for violence prevention.

Another need is to *strengthen local and state health departments*. While there are 2,700 local health departments in the United States many counties and municipalities still do not have health departments. Moreover, many of these existing health departments are underfunded and understaffed. A large portion of their funding is dependent on grant money, as opposed to dedicated money from the government. There is a need to build up the infrastructure of these public health departments so that they are prepared for emergencies as well as for carrying out the essential functions of public health in everyday life.

**certified in public health (CPH)**
A credential awarded to a graduate of a CEPH-accredited school or program of public health who passes a national examination administered by the National Board of Public Health Examiners.

Associated with this need is the need for *adequate training of community and public health professionals*. Since 2005, the National Board of Public Health Examiners (NBPHE, n.d.) has administered an exam for the **certified in public health (CPH)** credential. But this exam is available only to graduates from schools and programs of public health accredited by the Council on Education for Public Health (CEPH). The number of people who have passed this exam is very low when compared to the number of people working in public health. In 1988, the National Commission for Health Education Credentialing (NCHEC) was established, which

administers exams for the **certified health education specialist (CHES)** and the **master certified health education specialist (MCHES)** credential. Entry-level health educators with CHES certification have seven basic responsibilities (National Commission for Health Education Credentialing, 1985). These pertain to their ability to assess needs, plan health education programs, implement health education programs, evaluate health education programs, coordinate health education, act as a resource person in health education, and communicate the need for health education. For individuals with MCHES certification, some more advanced competencies are required. All these responsibilities are efforts to further systematize and develop national standards for the training of community and public health professionals. This effort will continue to be a challenge for the next few decades.

**certified health education specialist (CHES)**
A person who has fulfilled academic requirements in health education, passed a written national examination administered by the National Commission for Health Education Credentialing, and is committed to continuing education.

**master certified health education specialist (MCHES)**
A person who has fulfilled academic requirements in health education, is practicing at an advanced level in the field, has passed a written examination administered by the National Commission for Health Education Credentialing, and is committed to continuing education.

Another area of concern for community and public health is that in this country there are approximately 46 million Americans who do not have *health insurance* and thus do not have access to regular medical care (Holahan & Cook, 2005). They also do not have access to preventive services such as the screenings for diseases that are essential for community and public health. In 2010, President Barack Obama signed into law the Patient Protection and Affordable Care Act, which aims at increasing health insurance coverage. But it still falls short of providing universal coverage to all, even though many believe access to health coverage should be the birthright of every American. This will continue to be a challenge for policymakers and public health professionals.

Another challenge that concerns community and public health is improving *environmental health*. The population of the world in 2012 was about 6.9 billion and is projected to be 8.9 billion by 2050 (United Nations, 2004). This is an alarming rate of population growth. A growing population imposes demands on environmental resources and leads to a myriad of problems involving sanitation, pollution, food availability, and so forth. In the world today, 884 million people do not have access to safe water (United Nations Children's Fund/World Health Organization, 2008), and 3.6 million people die every year from water-related diseases (WHO, 2008). The world at large is struggling with these issues, and to some extent these problems are affecting the United States as well and are bound to affect it more in the future.

Another concern that has become prominent after the 9/11 attacks is the possibility of *terrorist activities*, including bioterrorism, in the United States. *Bioterrorism* is the use of biological agents such as bacteria, viruses, or their toxins for threatening or applying pressure on the government. Once again, dealing with such issues will depend on how strong our public

**Table 1.6** Current Challenges in Community and Public Health

| |
|---|
| Providing effective interventions for chronic disease prevention |
| Developing tools and methods for dealing with infectious diseases |
| Strengthening mental health programs and services, including violence prevention |
| Strengthening local and state health departments |
| Adequate training of community and public health professionals |
| Achieving universal health care coverage |
| Protecting environmental health |
| Being prepared to deal with terrorist activities, including bioterrorism |
| Combating health disparities |
| Using technology such as GIS, iHealth, etc. |
| Reducing use of alcohol, tobacco, and other drugs |
| Accurately communicating health risk |
| Preventing disabilities and providing effective rehabilitation for the disabled |
| Designing policy-level interventions |
| Designing child and elder abuse prevention programs |
| Working toward global health |

health infrastructure is. If our infrastructure is strong we will be able to combat these threats in the event of their occurrence. So there is a need for training and preparedness in this regard.

Some other concerns in community and public health in the United States are the growing *disparities* in health based on gender, race, ethnicity, location, socioeconomic status, and so forth; the growing *use of technology* such as *geographic information systems* (GIS) and *iHealth* (which has been defined as a means to capture *I*nformation about the *I*ndividual and apply *I*nformatics to create *I*ntelligence that drives *I*nnovation to radically *I*mprove health care [American Medical Informatics Association, 2014]); issues related to *alcoholism, tobacco, and other drugs*; issues related to accurate *communication of health risk*; the *prevention of disabilities*; effective *rehabilitation*; designing *policy-level interventions*; designing *child and elder abuse prevention programs*; and working toward *global health*. More efforts will be needed in the future in these areas. These current challenges in community and public health are summarized in Table 1.6.

## SUMMARY

Health is a means to achieve desirable goals in life while maintaining a multidimensional (physical, mental, social, political, economic, and spiritual) equilibrium that is operationalized for individuals as well as for

communities. A community is a group of individuals who share common interests and characteristics. Community health involves three fundamental functions: (1) promotion of good health in a defined group of individuals, (2) protection of good health in a defined group of individuals, and (3) maintenance of good health in a defined group of individuals. Public health is organized community efforts, by both the governmental and nongovernmental sectors, to prevent disease and promote good health within groups of people, from small communities to entire countries The health of a community is affected by factors that can be classified into (1) biological factors, (2) behavioral factors, (3) social factors, (4) cultural factors, (5) organizational factors, and (6) environmental factors. There are a variety of community and public health organizations. These organizations may function at the local level, the state or provincial level, the national level, or the global level. The history of community and public health can be traced back to ancient civilizations that had systems of sanitation, safe drinking water, and measures for personal hygiene. Community and public health grew in Europe. In America it was shaped by the work of Lemuel Shattuck in his 1850 *Report of a General Plan for the Promotion of Public and Personal Health*. The American Public Health Association was formed in 1872. There were rapid developments in public health after the bacteriological revolution in the late 1800s and early 1900s. The first longitudinal epidemiological study, the Framingham Heart Study, was initiated in 1947 and examined risk factors for heart disease. The World Health Organization was formed in 1948. Smallpox was eradicated in 1977, and the first Healthy People report (*Healthy People 2000*) was published in 1990. Among the current major challenges facing community and public health are finding effective interventions for chronic disease prevention, combating infectious diseases, strengthening local and state health departments, achieving universal health care coverage, and improving environmental health.

**KEY TERMS**

certified health education specialist (CHES)

certified in public health (CPH)

Code of Hammurabi

community

community health

community medicine

global health

health

health education

health promotion

herd immunity

Hill-Burton Act
international health
Koch's postulates
master certified health education specialist (MCHES).
Medicaid
Medicare
population health
preventive medicine
primary health care
public health
social medicine
vaccination
yang
yin
yoga

## REVIEW QUESTIONS

1. Define community health and public health. How is community health different from population health?
2. Differentiate between *medicine* and *community and public health*.
3. Describe the factors affecting community and public health.
4. Provide examples of local organizations in community and public health.
5. Describe the contribution of ancient civilizations to community and public health.
6. Describe the status of community and public health during the Renaissance in Europe.
7. Explain the current challenges confronting community and public health.

## SKILL-BUILDING ACTIVITY

Community and public health professionals work in a variety of settings. Examples of these settings are

- Federal, state, and local health departments
- Voluntary and community-based agencies
- Colleges and universities
- Schools

- Consumer advocacy organizations
- Consulting firms
- International organizations

In this activity you will get a glimpse of the kinds of careers that are available in community and public health. Visit the following websites:

- PublicHealthJobs.net, http://www.publichealthjobs.net
- Public Health Jobs Worldwide, http://jobspublichealth.com
- A site that lists available public health positions, http://cfusion.sph.emory.edu/PHEC/phec.cfm
- APHA Careers, http://www.apha.org/about/careers
- World Health Organization employment site, http://www.who.int/employment/en

What kinds of jobs interested you? What kind of education is required for those jobs? What kinds of skill sets are required for those jobs? How can you acquire those skills? Were there any volunteer or internship positions that were available and that you liked? Make a plan that describes how you will realize your dream job.

## WEBSITES TO EXPLORE

### American Public Health Association (APHA)

http://www.apha.org

This is the website of the professional association of public health officials. APHA is one of the oldest and most diverse public health organizations in the world and has been working in the field of public health since 1872. Links are provided for learning about the organization, advocacy and policy, APHA meetings, member groups and state affiliates, programs and resources, and publications and advertising. *Explore this website. Find out where the next local meeting is and how to become a student member of this organization.*

### Code of Hammurabi

http://leb.net/~farras/history/hammurabi.htm

This website provides an English translation of all 282 laws of the Code of Hammurabi. The code was written in 1780 BCE. *Read the various laws presented in this code, and identify the ones related to health and public health. Can you identify similar laws in the present-day context?*

## Community Health Status Indicators

http://www.communityhealth.hhs.gov

This is a governmental website that provides an overview of community health indicators for local communities. Links are provided for accessing local data, partners, and resources; information about the data; and information about how to use the report. *Read the information on the main page and visit the links. Using the links on the left side of the page for accessing local data , provide your state name and county name and obtain your local data. What did you learn from these data? Summarize your findings in a paper.*

## Edward Jenner and the Discovery of Vaccination

http://library.sc.edu/spcoll/nathist/jenner.html

This is a website of the University of South Carolina's University Libraries. The three links at the top of the home page (Introduction, Island 1, and Island 2) lead to a description of how Edward Jenner discovered vaccination against smallpox and to descriptions and scanned images of some original documents from that period. *Explore this website. Make a list of infectious diseases against which immunization is not available but would be great to have.*

## Healthy People 2020

http://www.healthypeople.gov/2020

This is a federal government website for the *Healthy People 2020* report. The Healthy People initiative provides science-based, national health objectives every ten years. Links on this website will take you to information about this effort, the 2020 topics and objectives, ways to implement the Healthy People effort, consortiums and partners, and leading health indicators. *Explore this website and its links. Identify one topic area in which you have an interest, and locate its associated objectives. What activities must be undertaken to accomplish those objectives?*

## What Is Public Health?

http://www.whatispublichealth.org

The purpose of this website created by the Association of Schools of Public Health, with support from Pfizer Public Health, is to provide information on what public health is, what impact public health has on our lives, and what types of careers are available in public health. Links to these three areas are provided, along with links to public health resources and frequently asked questions. *Explore the links. Identify five careers in public health that you might pursue.*

## REFERENCES

Ackerknecht, E. H. (1982). *A short history of medicine*. Baltimore, MD: Johns Hopkins University Press.

American Board of Preventive Medicine. (2011). What is preventive medicine? Retrieved from https://www.theabpm.org/aboutus.cfm

American Medical Informatics Association. (2014). About iHealth. Retrieved from http://www.ihealthconference.org/about-ihealth

American Public Health Association. (2012). About us. Retrieved from http://www.apha.org/about

Angelakis, A. N., Koutsoyiannis, D., & Tchobanoglous, G. (2005). Urban wastewater and stormwater technologies in ancient Greece. *Water Research*, *39*(1), 210–220.

Avritzer, L. (2010). Living under a democracy: Participation and its impact on the living conditions of the poor. *Latin American Research Review*, *45*[special issue], 166–185.

Basch, P. F. (1999). *Textbook of international health* (2nd ed.). New York: Oxford University Press.

Brown, M. (2006). Making sense of modernity's maladies: Health and disease in the industrial revolution. *Endeavour*, *30*(3), 108–112.

Centers for Disease Control and Prevention. (1999a). Achievements in public health, 1900–1999: Changes in the public health system. *Morbidity and Mortality Weekly Report*, *48*(29), 1141–1147.

Centers for Disease Control and Prevention. (1999b). Achievements in public health, 1900–1999: Control of infectious diseases. *Morbidity and Mortality Weekly Report*, *48*(29), 621–629.

Centers for Disease Control and Prevention. (2009). About the National Health and Nutrition Examination Survey (NHANES). Retrieved from http://www.cdc.gov/nchs/nhanes/about_nhanes.htm

Centers for Disease Control and Prevention. (2011a). About the National Health Interview Survey (NHIS). Retrieved from http://www.cdc.gov/nchs/nhis/about_nhis.htm

Centers for Disease Control and Prevention. (2011b). Behavioral Risk Factor Surveillance System (BRFSS). Retrieved from http://www.cdc.gov/BRFSS

Centers for Disease Control and Prevention. (2011c). Quitting smoking among adults—United States, 2001–2010. *Morbidity and Mortality Weekly Report*, *60*, 1513–1519.

Centers for Disease Control and Prevention. (2011d). Youth Risk Behavior Surveillance System (YRBSS). Retrieved from http://www.cdc.gov/HealthyYouth/yrbs/index.htm

Cilliers, L., & Retief, F. P. (2006). Medical practice in Graeco-Roman antiquity. *Curationis*, *29*(2), 34–40.

Cipolla, C. M. (1981). *Fighting the plague in seventeenth-century Italy*. Madison, WI: University of Wisconsin Press.

Clark, D. W., & MacMahon, B. (1981). *Preventive and community medicine* (2nd ed.). Boston: Little, Brown.

Das, S., & Sadasivan, M. (2012). *What are Vedas? A brief introduction*. Retrieved from http://hinduism.about.com/cs/vedasvedanta/a/aa120103a.htm

Editorial: Lemuel Shattuck (1793–1859): Prophet of American public health [Editorial]. (1959). *American Journal of Public Health and Nations Health*, *49*(5), 676–677.

Glasscheib, H. S. (1964). *The march of medicine: The emergence and triumph of modern medicine*. New York: G. P. Putnam's Sons.

Green, L. W., & Ottoson, J. M. (1999). *Community and population health*. (8th ed.). Boston: McGraw-Hill.

Hamlin, C., & Sheard, S. (1998). Revolutions in public health: 1848, and 1998? *British Medical Journal*, *317*(7158), 587–591.

Holahan, J., & Cook, A. (2005). Changes in economic conditions and health insurance coverage, 2000–2004. *Health Affairs* (July–December Suppl.), W5-498–W5-508. doi: 10.1377/hlthaff.w5.498

Howard-Jones, N. (1974). The scientific background of the International Sanitary Conferences, 1851–1938. *WHO Chronicle*, *28*(Pt. 1), 159–171.

Hunter, A. (1975). The loss of community: An empirical test through replication. *American Sociology Review*, *40*(5), 537–552.

Institute of Medicine. (1988). *The future of public health*. Washington, DC: National Academy Press.

King, L. W. (2008). *The Code of Hammurabi*. Retrieved from http://avalon.law.yale.edu/ancient/hamframe.asp

Leavitt, J. W. (1996). *Typhoid Mary: Captive to the public's health*. Boston: Beacon Press.

Lindemann, M. (2010). *Medicine and society in early modern Europe* (2nd ed.). Cambridge, UK: Cambridge University Press.

Major, R. H. (1954). *A history of medicine*. Springfield, IL: Charles Thomas.

Marshall, J. (1931). *Mohenjodaro and the Indus civilization* (3 vols.). London: Arthur Probsthain.

Merson, M. H., Black, R. E., & Mills, A. J. (2006). Introduction. In M. H. Merson, R. E. Black, & A. J. Mills (Eds.), *International public health: Diseases, programs, systems, and policies* (2nd ed., pp. xiii–xxiv). Sudbury, MA: Jones and Bartlett.

Minino, A. M. (2011). Death in the United States, 2009. *NCHS Data Brief*, *64*, 1–8.

National Association of County and City Health Officials. (2012). About NACCHO. Retrieved from http://www.naccho.org/about

National Board of Public Health Examiners. (n.d.). National Board of Public Health Examiners. Retrieved from http://www.nbphe.org/aboutthecph.cfm

National Commission for Health Education Credentialing. (1985). *A framework for the development of competency based curricula for entry-level health educators*. New York: Author.

Park, J. E., & Park, K. (1986). *Textbook of preventive and social medicine* (11th ed.). Jabalpur, India: Banarasidas Bhanot.

Schnall, E., Wassertheil-Smoller, S., Swencionis, C., Zemon, V., Tinker, L., O'Sullivan, M. J., . . . Goodwin, M. (2010). The relationship between religion and cardiovascular outcomes and all-cause mortality in the Women's Health Initiative Observational Study. *Psychology and Health*, *25*(2), 249–263.

Sharma, M., & Atri, A. (2010). *Essentials of international health*. Sudbury, MA: Jones and Bartlett.

Sharma, M., & Galletly, C. (1997, Spring). Lessons for health promotion from selected community-based heart disease prevention programs. *The Health Educator*, *28*, 21–26.

Sharma, M., & Romas, J. A. (2012). *Theoretical foundations of health education and health promotion* (2nd ed.). Sudbury, MA: Jones and Bartlett Learning.

Sharma, Y. D. (1956). Past patterns in living as unfolded by excavations at Rupar. *Lalit Kala*, *1*(2), 121–129.

Shaw, I. (2003). *The Oxford history of ancient Egypt*. Oxford, UK: Oxford University Press.

Susser, M. (1985). Epidemiology in the United States after World War II: The evolution of technique. *Epidemiology Reviews*, *7*, 147–177.

United Nations. (2004). *World population to 2300*. Retrieved from http://www.un.org/esa/population/publications/longrange2/WorldPop2300final.pdf

United Nations Children's Fund/World Health Organization. (2008). *Progress on drinking water and sanitation: Special focus on sanitation*. Retrieved from http://www.who.int/water_sanitation_health/monitoring/jmp_report_7_10_lores.pdf

US Department of Health and Human Services. (2000). Healthy People 2000 *factsheet*. Retrieved from http://odphp.osophs.dhhs.gov/pubs/hp2000/hp2kfact.htm

US Department of Health and Human Services. (2011). About Healthy People. Retrieved from http://www.healthypeople.gov/2020/about/default.aspx

Williams, S. J., & Torrens, P. R. (2008). *Introduction to health services*. (7th ed.). Clifton Park, NY: Thomson Delmar Learning.

Winklestein, W. (2008). Lemuel Shattuck: Architect of American public health. *Epidemiology*, *19*(4), 634.

Winslow, C.E.A. (1920). The untilled fields of public health. *Science*, *51*, 23–33.

World Health Organization. (1947). Constitution of the World Health Organization. *Chronicle of the World Health Organization*, *1*, 29–43.

World Health Organization. (1986). *Ottawa Charter for Health Promotion, 1986*. Geneva: Author.

World Health Organization. (1998). *Health promotion glossary*. Retrieved from http://www.who.int/hpr/NPH/docs/hp_glossary_en.pdf

World Health Organization. (2008). *Safer water, better health: Costs, benefits, and sustainability of interventions to protect and promote health*. Geneva: Author.

World Health Organization. (2012). About WHO. Retrieved from http://www.who.int/about/en