Health education/promotion has come a long way since its early beginnings. Health education/promotion as we know it today dates back only about 80 years, but the progress in development has accelerated most rapidly in the past 35 years (Glanz & Rimer, 2008). As the profession has grown and changed, so have the roles and responsibilities of health education specialists. The purpose of this book is to provide those new to this profession with a sense of the past—how the profession was born and on what principles it was developed; a complete understanding of the present—what it is that health education specialists are expected to do, how they should do it, and what guides their work; and a look at the future—where the profession is headed, and how health education specialists can keep pace with the changes to be responsive to those whom they serve.
This chapter provides a background in the terminology, concepts, and principles of the profession. It defines many of the key words and terms used in the profession, briefly discusses why health education/promotion is referred to as an emerging profession, looks at the current state of the profession, shows how health and health status have been measured, outlines the goals and objectives of the profession, identifies the practice of health education/promotion, and discusses some of the basic, underlying concepts and principles of the profession.

Key Words, Terms, and Definitions

Each chapter introduces new terminology that is either important to the specific content presented in the chapter or used frequently in the profession. This chapter discusses the more common terms that will be used throughout this text. Like the profession, these words and definitions have evolved over the years. The most recent effort occurred in 2011 (Joint Committee on Health Education and Promotion Terminology [Joint Committee], 2012). The 2011 Joint Committee was convened by the American Association for Health Education (AAHE) of the American Alliance for Health, Physical Education, Recreation, and Dance (AHPERD) (see Chapter 8 for information on professional associations). The Joint Committee is charged with reviewing and updating the terminology of the profession. The members of the 2011 Joint Committee were composed of representatives from the member organizations in the Coalition of National Health Education Organizations (see Chapter 8), the National Commission for Health Education Credentialing, Inc. (see Chapter 6), and governmental agencies (Joint Committee, 2012). Before this meeting, there had been seven major terminology reports developed for the profession over the past 80 years with the first dating back to 1927 (Johns, 1973; Joint Committee on Health Education Terminology, 1991a, 1991b; Joint Committee, 2001; Moss, 1950; Rugen, 1972; Williams, 1934; Yoho, 1962).

Before presenting some of the key terms used in the profession, an in-depth discussion of the word health may be helpful. Health is a difficult concept to put into words, but it is one that most people intuitively understand. The World Health Organization (WHO) has defined health as "the state of complete mental, physical and social well being not merely the absence of disease or infirmity" (WHO, 1947, p. 1). This classic definition is important because it identifies the vital components of health and further implies that health is a holistic concept involving an interaction and interdependence among these various components. A number of years after the writing of the WHO definition, Hanlon (1974) defined health as "a functional state which makes possible the achievement of other goals and activities. Comfort, well-being, and the distinction between physical and mental health differ in social classes, cultures, and religious groups" (p. 73). And more recently, the WHO (1986) has stated that "To reach a state of complete physical, mental, and social well-being, an individual or group must be able to identify and to realize aspirations, to satisfy needs, and to change or cope with the environment. Health is, therefore, seen as a resource for everyday life, not the object of living. Health is a positive concept emphasizing social and personal resources, as well as physical capacities" (p. 5). In other words, good health should not be the goal of life but rather a vehicle to reaching one's goals of life. We feel that these major concepts of health are captured in the definition that states that health "is a dynamic state or condition that is multidimensional (i.e., physical, emotional, social, intellectual, spiritual, and occupational) a resource for living, and results from a person's interactions with and adaptation to the environment"
As such, health can exist in varying degrees—ranging from good to poor and everywhere in between—and depends on each person's individual circumstances. "For example, a person can be healthy while dying, or a person who is quadriplegic can be healthy in the sense that his or her mental and social well-being is high and physical health is as good as it can be" (Hancock & Minkler, 2005, p. 144).

In addition to the word health, it is also important to have an understanding of the following key terms and definitions:

**Community health**—“the health status of a defined group of people and the actions and conditions to promote, protect and preserve their health” (Joint Committee, 2012, p. 15)

**Health education**—“any combination of planned learning experiences using evidence based practices and/or sound theories that provide the opportunity to acquire knowledge, attitudes, and skills needed [to] adopt and maintain healthy behaviors” (Joint Committee, 2012, p. 17)

**Health promotion**—“any planned combination of educational, political, environmental, regulatory, or organizational mechanisms that support actions and conditions of living conducive to the health of individuals, groups, and communities” (Joint Committee, 2012, p. 18) (See Figure 1.1 for the relationship between health education and health promotion.)

**Disease prevention**—“the process of reducing risks and alleviating disease to promote, preserve, and restore health and minimize suffering and distress” (Joint Committee, 2001, p. 99)

**Public health**—“an organized effort by society, primarily through its public institutions, to improve, promote, protect and restore the health of the population through collective action. It includes services such as health situation analysis, health surveillance, health promotion, prevention, infectious disease control, environmental protection and sanitation, disaster and health emergency preparedness and response, and occupational health, among others” (WHO, 2016a)
global health—“health problems, issues, and concerns that transcend national boundaries and are beyond the control of individual nations, and are best addressed by cooperative actions and solutions” (Joint Committee, 2012, p. 17)

population health—“a cohesive, integrated, and comprehensive approach to health care that considers the distribution of health outcomes within a population, the health determinants that influence distribution of care, and the policies and interventions that affect and are affected by the determinants” (Nash, Fabius, Skoufalos, Clarke, & Horowitz, 2016, p. 448)

wellness—“an approach to health that focuses on balancing the many aspects, or dimensions, of a person’s life through increasing the adoption of health enhancing conditions and behaviors rather than attempting to minimize conditions of illness” (Joint Committee, 2012, p. 10)

Before we leave the discussion about key words and terms of the profession, it should be noted that there is not complete agreement on terminology. We could easily have found another definition for each of the terms presented here written by either a respected scholar in health education/promotion or a legitimate professional or governmental health agency.

The Health Education/Promotion Profession

Historically, there have been a number of occasions that can be pointed to as “critical” to the development of health education/promotion. (See Chapter 2 for an in-depth presentation of the history.) But there has been no time in which the status of the profession has been more visible to the average person or as widely accepted by other health professionals as it is today. Much of this notoriety can be attributed to the health promotion era of public health history that began about 1974 in the United States.

The United States’ first public health revolution spanned the late 19th century through the mid-20th century and was aimed at controlling the harm (morbidity and mortality) that came from infectious diseases. By the mid-1950s, many of the infectious diseases in the United States were pretty much under control. This was evidenced by the improved infant mortality rates, the reduction in the number of children who were contracting childhood diseases, the reduction in the overall death rates in the country, and the increase in life expectancy (see Table 1.1). With the control of many communicable diseases, the focus moved to the major chronic diseases such as heart disease, cancer, and strokes—diseases that were, in large part, the result of the way people lived.

It became clear, by the mid-1970s, that the greatest potential for reducing morbidity, saving lives, and reducing healthcare costs in the United States was to be achieved through health promotion and disease prevention. At the core of this approach was health education/promotion. In 1980, the U.S. Department of Health, Education, and Welfare (USDHEW) presented a blueprint of the health promotion and disease prevention strategy in its first set of health objectives in the document called Promoting Health/Preventing Disease: Objectives for a Nation (USDHEW, 1980). This document proposed a total of 226 objectives divided into three main areas—preventive services, health protection, and health promotion. This was the first time a comprehensive national agenda for prevention had been developed, with specific goals and objectives for anticipated gains (McGinnis, 1985). In 1985, it was apparent that only about one half of the objectives established in 1980 would be reached by 1990, another
### Table 1.1 Life expectancy at birth, at 65 years of age, and at 75 years of age, according to sex: United States, selected years 1900–2010

<table>
<thead>
<tr>
<th>Year</th>
<th>Both Sexes</th>
<th>Male</th>
<th>Female</th>
<th>Both Sexes</th>
<th>Male</th>
<th>Female</th>
<th>Both Sexes</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>1900</td>
<td>47.3</td>
<td>46.3</td>
<td>48.3</td>
<td>11.9</td>
<td>11.5</td>
<td>12.2</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>1950</td>
<td>68.2</td>
<td>65.6</td>
<td>71.1</td>
<td>13.9</td>
<td>12.8</td>
<td>15.0</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>1980</td>
<td>73.7</td>
<td>70.7</td>
<td>77.4</td>
<td>16.4</td>
<td>14.1</td>
<td>18.3</td>
<td>10.4</td>
<td>8.8</td>
<td>11.5</td>
</tr>
<tr>
<td>2010</td>
<td>78.7</td>
<td>76.2</td>
<td>81.0</td>
<td>19.1</td>
<td>17.7</td>
<td>20.3</td>
<td>12.1</td>
<td>11.0</td>
<td>12.9</td>
</tr>
</tbody>
</table>

* = Data not available


One fourth would not be reached, and progress on the others could not be judged because of the lack of data (Mason & McGinnis, 1990). Even though not all objectives were reached, the planning process involved in the 1980 report demonstrated the value of setting goals and listing specific objectives as a means of measuring progress in the nation’s health and healthcare services. These goals and objectives published by the U.S. Department of Health and Human Services (USDHHS), now in their fourth generation as Healthy People 2020, have defined the nation’s health agenda and guided its health policy since their inception. (See Chapter 2 for more on Healthy People 2020.)

Now more than 10 years into the 21st century, the health of the people in the United States is better than any time in the past. “By every measure, we are healthier, live longer, and enjoy lives that are less likely to be marked by injuries, ill health, or premature death” (Institute of Medicine [IOM], 2003, p. 2). Yet, we could do better. Four modifiable health risk behaviors—“lack of exercise or physical activity, poor nutrition, tobacco use, and drinking too much alcohol—cause much of the illness, suffering, and early death related to chronic diseases and conditions” (Centers for Disease Control and Prevention [CDC], 2016a, ¶2). Thus, “behavior patterns represent the single most prominent domain of influence over health prospects in the United States” (McGinnis, Williams-Russo, & Knickman, 2002, p. 82).

As the health agenda has become more clearly defined, so has the health education/promotion profession. In 1998, the U.S. Department of Commerce and Labor formally recognized “health educator” as a distinct occupation, thus demonstrating that the health education/promotion profession is moving in the right direction. More recently a study titled “Marketing the Health Education Profession: Knowledge, Attitudes, and Hiring Practices of Employers” conducted by Hezel Associates (2007) was conducted. Through this study the term health education specialist has gained favor over the use of the term health educator. A health education specialist has been defined as “an individual who has met, at a minimum, baccalaureate-level required health education academic preparation qualifications, who serves in a variety of settings, and is able to use appropriate educational strategies and methods to facilitate the development of policies, procedures, interventions, and systems conducive to the health of individuals, groups, and communities” (Joint Committee, 2012, p. 18). Thus the term health education specialist will be used throughout the remainder of this book.
Clearly, there is a need for health education/promotion interventions provided by health education specialists in the United States both today and in the future.

**Measuring Health or Health Status**

Though the definition of health is easy to state, trying to quantify the amount of health an individual or a population possesses is not easy. Most measures of health are expressed using health statistics based on the traditional medical model of describing ill health (injury, disease, and death) instead of well health. Thus, the higher the presence of injury, disease, and death indicators, the lower the level of health; the lower the presence of injury, disease, and death indicators, the higher the level of health. Out of necessity we have defined the level of health with just the opposite—ill health (McKenzie, Pinger, & Kotecki, 2012).

The information gathered when measuring health is referred to as epidemiological data. These data are gathered at the local, state, and national levels to assist with the prevention of disease outbreaks or control those in progress and to plan and assess health education/promotion programs. Epidemiology is one of those disciplines that helps provide the foundation for the health education/promotion profession. Epidemiology is defined as “the study of the distribution and determinants of health-related states or events (including disease), and the application of this study to the control of diseases and other health problems” (World Health Organization, 2016b). In the following sections, several of the more common epidemiological means by which health, or lack thereof, are described and quantified.

**Rates**

A rate “is a measure of some event, disease, or condition in relation to a unit of population, along with some specification of time” (National Center for Health Statistics [NCHS], 2015, p. 442). Rates are important because they provide an opportunity for comparison of events, diseases, or conditions that occur at different times or places. Some of the more commonly used rates are death rates, birth rates, and morbidity rates. Death rates (the number of deaths per 100,000 resident population), sometimes referred to as mortality or fatality rates, are probably the most frequently used means of quantifying the seriousness of injury or disease. (See Table 1.2 for death rates and Table 1.3 for an example of a formula used to tabulate rates.)

The transition from wellness to ill health is often gradual and poorly defined. Because death, in

<table>
<thead>
<tr>
<th>Table 1.2. Crude death rates for all causes and selected causes of death: United States, 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cause</strong></td>
</tr>
<tr>
<td>All causes</td>
</tr>
<tr>
<td>Diseases of the heart</td>
</tr>
<tr>
<td>Malignant neoplasms (cancer)</td>
</tr>
<tr>
<td>Cerebrovascular diseases (stroke)</td>
</tr>
<tr>
<td>Suicide</td>
</tr>
<tr>
<td>Motor vehicle-related injuries</td>
</tr>
<tr>
<td>Homicide</td>
</tr>
<tr>
<td>All causes</td>
</tr>
<tr>
<td>Diseases of the heart</td>
</tr>
<tr>
<td>Malignant neoplasms (cancer)</td>
</tr>
<tr>
<td>Cerebrovascular diseases (stroke)</td>
</tr>
<tr>
<td>Suicide</td>
</tr>
<tr>
<td>Motor vehicle-related injuries</td>
</tr>
<tr>
<td>Homicide</td>
</tr>
</tbody>
</table>

Describe your past and current professional positions and how you came to hold the job you now hold (How did you obtain the position?): During my senior year of undergraduate work, I interned at Saint Alphonsus Regional Medical Center in the Marketing Department. Upon my graduation, the internship position led into a full-time employment opportunity within the same department. I worked in this capacity for approximately one year when I obtained a promotional opportunity to work for the Idaho Department of Health and Welfare (IDHW). I worked in several capacities for the IDHW for ten years. Specifically, my positions were in the Division of Medicaid in the Regional Medicaid Services office as a Health Resources Coordinator in Medicaid’s managed care program, Healthy Connections; in the Diabetes Prevention and Control Program; in the Physical Activity and Nutrition Program as a Health Program Specialist and finally as a Physical Activity and Nutrition Program Manager. These experiences honed my skills in grant writing to agencies such as the CDC and the U.S. Administration of Aging, negotiating and managing contracts, supervising employees, facilitating statewide networks for prevention activities, and creating and overseeing program budgets. Having these skills helped me obtain the Health Promotion Program Manager position at Central District Health Department in April 2012, where I helped guide the local health department’s shift away from working on individual behavior change activities to that of broad-based population impact to increase access to physical activity and healthy eating opportunities.

Describe the duties of your current position: Within the Office of Health Promotion, my staff and I primarily focus on increasing access to physical activity and healthy eating along with reducing tobacco initiation and use. I also oversee the implementation of a senior fall prevention program and an agency worksite wellness program. Additionally, I conduct semiannual and annual performance reviews along with providing regular coaching and mentoring to staff. I lead staff in strategic and policy agenda planning utilizing a policy, systems, and environmental change approach to influence broad-based population impact, and negotiate and manage contracts with multiple agencies such as IDHW and non-profit organizations. These are my major position duties. I’m also involved with staff in providing technical assistance and training to community partners, participating on state and local coalitions, alliances, and advisory boards with a physical activity, nutrition, tobacco prevention, and healthy aging emphasis.

Describe what you like most about this position: After working for ten years at a state agency, I’ve enjoyed gaining local-level experience. I appreciate the opportunity to work in each community to spend time developing and fostering relationships while gaining an understanding of the specific needs of that community. I have noticed I spend more time fostering partnerships through face-to-face meetings and phone calls than through email communication.

Describe what you like least about this position: Stable and ongoing funding for primary prevention has been problematic for public health. In the past, most funding opportunities came to us in a categorical manner or with a disease-specific focus. Recently, we are starting to see a shift to funding primary prevention work that is
focused on mitigating chronic disease risk factors through broad-based population work. Public health funding continues to be inadequate and inconsistently funded so this is an ongoing challenge. Because we are often underfunded, we are limited on available human resources, which results in a challenge to have adequate staff to meet the workload demands.

In addition, we often have problems with programmatic silos in public health resulting in duplication of effort. Programs tend to work independently of each other, often using the same community-based partners. Unfortunately, in a small state like Idaho, many community-based partners are serving on multiple coalitions and alliances. It is not uncommon for me to attend two different coalition meetings within a short period of time and usually the same core group of people is in attendance. We talk about integration and streamlining efforts among programs and community partners, but it is difficult to put this into practice.

How do you use health data/epidemiology in your current position? We use health data to inform us on the current and changed state of our communities. These data help us determine the priority needs in each community for addressing access to physical activity, healthy eating, and tobacco use prevention. Within our four-county jurisdiction, we are working with several communities to implement the CDC-developed Community Health Assessment and Group Evaluation (CHANGE) Tool. The CHANGE Tool community health assessment affords us an opportunity to assess community strengths, identify areas for improvement, and assist the community with prioritizing community needs related to population-based strategies. Currently, we rely on state-collected data such as the CDC’s Behavioral Risk Factor Surveillance System (BRFSS) and Youth Risk Behavior Surveillance System (YRBSS) to assess health behaviors, but we recognize there are health data gaps in Idaho. There are efforts underway to address these data gaps and develop a clearinghouse to store chronic disease risk factor data. We use best practice or evidence-based practices in our community-based work to create lasting, sustainable change. Our goal is to create an environment where the healthy choice is the default choice for all individuals.

What recommendations/advice do you have for current health education students desiring to become community health educators? I work with interns on a regular basis and am often interviewed by students seeking guidance for entering the public health field. I recommend developing skills to become a strong written and oral communicator. Much of our work is done through written documents and via oral presentations. I’m often asked to present to the Central District Health Department Board of Health or other groups within the community so being organized and comfortable with public speaking is key. Additionally, I write grant applications, reports, contracts, and communicate via email so strong written skills are a necessity. I recommend that students be nimble and flexible in their careers. Students need to know that an entry-level position may not be their dream job but it serves as an opportunity to develop skills and relationships with other individuals working in the field. It is a way to gain experience so when promotional opportunities are available, they can apply for them. It’s also critical that students connect with working professionals through local, state, and national societies and associations. Oftentimes, networking opens the door for employment opportunities.
Measuring Health or Health Status

TABLE 1.3 Selected mortality rates and their formulas

<table>
<thead>
<tr>
<th>Rate</th>
<th>Definition</th>
<th>Example (U.S. 2014)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crude death rate</td>
<td>Number of deaths (all cause) ÷ Estimated midyear population × 100,000</td>
<td>799.5/100,000</td>
</tr>
<tr>
<td>Age-specific death rate</td>
<td>Number of deaths, 45 – 54 ÷ Estimated midyear population, 45 – 54 × 100,000</td>
<td>407.1/100,000</td>
</tr>
<tr>
<td>Cause-specific mortality</td>
<td>Number of deaths, (HIV) ÷ Estimated midyear population × 100,000</td>
<td>2.7/100,000</td>
</tr>
</tbody>
</table>


contrast, is a clearly defined event, it has continued to be the most reliable single indicator of health status of a population. Mortality statistics, however, describe only a part of the health status of a population, and often only the endpoint of an illness process” (USDHHS, 1991, p. 15). Rates can be expressed in three forms: (1) crude, (2) adjusted, and (3) specific. A crude rate is the rate expressed for a total population. An adjusted rate is also expressed for a total population but is statistically adjusted for a certain characteristic, such as age. A specific rate is a rate for a particular population subgroup such as for a particular disease (i.e., disease-specific) or for a particular age of people (i.e., age-specific). Examples include calculating the death rate for heart disease in the United States or the age-specific death rate for 45- to 54-year-olds.

There are three other epidemiological terms that are used to describe the magnitude of a rate of some event, disease, or condition in a unit of population. They are (1) endemic—occurs regularly in a population as a matter of course, such as heart disease in the United States; (2) epidemic—an unexpectedly large number of cases of an illness, specific health-related behavior, or other health-related event in a population, like the recent Ebola outbreak in West Africa; and (3) pandemic—an outbreak over a wide geographical area, such as a continent. An example of a recent pandemic was the H1N1 flu outbreak in the United States. As you continue your preparation to become a health education specialist, you will be introduced to more and more epidemiological principles and terms.

Life Expectancy

Life expectancy is another means by which health or health status has been measured. However, it is also based on mortality. Even with this limitation, life expectancy has been described as “the most comprehensive indicator of patterns of health and disease, as well as living standards and social development” (CDC, 1994, pp. 2-8). Life expectancy “is the average number of years of life remaining to a person at a particular age and is based on a given set of age-specific death rates—generally the mortality conditions existing in the period mentioned. Life expectancy may be determined by sex, race and Hispanic origin, or other characteristics using age-specific death rates for the population with that characteristic” (NCHS, 2015, p. 424). The most frequently used times to state life expectancy are at birth, at the age of 65, and more recently at age 75 (see Table 1.1). It must be remembered that life expectancy is an average for an entire cohort (usually a single birth year) and is not necessarily a useful predictor for any one individual. In terms of evaluating the effect of chronic disease on a population,
life expectancies calculated *after* birth have been found to be more useful measures than life expectancy *at* birth because life expectancy at birth reflects infant mortality rates.

**Years of Potential Life Lost**

A third method by which health or health status has been measured is years of potential life lost (YPLL). YPLL "is a measure of premature mortality" (NCHS, 2015, p. 446) (see Table 1.4) and is calculated by subtracting a person's age at death from 75 years. For example, for a person who dies at age 30, the YPLL are 45. Until 1996, the U.S. government used age 65 in calculating YPLL, but because life expectancy in the United States has continued to increase and is greater than 75 years, that age is now used (NCHS, 2015).

**Disability-Adjusted Life Years**

The three measures of health and health status noted previously are commonly used in the United States and other developed countries. However, because mortality does not express the burden of living with disability (for example, the resulting paralysis from an automobile crash or the depression that often follows a stroke), the WHO and the World Bank developed a measure called disability-adjusted life years (DALYs). One DALY can be thought of as one lost year of "healthy" life as a result of being in states of poor health or disability (Murray & Lopez, 1996; WHO, 2008).

To calculate total DALYs for a given condition in a population, years of life lost (YLL) and years lived with disability (YLD) of known severity and duration for that condition must each be estimated, then the total summed. For example, to calculate DALYs incurred through road accidents in India in 1990, add the total years of life lost in fatal road accidents and the total years of life lived with disabilities by survivors of such accidents (Murray & Lopez, 1996, p. 7).

*Figure 1.2* presents the DALYs for selected regions of the world. As noted, "DALYs in Africa are at least two times higher than in any other region" (WHO, 2008, p. 40).

<table>
<thead>
<tr>
<th>TABLE 1.4</th>
<th>Age-adjusted years of potential life lost (per 100,000 population) before age 75 for selected leading causes of death: United States, 1990 and 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cause</strong></td>
<td><strong>1990</strong></td>
</tr>
<tr>
<td>Malignant neoplasms</td>
<td>2,003.8</td>
</tr>
<tr>
<td>Diseases of the heart</td>
<td>1,617.7</td>
</tr>
<tr>
<td>Unintentional injuries (accidents)</td>
<td>1,162.1</td>
</tr>
<tr>
<td>Suicide</td>
<td>393.1</td>
</tr>
<tr>
<td>Homicide</td>
<td>417.4</td>
</tr>
<tr>
<td>Cerebrovascular diseases (stroke)</td>
<td>259.6</td>
</tr>
<tr>
<td>Chronic lower respiratory diseases</td>
<td>187.4</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>155.9</td>
</tr>
<tr>
<td>HIV</td>
<td>383.8</td>
</tr>
<tr>
<td>Chronic liver disease and cirrhosis</td>
<td>196.9</td>
</tr>
<tr>
<td>Influenza and pneumonia</td>
<td>141.5</td>
</tr>
</tbody>
</table>

High income
Africa
Americas
Eastern Mediterranean
Europe
South-East Asia
Western Pacific

DALYs per 1000 population

A Figure 1.2 Burden of disease: Years of life lost as a result of premature mortality (YLL) and years of life lost with a disability (YLD) per thousand by region, 2004

Health-Related Quality of Life

Even though DALYs go beyond measuring health in terms of just mortality, they really do not get at the quality of life (QOL). Although QOL refers to a person or group's general well-being, health-related quality of life (HRQOL) encompasses "those aspects of overall quality of life that can be clearly shown to affect health—either physical or mental" (CDC, 2011a, §3). Healthcare providers have often used HRQOL to measure the effects of chronic disease in their patients to better understand how a disease interferes with a person's daily life. Similarly, public health professionals have used HRQOL to measure the effects of numerous disorders, short- and long-term disabilities, and diseases in different populations. Tracking HRQOL in different populations can identify subgroups with poor physical or mental health and can help guide policies or other interventions to improve their health (CDC, 2011a).

Increasingly, health professionals have been using the concept of HRQOL to quantify and track the health status of people. Measures of HRQOL are now included on a number of different health surveys, including the Behavioral Risk Factor Surveillance Survey (BRFSS) and the National Health and Nutrition Examination Survey (NHANES) (see next section for discussion of these surveys). Both the BRFSS and the NHANES use the standard four-item "Healthy Days" core questions (CDC HRQOL-4) created by the Centers for Disease Control and Prevention (CDC) and presented in Box 1.2.

Health Surveys

Data collected through surveys conducted by governmental agencies are other means by which health or health status has been measured in the United States. Six examples are
presented here. The first two, the National Health Interview Survey (NHIS) and the NHANES, are conducted by the National Center for Health Statistics (NCHS). The NHIS, which has been used for more than 50 years, is a household survey in which respondents are asked a number of questions about their health and health behavior. One of the questions, for example, asks the respondents to describe their health status using one of five categories: excellent, very good, good, fair, or poor.

The NHANES data are collected using a mobile examination center. Through personal interviews, physical examinations, and clinical and laboratory testing, data are collected on a representative group of Americans. These examinations result in the most authoritative source of standardized clinical, physical, and physiological data on the U.S. population. Included in the data are the prevalence of specific conditions and diseases and data on blood pressure, blood cholesterol, body mass index, nutritional status and deficiencies, and exposure to environmental toxins (CDC, 2016b).

The third example of data collected from surveys actually comes from a family of surveys called the National Health Care Surveys. These surveys are designed to “answer key questions of interest to health care policy makers, public health professionals, and researchers” (CDC, 2012a, ¶1). The National Health Care Surveys are used to study resource use, including staffing, quality of care, disparities in health care services, and diffusion of certain healthcare technologies (CDC, 2012a). The fourth example of data collected through a survey is the data collected through the BRFSS. The BRFSS is the nation’s premier system of adult health-related data regarding health-related risk behaviors, chronic health conditions, and use of preventive services. Using telephone survey techniques, these data are collected by individual states, territories, and the District of Columbia through cooperative agreements with the CDC (CDC, 2014).

Because of the success of the BRFSS, a similar surveillance system was begun for youth. The Youth Risk Behavior Surveillance System (YRBSS) was developed in 1990 to monitor priority health-risk behaviors that contribute markedly to the leading causes of death, disability, and social problems among youth and adults in the United States. The six categories of priority health-risk behaviors include (1) tobacco use; (2) unhealthy dietary behaviors; (3) inadequate

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**"Healthy Days" Core Questions (CDC HRQOL-4)**

1. Would you say that in general your health is:
   a. Excellent
   b. Very good
   c. Good
   d. Fair
   e. Poor

2. Now thinking about your physical health, which includes physical illness and injury, for how many days during the past 30 days was your physical health not good?

3. Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?

4. During the past 30 days, approximately how many days did poor physical or mental health keep you from doing your usual activities, such as self-care, work, or recreation?

physical activity; (4) alcohol and other drug use; (5) sexual behaviors that contribute to unintended pregnancy and sexually transmitted diseases, including HIV infection; and (6) behaviors that contribute to unintentional injuries and violence (CDC, 2015a).

The final survey presented, the National College Health Assessment (NCHA), collects health data about college students. The NCHA is the only one presented here that is not conducted by a governmental agency. The NCHA is carried out by the professional organization American College Health Association (ACHA) (see Chapter 8 for more on this association). The ACHA developed the NCHA, which can be conducted as either a paper-pencil or online survey, to assist schools in collecting data about students' habits, behaviors, and perceptions about topics such as alcohol, tobacco, and other drug use; mental health; weight, nutrition, and exercise; personal safety and violence; and sexual health. The ACHA charges schools for conducting the NCHA, but the schools have the flexibility to select the surveying method, sample size, priority population, and time it is offered (ACHA, 2016).

Using Health Data in Health Education/Promotion

In this section, we would like to give you an example of how health education specialists may use data. As you will soon learn, a major task of health education specialists is to assist those in the priority population (individuals, groups, and communities) in obtaining, maintaining, and improving their health. Often this means planning some type of health education/promotion program that can be used by those in the priority population. These programs should be based on the needs of the priority population, and the needs are often described using data.

For example, let's say a health education specialist is working for a local (county) health department at a time when the state health department has just made funds available through a competitive grant process to deal with the high rates of cancer in the state. Because of some past concerns about cancer in the county, her supervisor has suggested she seek funding. Though she has heard some residents express concern about possible higher rates of cancer, she is really not sure about the type of cancer or whether there is a specific group of people affected. Therefore, she needs to be able to describe the potential problem and identify a priority population. One approach would be to determine if there are any health disparities associated with cancer in her county. It has long been "recognized that some individuals are healthier than others and that some live longer than others do, and that often these differences are closely associated with social characteristics such as race, ethnicity, gender, location, and socioeconomic status" (King, 2009, p. 339). These gaps between groups have been referred to as health disparities (also called health inequalities in some countries). More formally, health disparity has been defined as the difference in health between populations often caused by two health inequities—lack of access to care and lack of quality care (McKenzie & Pinger, 2015).

One place to start looking for cancer health disparities would be the cancer mortality rates (i.e., crude and age-adjusted) for the state as a whole compared with the county where the health education specialist works. These data may be available from the NCHS or another center within the CDC, from the state department of health, or from a university research center. Comparisons could also be made based on the mortality rates for various types of cancer. If the health education specialist knew what types of cancers were of greatest concern in the county, she could then examine the data for the county on the basis of certain
demographic characteristics that have been associated with certain cancers. So the health education specialist may be using sex-, age-, or race/ethnicity-specific rates to compare various subgroups while looking for disparities. Once the health education specialist identifies a subgroup problem with a type of cancer, she may turn to data from the BRFSS to look for risk behaviors that are known to contribute to or cause the type of cancer identified. Again, the health education specialist may find the needed data in a state or local agency or university as well. Using different sources of data should help the health education specialist find the focus of her program for the priority population and put her in a position to compete for the grant money from the state department of health. Examples of what the health education specialist may have found through this process are higher rates of prostate cancer in African American men between the ages of 45 and 64 years or a higher prevalence of certain types of leukemia in children younger than 15 years of age.

In summary, to get to the point of being able to identify a priority population (i.e., a certain subgroup of people) and program focus (i.e., risk factors associated with a certain type of cancer), several different types of data were used. Initially, the health education specialist used cancer mortality data, then prevalence rates for various types of cancer and different subgroups, and finally risk factor data for various types of cancer.

The Goal and Purpose of the Profession

The ultimate goal of all service professions, including health education/promotion, is to improve the quality of life, even though the quality of life is difficult to quantify (Raphael, Brown, Renwick, & Rootman, 1997). However, many professionals feel that there is a direct relationship between quality of life and health status. Quality of life is usually improved when health status is improved, or, as Ashley Montagu (1968, p. 206) has stated, “The highest goal in life is to die young, at as old an age as possible.” To that end, “the goal of health education is to promote, maintain, and improve individual and community health. The teaching-learning process is the hallmark and social agenda that differentiates the practice of health education from that of other helping professions in achieving this goal” (National Commission for Health Education Credentialing, Inc. [NCHEC], 1996, pp. 2–3).

Because quality of life and health status are complex variables, they are not usually changed in a short period of time. To reach these goals, people usually work their way through a number of small steps over a period of time that equip them with all that is necessary to impact both their health status and, in turn, their quality of life. Thus, it is the work of health education specialists to create interventions (programs) that can assist people in working toward better health. This work is reflected in the purpose of health education that “is to positively influence the health behavior of individuals and communities as well as the living and working conditions that influence their health” (Coalition for National Health Education Organizations [CNHEO], 2007, p. 1).

The Practice of Health Education/Promotion

While the practice of health education specialists is outlined in the responsibilities and competencies presented in Chapter 6, as previously noted in our discussion of the use of data, the primary role of health education specialists is to develop appropriate health education/
promotion programs for the people they serve. The practice of health education/promotion is based on the assumption "that beneficial health behavior will result from a combination of planned, consistent, integrated learning opportunities. This assumption rests on the scientific evaluations of health education programs in schools, at worksites, in medical settings, and through mass media" (Green & Ottoson, 1999, pp. 93-94). The results of these scientific evaluations, referred to by Green and Ottoson, are one source of data that contribute to a body of data known as evidence. Evidence is data that can be used to make decisions about planning. When health education specialists practice in such a way that they systematically find, appraise, and use evidence as the basis for decision making when planning health education/promotion programs it is referred to as evidence-based practice (Cottrell & McKenzie, 2011).

Although the practice of health education specialists is easily stated, it is by no means easy to carry out. Much time, effort, practice, and on-the-job training are required to be successful. Even the most experienced health education specialists find program development challenging because of the constant changes in settings, resources, and priority populations (McKenzie, Neiger, & Thackeray, 2013).

The specific steps taken to develop a health education/promotion program vary depending on the planning model used (see Chapter 4); most models include the following steps (McKenzie et al., 2013) (see Figure 4.17):

1. Assessing the needs of the priority population
2. Setting goals and objectives
3. Developing an intervention that considers the peculiarities of the setting
4. Implementing the intervention
5. Evaluating the results

Therefore, it becomes the practice of health education specialists to be able to carry out all that is associated with these tasks.

Over the years, to be educated to serve as a health education specialist, individuals have been trained in three different types of academic programs—community health education, public health education, and school health education. In recent years, mostly because of the profession's movement toward accreditation of all undergraduate programs in health education, there has been a movement to just two preparation tracks as opposed to three in the past. Community health education programs are increasingly switching over to public health education to meet accreditation requirements (see Chapter 6 for more on accreditation).

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Previously mentioned in this chapter and discussed in greater detail in Chapter 2, the profession of health education/promotion is one that has been built on the principles and concepts of a number of disciplines and professions. Pieces of community development and organizing, education, epidemiology, medicine, psychology, and sociology can be found within health education/promotion. In the sections that follow, we present some of the basic underlying concepts of the profession. Please note that we have not exhausted the discussion of each of these topics but, rather, present sufficient information to allow a basic understanding of each.
The Health Field Concept and the Determinants of Health

Soon after the Canadian government implemented its national health plan that ensured health care for all Canadians, it began to look more closely at the health field as a way of improving Canadians' health. The health field is a term the government described as being far more encompassing than the "healthcare system." This term was much broader and included all matters that affected health (Lalonde, 1974). Because the health field was such a broad concept, it was felt that there was a need to develop a framework that would subdivide the concept into principal elements so that the elements could be studied. Such a framework was developed and called the health field concept (Laframboise, 1973).

The health field concept divided the health field into four elements: (1) human biology, (2) environment, (3) lifestyle, and (4) healthcare organization. “These four elements were identified through an examination of the causes and underlying factors of sickness and death in Canada, and from an assessment of the parts the elements play in affecting the level of health in Canada” (Lalonde, 1974, p. 31). Human biology “includes all those aspects of health, both physical and mental, which are developed within the human body as a consequence of the basic biology of man [sic] and the organic make-up of an individual” (Lalonde, 1974, p. 31). This includes not only the genetic inheritance of an individual but also the processes of maturation and aging and the complex interaction of the various systems of the human body (Lalonde, 1974). The element of environment “includes all those matters related to health which are external to the human body and over which the individual has little or no control” (Lalonde, 1974, p. 32). Some examples of things often included in the element of environment are geography, climate, community size, industrial development, economy, and social norms.

The element of lifestyle comprises the “aggregation of decisions by individuals which affect their health and over which they more or less have control” (Lalonde, 1974, p. 32). In more recent times, lifestyle has been more commonly referred to as health behavior (those behaviors that impact a person’s health). The fourth element in the health field concept is healthcare organization. Healthcare organization “consists of the quantity, quality, arrangement, nature and relationships of people and resources in the provision of health care” (Lalonde, 1974, p. 32). This fourth element is often referred to as the healthcare system.

The utility of the health field concept has proved to be helpful over the years, both in Canada and the United States. Its greatest importance may have been to bring attention to the concept of health promotion and disease prevention. Before this point in history, the primary focus of health care had been on the cure of disease, not the prevention of disease. In fact, it was stated that the health field concept put human biology, environment, and lifestyle on equal footing with healthcare organization (Lalonde, 1974). Since its development, studies using this concept in both Canada and the United States have provided a greater understanding of what contributes to morbidity and mortality and what health professionals can do to help improve the health of those they serve.

Using a similar framework as that of the elements of the health field concept, it is now believed that the health of populations is shaped by five intersecting domains (i.e., the determinants of health): (1) genetics (e.g., sex, age, and individual characteristics), (2) individual behavior (e.g., diet, physical activity, and alcohol use), (3) social circumstances (e.g., education, socioeconomic status, housing, and crime), (4) environmental and physical influences (e.g., safe water, where a person lives, and crowding conditions), and (5) health services (e.g., access to quality health care, cost, and lack of insurance coverage) (CDC, 2015b; IOM, 2001;
McGinnis, 2001; McGovern, Miller, & Hughes-Cromwick, 2014; USDHHS, 2014a) (also see the discussion of Multicausation Disease Model later in this chapter). These domains are dynamic and vary in impact depending on where one is in the life cycle (IOM, 2001).

In addition to understanding the determinants of health as they contribute to a person’s current state of health, the social determinants of health also play a critical role in the health of people and communities. Social determinants of health are “conditions in the environments in which people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks. Conditions (e.g., social, economic, and physical) in these various environments and settings (e.g., school, church, workplace, and neighborhood) have been referred to as “place” (USDHHS, 2014b, ¶4). Like the determinants of health, the social determinants of health (see Figure 1.3) encompass five areas: (1) economic stability (e.g., poverty, employment, housing stability such as homelessness or foreclosure, and food security); (2) education (e.g., high school graduation rates, enrollment in higher education, language, and literacy); (3) social and community context (e.g., perceptions of discrimination and equity, civic participation, and incarceration); (4) health and health care (e.g., access to health care, access to primary care, and health literacy); and (5) neighborhood and built environment (e.g., quality of housing, environmental conditions, access to healthy foods, and crime and violence) (USDHHS, 2014b). Addressing these social determinants of health can impact the health of large numbers of people in ways that can be sustained over time.

We know that genetics play a big part in late-onset diseases such as diabetes, cancer, and cardiovascular disease, whereas employment and income (social circumstances) have a significant

> Figure 1.3 Social determinants of health
influence on health and health care throughout life. Further, environmental aspects also impact health. For example, families with access to sidewalks and safe neighborhoods (neighborhood and built environment) are more likely to engage in health-enhancing behaviors.

On a population basis, using the best available estimates, the impacts of various domains on early deaths in the United States distribute roughly as follows: genetic predispositions, about 30%; social circumstances, 15%; environmental exposures, 5%; behavioral patterns, 40%; and shortfalls in medical care about 10%. But more important than these proportions is the nature of the influences in play where the domains intersect. Ultimately, the health fate of each of us is determined by factors acting not mostly in isolation but by our experience where domains interconnect. Whether a gene is expressed can be determined by environmental exposures or behavioral patterns. The nature and consequences of behavioral choices are affected by our social circumstances. Our genetic predispositions affect the health care we need, and our social circumstances affect the health care we receive. (McGinnis et al., 2002, p. 83)

The Levels and Limitations of Prevention

The word prevention has already been used several times in this chapter. We now want to formally define the term, present the different levels of prevention, and briefly discuss the limitations of prevention. Prevention, as it relates to health, has been defined as the planning for and the measures taken to forestall the onset of a disease or other health problem before the occurrence of undesirable health events. This definition presents three distinct levels of prevention: primary, secondary, and tertiary prevention. Primary prevention comprises those preventive measures that forestall the onset of illness or injury during the prepathogenesis period (before the disease process begins) (McKenzie & Pinger, 2015). Examples of primary prevention measures include wearing a safety belt, using rubber gloves when there is potential for the spread of disease, immunizing against specific diseases, exercising, and brushing one's teeth. Any health education/promotion program aimed specifically at averting the onset of illness or injury is also an example of primary prevention.

Illness and injury cannot always be prevented. In fact, many diseases, such as cancer and heart disease, can establish themselves in humans and cause considerable damage before they are detected and treated. In such cases, the sooner a condition is detected and medical personnel intervene, the greater the chances of limiting disability and preventing death. Such identification and intervention are known as secondary prevention. More specifically, secondary prevention includes the preventive measures that lead to an early diagnosis and prompt treatment of a disease or an injury to limit disability and prevent more serious pathogenesis. Good examples of secondary prevention include personal and clinical screenings and examinations such as blood pressure, blood cholesterol, and mammograms. The goal of such screenings and examinations is not to prevent the onset of the disease but rather to detect its presence during early pathogenesis, thus permitting early treatment and limiting disability (McKenzie & Pinger, 2015).

The final level of prevention is tertiary prevention. It is at this level that health education specialists work to retrain, reeducate, and rehabilitate the individual who has already incurred disability, impairment, or dependency. Examples of some tertiary measures include educating a patient after lung cancer surgery or working with an individual who has diabetes to ensure that the daily insulin injections are taken. Figure 1.4 provides a visual representation of the levels of prevention in relation to health status.
Levels of Prevention

<table>
<thead>
<tr>
<th>Primary Prevention</th>
<th>Secondary Prevention</th>
<th>Tertiary Prevention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce disease incidence</td>
<td>Reduce prevalence or consequence</td>
<td>Reduce complications or disability</td>
</tr>
</tbody>
</table>

Health Status

Healthy/no disease → No symptoms → Diagnosed disease → Death

Though health education specialists can intervene at any of the three levels of prevention and can have a great deal of success, it should be obvious from the previous discussion of the health field concept and the determinants of health that prevention is not the “magic bullet” for an endless life. Prevention does have its limits. McGinnis (1985) has noted four major categories of limitations: (1) biological, (2) technological, (3) ethical, and (4) economic.

Biological limitations center on life span. How long should individuals expect to live healthy lives or, for that matter, how long should they expect to live at all? Even with the best inputs and a bit of luck, one should not expect to live longer than 80 to 110 years. Body parts will eventually wear out from use.

Technological advances also have their limitations. Today, healthcare workers have a vast array of technical equipment available to help them care for their patients, but technology still has not been able to eradicate AIDS or malaria or to explain the cause of Alzheimer’s disease.

Prevention is also limited by ethical concerns (see Chapter 5). Even though helmets would increase the chances of survival in automobile crashes, is it ethical to have a law that says all drivers and passengers in automobiles must wear them? Or is it ethical to penalize people via fines, taxes, or surcharges for acting in unhealthy ways, such as driving an automobile without a safety belt on, buying and using tobacco products, or for not having a smoke detector and fire extinguisher in the home?

Finally, prevention has economic limitations. Prevention is limited by the amount of money that is put into it. Though the exact figures are difficult to determine, it is commonly understood that less than 5 percent of all dollars spent on health in the United States each year are spent on essential public health services, government public health activity, and population-based public health activity (Turnock, 2012). Stated another way, approximately 95 percent of the two trillion plus dollars spent on health in the United States each year is spent on curing ill health, not on health promotion and disease prevention (Sultz & Young, 2011).

Risk Factors

The health field concept, the determinants of health, and the social determinants of health have provided those interested in health issues with a framework from which the health field
can be studied. The levels of prevention and their limitations have provided this same group of people with a time frame from which to plan to help forestall the onset of, limit the spread of, and rehabilitate after pathogenesis or another health problem. What none of these concepts fully discloses is the focus at which health promotion and disease prevention programming should be aimed, risk factors. A risk factor is “any attribute, characteristic or exposure of an individual that increases the likelihood of developing a disease or injury (WHO, 2016c, §1). Risk factors increase the probability of morbidity and premature mortality but do not guarantee that people with a risk factor will suffer the consequences.

Risk factors can be divided into two categories: (1) modifiable risk factors (changeable or controllable) and (2) nonmodifiable risk factors (nonchangeable or noncontrollable). The former include such factors as sedentary lifestyle, smoking, and poor dietary habits—things that individuals can change or control whereas the latter group includes factors such as age, sex, and inherited genes—things that individuals cannot change or do not have control over. Note that these two categories of risk factors are often interrelated. In fact, the combined potential for harm from a number of risk factors is greater than the sum of their individual potentials. For example, asbestos workers have an increased risk for cancer because of their exposure to this carcinogen. Further, if they smoke, they have a 30 times greater chance of developing lung cancer than do their nonsmoking coworkers and 90 times greater chance of getting lung cancer than do people who neither work with asbestos nor smoke. The risk increases further if they have an inherited respiratory disease.

Knowledge about the impact of risk behaviors has continued to grow. In looking back over the 20th century, we have seen disease prevention change “from focusing on reducing environmental exposures over which the individual had little control, such as providing potable water, to emphasizing behaviors such as avoiding use of tobacco, fatty foods, and a sedentary lifestyle” (Breslow, 1999, p. 1030). As noted previously, approximately 40 percent of the early deaths in the United States each year are caused by behavior patterns that could be modified by preventive interventions (McGinnis et al., 2002). Therefore, much of the focus of the work of health education specialists has been to help individuals identify and control their modifiable risk factors.

Health Risk Reduction

To focus on specific risk factors, health education specialists must have a basic understanding of both communicable (infectious) and noncommunicable (noninfectious) diseases. Communicable diseases are those diseases for which biological agents or their products are the cause and that are transmissible from one individual to another (McKenzie & Pinger, 2015), and noncommunicable diseases or illnesses are those that cannot be transmitted from an infected person to a susceptible, healthy one (McKenzie & Pinger, 2015). Our intent in this section and the ones that follow is not to present information on all possible diseases and their related risk factors that a health education specialist may have to develop programs for, but rather to provide a general understanding of the spread and cause of disease. (See Table 1.5 for leading causes of death and their risk factors.)

Before moving on, we would like to make a special note about one of the data presented in Figure 1.5. The term leading causes of death is used in this figure. That term refers to “the primary pathophysiological conditions identified at the time of death, as opposed to the root
Basic Underlying Concepts of the Profession

### TABLE 1.5 Leading causes of death and associated risk factors for all ages: United States, 2010

<table>
<thead>
<tr>
<th>Rank</th>
<th>Cause</th>
<th>Risk Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Diseases of the heart</td>
<td>Tobacco use, high blood pressure, elevated serum cholesterol, diet, diabetes, obesity, lack of exercise, alcohol abuse, genetics</td>
</tr>
<tr>
<td>2</td>
<td>Malignant neoplasms (cancer)</td>
<td>Tobacco use, alcohol misuse, diet, solar radiation, ionizing radiation, worksite hazards, environmental pollution, genetics</td>
</tr>
<tr>
<td>3</td>
<td>Chronic lower respiratory diseases</td>
<td>Tobacco use, diseases</td>
</tr>
<tr>
<td>4</td>
<td>Cerebrovascular diseases (stroke)</td>
<td>Tobacco use, high blood pressure, elevated serum cholesterol, diabetes, obesity, genetics</td>
</tr>
<tr>
<td>5</td>
<td>Unintentional injuries (accidents)</td>
<td>Alcohol misuse, tobacco use (fires), product design, home hazards, handgun availability, lack of safety restraints, excessive speed, automobile design, roadway design</td>
</tr>
<tr>
<td>6</td>
<td>Alzheimer’s disease</td>
<td>Age, family history, genetics, head injury, heart health, general healthy aging</td>
</tr>
<tr>
<td>7</td>
<td>Diabetes mellitus</td>
<td>Obesity (for type II diabetes), diet, lack of exercise, genetics</td>
</tr>
<tr>
<td>8</td>
<td>Nephritis, nephrotic syndrome, and nephrosis</td>
<td>Infectious agents, drug hypersensitivity, genetics, trauma</td>
</tr>
<tr>
<td>9</td>
<td>Influenza and pneumonia</td>
<td>Tobacco use, infectious agents, biological factors</td>
</tr>
<tr>
<td>10</td>
<td>Suicide</td>
<td>Family history, previous suicide attempts, history of mental disorders, history of alcohol and substance abuse, cultural and religious beliefs, barriers to accessing mental health treatmentb</td>
</tr>
</tbody>
</table>


causes" (McGinnis & Foege, 1993, p. 2207). McGinnis and Foege (1993) conducted a study to see if they could identify the root causes of death. What they found was that the leading actual causes of death were modifiable behaviors—behaviors that people could change. The behavior that was the leading actual cause of death was tobacco use, accounting for some 400,000, or 19 percent, of the mortality in 1990. A similar study to that of McGinnis and Foege was conducted by Mokdad, Marks, Stroup, and Gerberding in 2004 using 2000 mortality data. They also found tobacco to be the leading actual cause of death, but that poor diet and physical inactivity killed almost as many (see Figure 1.5). It is now estimated that tobacco is the primary cause of more than 480,000 deaths per year, about one in five deaths annually (CDC, 2015c). Figure 1.5 provides evidence that nearly half of all causes of death in the United States could be attributed to a number of largely preventable behaviors and that by improving healthy behaviors, we can significantly reduce the consequences of chronic diseases. "These findings, along with escalating health care costs and aging population, argue persuasively that
Chapter 1 A Background for the Profession

Leading Causes of Death United States, 2013

- Heart Disease: 23.5
- Cancer: 22.5
- Chronic lower respiratory disease: 5.7
- Stroke: 5.0
- Unintentional injuries (accidents): 5.0
- Alzheimer's disease: 3.3
- Diabetes: 2.9
- Influenza/pneumonia: 2.2
- Kidney disease: 1.8

Actual Causes of Death United States, 2000

- Tobacco: 18.1
- Poor diet/Physical inactivity: 15.2
- Alcohol consumption: 3.5
- Microbial agents: 3.1
- Toxic agents: 2.3
- Motor vehicles: 1.8
- Firearms: 1.2
- Sexual behavior: 0.8
- Illicit drug use: 0.7

A Figure 1.5 Leading versus actual causes of death in the United States


the need to establish a more preventive orientation in the U.S. health care and public health systems has become more urgent” (Mokdad et al., 2004, p. 1238).

THE CHAIN OF INFECTION

The chain of infection (see Figure 1.6) is a model used to explain the spread of a communicable disease from one host to another. The basic premise represented in the chain of infection is that individuals can break the chain (reduce the risk) at any point; thus, the spread of disease can be stopped. For example, the spread of some waterborne diseases is stopped when the first link of the chain is broken with the chlorination of the water supply, thus killing the pathogens that cause a disease. The risk is reduced because the pathogen is destroyed before it is consumed. The chain can also be broken by placing a barrier between the means of transmission and the portal of entry, as when healthcare providers protect themselves with surgical masks and rubber gloves. In this case, the risk is reduced because individuals are not exposing themselves to the pathogen. With such information, health education specialists can help create programs that are aimed at breaking the chain and reducing the risks.
Basic Underlying Concepts of the Profession

Pathogen
• Pasteurization
• Chlorination
• Antibiotics
• Antivirals
• Disinfectants

Human Reservoir
• Isolation
• Surveillance
• Quarantine
• Drug treatment

Portal of Exit
• Gowns
• Masks
• Condoms
• Hair nets
• Insect repellents

Transmission
• Isolation
• Hand washing
• Vector control
• Sanitary engineering
• Sneeze glass
• Sexual abstinence
• Safer sex

Portal of Entry
• Masks
• Condoms
• Safety glasses
• Insect repellents

Establishment
of Disease in New Host
• Immunizations
• Health education
• Nutrition promotion
• Sexual abstinence

A Figure 1.6 Chain of infection model and strategies for disease prevention and control

COMMUNICABLE DISEASE MODEL

A second model used to describe the spread of a communicable disease is the communicable disease model. Figure 1.7 presents the elements of this model—agent, host, and environment. These three elements summarize the minimal requirements for the presence and spread of a communicable disease in a population. The agent is the element (or, using the chain of infection labels, the pathogen) that must be present for a disease to spread—for example, a bacteria or virus. The host is any susceptible organism that can be invaded by the

A Figure 1.7 Communicable disease model
agent. Examples include plants, animals, and humans. The environment includes all other factors that either prohibit or promote disease transmission. Thus, communicable disease transmission occurs when a susceptible host and a pathogenic agent exist in an environment conducive to disease transmission.

**MULTICAUSATION DISEASE MODEL**

Obviously, the chain of infection and communicable disease models are most helpful in trying to prevent disease caused by a pathogen. However, they are not applicable to noncommunicable diseases, which include many of the chronic diseases such as heart disease and cancer. Most of these diseases manifest themselves in people over a period of time and are not caused by a single factor but by combined factors. The concept of “caused by many factors” is referred to as the multicausation disease model (see Figure 1.8). For example, it is known that heart disease is more likely to manifest itself in individuals who are older, who smoke, who do not exercise, who are overweight, who have high blood pressure, who have high cholesterol, and who have immediate family members who have had heart disease. Note that within this list of factors there are both modifiable and nonmodifiable risk factors. As when using the chain of infection model, the work of health education specialists is to create

![Figure 1.8](image_url)

**Multicausation disease model**

- **Environmental conditions**
  - (e.g., toxic agents, environmental pollutants, chemical contaminants)

- **Behavioral choices**
  - (e.g., exercise, smoking)

- **Genetics**

- **Social circumstances**
  - (e.g., education, employment, poverty, housing, crime)

- **Medical care**
  - (e.g., quality and accessibility)
programs to help people reduce the risk of disease and injury by helping those in the priority population identify and control as many of the multicausative factors as possible. This model should look familiar to you because it is made up of the five determinants of health discussed previously in this chapter.

Other Selected Principles

Several other principles of health education/promotion have been noted by Cleary and Neiger (1998). They have identified, via the work of others, that health education specialists must address the principles of participation, empowerment, and cultural competency if health education/promotion is to be successful. We would like to add two other principles to this list, socio-ecological approach and advocacy. Participation refers to the active involvement of those in the priority population in helping identify, plan, and implement programs to address the health problems they face. Without such participation, ethical issues associated with program development come into play, and the priority population probably will not support and feel ownership of (responsibility for) the program. For example, if the health education specialists for a large corporation are creating a health promotion program for all employees, they should not begin to plan without the participation of (or at least representation by) each of the segments (clerical, labor, and management) of the employee population.

Health education/promotion activities have recently placed more emphasis on socio-ecological approaches to improving health. The underlying concept of the socio-ecological approach (sometimes referred to as the ecological perspective) is that behavior has multiple levels of influences. This approach “emphasizes the interaction between, and the interdependence of factors within and across all levels of a health problem” (Rimer & Glanz, 2005, p. 10). That is to say, seldom does behavior change based on influence from a single level. People live in environments (i.e., physical, social, political, cultural, and economic) that shape behaviors and access to the resources they need to maintain good health (Pellmar, Brandt, & Baird, 2002). Scholars who study and write about the levels of influence have used various labels to describe them. However, commonly used labels include individual and individual’s characteristics (e.g., knowledge, attitudes, values, and skills), social relationships, organizational influences, community characteristics, and public policy (McLeroy, Bibeau, Steckler, & Glanz, 1988). Physical environment and culture have recently been added to levels of influence (Simons-Morton, McLeroy, & Wendel, 2012). In practice, behavior change often involves influences on multiple levels. For example, to get a person to begin an exercise program it may take a conversation with his or her physician (i.e., social influence), a company policy (i.e., organizational-level influence), and also the county commissioners voting to put walking paths in the community (i.e., community-level influence). Thus, a central conclusion of the socio-ecological approach “is that it usually takes the combination of both individual-level and environmental/policy-level interventions to achieve substantial changes in health behavior” (Sallis, Owen, & Fisher, 2008, p. 467). Therefore, health education specialists must do more than just educate to help to change behavior. They must now work in new ways and develop new skills. As a group these new skills are often called population-based approaches. They include policy development, policy advocacy, organizational change, community development, empowerment of individuals, and economic supports.

Consider this example to better understand how a population-based approach works. A state-level voluntary health organization was spending most of its time and resources helping
individuals quit smoking or preventing others from starting to smoke. Recently the organization has developed a statewide advocacy network to respond to tobacco-related legislation. They are using a population-based approach to influence legislation and policy that will ultimately impact individual smoking behaviors. They still maintain the more individual approaches to dealing with the tobacco issue but have added the population-based approach.

Advocacy is another principle in which health education specialists have become more involved. **Advocacy** is defined “as the actions or endeavors individuals or groups engage in order to alter public opinion in favor or in opposition to a certain policy” (Pinzon-Perez & Perez, 1999, p. 29). Whereas **health advocacy** has been defined as “the processes by which the actions of individuals or groups attempt to bring about social, environmental and/or organizational change on behalf of a particular health goal, program, interest, or population” (Joint Committee, 2012, p. 17). Professional associations encourage health education specialists to get more involved in advocacy for the profession and for health-related issues (Auld & Dixon-Terry, 2010). As an example, the Coalition of National Health Education Organizations (CNHEO) (see Chapter 8 for more on this organization) sponsors the Health Education Advocate Web site (see the Weblink at the end of this chapter for the URL for this site). This site provides health education specialists with an easy link to contact their legislators whenever health education/promotion-related bills or concerns are considered by Congress.

If health education/promotion is going to create lasting change, then those in the priority population must be empowered as a result of the health education/promotion programming. **Empowerment** is a “social action process for people to gain mastery over their lives and the lives of their communities” (Minkler, Wallerstein, & Wilson, 2008, p. 294). Empowerment can take place at the individual, the organization or group, and the community level. Often, empowerment at one level can influence empowerment at the other levels. An example of empowerment occurred in Indiana—a community with a significantly high rate of obesity and cancer, which have been linked to a lack of physical activity. The Indiana Complete Streets Coalition formed to ensure that communities throughout Indiana have neighborhoods, public spaces, and transportation systems that can support physical activity and healthy living. As a result, individuals and families have been empowered to improve their health because they now live in neighborhoods where it is possible to walk and bike safely (CDC, 2016c). Social media is one growing strategy being used by health education specialists to advocate and empower individuals and communities. **Social media** is any type of “media that uses the Internet and other technologies to allow for social interaction” (McKenzie et al., 2012, p. 448). Social media tools can include such things as online video sharing (e.g., YouTube), social networks (e.g., Facebook and Twitter), text messaging, podcasts, virtual worlds, blogs, and podcasts. The use of social media tools is a “powerful channel to reach target audiences with strategic, effective, and user-centric health interventions” (CDC, 2015d, ¶1). Because the Internet allows for a free flow of information, the CDC has developed guidelines, best practices, and toolkits for health education specialists using and developing social media materials (CDC, 2011b; CDC, 2015d). Becoming familiar with these various social media tools during your preparation as a health education specialist will prove valuable as doctors' offices, hospitals, state and local health departments, and voluntary agencies are using these tools to communicate with patients, volunteers, employees, and the general public.

There are many factors that impact the effectiveness of health education/promotion programming. Because of the health disparities that exist between and among the various sub-populations in the United States (Selig, Tropiano, & Greene-Moton, 2006) and because of the
increasing diversification of the U.S. population (Pérez & Luquis, 2008), much more attention has been placed on understanding the impact of culture (i.e., values, beliefs, attitudes, traditions, and customs) on health and providing culturally appropriate programs (Davis & Rankin, 2006). Cultural factors arise from guidelines (both explicit and implicit) that individuals “inherit” from being a part of a particular society, racial or ethnic group, religious community, or other group. For health education specialists to be effective in a variety of communities, they need to strive to be culturally competent (Davis & Rankin, 2006; Luquis, Pérez, & Young, 2006; Selig et al., 2006). Cultural competence is “a developmental process defined as a set of values, principles, behaviors, attitudes, and policies that enable health professionals to work effectively across racial, ethnic and linguistically diverse populations” (Joint Committee, 2012, p. 16). Both health education specialists and the community health agencies providing health education/promotion programs need “to be able to communicate with different communities and understand how culture influences health behaviors” (McKenzie & Pinger, 2013, p. 198).

Summary

This introductory chapter presented many of the basic principles of the profession of health education/promotion including definitions of many of the key words and terms used in the profession, including health, health education, health promotion, disease prevention, community health, global health, population health, and wellness; a look at the current status of health education/promotion; an explanation of how health or health status has been measured, including mortality rates, life expectancy, YPLL, DALYs, HRQOL, and health surveys; an outline of the goal and purpose of the profession; the practice of health education/promotion, including planning, implementing, and evaluating programs; some of the basic underlying concepts and principles of the profession, including the health field concept, determinants of health, social determinants of health, levels of prevention, risk factors, and health risk reduction via understanding disease; and the principles of participation, ecological approach, advocacy, empowerment, social media, and cultural competence.

Review Questions

1. Define health, health education, health promotion, disease prevention, public health, community health, global health, population health, and wellness.
2. What is the status of health education/promotion?
3. Explain each of the following means of measuring health or health status:
   - Mortality rates. What is the difference among crude, adjusted, and specific rates?
   - Life expectancy
   - Years of potential life lost (YPLL)
   - Disability-adjusted life years (DALYs)
   - Health-related quality of life (HRQOL)
   - Health surveys
4. Of all the different measures of health presented in this chapter, which one do you think is the best indicator of health? Why?

5. Why are health-related data and epidemiology such an important discipline for health education/promotion?

6. In a given community with a midyear population estimate of 50,000, there were 21 deaths as a result of strokes in the year. What is the rate of stroke deaths per 100,000 population?

7. What is the goal of health education/promotion? What is its purpose?

8. What constitutes the basic practice of health education/promotion?

9. What is the difference between the leading causes of death and the actual causes of death?

10. Briefly explain the following concepts and principles of health education/promotion:
    - Health field concept; determinants of health
    - Levels of prevention
    - Risk factors
    - Health risk reduction
    - Chain of infection
    - Communicable disease model
    - Multicausation disease model
    - Selected principles of health education/promotion—participation, socio-ecological approach, advocacy, empowerment, social media, and cultural competence

Case Study

As a health education specialist with the Delaware County Health Department, Jordan has been asked by a local religious leader to give a presentation on preventing HIV and STDs to the Christian youth group (9th to 12th graders) of the community. The request has taken Jordan by surprise because for the past couple of years he has attempted to make similar presentations in the local schools but has been turned away because the superintendent said “the community was too conservative for such matters.” Knowing that at least some of the people in the community think HIV and STD prevention education is too controversial, but also knowing the information is important for youth to have, Jordan wants to make sure he prepares and delivers a program that is well received. This is finally the chance he has been waiting for to make his entry into the youth population of the community. Jordan has decided to create a presentation on HIV and STD prevention that incorporates information on both risk factors and the chain of infection. To make sure that his presentation is on target, he has asked several other employees of the health department to sit down with him and brainstorm some ideas for his presentation. He begins his session with his colleagues by asking them all to write down information they think he should include in his presentation. Assume that you are one of these other employees of the health department in this meeting. What would you include on your list for Jordan? What would you advise Jordan not to include? Why?
role playing). What do you think would be the best method to use? Why did you select this method? How long do you think Jordan's presentation should be? Why?

Critical Thinking Questions

1. In this chapter, the term public health was defined. To what extent do you think that the government, at any level, has the right to legislate good health? For example, do you think a governmental body has the responsibility (or right) to require all motorcycle drivers to wear helmets because statistics show that wearing helmets can save lives? Defend your answer.

2. If you were asked by the CDC to come up with a new measure to describe the health status of an individual, what would you include in such a measure and why?

3. If you had the opportunity to develop three new health education/promotion programs, one at each level of the three levels of prevention (primary, secondary, and tertiary) for the community in which you live, what would they be? Who would be the priority population? Why did you pick the three that you did?

Activities

1. If you have not already done so, access the government document Healthy People: The Surgeon General's Report on Health Promotion and Disease Prevention. It provides a good background on the health promotion era in the United States.

2. Write your own definitions for health, health education, and health promotion using the concepts presented in the chapter.

3. Write one paragraph for each of the following:
   - Why do you think the health field concept was so important in getting people to think about health promotion?
   - At what level of prevention do you think it would be most difficult to change health behavior? Why?

4. In a PowerPoint presentation, use the chain of infection to outline three different means for preventing the spread of HIV.

5. In a photo story, use the multicausation disease model to explain how a person develops heart disease.

Weblinks

   National Center for Health Statistics (NCHS)
   This site is a rich source of data about health in the United States and the instruments used to collect the data.
   Behavioral Risk Factor Surveillance System (BRFSS)
   The BRFSS, the world’s largest telephone survey, tracks health risks in the United States. Information from the survey is used to improve the health of U.S. citizens. At this site, you will find general information about the BRFSS, data generated by the BRFSS, copies of the data collection instruments, and more.

   Youth Risk Behavioral Surveillance System (YRBSS)
   At this site, you will find general information about the YRBSS, data generated by the YRBSS, copies of the data collection instruments, and more.

   Health Education Advocate
   The Health Education Advocate site is sponsored by the Coalition of National Health Education Organizations (CNHEO). The site was designed to provide a timely source of advocacy information related to the field of health education/promotion. Included on the site are a number of items to assist health planners with advocacy activities as well as information about how to identify and contact senators and congressional representatives, the status of specific bills, health resolutions and policy statements of sponsoring agencies, and advocacy resources.

5. https://www.thinkculturalhealth.hhs.gov/
   Think Cultural Health
   This is a page at the U.S. Department of Health and Human Services, Office of Minority Health Web site that presents information on cultural competence for health professionals. The site has a tag line of “advancing health equity at every point of contact.” Included at the site are educational programs, resources, and other materials.

   Occupational Outlook Handbook
   This is a page at the U.S. Department of Labor, Bureau of Labor Statistics Web site that provides the occupational outlook for a wide range of professions. Search for “health educators” to see short explanations of the nature of the work; training, other qualifications, and advancement; employment; job outlook and projections; earnings; wages; and sources of additional information about health education specialists.

   County Health Rankings
   This Web site presents the County Health Rankings. This site is a collaboration between the Robert Wood Johnson Foundation and the University of Wisconsin Population Health Institute.

   Teach Epidemiology
   This is a Web site sponsored by the Robert Wood Johnson Foundation that provides middle and high school teachers with ideas about how to incorporate the teaching of epidemiology into their curriculum.
References


Although the history of health education/promotion as a profession is slightly more than 100 years old, the concept of educating about health has been around since the dawn of humans. This chapter discusses the history of health, health care, and health education/promotion from the earliest human records to the present. The main focus is on Northern Africa and Europe. These areas had the greatest influence on the development of health knowledge and health care in the United States. Although other parts of the world—for example, the Far East, Africa, Central America, and South America—contributed to the history of health and health care, their accounts are not as directly relevant to the history of health in the United States.

It is important that students recognize the difference between “educating about health,” which can be done by anyone who believes he or she has knowledge about health to share with someone else, and “health education/promotion,” which is done by a professionally trained health education specialist. The need for professional health education specialists emerged as human knowledge of health and health care increased. This chapter emphasizes the health education/promotion profession during the past 150 years as it evolved from the dual roots of school health and public health. You cannot fully appreciate the health education/promotion profession without understanding its origin. History reveals how progress was made over time. It also depicts the obstacles faced by those who promoted health
improvements throughout the years. "At the same time, historical study shows us that de­
spite the difficulties, change is possible, given dedication, organization and persistence. . .
Historical case studies may be able to teach us useful lessons about successful strategies used
by public health reformers in the past" (Fee & Brown, 1997, p. 1763).

Early Humans

We assume that the earliest humans learned by trial and error to distinguish between things
that were healthful and those that were harmful. They were able to observe how animals
bathed to cool their bodies and remove external parasites, apply mud to calm insect bites,
consume certain herbs to provide medicinal benefits and avoid other herbs that were poison­
ous (Goerke & Stebbins, 1968, p. 5).

It does not stretch the imagination too far to see how education about health first took
place. Someone may have eaten a particular plant or herb and become ill. That person would
then warn (educate) others against eating the same substance. Conversely, someone may have
ingested a plant or an herb that produced a desired effect. That person would then encourage
(educate) others to use this substance. Through observation, trial, and error, other types of
health-related knowledge were discovered. Eventually, this knowledge was transformed into
rules or taboos for a given society. Rules about preserving food and how to bury the dead may
have been implemented. Perhaps taboos against defecation within the tribe’s communal area
or near sources of drinking water were established (McKenzie & Pinger, 2015). The trial and
error method, which undoubtedly produced serious illness and even death among some early
humans, gradually became less needed. Knowledge was passed verbally from one generation
to the next, preventing at least some of the potential ill effects of everyday life. As society pro­
gressed even further, this knowledge was written down and saved (see Figure 2.1).

► Figure 2.1 Preparation of medicine
from honey (the leaf from an Arabic
translation of the Materia Medica of
Dioscorides, dated 1224 Iraq, Baghdad
School)
Chapter 2 The History of Health and Health Education/Promotion

There was still much more unknown than known about protecting health. Disease and death were probably much more common than health and longevity. To early humans, it was puzzling when disease and death occurred for no apparent reason. In an attempt to make these events seem more rational, early man often attributed disease and accidents to magical spirits, which were believed to live in trees, animals, the earth, and the air. When these spirits were angered they would punish individuals or communities with disease and death (Goerke & Stebbins, 1968). To prevent disease, sacrifices were made to please the gods, taboos were obeyed, amulets were worn, and “haunted” places were avoided. Charms, spells, and chants were also used to protect from disease (Duncan, 1988). Again, it is likely that some form of rudimentary education about health was taking place to inform people how to keep from provoking the spirits and, thus, prevent disease.

Early Efforts at Public Health

Evidence of broad-scale public health activity has been found in the earliest of civilizations. In India, sites excavated at Mohenjo-Daro and Harappa dating back 4,000 years indicate that bathrooms and drains were common. The streets were broad, paved, and drained by covered sewers (Rosen, 1958). Archeological evidence also shows that the Minoans (3000–1430 B.C.E.)

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**The Rights and Duties of the Surgeon of 2080 B.C.E.: From the Code of Hammurabi**

"If a physician operate on a man for a severe wound (or make a severe wound upon a man), with a bronze lancet, and save the man’s life; or if he open an abscess (in the eye) of a man, with a bronze lancet, and save the man’s eye, he shall receive ten shekels of silver (as his fee)."

"If he be a freeman,* he shall receive five shekels."

"If it be a man’s slave, the owner of the slave shall give two shekels of silver to the physician."

"If a physician operate on a man for a severe wound, with a bronze lancet, and cause the man’s death; or open an abscess (in the eye) of a man with a bronze lancet, and destroy the man’s eye, they shall cut off his hands."

"If a physician operate on a slave of a freeman for a severe wound, with a bronze lancet, and cause his death, he shall restore a slave of equal value."

"If he open an abscess (in his eye), with a bronze lancet, and destroy his eye, he shall pay silver to the extent of one half of his price."

"If a physician set a broken bone for a man or cure his diseased bowels, the patient shall give five shekels of silver to the physician."

"If he be a freeman, he shall give three shekels."

"If it be a man’s slave, the owner of the slave shall give two shekels of silver to the physician."

"If a veterinary physician operates on an ox or ass for a severe wound and save its life, the owner of the ox or ass shall give the physician, as his fee, one sixth of a shekel of silver."

"If he operate on an ox or an ass for a severe wound, and cause its death, he shall give to the owner of the ox or ass one fourth its value."

*Freeman indicates a rank intermediate between that of “man” (or gentleman) and that of “slave.”

and Myceneans (1430–1150 B.C.E.) built drainage systems, toilets, and water flushing systems (Pickett & Hanlon, 1990). The oldest written documents related to health care are the Smith Papyri, dating from 1600 B.C.E., which describe various surgical techniques. The earliest written record concerning public health is the Code of Hammurabi (see Box 2.1), named after the king of Babylon. It contained laws pertaining to health practices and physicians, including the first known fee schedule (Rubinson & Alles, 1984).

Early Cultures

The medical lore of the distant past was handed down from generation to generation. In virtually every culture for which there are documented historical accounts, people turned to some type of a physician or medicine man for health information (education about health), treatments, and cures (Green & Simons-Morton, 1990). In Egypt, as in many other cultures, this role was held by the priests. Eventually, the various incantations, spells, exorcisms, prescriptions, and clinical observations were compiled into written format, some of which survive in our museums and libraries (Libby, 1922).

The Egyptians made substantial progress in the area of public health. They possessed a strong sense of personal cleanliness and were considered to be the healthiest people of their time (see Figure 2.2). They used numerous pharmaceutical preparations and constructed earth privies for sewage, as well as public drainage pipes (Pickett & Hanlon, 1990). Nevertheless, they relied primarily on priests for their health information and used remedies such as “dung of the gazelle and the crocodile, the fat of a serpent, mammalian entrails and other excreta, tissues and organs” (Libby, 1922, p. 6).

In approximately 1500 B.C.E., the Hebrews extended Egyptian hygienic thought and formulated (in the biblical book of Leviticus) what is probably the world’s first written hygienic code. It dealt with a variety of personal and community responsibilities, including cleanliness of the body, protection against the spread of contagious diseases, isolation of lepers, disinfection of dwellings after illness, sanitation of campsites, disposal of excreta and refuse,
protection of water and food supplies, and specific hygiene rules for menstruating women and women who had recently delivered a child.

The history of health and health care in the Greek culture (1000-400 B.C.E.) is intriguing as well as relevant to modern healthcare philosophy. The Greeks were perhaps the first people to put as much emphasis on disease prevention as they did on the treatment of disease conditions. Balance among the physical, mental, and spiritual aspects of the person was emphasized. Among the early Greeks, religion played an important role in health care. However, the role of physician began to take on a more defined shape, and a more scientific view of medicine emerged.

In the early stages of Greek culture, as represented in the Iliad and the Odyssey, the priesthood played a role in the healing arts. In the Iliad, Asclepius was a Thessalian chief who had received instruction in the use of drugs. By the beginning of the eighth century B.C.E., tradition had enshrined him as the god of medicine. He had two daughters who also had health-related powers. Hygeia was given the power to prevent disease, whereas Panacea was given the ability to treat disease. Hygeia was the more prominent figure and was often pictured with her father in sculptures and illustrations of the time (Schouten, 1967) (see Figure 2.3). The words hygiene and panacea can be traced back to these daughters of Asclepius (Libby, 1922).

Eventually, hundreds of elaborate temples were built throughout Greece to worship Asclepius. These temples were typically on beautiful sites overlooking the sea or beside healing fountains. The temple priests practiced their healing arts, which often involved fraud. The temple priests should not be confused with the Asclepiads. The Asclepiads were a brotherhood of men present at the temples who initially claimed descent from Asclepius. Although some of the Asclepiads probably helped the priests with their trickery, others broke away from
the priests and began to practice medicine based on more rational principles. These ancient temples of Asclepius left their symbol as a permanent reminder of the past—the staff and serpent of the physician, known as the caduceus (Rubinson & Alles, 1984) (see Figure 2.4).

The famous Greek physician Hippocrates came from the Asclepian tradition. He lived from about 460 B.C.E. until 375 B.C.E. (See Figure 2.5.) Hippocrates developed a theory of disease causation consistent with the philosophy of nature held by leading philosophers of his
Hippocrates taught that health was the result of balance, and disease was the result of an imbalance. To the Greeks, the ideal person was perfectly balanced in mind, body, and spirit. Thus, study and practice related to philosophy, athletics, and theology were all important to maintain balance. To do this, however, took a tremendous commitment of time and energy. Each day required physical activity, study, and philosophical discussion while maintaining proper nutrition and rest. Few people could afford to lead such a life. Those who did were the aristocratic upper class leading a life of leisure supported by a slave economy (Rosen, 1958). The ideal Greek human being that is so often mentioned was, in fact, a small percentage of the Greek population.

Hippocrates holds an important place in the history of medicine. His theory of health and disease was still being taught in medical schools as a valid theory of disease causation as recently as the first quarter of the 20th century. Hippocrates, however, did more than just theorize about disease. He carefully observed and recorded associations between certain diseases and such factors as geography, climate, diet, and living conditions. Duncan (1988) noted, “One of his [Hippocrates’s] most noteworthy contributions is the distinction between ‘endemic’ diseases, which vary in prevalence from place to place, and ‘epidemic’ diseases, which vary in prevalence over time” (p. 12). The traditional Hippocratic Oath is still used today and is the basis for medical ethics. Hippocrates and the Asclepiads moved health care away from religion and priests and attempted to establish a more rational basis to explain health and disease. Hippocrates’s concept of balance in life is still promoted today as the best means for maintaining health and well-being.

Hippocrates has been credited as being the first epidemiologist and the father of modern medicine (Duncan, 1988). It is not hard to imagine that he was also a health educator. One can easily see Hippocrates educating his friends and patients about diet, exercise, rest, and the importance of balance in preventing disease and promoting health.

The Romans conquered the Mediterranean world, including the Greeks. In doing so, however, the Romans did not destroy the cultures they conquered but learned from them. The Romans accepted many Greek ideas, including those related to health and medicine. “As clinicians, the Romans were hardly more than imitators of the Greeks, but as engineers and administrators, as builders of sewerage systems and baths, and as providers of water supplies and other health facilities, they set the world a great example and left their mark in history” (Rosen, 1958, p. 38). (See Figure 2.6.)

The Roman Empire (500 B.C.E.–C.E. 500) built an extensive and efficient aqueduct system. Evidence of some 200 Roman aqueducts remains today, from Spain to Syria and from Northern Europe to North Africa (McKenzie & Pinger, 2015). The total capacity of the 13 aqueducts delivering water to the city of Rome has been estimated at 222 million gallons every 24 hours. At the height of the Empire this would have been enough to provide each citizen of Rome with at least 40 gallons of fresh water per day. Additionally, attention was paid to water purity. At specific points along the aqueduct, generally near the middle and end, settling basins were located, in which sediment might be deposited (Rosen, 1958).

The Romans also developed an extensive system of underground sewers. These served to carry off both surface water and sewage. The main sewer in Rome that emptied into the Tiber River was 10 feet wide and 12 feet high; it was still part of the Roman sewer system during the 20th century.

The Romans made other health advancements. They observed the effect of occupational hazards on health; and they were the first to build hospitals. By the second century C.E., a
A Figure 2.6 Roman aqueducts

public medical service was set up whereby physicians were appointed to various towns and institutions. A system of private medical practice also developed during the Roman era (Rosen, 1958).

The Romans furthered the work of the Greeks in the study of human anatomy and the practice of surgery. Some Roman anatomists even dissected living human beings to further their knowledge of anatomy (Libby, 1922). In quoting the Latin writer Cornelius, Libby noted that these anatomists "procured criminals out of prison, by royal permission, and dissecting them alive, contemplated, while they were still breathing, the parts which nature had before concealed, considering their position, color, figure, size, order, hardness, softness, smoothness, and asperity" (Libby, 1922, p. 54). Although some opposed this hideous practice, others supported it, holding "it is by no means cruel as most people represent it, by the tortures of a few guilty, to search after remedies for the whole innocent race of mankind in all ages" (Libby, 1922, p. 54).

Middle Ages

The era from the collapse of the Roman Empire to about C.E. 1500 is known as the Middle Ages or Dark Ages. This was a time of political and social unrest, when many health advancements of previous cultures were lost. Rosen (1958) notes that, "the problem that confronted the medieval world was to weld together the culture of the barbarian invaders with the classical heritage of the defunct Roman Empire and with the beliefs and teachings of the Christian religion" (p. 52). This proved to be no easy task.

With the Roman Empire no longer able to protect settlements, each city had to defend itself against its enemies. For safety, people lived within city walls along with their domesticated animals. As the population grew, expansion was difficult and overcrowding common (Rosen, 1958). Lack of fresh water and sewage removal were major problems for many medieval cities; Roman public health advancements were lost.
To make matters worse, there was little emphasis on cleanliness or hygiene. The new religion, Christianity,
found its disciples among the lower classes, where personal hygiene was not practiced, and as a consequence, an entirely different attitude toward the human body developed. Excessive care of the body, that is, man's earthly and mutable part, was unimportant in the Christian dualistic concept, which separated body from soul. For some Eastern churchmen and holy men, living in filth was regarded as evidence of sanctity: cleanliness was thought to betoken pride, and filthiness humility. (Goerke & Stebbins, 1968, p. 9)

Fortunately, as Christianity matured so did its concept of the human body. Eventually, Christians came to believe that the body is the soul's earthly dwelling; thus, permitting better care of it.

Early Christians also reinforced the notion that disease was caused by sin or disobeying God. This propelled priests and religious leaders back into the position of preventing and treating disease. The health-related advancements of the Greco-Roman era were abandoned and shunned. Entire libraries were burned, and knowledge about the human body was seen as sinful.

The Middle Ages were characterized by great epidemics. Perhaps the cruelest of these was leprosy, a disease characterized by severe facial and extremity disfigurement. A highly contagious and virulent disease, all Western countries issued edicts against anyone suspected of having leprosy and regulated every aspect of the sufferer's life. In some communities, lepers were given the last rites of the church, forced to leave the city, made to wear identifying clothing, and required to carry a rod identifying them as lepers. Other lepers were forced to wear a bell around their necks and to ring it as a warning when other people came near. Such isolation usually brought about a relatively quick death resulting from hunger and exposure (Goerke & Stebbins, 1968). Eventually, leprosy hospitals were founded to treat the afflicted. It has been estimated that by C.E. 1200, there were 1,900 leper houses and leprosaria in Europe (Rosen, 1958).

The bubonic plague, known as the Black Death, may have been the most severe epidemic the world has ever known. The death toll was higher and the disruption of society greater than from any war, famine, or natural disaster in history. "At Constantinople, the plague raged with such violence that 5,000, and even 10,000 persons are said to have died in a single day" (Donan, 1898, p. 94). Estimates of casualties vary from 20 to 35 million, with Europe losing one quarter to one third of its entire population. In Avignon, France, 60,000 people died. As a result, the pope was forced to consecrate the Rhone River so that bodies might be thrown into it, because the churchyards were filled (Goerke & Stebbins, 1968).

Imagine what it must have been like to live through the plague. Literally one out of every three or four people you knew contracted the disease and died. The cause of the disease was unknown, creating widespread fear and superstition. Often, religious leaders and doctors were some of the first victims. They were exposed to the disease early in the epidemic through their contact with infected sufferers. This left many communities with no religious or medical leadership.

People reacted to the plague in different ways. Some became extremely pious, turned away from earthly pleasures, and practiced extreme self-denial in hopes of pleasing God. Others took the opposite approach, lost faith in God, and disregarded legal, moral, and sexual restraints (Goerke & Stebbins, 1968). The Brotherhood of the Flagellants was a group of religious
zealots who believed the plague could be avoided by admitting to their sins and then ritualistically beating themselves in atonement. Today, such a group would most likely be labeled a religious cult. Members of this group marched in long, two-column lines from city to city. In each city, they would chant a litany and conduct their ritualistic ceremony. At a signal from the group’s master, the Flagellants would strip to the waist and march in a circle until they received another signal from the master. Upon receiving the second signal, they would throw themselves to the ground with their body position indicating the specific sin they had committed. The master would move among the bodies, thrashing those who had committed certain sins or had offended the discipline of the Flagellants in some way. This would be followed by a collective flagellation in which the group members would rhythmically beat their own backs and breasts with a heavy scourge made of three or four leather thongs tipped with metal studs. According to eyewitness accounts, the Flagellants lashed themselves until their bodies became swollen and blue, and blood dripped to the ground. Further complicating the health consequences of such punishment was a rule prohibiting bathing, washing, or changing clothes. When joining the Brotherhood, group members had to pledge to scourge themselves three times daily for 33 days and eight hours, which represented one day for each year of Christ’s earthly life (Ziegler, 1969). In other words, to complete the Flagellant pledge, one would have to undergo the ritualistic beating 100 times.

Debate existed during the Middle Ages concerning the cause of the plague. In 1348, Jehan Jacme wrote that the disease was caused by five factors: (1) the wrath of God, (2) the corruption of dead bodies, (3) waters and vapors formed in the interior of the earth, (4) unnatural hot and humid winds, and (5) the conjunction of stars and planets (Winslow, 1944).

Another story concerning the origins of the disease had Italian merchants trapped in a city on the Black Sea that was under siege by a local Mongol prince. The prince was forced to call off the siege because large numbers of his army were dying of a strange disease. Before leaving, the prince ordered his army to catapult the dead, diseased bodies into the city. Within days, the people inside the city began to die. Afraid, the Italian merchants set sail for Italy, but not before infected rats had boarded the ship. Soon many of the sailors became sick. The ship tried to dock in several cities but was denied permission because of the illness. Finally permission was granted to dock in Sicily where the rats came on shore and the plague began (De’ath, 1995).

Despite the disagreement that existed on the cause of the disease, contemporaries believed that the disease was contagious. In other words, it was passed from person to person in some unknown way. Although this concept of contagion had been around for many years and was discussed in the Bible, it was not until the Middle Ages and the epidemics of leprosy and bubonic plague that it started to become more universally accepted. The contagion concept opened the door to new interest in science and severely weakened the argument of those promoting the sin-disease theory.

The Middle Ages also saw epidemics of other communicable diseases, including smallpox, diphtheria, measles, influenza, tuberculosis, anthrax, and trachoma. The last major epidemic disease of this period was syphilis, which appeared in 1492. As with other epidemics, syphilis killed thousands of people (McKenzie & Pinger, 2015).

Although there were no professional health education specialists during the Middle Ages, education about health continued to exist. Priests, medical doctors, and community leaders attempted to “educate” anyone who would listen to their ideas about health and disease
prevention. Given the rudimentary level of health knowledge and the lack of consensus on prevention and causation of disease, a professional health education specialist would probably have contributed little to the general population’s health in the Middle Ages.

Renaissance

The Renaissance, which means “rebirth,” lasted roughly from C.E. 1500 to 1700. This time period was characterized by a gradual change in thinking. People began to view the world and humankind in a more naturalistic and holistic fashion. Although progress was slow, science again emerged as a legitimate field of inquiry, and numerous scientific advancements were made. The world did not change overnight from the superstitious and backward beliefs of the Dark Ages to a completely enlightened society in the Renaissance. Disease and plague still ravaged Europe and overall medical care was still rudimentary. Bloodletting was a major form of treatment for everything from the common cold to tuberculosis. Popular remedies included crabs’ eyes, foxes’ lungs, oil of anise, oil of spiders, and oil of earthworms. A major means of diagnosing a patient’s condition consisted of examining the urine for changes in color. The inspection of a patient’s urine by a true physician was known as “water casting.” For many years, this was the principal diagnostic test of the medical profession.

Much surgery and dentistry was performed by barbers because they had the best chairs and sharpest instruments available. Some barbers dispensed health information, as can be seen in the following example from a Danish barber-surgeon: “It is very good for persons to drink themselves intoxicated once a month for the excellent reasons that it frees their strength, furthers sound sleep, eases the passing of water, increases perspiration, and stimulates general well-being” (Durant, 1961, pp. 495–496). Unfortunately, few were probably moderate enough to restrict their binges to once a month.

Rosen (1958) notes that, although the Renaissance “is characterized by the rapid growth and spread of science in various fields, public health as a practiced activity received very little, if any, direct benefit from these advances” (p. 84). Evidence of the poor public health conditions can be seen in this note describing the average English household floor of the 16th century:

As to floors, they are usually made with clay, covered with rushes that grow in the fens and which are so seldom removed that the lower part remains sometimes for twenty years and has in it a collection of spittle, vomit, urine of dogs and humans, beer, scraps of fish and other filthiness not to be named. (Pickett & Hanlon, 1990, p. 25)

Although living conditions among the English royalty were certainly better than for those of the laboring class, health-related problems were still prevalent. Disposal of human waste was a major problem. Those who lived in old castles located their latrines in large projections on the face of walls. The excrement was discharged from these projections into deep-walled pits, moats, or streams near the walls of the castle. Those less fortunate used chamber pots and simply tossed their contents out the nearest window. Even among royalty, basic hygiene left much to be desired. Few monarchs bathed more frequently than once a week. Much of the material used in royal apparel, such as silk, velvet, and ermine, could not be washed; thus, it simply accumulated dirt and perspiration. Cloaking scents were used to try to renew the clothing, but they were not effective (Hansen, 1980).
On the positive side, the Renaissance was a period of exploration and expanded trade. The search for knowledge, characteristic of the Greek and Roman eras, was revitalized. Superstitions of the Middle Ages were slowly replaced with a more systematic inquiry into cause and effect. In the middle of the 15th century, learning gained momentum as a result of Johannes Gutenberg’s invention of the printing press with moveable type. This allowed the great classical works of Hippocrates and Galen to be reproduced and distributed to larger audiences (Gordon, 1959).

There were also scientific advancements during the Renaissance. The human body was again considered appropriate for study, and realistic anatomical drawings were produced. John Hunter, the father of modern surgery, undertook a more orderly exploration of the workings of the human body. Antonie van Leeuwenhoek discovered the microscope and proved there were life forms too small for the human eye to see. These life forms, however, were not yet associated with disease. John Graunt forwarded the fields of statistics and epidemiology. Through studying the Bills of Mortality, published weekly in London, Graunt found more males than females were born, higher death rates during the first years of life than later in life, and higher death rates among urban dwellers than rural dwellers (Goerke & Stebbins, 1968).

In Italy, many cities had instituted health boards to fight the plague. It did not take long, however, for their responsibilities to be expanded. By the middle of the 16th century, numerous matters had fallen under the control and jurisdiction of these health boards. These included “the marketing of meat, fish, shellfish, game, fruit, grain, sausages, oil, wine and water; the sewage system; the activity of the hospitals; beggars and prostitutes; burials, cemeteries, and pesthouses; the professional activity of physicians, surgeons and apothecaries; the preparation and sale of drugs; the activity of hostelries and the Jewish community” (Cipolla, 1976, p. 32).

Age of Enlightenment

The 1700s were a period of revolution, industrialization, and growth of cities. Both the French and American Revolutions took place during this century. Plague and other epidemics continued to be a problem. Science had not yet discovered that these diseases were produced by microscopic organisms. The general belief was that disease was formed in filth and that epidemics were caused by some type of poison that developed in the putrefaction process. The vapors, or “miasmas,” rising from this rotting refuse could travel through the air for great distances and were believed to result in disease when inhaled. This concept, known as the miasmas theory, remained popular throughout much of the 19th century. As preventive measures, herbs and incense were often used to perfume the air, supposedly filling the nose and crowding out any miasmas (Duncan, 1988). It was still not known that contaminated water could cause disease infection.

Scientific advancements continued throughout the period. Dr. James Lind, a Royal Navy surgeon, discovered that scurvy could be controlled on long sea voyages by having sailors consume lime juice. To this day, British sailors are known as “limeys.” Edward Jenner discovered a vaccine procedure against smallpox. Bernardino Ramazzini wrote on trade and industrial diseases. Theorists of the time conceived of the mind and body not as separate entities, but as dependent on each other. Philosophers of the 18th century, such as Diderot, Locke, Rousseau, and Voltaire, all “promoted the worth of each human life and the importance of individual health for the well being of society” (Rubinson & Alles, 1984, p. 5).
Although progress was made during this time, health education/promotion in itself still did not emerge as a profession. With the rudimentary state of medical knowledge in the 16th, 17th, and 18th centuries, there would have been little for a health education specialist to do other than promote the misconceptions and half-truths that predominated during the time period. However, health boards, the forerunner of today’s health departments, did develop as scientific and medical knowledge increased. The roots of modern health education/promotion were planted, and the first sprouts would soon emerge.

The 1800s

In the first half of the 1800s, little happened to improve the public’s health. In England, the streets of London were filthy with animal and human waste. Overcrowding and industrialization added to the problem. These conditions, under which so many people lived and worked, had dire results. Smallpox, cholera, typhoid, tuberculosis, and many other diseases reached high endemic levels (Pickett & Hanlon, 1990).

In 1842, a momentous event occurred in the history of public health when Edwin Chadwick published his *Report on an Inquiry into the Sanitary Conditions of the Labouring Population of Great Britain*. In the report, he documented the deplorable living conditions of Britain’s laboring class, made a strong case that these conditions were the cause of much disease and suffering, and called for government intervention. This report eventually led to the formation of a General Board of Health for England in 1848 (Goerke & Stebbins, 1968).

Extraordinary advancements in biology and bacteriology took place by the middle of the 19th century in England and throughout Europe. In 1849, Dr. John Snow, who laboriously studied epidemiological data related to a cholera epidemic in London, hypothesized that the disease was caused by microorganisms in the drinking water from one particular water pump located on Broad Street (see Figure 2.7). He removed the pump’s handle to keep people from using the water source, and the epidemic abated. Snow’s action was remarkable because it predated the discovery that microorganisms cause disease and was in opposition to the prevailing miasmas theory of the time (Johnson, 2006).

Figure 2.7 By removing the handle of this pump, which is still in place on Broad Street in London, John Snow interrupted a cholera epidemic.
In 1862, Louis Pasteur of France proposed his germ theory of disease. After this, advancements in bacteriology greatly accelerated. Over the next 20 years, Pasteur discovered how microorganisms reproduce, introduced the first scientific approach to immunization, and developed a technique to pasteurize milk. Robert Koch, a German scientist, developed the criteria and procedures necessary to establish that a particular microbe, and no other, caused a particular disease. Joseph Lister, an English surgeon, developed the antiseptic method of treating wounds by using carbolic acid, and he introduced the principle of asepsis to surgery. These are just a few of the tremendous advancements in bacteriology made during the second half of the 19th century. As a result, the years from 1875 to 1900 became known as the bacterial period of public health (McKenzie & Pinger, 2015).

Public Health in the United States

1700s

During the 1700s, health conditions in the United States were similar to those in Europe—deplorable. Diseases such as smallpox, cholera, and diphtheria were prevalent. Because of the slave trade, diseases such as yaws, yellow fever, and malaria were common in southern states (Marr, 1982). Large numbers of immigrants were entering the ports, cities were growing, overcrowding was common, and the Industrial Revolution was about to begin.

The primary means of controlling disease were quarantine and regulations on environmental cleanliness. For example, as early as 1647, the Massachusetts Bay Colony enacted regulations to prevent pollution of Boston Harbor. In 1701, Massachusetts passed laws allowing for the isolation of smallpox patients and for ship quarantine, as needed. However, there was no overseeing body or agency to enforce compliance.

In an attempt to address health problems, some cities formed local health boards (Pickett & Hanlon, 1990). Prominent citizens who advised elected officials on health-related matters made up these boards. They had no paid staff, no budget, and no authority to enforce regulations. According to tradition, the first health board was formed in Boston in 1799, with Paul Revere as chairman. This is contested, however, by other cities claiming earlier health boards, including Petersburg, Virginia (1780), Baltimore (1793), Philadelphia (1794), and New York (1796).

Life expectancy is one measure of health status for a given population. It is defined as “the average number of years a person from a specific cohort is projected to live from a given point in time” (McKenzie & Pinger, 2015, p. 608). The first life expectancy tables were developed for the United States in 1789 by Dr. Edward Wigglesworth (Ravenel, 1970). Table 2.1 shows Wigglesworth’s table. It provides strong evidence of the prevailing health conditions. In 1789, life expectancy at birth was only 28.15 years. By 2020, the projected life expectancy at birth in the United States will be 79.5 years (U.S. National Center for Health Statistics, 2009).

1800s

From 1800 to 1850, health status improved little. Conditions of overcrowding, poverty, and filth worsened as the Industrial Revolution encouraged more and more people to move to the cities. Epidemics of smallpox, yellow fever, cholera, typhoid, and typhus were common. Tuberculosis and malaria reached exceptionally high levels. For example, in 1850, the Massachusetts tuberculosis death rate was 300 per 100,000 population, and the infant
Table 2.1 Expectation of life according to Wigglesworth life table—1789

<table>
<thead>
<tr>
<th>Expectation</th>
<th>Years</th>
<th>Expectation</th>
<th>Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>At birth</td>
<td>28.15</td>
<td>At age 50</td>
<td>21.16</td>
</tr>
<tr>
<td>At age 5</td>
<td>40.87</td>
<td>At age 55</td>
<td>18.35</td>
</tr>
<tr>
<td>At age 10</td>
<td>39.23</td>
<td>At age 60</td>
<td>15.43</td>
</tr>
<tr>
<td>At age 15</td>
<td>36.16</td>
<td>At age 65</td>
<td>12.43</td>
</tr>
<tr>
<td>At age 20</td>
<td>34.21</td>
<td>At age 70</td>
<td>10.06</td>
</tr>
<tr>
<td>At age 25</td>
<td>32.32</td>
<td>At age 75</td>
<td>7.83</td>
</tr>
<tr>
<td>At age 30</td>
<td>30.24</td>
<td>At age 80</td>
<td>5.85</td>
</tr>
<tr>
<td>At age 35</td>
<td>28.22</td>
<td>At age 85</td>
<td>4.57</td>
</tr>
<tr>
<td>At age 40</td>
<td>26.04</td>
<td>At age 90</td>
<td>3.73</td>
</tr>
<tr>
<td>At age 45</td>
<td>23.92</td>
<td>At age 95</td>
<td>1.62</td>
</tr>
</tbody>
</table>


Mortality was about 200 per 1,000 live births. Conditions were so bad that life expectancy actually decreased in some cities during this period of time. In Boston, the average age at death dropped from 27.85 years in 1820-1825 to 21.43 in 1840-1845. In New York during the same period, the average age of death decreased from 26.15 to 19.69 (Shattuck, 1850).

Public health reform in the United States was slow to begin. Interestingly, a major report helped jump-start the public health reform movement in the United States, just as Chadwick’s landmark 1842 report stimulated public health reform in Britain. Lemuel Shattuck’s 1850 Report of the Sanitary Commission of Massachusetts contained remarkable insights about the public health issues of Massachusetts, including how to approach and solve these problems. Shattuck was a bookseller and publisher from Boston. He retired early at age 46 and dedicated the remainder of his life to his interest in community affairs (American Public Health Association [APHA], 1959). His report is remarkable because no national or state public health programs existed at the time, and local health agencies that did exist were functioning at a minimal level. Shattuck visualized how to improve the public’s health through the initiation of state and local level health departments. “Of the 50 recommendations which Shattuck listed, 36 have become accepted principles of public health practice” (Goerke & Stebbins, 1968, p. 28). Among his many recommendations were the keeping of vital statistics, environmental sanitation, control of food and drugs, teaching prevention and sanitary science in medical schools, smoke control in cities, control of alcoholism, the supervision of mental disease, exposure of nostrums, preaching health from pulpits, routine physical exams, and the establishment of nurse training schools (APHA, 1959; Pickett & Hanlon, 1990).

The publication of Shattuck’s report did not mean an end to the public health problems in the United States. In fact, the report went largely unnoticed for 19 years until 1869, when the Commonwealth of Massachusetts established a state board of health made up of physicians and laymen exactly as Shattuck had envisioned. One year later, Virginia and California formed their own state boards of health (Ravenel, 1970). By 1900, 38 states had established state boards of health. Today, every U.S. state has a state board or department of health.

Despite the formation of state boards of health, these state-level agencies could not meet health needs on a more local level. With limited resources, there was simply too much to
accomplish. As a result, the first full-time county health departments were formed in Guilford County, North Carolina, and Yakima County, Washington, in 1911. Some sources have cited Jefferson County, Kentucky, as the first county health department, set up in 1908 (Pickett & Hanlon, 1990).

As states initiated boards of health, board members had to interact, communicate, and develop their skills. These needs led to the founding of the American Public Health Association (APHA). (See Chapter 8 for more APHA information.) Following a series of national conventions on quarantine held from 1857 through 1860, "Stephen Smith invited a group of 'refined gentlemen' to discuss informally the possibility of a national sanitary association" (Bernstein, 1972, p. 2). Smith's suggestion of an association for health officials and interested citizens was well received. A decision was made to establish a committee to work on a permanent organization. One year later, in 1873, the first annual meeting was held in Cincinnati, Ohio, and 70 new members were elected. Smith remained active in the association throughout his life. At the age of 99, he walked to the podium unassisted to speak at the 50th anniversary celebration of the APHA.

The federal government started a public health service that dates back to 1798, when Congress passed the Marine Hospital Service Act. Previously, sailors in the merchant marine had nowhere to turn for health care. Because they paid no local or state taxes, ill or injured sailors generally were not welcomed in port cities. The Marine Hospital Service Act required the owners of every ship to pay the tax collector 20 cents per month for every seaman they employed. This money was used to build hospitals and provide medical services in all major seaport cities (see Figure 2.8). This act "represented the first prepaid medical and hospital

\[ \text{Figure 2.8 Old Marine Hospital in Charleston, South Carolina, 1934} \]
insurance plan in the world, under the administrative supervision of what eventually became a public health agency” (Pickett & Hanlon, 1990, p. 34).

Successive legislation throughout the 19th century gradually expanded the scope of the Marine Hospital Service. In 1902, Congress retitled it the Public Health and Marine Hospital Service and gave it a definite organizational structure under the direction of the surgeon general. In 1912, “Marine Hospital” was dropped from the name, and the service became known as it is today, the U.S. Public Health Service. “The mission of the U.S. Public Health Service Commissioned Corps is to protect, promote, and advance the health and safety of our Nation” (U.S. Public Health Service, 2016). The Commissioned Corps comprises over 6,500 health professionals that proudly wear the uniform of the U.S. Public Health Service (see Figure 2.9).

In 1879, Congress created the National Board of Health. The board was composed of seven members appointed by the president, including representatives of the Army, Navy, Marine Hospital Service, and Justice Department. Its functions were to obtain information on all matters related to public health, and provide grants-in-aid to state boards of health. The National Board also provided money to university scientists for health-related research. Unfortunately, the board was short-lived. In administering quarantine functions, the board incurred opposition from state agencies and private shipping concerns. Others in positions of power were not in favor of the research grant program and felt such expenditures were extravagant. Thus, in 1882, the board’s appropriations were transferred to the Marine Hospital Service, which carried on with the quarantine functions but discontinued the grant program (U.S. Department of Health, Education, and Welfare [USDHEW], 1976).

1900 to Present

The period from 1900 to 1920 is known as the reform phase of public health (McKenzie & Pinger, 2015). During this time, urban areas expanded, and many people lived and worked in deplorable conditions. To address these concerns, federal regulations were passed concerning

Figure 2.9 Uniform of the U.S. Public Health Service.
the food industry, states passed workers' compensation laws, the U.S. Bureau of Mines and the U.S. Department of Labor were created, and the first clinic for occupational diseases was established. By the end of the 1920s, the movement for healthier workplace conditions was well established, and the average life expectancy had risen to 59.7 years.

Also during this period, the first national voluntary health agencies were formed. They were run primarily by volunteers along with a few paid staff. Each of these agencies was designed to address a specific health problem. For example, the National Association for the Study and Prevention of Tuberculosis was established in 1902, and the American Cancer Society was founded in 1913. Today, volunteer agencies continue to be important players in the prevention of disease and the promotion of health (McKenzie & Pinger, 2015). They often hire health education specialists.

The 1920s were a relatively quiet period in public health. Progress continued, but at a slower pace. However, the Public Health Education Section of the APHA was founded in 1922 (Bernstein, 1972). This is the APHA section to which most health education specialists belong. Its mission is, "To be a strong advocate for health education, disease prevention and health promotion directed to individuals, groups and communities in all activities of the Association." (APHA, 2016).

The need for health education/promotion existed in the early 20th century as many questionable and fraudulent health practices were being promoted. Moore's (1923) book about public health in the United States included two chapters on questionable and unreliable health activities. One of the most interesting examples involved a cure-all product known as Tanlac. The May 11, 1917, edition of the Holyoke Daily Transcript contained Fred Wicks' testimonial in a Tanlac advertisement, as well as his obituary (Moore, 1923, pp. 173-174).

Other examples of questionable health practices abound. William Harvey Kellogg and his younger brother W. K., founders of the Kellogg cereal company, were best known in the early 1900s for the sanitarium they established and operated in Battle Creek, Michigan. The rich and famous came from all over the world to be treated at the sanitarium. Many of the treatment modalities, however, would be considered questionable and even quackery by today's standards. For example, they used some 200 different types of hydrotherapy along with therapeutic enemas, electric horses, vibrators, and cold air (Butler, Thornton, & Stoltz, 1994). However, the sanitarium did promote exercise and good nutrition as ways to prevent and treat disease. (See Figure 2.10.) The concept of prevention was again gaining prominence.

Tension between preventive medicine and curative medicine began to appear in the United States during the early 20th century. Moore (1923) related a story about a town in which public health work had banished malaria. A physician was asked how his profession had been affected by this public health advancement. He replied off-handedly, "If it hadn't been for the influenza, I'd have gone broke. That saved us" (p. 373).

In a more rational manner, Newsholme (1936) noted three reasons that treatment formed a larger part of public health efforts than prevention and why it would continue to do so in the future. First, the knowledge to prevent disease and death was only partial. Medical workers simply did not have the knowledge and skills to prevent many disease states. Second, even when knowledge to prevent disease did exist, many people did not know about it, and those that did found it difficult to make those changes necessary to prevent disease. Third, there were such a large number of sick people needing prompt medical treatment that it was difficult to focus attention on prevention. Many of the same arguments are used today to account for the emphasis on traditional medical interventions instead of prevention.
From 1930 through World War II, the role of federal government in social programs expanded. Prior to the Great Depression, medical services were self funded or funded by relatives and friends, as well as by religious organizations and some voluntary agencies. During the Depression, however, private resources could not meet the demands of those requiring assistance. In 1933, President Franklin D. Roosevelt created numerous agencies and programs as part of his New Deal, which improved the plight of the disadvantaged. Much of the money was used for public health efforts, including the control of malaria, the building of hospitals, and the construction of municipal water and sewage systems.

The Social Security Act of 1935 was a real milestone and the beginning of the federal government’s involvement in social issues, including health. The act provided support for state health departments and their programs. Funding was made available to develop sanitary facilities and to improve maternal and child health.

Two major public health agencies were formed at this time. On May 26, 1930, the Ransdell Act converted the Hygienic Laboratory to the National Institute of Health, with a broad mandate to learn the cause, prevention, and cure of disease (USDHEW, 1976). The National Institutes of Health, as it is called today, is now one of the premiere—if not the premiere—medical research facilities in the world. In 1946, the Communicable Disease Center was established in Atlanta, Georgia. Now called the Centers for Disease Control and Prevention (CDC), it is one of the world’s leading epidemiological centers. (See Figure 2.11.) The CDC is also a major training facility for health communications and educational methods (Pickett & Hanlon, 1990). The CDC’s vision for the 21st century is “Health Protection . . . Health Equity” (CDC, 2016f). Its mission is “Collaborating to create the expertise, information, and tools that people and communities need to protect their health—through health promotion, prevention of disease, injury and disability, and preparedness for new health threats” (CDC, 2016f).

Following World War II, concern rose over the number of healthcare facilities and the adequacy of the care they provided. In 1946, Congress passed the National Hospital Survey and Construction Act, also known as the Hill-Burton Act, to improve the distribution and enhance the quality of hospitals. From the passage of the Hill-Burton Act through the 1960s,
new hospital construction occurred rapidly. Little thought, however, was given to planning. As a result, hospitals were built too close together and provided overlapping and unnecessary services (McKenzie & Pinger, 2015).

In 1954, Dr. Mayhew Derryberry, the first chief of health education in the federal government, noted, “The health problems of greatest significance today are the chronic diseases . . . . The extent of chronic diseases, various disabling conditions, and the economic burden that they impose have been thoroughly documented” (Voices From the Past, 2004, p. 368). Before the 1950s, the major emphasis of public health had been on communicable or contagious diseases. However, through improved public health services, medical care, and immunization programs, many contagious diseases no longer threatened as they once had, and the focus shifted ever so slowly to the prevention of chronic diseases. Derryberry predicted how this change of focus would impact health education: “Health education and health educators will be expected to contribute to the reduction of the negative impact of such major health problems as heart disease, cancer, dental disease, mental illness and other neurological disturbances, obesity, accidents and the adjustments necessary to a productive old age” (Voices From the Past, 2004, p. 368). Although the seed may have been planted for health education specialists to play a greater role in the prevention of chronic diseases, it was not until the 1970s that the seed finally sprouted.
In 1965, the federal government again passed major legislation designed to improve the health of the U.S. population. Although major improvements were made in health facilities and the quality of health care, there were still many underserved people. Most of these people were either poor or elderly. In response, Congress passed the Medicare and Medicaid bills as amendments to the Social Security Act of 1935. Medicare was created to assist in the payment of medical bills for the elderly, whereas Medicaid did the same for the poor. These bills provided medical care for millions of people who could not otherwise have obtained such services.

It was evident by the 1970s that disease prevention held the greatest potential for improving Americans’ health and reducing healthcare costs. The first national effort to promote the health of citizens through a more preventive approach took place in Canada. In 1974, the Canadian Ministry of Health and Welfare released a publication titled *A New Perspective on the Health of Canadians* (Lalonde, 1974). This document, often called the Lalonde Report, presented epidemiological evidence that supported the importance of lifestyle and environmental factors. It called for numerous national health promotion strategies that encouraged Canadians to be more responsible for their own health. (See Chapter 1 for information on the Health Field Concept associated with this publication.) The Lalonde Report influenced many U.S. health professionals to rethink current assumptions that focused on high-technology, treatment-based medicine. So important was this report that Bates and Winder (1984) likened it to a re-emergence of Hygeia and the beginning of the second public health revolution (p. 24).

**HEALTHY PEOPLE INITIATIVES AND PUBLIC HEALTH STANDARDS**

In the United States, the government publication *Healthy People* was the first major recognition of the importance of lifestyle in promoting health and well-being (U.S. Public Health Service, 1979). This publication supported a shift from the traditional medical model toward lifestyle and environmental strategies that emphasized prevention.

In 1980, *Promoting Health/Preventing Disease: Objectives for the Nation* was released. This federal document contained 226 U.S. health objectives for the United States, divided into three areas: preventive services, health protection, and health promotion. These objectives provided the framework for public health efforts during the 1980s. They allowed public health professionals to focus on key areas while providing baseline data for measuring progress (U.S. Department of Health and Human Services [USDHHS], 1980). Although not all of these objectives were met, the planning and evaluation process used to develop them became a valuable way to measure progress in U.S. health and healthcare services. This led to the practice of developing U.S. health objectives each decade. In 1990, *Healthy People 2000: National Health Promotion and Disease Prevention Objectives* was released, and in 2000, *Healthy People 2010: Understanding and Improving Health* was released.

The Healthy People initiative has evolved into an important strategic planning tool for public health professionals at the federal, state, and local levels. Formal reviews measure the progress of these objectives at mid-course (halfway through the 10-year period) and again at the end of 10 years.

*Healthy People 2020* was released in December 2010 and will guide U.S. public health practice and health education specialists for the next 10 years. The Healthypeople.gov Web site is user friendly and permits the entire report to be searched and accessed. The vision statement, mission statement, and four overarching goals of *Healthy People 2020* can be seen in
TABLE 2.2  Healthy People 2020 Vision, Mission, and Goals

<table>
<thead>
<tr>
<th>Vision</th>
<th>A society in which all people live long, healthy lives.</th>
</tr>
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<tbody>
<tr>
<td>Mission</td>
<td>Healthy People 2020 strives to:</td>
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<tr>
<td></td>
<td>• Identify nationwide health improvement priorities;</td>
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<td></td>
<td>• Increase public awareness and understanding of the determinants of health, disease, and disability, and the opportunities for progress;</td>
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<td>• Provide measurable objectives and goals that are applicable at the national, state, and local levels;</td>
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<td></td>
<td>• Engage multiple sectors to take actions to strengthen policies and improve practices that are driven by the best available evidence and knowledge;</td>
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<td></td>
<td>• Identify critical research, evaluation and data collection needs.</td>
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Overarching Goals

• Attain high quality, longer lives free of preventable disease, disability, injury, and premature death.
• Achieve health equity, eliminate disparities, and improve the health of all groups.
• Create social and physical environments that promote good health for all.
• Promote quality of life, healthy development and healthy behaviors across all life stages.


Table 2.2 (CDC, 2016a). The meat of the report includes numerous objectives spread over 42 different topic areas (see Table 2.3 on next page) (CDC, 2016e).

For Healthy People 2020 to be effective, programs must be developed and initiated to meet the established goals. This means that partner states, counties, communities, organizations, and individuals must get involved. The CDC uses a simple but powerful model to guide partners in establishing effective programs known as MAP-IT. (See Figure 2.12.) The MAP-IT model guides partners through five steps: mobilize, assess, plan, implement, and track (CDC, 2016c). It is important to note that the five MAP-IT steps are similar to four of the seven responsibilities of a health education specialist that you will learn more about later in this text (Chapter 6). The health education specialist responsibilities are to assess, plan, implement, and evaluate.

Another important initiative designed, in part, to improve the effectiveness of public health departments working on Healthy People objectives is the National Public Health Performance Standards Program (NPHPSP) (CDC, 2016d). This is a partnership initiative to develop performance standards; collect, monitor, and analyze data; and ultimately improve public health performance. It is the first time that a common, systematic strategy for measuring public health performance has been available. The goals of the program are to:

• provide performance standards for public health systems and encouraging their widespread use;

![Figure 2.12 MAP-IT](http://healthypeople.gov/2020/implement/mapit.aspx)
<table>
<thead>
<tr>
<th>TABLE 2.3 Healthy People 2020 Topic Areas</th>
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<tbody>
<tr>
<td>1. Access to Health Services</td>
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<tr>
<td>2. Adolescent Health</td>
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<tr>
<td>3. Arthritis, Osteoporosis, and Chronic Back Conditions</td>
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<td>4. Blood Disorders and Blood Safety</td>
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<td>5. Cancer</td>
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<td>6. Chronic Kidney Diseases</td>
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<td>7. Dementias, Including Alzheimer's Disease</td>
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<td>8. Diabetes</td>
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<tr>
<td>9. Disability and Health</td>
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<tr>
<td>10. Early and Middle Childhood</td>
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<tr>
<td>11. Educational and Community-Based Programs</td>
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<td>12. Environmental Health</td>
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<td>13. Family Planning</td>
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<td>14. Food Safety</td>
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<td>15. Genomics</td>
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<td>16. Global Health</td>
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<td>17. Healthcare Associated Infections</td>
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<td>18. Health Communication and Health Information Technology</td>
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<tr>
<td>19. Health-Related Quality of Life and Well-Being</td>
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<tr>
<td>20. Hearing and Other Sensory or Communication Disorders</td>
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<td>21. Heart Disease and Stroke</td>
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<td>22. HIV</td>
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<tr>
<td>23. Immunization and Infectious Diseases</td>
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<tr>
<td>24. Injury and Violence Prevention</td>
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<tr>
<td>25. Lesbian, Gay, Bisexual, and Transgender Health</td>
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<tr>
<td>26. Maternal, Infant, and Child Health</td>
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<td>27. Medical Product Safety</td>
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<td>28. Mental Health and Mental Disorders</td>
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<td>29. Nutrition and Weight Status</td>
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<td>30. Occupational Health</td>
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<td>31. Older Adults</td>
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<td>32. Oral Health</td>
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<td>33. Physical Activity</td>
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<td>34. Preparedness</td>
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<td>35. Public Health Infrastructure</td>
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<td>36. Respiratory Diseases</td>
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<td>37. Sexually Transmitted Diseases</td>
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<td>38. Sleep Health</td>
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<tr>
<td>39. Social Determinants of Health</td>
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<td>40. Substance Abuse</td>
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<td>41. Tobacco Use</td>
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<tr>
<td>42. Vision</td>
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</table>

encourage and leverage national, state, and local partnerships to build a stronger foundation for public health preparedness;

- promote continuous quality improvement of public health systems;

- strengthen the science base for public health practice improvement (CDC, 2016d).

Local and state health departments are encouraged to use these performance standard assessments to conduct their own self-assessments. Through this process, weaknesses can be identified and improvements made to enhance the overall performance of public health departments (CDC, 2016d).

HEALTH EDUCATION/PROMOTION: A RECOGNIZED PROFESSION

One more important historical event for health education/promotion occurred on October 27, 1997, when the Standard Occupational Classification (SOC) Policy Review Committee approved the creation of a new, distinct classification for the occupation of health educator (Auld, 1997/1998). Health educators had pursued this goal for more than 25 years. Health educators were previously included in the category "Instructional Coordinator," a broad, primarily education-related category that failed to consider the many varied and unique responsibilities of health educators. Approval of health education as a separate occupational classification means that the Department of Labor's Bureau of Labor Statistics, the Department of Commerce's Bureau of the Census, and all other federal agencies that collect occupational data now collect data on health education specialists. Many state and local governments also maintain data on health education/promotion. For the first time, it is possible to determine the number of health education specialists employed and the outlook for future health education/promotion positions. This approval is one more sign that health education/promotion is gaining the respect and recognition it deserves.

In summary, tremendous advancements in public health and health education/promotion took place during the 20th century. It could reasonably be argued that the total number of advancements in public health during the 20th century were equal to or greater than the total number of public health advancements in all prior time. In reflecting on these great successes of public health, the Department of Health and Human Services identified 10 public health achievements they believed had the greatest impact on major causes of morbidity and mortality of the 20th century. Box 2.2 lists these 10 achievements. Imagine what life would be like today if none of these achievements had been realized. Think of the role health education/promotion has played in these advancements.

| 10 Great Public Health Achievements in the United States, 1900–1999 |
|-----------------|-----------------|-----------------|
| Vaccination     | Healthier mothers and babies |
| Motor vehicle safety | Family planning |
| Safer workplaces | Fluoridation of drinking water |
| Control of infectious diseases | Recognition of tobacco use as a health hazard |
| Decline in deaths from coronary (heart) disease and stroke | |
| Safer and healthier foods | |

**School Health in the United States**

Life in early America was hard, and there was little time for education. The labor of building homes, clearing forests, tilling fields, hunting, and preparing food filled the days. Most people lived under primitive conditions. Settlements were few and far apart. Travel and transportation were costly, slow, and limited to foot, horseback, boat, or wagon.

In the mid-1600s, as communities became more established, the call for education was soon heard. Religion had always been an important part of life in America, and it was the religious leaders who led the drive for education. They believed that Satan benefited when people were illiterate, because they could not read the scriptures. In 1647, Massachusetts passed the “Old Deluder” law to prevent Satan from deluding the people by keeping them from reading the Bible. The law specified that a town with 50 families should establish an elementary school, and a town with 100 households should set up a Latin grammar secondary school (Means, 1962).

The curriculum in these early schools was largely derived from the educational practices in England. Essentially, reading, as the avenue to religious understanding, was the primary subject. Writing, spelling, grammar, and arithmetic supplemented reading. Later, geography and history were added, but the teaching of health was not part of the early education system in the United States.

Because only boys attended these early schools, and working for the family was still a major concern, daily sessions were by necessity of short duration. The length of the school term was usually only a few months. Teachers were lacking in preparation, with their basic qualifications being only to (1) read, (2) know more of the Bible than the students, (3) work cheap, and (4) keep the students under control. Teachers were totally dependent on the rod for classroom management (Means, 1962). Girls were not sent to school as it was generally felt they could learn everything they needed to know about cleaning, sewing, cooking and tending to a home and family from their mothers.

School buildings typically were inadequate (see Figure 2.13). They were poorly built, inaccessible, and sometimes temporary structures. Their interiors were inadequately lighted, were
furnished with uncomfortable seating, had no sanitary facilities, and were heated with wood-burning stoves. These schools were not even close to meeting modern standards for school construction (Means, 1962).

The schools and their curricula remained much the same until the 1800s. By the mid-1800s, most schools had become tax supported, and attendance was compulsory. Those concerned about public health pointed out the numerous health and safety problems in the schools. These concerns helped bring attention to the conditions of the schools and ultimately paved the way for health instruction in the curriculum (Means, 1962).

Horace Mann, whose writings and speeches promoted the importance of education in general, was perhaps the first spokesperson for teaching health in schools. He was elected secretary of the Massachusetts State Board of Education in 1837. Beginning in 1837 with the publication of his *First Annual Report* and continuing through the publication of the *Sixth Annual Report* in 1843, Mann called for mandatory hygiene programs that would help students understand their bodies and the relationship between their behaviors and health (Rubinson & Alles, 1984).

Another momentous event in the development of school health occurred in 1850, when Lemuel Shattuck from Massachusetts wrote his *Report on the Sanitary Commission of Massachusetts* (1850). (This is the same report discussed previously in reference to public health.) Although the report has become a classic in the field of public health, it also provided strong support for school health (Means, 1975). In the report, Shattuck (1850) eloquently supports the teaching of physiology, as the term *health education* had yet to be coined:

> It has recently been recommended that the science of physiology be taught in the public schools; and the recommendation should be universally approved and carried into effect as soon as persons can be found capable of teaching it. . . . Every child should be taught early in life, that to preserve his own life and his own health and the lives and health of others, is one of the most important and constantly abiding duties. By obeying certain laws or performing certain acts, his life and health may be preserved; by disobedience, or performing certain other acts, they will both be destroyed. By knowing and avoiding the causes of disease, disease itself will be avoided, and he may enjoy health and live; by ignorance of these causes and exposure to them, he may contract disease, ruin his health, and die. Every thing connected with wealth, happiness and long life depend upon health; and even the great duties of morals and religion are performed more acceptably in a healthy than a sickly condition. (pp. 178-179)

Aside from local and state attempts to promote the teaching of health-related curricula in the schools, no concerted national effort existed until that of the Women's Christian Temperance Union. Originally founded in 1874, the union expounded on the evils of alcohol, narcotics, and tobacco through every conceivable means and was one of the most effective lobbying organizations ever (Means, 1962). Between 1880 and 1890, every state in the union passed a law requiring instruction concerning the effects of alcohol and narcotics due to stimulus from the Temperance Movement (Turner, Sellery, & Smith, 1957).

Other national movements soon followed. In 1915, the National Tuberculosis Association introduced the “Modern Health Crusade” as a device for promoting the health of school children. It was based on promotion to “knighthood” for those that followed certain health habits. The Child Health Organization of America encouraged the nation to adopt more functional health education/promotion programs. One of its active leaders, Sally Lucas Jean, was ultimately responsible for changing the name from hygiene education to health education (Means, 1962). With this name change, the focus of health education shifted from that of
physiology and hygiene, which was factual and unrelated to everyday living, to an emphasis on healthy living and health behavior.

Despite these advancements, health education from 1900 to 1920 was generally characterized by inconsistency and awkward progress. World War I provided the impetus for widespread acceptance of school health education as a discipline in its own right (Turner et al., 1957). Out of 2,510,706 men examined as potential military draftees during World War I, 730,756 (29 percent) were rejected on physical grounds. A large portion of these physical deficiencies could have been prevented if the schools had been doing their part to train children concerning health and fitness (Andress & Bragg, 1922). In the immediate postwar years, 16 states required hygiene instruction in their public schools; 12 of these states made provisions for the preparation of health teachers in the teacher training schools supported by the state (Rogers, 1936).

Significant research and demonstration projects related to school health education were conducted in the 1920s and 1930s. Examples include the Malden, Massachusetts project, done in cooperation with the Massachusetts Institute of Technology; the Mansfield, Ohio, project supported by the American Red Cross; the Fargo, North Dakota, project sponsored by the Commonwealth Fund; and the Cattaraugus County, New York, project financed by the Milband Memorial Fund. According to Turner and colleagues (1957), “these programs showed that habits could be changed and health improved through health education” (p. 27).

In the 1930s, the drive for health education from the public slowed. Health education continued to address the major health issues of the time but without the enthusiasm brought on by World War I. Notable research studies supplemented authoritative opinion in helping to point out difficulties and offer solutions related to the teaching of health education. Several important conferences were held on health education and youth health at the national level (Means, 1962). The profession was moving forward.

Professional organizations emerged during the 1900s that still exist today. School health education, long associated with physical education, received official recognition in 1937, when the American Physical Education Association became the American Association for Health and Physical Education which eventually evolved into the American Association for Health, Physical Education, Recreation and Dance (AAHPERD). In the 1990s, AAHPERD changed from an association to an alliance of national and district associations. The national association that represented health education specialists was the American Association for Health Education (AAHE). For many years AAHE was a major force in the health education field. At their 2013 National Convention, AAHPERD dropped the association structure and went back to one organization. The name AAHPERD was changed to “SHAPE America” with a mission to, “advance professional practice and promote research related to health and physical education, physical activity, dance and sport.” (SHAPE America, 2016). This means that AAHE is no longer in existence. Although SHAPE America still intends to service those school health educators that also teach physical education, most health education specialists, including those focused on school health, have joined another professional association such as the Society for Public Health Education, which represents all health education specialists in all practice settings, or the American School Health Association.

The American School Health Association evolved from the American Association of School Physicians, which was founded in 1927. Over the next 10 years this association of school physicians expanded its functions, interests, and scope of activity. As a result, it broadened its membership to include school health personnel other than physicians. In 1938, its name was changed to the American School Health Association to reflect these changes. Today, the
mission of the American School Health Association is to "transform all schools into places where every student learns and thrives" (American School Health Association, 2016).

The American Public Health Association had long been an organization interested in and supportive of school health. In fact, many of the earliest supporters of health education in the schools had been leaders in public health. Appropriately, the organization established a separate section within its administrative structure to focus on school health interests. In 1942, the School Health Section of the American Public Health Association was formed. (Chapter 8 discusses all these professional associations in greater detail.)

With the bombing of Pearl Harbor on December 7, 1941, the United States found itself at war. Once again, national focus turned to physical fitness and health. With no major threats of war in the previous 20 years, the physical status of young U.S. men had again degenerated. Of the approximately 2 million men examined for induction into the nation's armed forces, almost 50 percent were disqualified. Of those disqualified, 90 percent were found to be physically or mentally unfit (American Youth Commission, 1942). This unfortunate situation helped greatly to stimulate interest in the health of high school students and provided strong motivation for health education/promotion classes.

After World War II, school health education continued to grow as a profession. As Means (1975) observed, "This period from 1940 into the 1970s was one of appraisal, re-evaluation, and consolidation with respect to research accomplished in school health education. During this time leaders in the field attempted to look back, review, and take stock of what was known as a determinant of future action" (p. 107).

The School Health Education Study was a major study of significance to school health education. Directed by Dr. Elena M. Sliepcevich (1964), the study included 135 randomly selected school systems involving 1,460 schools and 840,832 students in 38 states. Health behavior inventories were administered to students in grades 6, 9, and 12. The results were appalling. Health misconceptions among students at all levels prevailed. Questionnaires were distributed to school administrators throughout the country to obtain data on organizational procedures and instructional practices related to school health education. Again the results indicated major problems in the organization and administration of health programs. Cortese (1993) noted, "... some health topics were omitted while others were repeated grade after grade at the same level of sophistication. No logical rationale placed learning exercises at various grade levels, and a need existed for a challenging and meaningful curriculum" (p. 21).

The second phase of the School Health Education Study established a curriculum writing team to develop a school health education curriculum based on needs identified from the first phase of the study. The team consisted of prominent names in school health education at the time, including Gus T. Dalis, Edward B. Johns, Richard K. Means, Ann E. Nolte, Marion B. Pollock, and Robert D. Russell (Means, 1975). Over the next eight years, the writing team developed a comprehensive curriculum package that still influences school health curricula today.

The School Health Education Evaluation Study of the Los Angeles Area was one more important study. Its purpose was to evaluate the effectiveness of school health work in selected schools and colleges of the area. More specifically, the project aimed at the appraisal of the entire school health program, including administrative organization, school health services, health instruction, and healthful school environment. Further, it examined the students' health knowledge, attitudes, and behavior. The study resulted in 11 conclusions and 17 important recommendations for the field (Means, 1975).
School health programs have continued to evolve from the mid-1970s to the present. Several important events and trends have impacted school health education and overall school health programs. In 1978, the Office of Comprehensive School Health was established within the U.S. Department of Education. The primary purpose of the office was policy development for health issues that affected children and youth. Although the office held great promise for school health education efforts, unfortunately, it was never fully funded. A director was named, Peter Cortese, but the office was finally deactivated with the budget cuts during President Ronald Reagan’s administration (Rubinson & Alles, 1984).

The 1980s saw the emergence of two important concepts: coordinated school health programs and comprehensive school health instruction. Based on the initial ideas of Turner and colleagues (1957), and later refined by Allensworth and Kolbe (1987), a **coordinated school health program** consisting of eight interactive components that work together to enhance the health and well-being of the students, faculty, staff, and community was devised (see Figure 2.14). The eight components consist of health education, physical education, health services, nutrition services, counseling, psychology and social services, healthy school environment, staff health promotion and family and community involvement.

The original eight component coordinated school health program model has been expanded and revised to now include 10 components, and is known as the Whole School, Whole Community, Whole Child Model (WSCC) (CDC, 2016g). To arrive at the 10 WSCC components, the original Healthy School Environment component was split into the social and emotional climate component and the physical environment component. The original
Characteristics of an Effective Health Education Curriculum

1. Focuses on clear health goals and related behavioral outcomes.
2. Is research-based and theory-driven.
3. Addresses individual values, attitudes, and beliefs.
4. Addresses individual and group norms that support health-enhancing behaviors.
5. Focuses on reinforcing protective factors and increasing perceptions of personal risk and harmfulness of engaging in specific unhealthy practices and behaviors.
6. Addresses social pressures and influences.
7. Builds personal competence, social competence, and self-efficacy by addressing skills.
8. Provides functional health knowledge that is basic, accurate, and directly contributes to health-promoting decisions and behaviors.
9. Uses strategies designed to personalize information and engage students.
10. Provides age-appropriate and developmentally appropriate information, learning strategies, teaching methods, and materials.
11. Incorporates learning strategies, teaching methods and materials that are culturally inclusive.
12. Provides time for instruction and learning.
13. Provides opportunities to reinforce skills and positive health behaviors.
14. Provides opportunities to make positive connections with influential others.
15. Includes teacher information and plans for professional development and training that enhance effectiveness of instruction and student learning.


family/community involvement component was split into the community involvement component and family engagement component (CDC, 2016b). The WSCC model recognizes the importance of establishing healthy behaviors in youth. To accomplish this the model promotes the cooperation and collaboration of government agencies, community organizations, schools, community members and families.

Comprehensive school health education is actually the health curriculum component of the coordinated school health program. Box 2.3 identifies factors that need to be in place for the development and delivery of a planned, sequential, effective school health education program. Emphasis should be placed on six specific adolescent risk behaviors that are monitored by the Youth Risk Behavior Surveillance System (YRBSS) (CDC, 2016h). These six behaviors contribute to the leading causes of death and disability among youth and adults. These behaviors usually are established during childhood, persist into adulthood, are interrelated, and are preventable. These risk behaviors are as follows:

- Behaviors that contribute to unintentional injuries and violence
- Sexual behaviors that contribute to unintended pregnancy and sexually transmitted diseases, including HIV infection
- Alcohol and other drug use
- Tobacco use
- Unhealthy dietary behaviors
- Inadequate physical activity (CDC, 2016h)
In 2006, with support from the American Cancer Society, the Joint Committee on National Health Education Standards was formed. Committee members included representation from the American Association for Health Education, The American Public Health Association, The American School Health Association and the Society of State Leaders of Health and Physical Education. The standards can be seen in Box 2.4. The goal of the National Health Education Standards is improved educational achievement for students and improved health in the United States. The standards promote health literacy, the capacity of individuals to access, interpret, and understand basic health information and services, and the skills to use the information and services to promote health. The standards provide a foundation for curriculum development, instruction, and assessment of student performance. A rationale and numerous performance indicators, broken down by grade-level groupings, accompany each of the eight standards. The National Health Education Standards also provide an important guide for colleges and universities to enhance pre-professional preparation as well as the continuing education of health education/promotion teachers.

The National Board for Professional Teaching Standards, founded in 1987, developed national standards for school health education teachers. These standards go beyond the requirements for state teacher licensure. Since fall 2008, individuals with three years of full-time health education/promotion teaching experience and a valid state teacher’s license for those three years may voluntarily complete a rigorous evaluation process to become a National Board Certified Health Education Teacher. This National Board Certification places school health education on an equal level with other teaching fields and allows highly qualified and dedicated health education teachers to be recognized for their work. Some states or districts may provide salary bonuses for these highly qualified teachers who obtain National
Board Certification (National Board for Professional Teaching Standards, 2016). It is expected that many exceptional and highly dedicated health education/promotion teachers will seek National Board Certification.

Since 1987, the concept of a coordinated school health program has dominated the school health arena. At first glance, it would seem that schools would be excited to initiate comprehensive school health programs. How could they not embrace a concept that would bring together multiple components of the school in an integrated attempt to improve the health of faculty, staff, students, and the community? A healthy child taught by a healthy teacher in a health-conscious community should forward the school’s overall mission to provide each child with the best education possible. Unfortunately, the full potential of coordinated school health programs has never been realized in most school districts. Factors may include the low priority placed on health by many school administrators; a lack of leadership to promote, coordinate, and oversee school health programs; and an overemphasis on competency testing. Another dynamic could be the adverse reactions from conservative groups that perceive coordinated school health as a means of incorporating sex education into the curriculum. New optimism has emerged with release of the Whole School, Whole Community, Whole Child movement (CDC, 2016g). Time will tell if this expanded and more comprehensive model will gain further traction than the coordinated school health program model of the past.

Another positive support for the future of school health is the bipartisan passage of the 2015 Every Child Achieves Act which recognizes both health education and physical education as “core subjects” in schools (SOPHE, 2015). Health education specialists had been calling for this recognition for many years (Gambescia, 2006). Previously both health education and physical education were not considered “core subjects” by federal mandates which allowed schools to minimize their importance while placing more focus on those subjects such as math, science and English that were considered core subjects. The passage of this act reflects a growing awareness of the importance of health education to the academic success and overall well-being of students. It will be interesting to watch how passage of this act will actually influence school health education in the future.

Despite the apparent lack of success with coordinated school health programs, schools still hold tremendous promise for health education/promotion efforts. With nearly all young people under 19 years of age attending schools, health education specialists must remain diligent in their effort to bring effective health promotion and education programs to this population. Every health education specialist should be advocating for the Whole School, Whole Community, Whole Child movement with national and state education agencies, federal and state government representatives, and local school boards.

Patient Protection and Affordable Care Act

On March 23, 2010, amid both fanfare and criticism, President Barack Obama signed into law the Patient Protection and Affordable Care Act (referred to as the Affordable Care Act or ACA). Through a combination of cost controls, subsidies, and mandates, it expands healthcare coverage to 31 million uninsured Americans (Open Congress, 2010). Another important feature is the act’s focus on prevention and prevention services (Koh & Sebelius, 2010;
Society for Public Health Education [SOPHE], 2013). The bill provides better access to clinical prevention services by removing cost barriers. Further, the bill encourages and promotes worksite wellness programs, encourages evidence-based community prevention and wellness programs, and provides strong support for school-based health centers. (See Table 2.4

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<th>Table 2.4 Wellness and Prevention Provisions in the Patient Protection and Affordable Care Act (H.R. 3590)</th>
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<td><strong>Immediate Effects 2010</strong></td>
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<tr>
<td>• Establish the National Prevention, Health Promotion and Public Health Council</td>
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<tr>
<td>• Create a Prevention and Public Health Fund—500 million in FY 2010</td>
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<tr>
<td>• Create task forces on prevention services and community preventive services</td>
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<tr>
<td>• Establish a grant program to support the delivery of evidence-based and community-based prevention and wellness services</td>
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<tr>
<td>• Conduct a national worksite health policies and programs survey</td>
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<td>• Award grants to support the operation of school-based health centers—50 million in FY 2010</td>
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<tr>
<td>• Eliminate cost sharing for tobacco cessation counseling and prescriptions for pregnant women in Medicaid and Medicare</td>
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<tr>
<td><strong>2011</strong></td>
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<tr>
<td>• National strategy to improve nation’s health due March 2011</td>
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<tr>
<td>• Prevention &amp; Public Health Fund receives up to $750 million</td>
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<tr>
<td>• School-based health centers receive another $50 million</td>
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<tr>
<td>• Improve access by eliminating cost sharing for prevention services in Medicare and Medicaid</td>
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<tr>
<td>• Provide grants to small employers to establish wellness programs</td>
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<td>• Require chain restaurants and food from vending machines to disclose nutritional content</td>
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<tr>
<td><strong>2012</strong></td>
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<tr>
<td>• Worksite survey results due</td>
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<tr>
<td>• Prevention &amp; Public Health Fund receives up to $1 billion</td>
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<tr>
<td>• School-based health centers receive up to $50 million</td>
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<tr>
<td><strong>2013</strong></td>
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<tr>
<td>• Prevention &amp; Public Health Fund receives up to $1.25 billion</td>
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<td>• School-based health centers receive up to $50 million</td>
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<td><strong>2014</strong></td>
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<td>• Permit employers to offer employee rewards in the form of premium discounts, waivers of cost sharing, or other benefits for participating in a wellness program and meeting certain health-related standards</td>
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<td>• Establish 10-state pilot program allowing states to apply similar rewards as noted above for employers</td>
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<tr>
<td>• Prevention &amp; Public Health Fund receives up to $1.5 billion</td>
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<td>• School-based health centers receive up to $50 million</td>
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<tr>
<td><strong>2015 and Beyond</strong></td>
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<tr>
<td>• Prevention &amp; Public Health Fund receives up to $1.25 billion</td>
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<tr>
<td>• School-based health centers receive up to $50 million</td>
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for a summary of the act’s prevention provisions.) This bill should create new and expanded opportunities for health education specialists to promote health. More importantly, it is good for the health of Americans. As Koh and Sebelius (2010) state: “In short, to prevent disease and promote health and wellness, the Act breaks new ground. . . . Moving prevention toward the mainstream of health may well be one of the most lasting legacies of this landmark legislation” (p. 5).

As of 2015, the ACA has been met with much criticism and has faced several legal challenges. To date, it remains mostly intact and has had some positive effects. As of 2015, 16.4 million Americans have gained health insurance coverage through the ACA (Wilensky & Teitelbaum, 2017). It is estimated that by 2023, the number of uninsured in the United States will be half the size as in 2012. As the 2016 Presidential elections approach, the ACA will once again be a topic of interest with some Presidential candidates promising repeal of the ACA if elected.

Summary

The history of health and health education/promotion is important to the professional development of health education specialists. By understanding the past, you can appreciate the present and become a leader in this emerging profession.

Today's concept of health education/promotion is relatively new, dating back only to the middle to late 1800s. Since ancient times, however, humans have been searching for ways to keep themselves healthy and free of disease. Without knowledge of disease causation or medical treatment, it was only natural to rely on superstition and spiritualism for answers. The concept of prevention was intriguing, but the knowledge and skills to prevent disease were unknown.

Progress in preventing and treating disease is evident in the early civilizations of Egypt, Greece, and Rome. These cultures recognized a need for humans to maintain sound minds and bodies. Systems of rudimentary pharmacology, better waste disposal, and safer drinking water were among some of the most noteworthy improvements.

During the Middle Ages, much of what had been previously learned was lost. Society took a giant step backward. Science and knowledge were shunned, while religion gained new favor as the preferred means of preventing and treating disease. Great epidemics struck the European continent, and millions of people lost their lives.

The Renaissance witnessed a rebirth of interest in knowledge. Science again flourished, and healthcare advancements were made. Understanding of disease, however, was still rudimentary, and the effects of treatments were often worse than the diseases. Sanitary conditions were deplorable and would remain so through the 1800s. The emergence of health education/promotion as a profession was still more than a century away.

The Age of Enlightenment saw tremendous growth in cities as the Industrial Revolution got under way in both England and the United States. Unfortunately, this population growth compounded sanitation problems related to overcrowding. Epidemics were still prevalent. In addition, employment conditions of the working class were frequently unsafe and unhealthy.
By the mid-1850s, conditions were ripe for the birth of public health in Great Britain and the United States. The contagion theory of disease emerged, and early reformers called for the government to take control of environmental conditions that led to disease. Health departments at city, state, and county levels were established and began to monitor and regulate food safety, water quality, and waste disposal. Professional organizations for health personnel were created, and voluntary agencies were formed. Major pieces of legislation were passed as the government sought to improve working conditions and took greater responsibility for the poor and infirm. During the mid-1900s, emphasis was placed on building new medical facilities and enhancing the technology required to treat disease.

By the 1970s, the cost of medical treatment had escalated, and concern for prevention was enhanced. This set the stage for the development of national health objectives for the decades of the 1980s, 1990s, and 2000s. Healthy People 2020 is now in place and identifies the objectives for the current decade. Health education/promotion has made and continues to make great strides as a profession.

In the mid-1800s, as public health was starting to make important strides, school health education was also budding. In addition to reading, writing, and arithmetic, early pioneers saw the need to educate students about health-related matters. In the early 1900s, groups such as the National Tuberculosis Association, the American Cancer Society, and the Women's Christian Temperance Union strongly supported educating school children about health. Both World War I and World War II provided important impetus for health-related instruction and physical training in the schools.

During the 1960s and 1970s, several important studies supported the need for school health education and documented its effectiveness. Coordinated school health programs, created in the 1980s and 1990s, have evolved into the expanded whole school, whole community, whole child concept. School Health Program Guidelines, national health education standards, and identifying the six leading causes of death and disability helped promote health education/promotion.

Although health and school health education have made great strides since the first humans contemplated how to treat and prevent disease, there is still a long way to go. Both in the United States and worldwide there are many people who do not have access to medical care or the important information and skills of professionally trained health education specialists. Heart disease, cancers, diabetes, obesity, and HIV are prevalent in both developed and developing countries, and traditional infectious diseases, parasitic infections, poor sanitation, unsafe water and malnutrition continue to affect people in developing low and middle income countries.

As in the past, health education professionals of today must envision what can be and strive to make that vision a reality. Turner et al. (1957) noted,

As society looks ahead, it can conceive the hope that someday almost every human being will be well, intelligent, physically vigorous, mentally alert, emotionally stable, socially reasonable and ethically sound. At least, society must concern itself with progress toward that goal. (p. 18)

Health education specialists must be important players in this process. The recent Affordable Health Care Act should expand opportunities for health education specialists to impact Americans' health through community, worksite, and school-based programs.
Review Questions

1. Describe the earliest efforts at health care and informal health education/promotion.
2. Compare and contrast the great societies of ancient Egypt, Greece, and Rome. How are these cultures similar in relation to health? How are they different?
3. What were the major epidemics of the Middle Ages? Why were they so feared? What factors contributed to their spread? What were some strategies people used to prevent these diseases?
4. Discuss the Renaissance and why it is important to the history of health and health care.
5. Who wrote the Report of the Sanitary Commission of Massachusetts (1850)? Explain how this report was important to the history of both school health and public health.
6. Identify at least five major groups or events that forwarded school health programs.
7. What Canadian publication and its U.S. counterpart helped focus attention on the importance of disease prevention and health promotion?
8. What are national health objectives? Where can they be found? Why are they so important?
9. Describe the initiatives that have shaped school health education programs over the past 10 years.
10. Explain how the Affordable Health Care Act may serve to improve the public's health and advance the health education/promotion profession in the United States.

Case Study

Angelita is a health education professor employed by a state university. The local newspaper wants to interview her about the Affordable Health Care Act's prevention components, including how the act may enhance the health of their readers. The newspaper reporter also wants her to talk about previous governmental initiatives designed to prevent disease and improve the public's health. In preparation for the interview, Angelita wants to develop an outline of important points she would like to make. Your task, as Angelita's graduate assistant, is to develop the first draft of these important points.

Critical Thinking Questions

1. If a health educator is simply considered as someone who informs others about health, who would be considered humanity's first health educators? Defend your answer.
2. If a health education specialist trained in the year 2013 could time-travel back to the Middle Ages, what impact could that person have on the health problems of that era? What positive factors would work in the health education specialist's favor? What negative factors would work against the health education specialist?
3. When the first schools were being started in Massachusetts, do you believe health education/promotion would have been accepted as an academic subject? Why or why not? Do you believe health education/promotion is accepted as an academic subject at the present time? Why or why not?

4. Go online and find a copy of the new Healthy People 2020 objectives. Read the introduction and overview. Find the objectives for one of the topic areas and review them. Next, select one objective in that topic area that you feel strongly about, and explain why you feel it will or will not be met by the year 2020. What role might a health education specialist have in meeting the objective you selected?

Activities

1. Develop a timeline using 100-year increments from the early Egyptians to the current year. Mark all of the important health-related events as they occurred along the timeline. Next, continue your timeline 100 years into the future. Predict and mark important health-related events. Explain why you believe these predictions will come true.

2. Imagine what it would have been like to live through an outbreak of the Black Death in the Middle Ages. Write a 5-day personal diary, with daily entries depicting what you might have seen or heard and how you might have felt.

3. Interview several individuals who are at least 80 years old concerning the health care they received as young children. Ask them to describe any health education/promotion they can remember. When was it? Where did it take place? Who provided the education? Was it effective?

4. Contact your high school health teacher. Ask if he or she is aware of the National Standards for Health Education and to what extent the curriculum in the school district has been based on these standards. Ask the health teacher if he or she is aware of the whole school, whole community, whole child movement. If so, what has been done to implement this model at the local level? Who coordinates the effort? What programs or initiatives are a result of the effort? If nothing has been done, ask why? Try to determine the barriers to initiating the whole school, whole community, whole child program in the district.

Weblinks

   Centers for Disease Control and Prevention
   This CDC Web site provides a timeline to learn about important events in the history of the CDC from its founding in 1946 to the present. Take note of the many important contributions to public health by this illustrious organization.

2. [https://history.nih.gov/exhibits/history/index.html](https://history.nih.gov/exhibits/history/index.html)
   National Institutes of Health, Office of History
   This National Institutes of Health (NIH) Web site provides a brief history of this organization, highlighting some of its more important accomplishments.
3. https://www.youtube.com/watch?v=zZG94c7xQmE
   See a short video with leaders in public health talking about the importance of Healthy People 2020 goals and what needs to happen for these goals to be met.

   Healthy People 2020
   This is the home page for the Healthy People 2020 goals and objectives. From this page you should be able to access the actual Healthy People 2020 documents, as well as information on how the objectives are developed.

   This site provides additional details on the Whole School, Whole Community, Whole Child initiative including a description of various components and how they can be integrated into the school program. Additional information on health and academics, data and statistics, tools, and resources are available at this site. This information is important for health education specialists who want to work in schools and make a difference in the lives of their students.

6. https://www.youtube.com/watch?v=OZEKSHBJtdc
   A full length movie about Father Damien and the Kalaupapa, Molokai, Leper Colony, the last leper colony still functioning in the United States.

   Watch this video on the history of public health in the United States.

References


