

# Basics of the U.S. Health Care System

Third Edition



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## ► Origins of Public Health

During the 18th and 19th centuries, the concept of public health was born. Edwin Chadwick, Dr. John Snow, and Lemuel Shattuck demonstrated a relationship between the environment and disease that established the foundation of public health.

In 1842, **Edwin Chadwick** published the *Report on the Sanitary Condition of the Labouring Population of Great Britain*. His report highlighted the relationship between unsanitary conditions and disease (Rosen, 1958). As Chief Commissioner of the Poor Law Commission, Chadwick was responsible for relief to the poor in England and Wales. He became the champion of reform for working conditions. His report illustrated that the poor had higher rates of disease than the upper class, a fact that still exists today. His activities became the basis for U.S. public health activities (Rosen, 1958). He was also responsible for the implementation of the 1848 Public Health Act, which created England's first national board of health. Unfortunately, in 1854, the Parliament did not renew the Act, which consequently dissolved the board of health. Although dissolved, the concept of public health was born because this Act, using data, identified several public health issues that were assigned to national and local boards. Public health issues such as water, sewerage, environment, safety, and food were a focus of the act. By identifying these community issues, people began to focus on improving the community's health status (Ashton & Sram, 1998).

**Dr. John Snow**, a famed British anesthesiologist, is more famous for investigating the cholera epidemics in London in the 1800s. He made the connection between contaminated water and the spread of cholera. Dr. Snow surveyed local London residents and discovered that those who were ill had retrieved water from a specific neighborhood pump on Broad Street. When the pump handle was removed, the disease ceased. This famous Broad Street pump incident became a classic example of an epidemiologic investigation that studies the causes between disease and external sources (Ellis, 2008).

**Lemuel Shattuck**, who has been called the architect of the public health infrastructure, wrote the landmark report, *Report of the Sanitary Commission of Massachusetts*. It was ignored for many years but finally, in the 19th century, it became central to the development of state and local public health activities (Rosen, 1958).

As a result of their work, public health law was enacted and, by the 1900s, public health departments were focused on the environment and its relationship

to disease outbreaks. Disease control and health education also became integral components of public health departments.

## ► What Is Public Health?

### Overview of the Public Health System

According to the Centers for Disease Control and Prevention (CDC), public health systems are commonly defined as "all public, private, and voluntary entities that contribute to the delivery of essential public health services within a jurisdiction." **FIGURE 5-2** provides an overview of the components of public health, which include (CDC, 2016a):

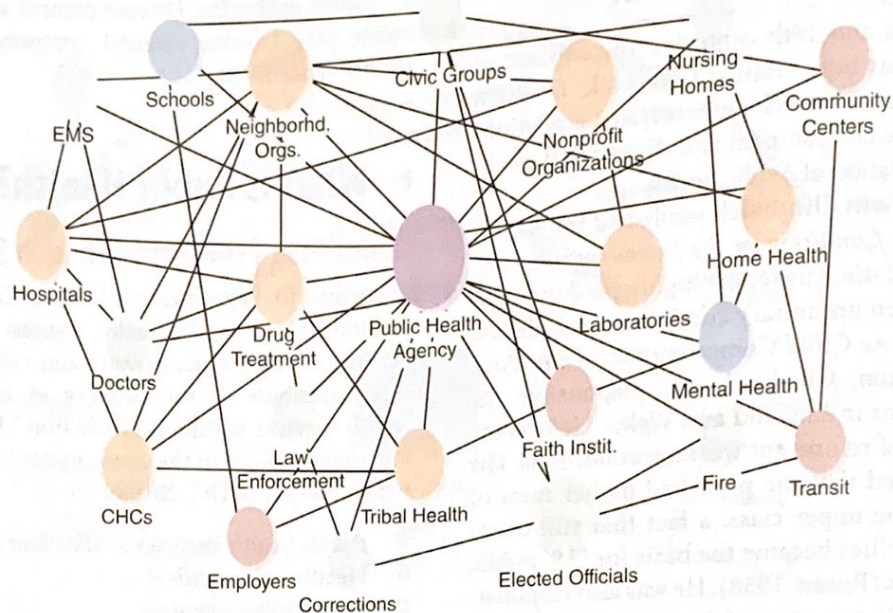
- Public health agencies at state and local levels
- Healthcare providers
- Public safety agencies
- Human service and charity organizations
- Education and youth development organizations
- Recreation and arts-related organizations
- Economic and philanthropic organizations
- Environmental agencies and organizations

In 1945, in conjunction with Haven Emerson and C.E.A Winslow, the **American Public Health Association** (APHA) issued a set of guidelines for the basic functions of the local health department, including (Emerson, 1945):

- Vital statistics: data management of the essential facts on births, deaths, and reportable diseases
- Communicable disease control: management of tuberculosis, venereal disease, and malaria
- Sanitation: management of the environment, including milk, water, and dining
- Laboratory services
- Maternal and child health: management of school-aged children's health
- Health education of the general public

These functions remained the cornerstone of public health until the 1960s when the APHA, reacting to cultural and political changes, revised the definition of the core public health functions. The APHA issued the following guidelines for the core public health functions (APHA, 2016):

- Health surveillance, planning, and program development
- Health promotion of local health activities
- Development and enforcement of sanitation standards
- Health services provisions



**FIGURE 5-2** Public Health Participants

The IOM, as a result of an in-depth study of public health, stated that the three **core public health functions** of public health are (IOM, 1988):

- Assessment, which includes surveillance, identifying problems, data collection, and analysis
- Policy development, which includes developing policies to address public problems
- Assurance, which includes evaluating policies that meet program goals

These core public health functions became accepted by public health departments; however, there was some confusion about the terminology. In 1994, the Public Health Steering Committee, as part of the U.S. Public Health Service, issued a list of essential public health services that provided specific information on the implementation of the core public health functions and how they should be implemented (see **TABLE 5-2**).

## ► The Epidemiology Triangle

**Epidemiology** is the study of disease distribution and patterns among populations. Epidemiologists search for the relationship of those patterns of disease to the causes of the disease. They scientifically collect data to determine what has caused the spread of the disease. Epidemiology is the foundation for public health because its focus is to prevent disease from reoccurring. Epidemiologists identify three major risk factor

categories for disease. These three factors are called the **epidemiology triangle** (see **FIGURE 5-3**), which consists of the host, which is the population that has the disease; the agent or organism, which is causing the disease; and the environment, or where the disease is occurring (CDC, 2016b). Public health workers attempt to assess each factor's role in why a disease occurs. Based on this research, public health workers develop prevention strategies to alter the interaction between the host, the disease, and the environment so the disease occurrences will be less severe or will not occur again.

For example, a person (host) can be vaccinated against a disease to prevent the host from carrying the disease (agent). Procedures can be implemented such as sanitary regulations to protect the community condition (environment) from contamination.

## ► Epidemiologic Surveillance

An important component of epidemiology is **surveillance**, which is the monitoring of patterns of disease and investigating disease outbreaks to develop public health intervention strategies to combat disease. A new form of surveillance involves **biosurveillance**, which focuses on early detection of unusual disease patterns that may be due to human intervention. In 2012, as part of the National Security Strategy, a national strategy for biosurveillance was outlined that focused on an

**TABLE 5-2** 10 Essential Public Health Services Describing the Public Health Activities That All Communities Should Undertake

1. Monitor health status to identify and solve community health problems.
2. Diagnose and investigate health problems and health hazards in the community.
3. Inform, educate, and empower people about health issues.
4. Mobilize community partnerships and action to identify and solve health problems.
5. Develop policies and plans that support individual and community health efforts.
6. Enforce laws and regulations that protect health and ensure safety.
7. Link people to needed personal health services and ensure the provision of health care when otherwise unavailable.
8. Ensure competent public and personal healthcare workforce.
9. Evaluate effectiveness, accessibility, and quality of personal and population-based health services.
10. Research for new insights and innovative solutions to health problems.

Reproduced from Centers for Disease Control and Prevention. (2016). Core Functions of Public Health and How They Relate to the 10 Essential Services. Retrieved from [http://www.cdc.gov/nceh/ehs/ephli/core\\_ess.htm](http://www.cdc.gov/nceh/ehs/ephli/core_ess.htm)

**FIGURE 5-3** Epidemiological Triangle

Reproduced from Centers for Disease Control and Prevention. (2013). Understanding the Epidemiologic Triangle through Infectious Disease. Retrieved from <http://www.cdc.gov/bam/epi-triangle.html>

integrated decision-making strategy of activities at all levels. As the lead agency for public health activities, the CDC's role in supporting the strategy is to continue making the best use of electronic health data, managing unstructured health data, integrating biosurveillance data so health-related information can be shared rapidly, and strengthening global disease detection and cooperation with global health partners (CDC, 2016). Historically, surveillance activities have been passive and been initiated by public health workers through routine disease reports. However, public health has become more proactive by initiating contact with providers to assess any unusual disease pattern.

## ► Environmental Health

Since John Snow linked disease with environmental factors, the field of **environmental health** has been an integral component of public health. Environmental health workers often are responsible for investigating environmental hazards in the community and monitoring and enforcing environmental regulations. A subset of environmental health workers is occupational health workers, who focus on ensuring employees' working conditions are safe. Both state and local health departments have environmental health departments that are responsible for investigating and enforcing local regulations. The CDC has identified 10 essential environmental health services that relate to the core functions of public health assessment, policy development, and assurance (CDC, 2013c) (see **TABLE 5-3**).

## ► Emergency Preparedness

### Federal Response

**Public health preparedness** is defined by the Department of Homeland Security (DHS) and the Federal Emergency Management Agency (FEMA) as "a continuous cycle of planning, organizing, training, equipping, exercising, evaluating, and taking