PART I

Background of the Field

Introduction to Public Health Preparedness

BOX 1-1 Preamble to the Constitution of the United States of America

We the People of the United States, in Order to form a more perfect Union, establish Justice, insure domestic Tranquility, provide for the common defense, promote the general Welfare, and secure the Blessings of Liberty to ourselves and our Posterity, do ordain and establish this Constitution for the United States of America.

INTRODUCTION

The Preamble to the Constitution of the United States of America lays the groundwork for creation of the nation and for the basic responsibilities of the federal government. (See **Box 1-1**.) Among these responsibilities are to "provide for the common defense" and "promote the general welfare." Public health preparedness, as a subdiscipline of public health, strives to address these two fundamental components of a government's responsibility to its population.

The notions of both homeland security and national security are paramount to public health preparedness. Before we define public health preparedness, let us start with what exactly "provide for the common defense" means.

NATIONAL SECURITY

Political scientists have long debated what exactly defines *national security*. The concept means different things to different people.[1(pp 41–56)] Some see it as policies, including diplomatic, economic, and military power, enacted by governments in order to ensure the survival and safety of the State.[1(pp 41–56)] Others define it as safeguarding territorial integrity and national independence—basically, the existence of the State.[1(pp 41–56)] George Kennan wrote that national security is "the continued ability of this country to pursue its internal life without serious interference."[1(pp 52–53)] The reoccurring theme within all discussions of national security, however, is the extent to which an individual is willing to sacrifice freedom in exchange for security, and the balance between security and liberty.

The most extreme position regarding national security is that it does not matter if the threat to security comes from within or from outside the nation. Citizens will look to the State for protection against all types of threats. In exchange, the State can ask anything of that citizen, short of his/her life. (See **Box 1-2**.) For most people, and particularly for those in the United States, a more balanced perspective of security and personal liberty prevails. While U.S. citizens want to be

> **BOX 1-2** **Excerpt from *Leviathan* (1651) by Thomas Hobbes**
>
> Without security provided for by the state, there is . . .
> "*. . . continual fear, and danger of violent death; and the life of man, solitary, poor, nasty, brutish, and short.*"

protected from threats and support the government in doing so, they want it to be done in such a way that they are able to retain personal freedoms and liberties.

HOMELAND SECURITY

The founding fathers penned the argument that the Constitution would protect U.S. citizens against conflict at home and that geography would protect the nation from conflict abroad.[2] The basic belief was that no threat would reach our borders; the oceans would protect us from conflict on our shores. As history has proven, however, geography cannot protect us from all external threats, particularly from terrorist actors.

After the terrorist attacks on September 11, 2001, the nation, for the first time, began to speak collectively about "homeland security." The Department of Defense (DoD) defines *homeland security* as "the prevention, preemption, deterrence of, and defense against aggression targeted at US territory, sovereignty, domestic population, and infrastructure, as well as the management of the consequences of such aggression and other domestic emergencies."[3(p 24)] Other definitions vary slightly,[4(p 2),5(p 11)] but, at the core, homeland security is about preventing disasters and attacks on the United States (primarily the continental United States, also known as "CONUS") and minimizing damage through appropriate preparations and rapid recovery.

Homeland Defense

Homeland defense is a component of homeland security. *Homeland Defense* is "the protection of U.S. sovereignty, territory, domestic population, and critical defense infrastructure against external threats or aggression."[6] Broadly, this means everything from national missile defense to critical infrastructure protection. The concepts of preparedness and response, however, are included in "security" and not in "defense."

PUBLIC HEALTH PREPAREDNESS

Public health preparedness, like homeland security, is a term that represents concerns and actions that have occurred throughout history. The term itself, however, and the field devoted to thinking about, preparing for, and mobilizing resources to respond to public health emergencies are relatively new. The field is so new that it is still struggling to define itself and to establish core competencies for professionals working in the area.

The Association of Schools of Public Health (ASPH) defines public health preparedness as "a combination of comprehensive planning, infrastructure building, capacity building, communication, training and evaluation that increase public health response effectiveness and efficiency in response to infectious disease outbreaks, bioterrorism and emerging health threats."[7(p 5)] In 2007, a group at the RAND Corporation, however, proposed a definition, providing a slightly broader characterization of the field:

> [P]ublic health emergency preparedness . . . is the capability of the public health and health care systems, communities, and individuals, to prevent, protect against, quickly respond to, and recover from health emergencies, particularly those whose scale, timing, or unpredictability threatens to overwhelm routine capabilities. Preparedness involves a coordinated and continuous process of planning and implementation that relies on measuring performance and taking corrective action.[8(p S9)]

This definition raises the question, What exactly is a public health emergency? According to the RAND definition, it is an event "whose scale, timing, or unpredictability threatens to overwhelm routine capabilities." These types of events fit into four basic categories:

1. Natural disasters, such as hurricanes, earthquakes, floods, or fires.
2. Man-made environmental disasters, such as oil spills.
3. Natural epidemics or pandemics, which may involve a novel, emerging infectious disease; a reemerging agent; or a previously controlled disease.
4. The intentional or accidental release of a chemical, biological, radiological, or nuclear (CBRN) agent.

For any of these four categories of events to be classified as a public health emergency, it is not just enough for the event to occur, but it also must pose a high probability of large-scale morbidity, mortality, or a risk of future harm.[9(p 11)]

Yet another category of public health emergency exists, as defined by the legally binding World Health Organization's International Health Regulations (2005), which will be discussed in more detail in Chapter 9. This international

agreement defines a public health emergency of international concern (PHEIC) as "[A]n extraordinary event which is determined . . . to constitute a public health risk to other States through the international spread of disease and to potentially require a coordinated international response."[10] Such an emergency can involve any of the preceding four types of public health events, as long as it has the potential to cross borders.

Some public health issues that have been called "emergencies" do not meet the criteria of any of these definitions. The obesity epidemic[11] or the prevalence of breast cancer,[12(pp 2282–2283)] for example, may be "public health crises," but they are not considered emergencies within the purview of public health preparedness.*

Our understanding of the types of events that constitute public health emergencies has changed over time. Later chapters of this book will focus on the evolving threats, examples of how the public health community has addressed these types of emergencies, and what we have learned from our experiences to date.

The responsibility of the public health community to prepare for and address these acute health emergencies is extensive. **Box 1-3** summarizes some of the principal components

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BOX 1-3 Components of Public Health Preparedness and Community Preparedness

1. **Health risk assessment:** identification of "hazards and vulnerabilities . . . that will form the basis for planning."

2. **Legal climate:** identification and amendment, as necessary, of legal authority and liability barriers to effective monitoring, prevention, and response to public health emergencies.

3. **Roles and responsibilities:** clearly defining, assigning, and testing responsibilities with all potential parties involved in preparedness and response.

4. **Incident command system:** developing, testing, and improving response capabilities using an integrated system at all levels (e.g., local, state, federal, and tribal).

5. **Public engagement:** ensuring the public is informed, engaged, and mobilized to be active participants in preparedness activities.

6. **Epidemiology functions:** maintaining and improving surveillance systems for detection of potential emergencies and investigation of events.

7. **Laboratory functions:** maintaining and improving laboratory testing and detection of public health hazards.

8. **Countermeasures and mitigation strategies:** developing, testing, and improving distribution of medical countermeasures and community mitigation strategies, including isolation, quarantine, and social distancing.

9. **Mass health care:** developing, testing, and improving the healthcare system's ability to provide for large numbers of affected people.

10. **Public information and communication:** developing and improving the capability to provide timely and appropriate information about public health emergencies.

11. **Workforce:** developing and maintaining a public health workforce to respond appropriately to all public health emergencies.

Note: Original work by RAND also includes the following as components of a prepared community: a robust supply chain, leadership, testing operational capabilities, performance management, and financial tracking.

Source: Nelson C, Lurie N, Wasserman J, Zakowski S. Conceptualizing and Defining Public Health Emergency Preparedness. *American Journal of Public Health.* 2007;97(S1):S10.

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* Interestingly, recent literature has started to link obesity to national security because the prevalence of overweight youth is affecting the ability of the United States to recruit fit personnel for the armed forces.[13]

of public health preparedness, particularly from the perspective of the "prepared community." This list of 11 major components is adapted from research conducted by Nelson and colleagues.

DEVELOPING THE PUBLIC HEALTH PREPAREDNESS WORKFORCE: CHARGE AND CAREERS

In December 2006, Congress passed the Pandemic and All-Hazards Preparedness Act (known as PAHPA, pronounced "papa"), which reauthorized and built upon the Public Health Security and Bioterrorism Preparedness and Response Act of 2002 (also known as the Bioterrorism Act) and is scheduled to be reauthorized in late 2011. Among other things, PAHPA called for the development of a public health workforce versed in preparedness and public health security capabilities, as shown in **Box 1-4**. It requires curricula to be developed and calls for the facilitation of competency-based training in public health preparedness within schools of public health and other institutions.

In an effort to fulfill PAHPA's mandate, the Association of Schools of Public Health—in response to a request from the U.S. Centers for Disease Control and Prevention (CDC)—is developing model core competencies in public health preparedness and response to be released in late 2011. ASPH efforts are targeted at public health workers who have 10 years of experience or 5 years with a master's in public health (MPH) or higher degree.[14]

In today's security climate, it is important for many different types of public health professionals, at every level of government and the private sector, with diverse knowledge and expertise, to be versed in public health preparedness. When a public health emergency occurs, it affects the entire public health and medical system. Everyone from laboratory technicians to clinicians to program managers may be affected.

BOX 1-4   Pandemic and All-Hazards Preparedness Act (PAHPA) of 2006. Section 304: Core Education and Training

TITLE III—ALL-HAZARDS MEDICAL SURGE CAPACITY
SEC. 304. CORE EDUCATION AND TRAINING.

(d) Centers for Public Health Preparedness; Core Curricula and Training—

(1) IN GENERAL—The Secretary may establish at accredited schools of public health, Centers for Public Health Preparedness (hereafter referred to in this section as the "Centers").

(2) ELIGIBILITY—To be eligible to receive an award under this subsection to establish a Center, an accredited school of public health shall agree to conduct activities consistent with the requirements of this subsection.

(3) CORE CURRICULA—The Secretary, in collaboration with the Centers and other public or private entities shall establish core curricula based on established competencies leading to a 4-year bachelor's degree, a graduate degree, a combined bachelor and master's degree, or a certificate program, for use by each Center. The Secretary shall disseminate such curricula to other accredited schools of public health and other health professions schools determined appropriate by the Secretary, for voluntary use by such schools.

(4) CORE COMPETENCY-BASED TRAINING PROGRAM—The Secretary, in collaboration with the Centers and other public or private entities shall facilitate the development of a competency-based training program to train public health practitioners. The Centers shall use such training program to train public health practitioners. The Secretary shall disseminate such training program to other accredited schools of public health, health professions schools, and other public or private entities as determined by the Secretary, for voluntary use by such entities.

(5) CONTENT OF CORE CURRICULA AND TRAINING PROGRAM—The Secretary shall ensure that the core curricula and training program established pursuant to this subsection respond to the needs of State, local, and tribal public health authorities and integrate and emphasize essential public health security capabilities consistent with section 2802(b)(2).

Jobs in Public Health Preparedness

Merely 10 years after being defined as a subdiscipline, trained professionals in public health preparedness are now sought after by a multitude of organizations and agencies.

- *Private sector:* Think tanks, consulting firms, private industry, and government contractors hire public health professionals who specialize in preparedness. These jobs include operational planning for private companies, strategic planning for the pharmaceutical industry, and policy analysis and training to support both government entities and clinical operations.
- *State and local government:* Just about every state and local health department now has dedicated staff for preparedness and emergency planning. In addition, state and local departments of emergency management, agriculture, commerce, and transportation, as well as legal support offices, may also employ public health preparedness experts, which again demonstrates the necessity of diverse expertise.
- *Federal government:* As we will learn throughout this text, the federal government is heavily involved in public health preparedness, requiring skilled professionals to work not just at the Department of Health and Human Services but also at the Departments of State, Agriculture, Defense, Treasury, Justice, and Homeland Security and within the intelligence community and the U.S. Agency for International Development.
- *Academia:* Researchers are needed to further the field of preparedness, and informed professors are required for curriculum development and training of students and midcareer professionals.
- *International organizations:* Nongovernmental organizations (NGOs) and formal international organizations (IOs), such as those that are part of the United Nations, are engaged in public health preparedness activities. These include everything from disaster management to refugee health to public health aspects of the Biological Weapons Convention and implementation of the International Health Regulations.

In all, a great deal of work needs to be accomplished, and the need for smart, energetic, and enthusiastic people is great. The world can always use more strong public health professionals and, specifically, public health professionals who can contribute to emergency preparedness and response.

KEY WORDS

Public health preparedness
National security
Homeland security
Homeland defense
Workforce
Pandemic and All Hazards Preparedness Act (PAHPA)
Core competencies
Community preparedness

Discussion Questions

1. Is public health preparedness the same as national preparedness? Is public health preparedness well defined? Can it be operationalized?

2. What types of emergency events require a public health role?

3. What types of public health emergencies require planning for underserved populations and how might such planning be incorporated into preparedness activities?

4. What is the difference between national and homeland security?

5. During a public health emergency, what types of organizations, entities, businesses, and officials will have a stake in response and recovery operations?

6. From the list of 11 components of public health preparedness, which 3 do you think are most important and should be prioritized? Why?

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