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REPORT

Bioterrorism Preparedness Training and Assessment Exercises for Local Public Health Agencies

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Prepared for the Department of Health and Human Services

HEALTH

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Preface

One of the challenges of public health since September 11, 2001, and the subsequent anthrax attacks has been to improve bioterrorism preparedness in state and local public health agencies. In order to accomplish this task, however, we must first develop tools and indicators to measure bioterrorism preparedness reliably so that gaps in bioterrorism preparedness can be identified and improvements can be measured over time.

This operations manual presents a series of tabletop exercises that focus on bioterrorism preparedness for local public health agencies to use to measure and assess their levels of bioterrorism preparedness. The exercises focus on the public health response to a bioterrorism emergency in the first few hours to days of an emergency, when local public health agencies are the primary actors involved in detecting and initially responding to the emergency. We refined these exercises by beta testing them at 13 metropolitan area local public health agencies over the course of 10 months.

The contents of this manual will be of interest to public health professionals at the state and local levels who are involved in bioterrorism response in their agencies.
This work was supported by the U.S. Department of Health and Human Services under contract No. 282-00-0005, for which Dr. William Raub, Principal Deputy Assistant Secretary for Public Health Emergency Preparedness, serves as project officer. The research was conducted in RAND Health's Center for Domestic and International Health Security. RAND Health is a division of the RAND Corporation. A profile of RAND Health, abstracts of its publications, and ordering information can be found at www.rand.org/health.

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Summary

Major public health emergencies like bioterrorism are fortunately rare. The rarity of these events, however, makes it necessary for us to develop strategies that enable public health agencies to prepare for these emergencies in lieu of the pragmatic knowledge and experience that come from regularly responding to real events. Other agencies that deal with unforeseen emergencies such as agencies dealing with natural disasters (e.g., Federal Emergency Management Agency) and agencies dealing with the handling of nuclear materials (e.g., Nuclear Regulatory Commission) regularly use exercise methodologies, including tabletop exercises, as tools to assess their preparedness for emergencies and to train staff in how to respond appropriately to emergencies.

Until recently, the use of tabletop exercises in public health has been fairly rare. This is in part because public health agencies, unlike many other agencies like fire departments that respond to emergencies, have multiple roles in the community other than solely responding to emergencies and have not had as much time to focus on preparedness exercises. For example, these agencies are often in charge of managing a community's public health records, providing medical services such as immunizations, and managing public information campaigns for things like smoking cessation or healthy lifestyles. Therefore, responding to emergencies represents only a small part of the work of public health agencies and usually comes at the expense of the agencies' other tasks.

Since September 11, 2001, and the subsequent anthrax attacks, the use of tabletop exercises in public health has significantly increased. The evidence base for these exercises, however, remains sparse and the quality of many of these exercises is poor because they were not sufficiently beta tested. Most of these exercises focus on training and few provide public health agencies with tools to assess exercise performance. This narrow focus limits the ability of public health agencies to use tabletop exercises as part of an overall continuous quality improvement effort.

In 2003, the U.S. Department of Health and Human Services Office of the Assistant Secretary for Public Health Emergency Preparedness contracted with the RAND Corporation to develop and beta test a suite of tabletop exercises that focus on the response of local public health agencies (LPHAs) to outbreaks caused by bioterrorism in the first few hours to days of the response. This book is the operations manual developed from that project.

The tabletop exercises described in this manual were developed as templates that LPHAs across the country can customize and use to train public health workers in how to detect and respond to bioterrorism events and to assess the level of preparedness of LPHAs over time. They were beta tested and refined in 13 LPHAs across the United States over the course of 10 months.

The manual outlines everything the leadership of an LPHA needs to do to plan for and conduct an exercise. The exercises are led by a trained facilitator. The facilitator guides the exercise discussion and provides exercise participants with probes to keep the

discussion on track and moving forward. Checklists are provided as tools for facilitators to use to help structure the discussion and to assess the exercise. Chapter Three provides detailed information and training materials to teach individuals how to become effective exercise facilitators.

All of the tabletop exercises outlined in the manual share five common elements that are described in detail in Chapter Two:

- initial situation reports
- case reports
- facilitated discussion
- situation updates
- hot wash.

LPHAs can choose from a suite of exercises that focus on one of five potential bioterrorism agents:

- smallpox
- plague
- botulism
- anthrax
- novel (severe acute respiratory syndrome [SARS]-like) agent.

The exercises focus on these agents because they have been identified in the literature as agents that represent our most significant risks, illuminate how the public health system would be taxed in a variety of bioterrorism events, and stimulate a broad range of bioterrorism preparations.

Once an LPHA decides on an agent for its exercise, it can choose between four short (two hours), four medium (four hours), and one long exercise (six hours). Short exercises focus on topics of surveillance and detection and diagnosis and investigation while medium exercises go beyond these topics to discuss system wide coordination, risk communication, and disease control. The long exercise adds one final topic not covered in the short or medium exercises: consequence management.

After an exercise has been conducted, the manual outlines strategies for assessing exercise performance in Chapter Four. The final chapter of the manual discusses how to incorporate the regular use of tabletop exercises into a continuous quality improvement framework for public health preparedness.

Acknowledgments

This manual is one part of a larger project being conducted by the RAND Corporation, with funding from the U.S. Department of Health and Human Services, to examine exemplary public health practices, learn from public health experiences, and develop exercises to improve public health preparedness. We would like to acknowledge and thank the entire RAND team on this project for its efforts, many of whom helped shape our thinking and approach to this work.

Developing this operations manual involved the participation of dozens of public health professionals from 13 metropolitan area local public health agencies across the country. We are deeply grateful for their willingness to participate in the exercises and to provide us with constructive feedback while we beta tested the manual. We would like especially to thank Dr. Susan Lance, State Epidemiologist at the Georgia Division of Public Health, and Dr. David Mosher at the RAND Corporation for their in-depth reviews.

We would also like to acknowledge the assistance and guidance of Dr. William Raub, Principal Deputy Assistant Secretary for Public Health Emergency Preparedness, and Ms. Lara Lamprecht, Program Analyst, both of the Office of the Assistant Secretary for Public Health Emergency Preparedness at the U.S. Department of Health and Human Services. Their commitment to developing tools and resources to help public health agencies improve the country's public health preparedness was the driving force behind this work.

Acronyms

AIDS	acquired immunodeficiency syndrome
ARDS	acute respiratory distress syndrome
BT	bioterrorism
CDC	Centers for Disease Control and Prevention
CHF	congestive heart failure
CME	continuous medical education
CQI	continuous quality improvement
CSF	cerebrospinal fluid
CXR	chest X-ray
ED	emergency department
EMS	Emergency Medical Services
ENT	ear-nose-throat
EOC	emergency operations center
HIV	human immunodeficiency virus
ICS	incident command system
ICU	intensive care unit
LPHAs	local public health agency
MI	myocardial infarction
MRI	magnetic resonance imaging
NG	nasogastric
PIO	public information officer
PPD	purified protein derivative
PPE	personnel protective equipment
SARS	severe acute respiratory syndrome
TB	tuberculosis
WBC	white blood cell

Chapter One.
Introduction

This manual contains templates for 10 tabletop exercises designed to assess the ability of local health departments[1] to detect and respond successfully to a bioterrorism (BT) attack, from the first hours through the first few days following a disease outbreak. Although these exercises specifically address BT preparedness, the basic public health challenges posed by naturally occurring and BT outbreaks are very much the same. Thus bioterrorism preparedness has "collateral benefits" for preparedness dealing with any disease outbreak—natural or intentional (Danzing, 1998). Therefore, these exercises should be helpful to health departments preparing for all types of disease outbreaks.

The ten exercises in this manual do the following:

- provide a wide choice in time commitment (ranging from two to six hours for individual exercises)
- can be readily tailored to meet specific objectives
- may include participants from the health department only—or (in the case of some of the exercises) from the wider community (such as police, firefighters and hospital personnel)
- exercise a broad spectrum of preparedness issues and proficiencies
- are adaptable to a wide range of health departments—including large and small, urban and rural
- encourage customization

OBJECTIVES AND STRUCTURE OF MANUAL

The manual has four primary objectives:

- Serve as a "guidebook" for planning individual tabletop exercises and developing a regular system for training and assessment of the public health department's preparedness.
- Serve as a training and reference manual for individuals conducting an exercise.
- Provide tools and templates necessary to conduct an exercise.
- Provide a strategy and format for evaluating the exercise at least twice:
    - Participants will evaluate the exercise immediately after completion (referred to as a hot wash).
    - The facilitator and note taker will prepare a written report (referred to as an after-action report).

The two "guidebook" portions of this manual serve as bookends. The first (Chapter Two) explains how to plan and develop an exercise from one of the exercise

[1] The term "local health department" is used in this manual to signify all health departments below the state and regional level (e.g., district, county, municipal).

templates provided in this manual. The second (Chapter Six) describes how to set up a regular program of exercise-based testing. The portion of the manual between these bookends contains instructions on training and preparing to facilitate the exercise (Chapter Three), conducting the exercise (Chapter Four), and setting up a regular training and assessment framework (Chapter Five). The remainder of this chapter provides a broad overview of the exercises contained in this manual.

GENERAL EXERCISE FORMAT

The tabletop exercises in this manual present simulated public health emergencies and require participants to work together as a group to describe how they would respond if the situations were real. This manual contains nine exercise templates and one "create-your-own" exercise template. These exercise templates share five common elements:

- initial situation reports
- case reports
- facilitated discussion
- situation updates
- hot wash.

Each element is briefly described here and discussed in greater detail in the chapter sections indicated below.

Initial situation reports put the exercise into a particular context. Each report supplies a back story, providing a brief account of the key events leading up to an outbreak or the threat of an outbreak. Situation reports can be customized to be more relevant to the local environment.

Case reports build on the initial situation reports by presenting the group with a series of cases that may require a public health response. The case reports progress from cases of questionable importance to obviously serious cases. Each case report requires the group (and individual participants) to describe what they would do if presented with such a case in real life. Case reports are designed to be customized to be more relevant to the local environment. For example, the names of local health care facilities are inserted into the case reports.

Facilitated discussion occurs as new information (case reports and situation updates—see below) is presented to the group. The facilitator encourages participants to discuss (in as much detail as possible, given time constraints) how they would respond to the evolving scenario under consideration. The primary goal of facilitation is to be sure that participants address all key issues. See Chapter Three for more detail.

Situation updates are used throughout the exercises to update the scenario presented in the initial situation report and case reports. Situation updates keep the discussion moving forward and encourage flexibility in responding to different stages of an emergency.

The *hot wash* is a stock-taking period after the exercise in which participants discuss their responses to individual exercise elements and the exercise as a whole and identifies strengths and areas for improvement. The goal of this session is to give the participants an opportunity to reflect on the exercise and lessons learned.

Hot wash feedback also informs the *after-action report* and can be used as a starting point for a *continuous quality improvement* process. See Chapter Five for more detail.

ISSUE AREAS COVERED

Public health preparedness covers a broad issue spectrum that cannot be assessed in any single tabletop exercise. The exercises in this manual cover the following six key issue areas:

- surveillance and detection
  - use of existing surveillance systems to detect potential outbreaks
  - initiation of active surveillance
- diagnosis and investigation
  - establishing a case definition
  - clinical and laboratory investigations
  - epidemiologic investigation
- systemwide coordination
  - handoffs with regional or state health department
  - coordination of efforts with other local and state actors (e.g., elected officials, law enforcement)
  - establishment of an Emergency Operations Center
- risk communication
  - effectively communicating essential messages to the public
  - initiation of a public information campaign
  - coordination of information to media
- disease control
  - prophylaxis and vaccination capabilities
  - isolation and quarantine
  - closing of schools, workplaces, hospitals, and similar facilities
- consequence management
  - treatment of affected individuals
  - assessing the provision of needed care
  - surge capacity.

These issues were chosen to highlight activities identified in the literature that local health departments should consider or undertake in the first few hours to days of an outbreak (Gregg, 1996; Plant, 1998, Reingold, 1998, Tyler and Last, 1998). The point at which regional or state health departments become involved in the response depends upon the structure of the local health department and its relationship to the state.

Exercises in this manual may be adapted to incorporate these issues. Not all issues are covered in every exercise.

EXERCISE TYPES

This manual includes these ten exercise types:

- four short exercises (up to two hours each)
- four medium-length exercises (half day each)
- one long exercise (full day each)
- one create-your-own exercise (can be short, medium or long).

The short exercises take approximately two hours to complete, the medium exercises take approximately four hours, and the long exercise takes approximately six hours. Preparing an after-action report takes an additional two to three hours.

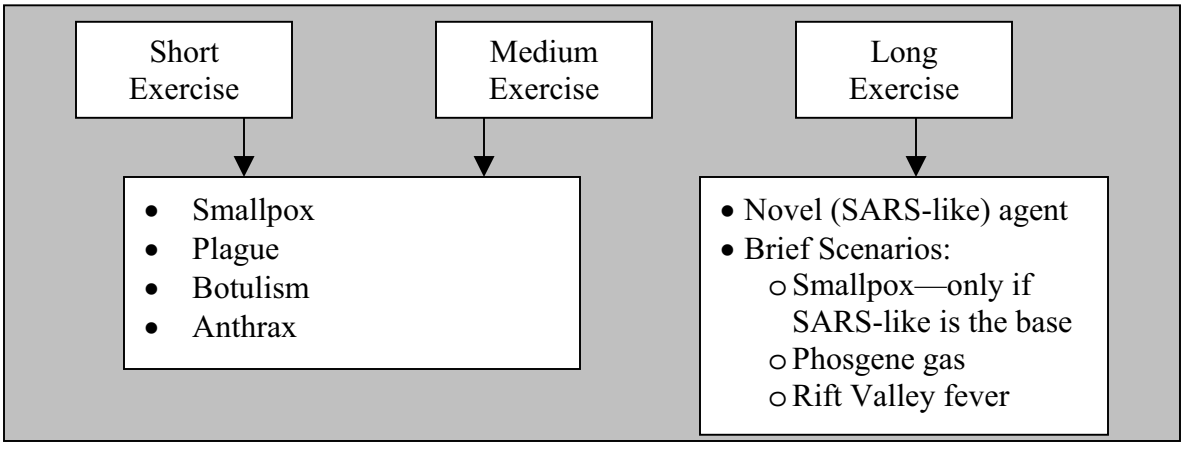
AGENTS USED IN EXERCISES

In order to exercise fully the broad range of issues outlined above, the exercises in this manual were developed around five potential bioterrorism agents[2]:

- smallpox
- plague
- botulism
- anthrax
- novel (SARS-like) agent

These agents were chosen because they have been identified in the literature as agents that represent our most significant risks, illuminate how the public health system would be taxed in a variety of bioterrorism events, and stimulate a broad range of bioterrorism preparations (Danzing, 1998). The short and medium exercises focus on a single agent among the four listed (see Figure 1.1). The long exercise contains four separate agents: Novel (SARS-like) agent, smallpox, phosgene gas, and Rift Valley fever. Exercise templates are flexible and may be modified to include different agents.

Figure 1.1 Agents Used in the Different Exercise Types*



*Extensive background and clinical information on all these agents can be found at www.cdc.gov.

Chapter Two.
Planning an Exercise

EXERCISE FREQUENCY

The Centers for Disease Control and Prevention (CDC) recommends that at least once per year, all health departments exercise and assess their ability to respond to bioterrorism outbreaks (CDC, 2004). This manual is designed to provide public health agencies with tools to conduct such exercises.

STAFFING AND MATERIALS

The staff needed to conduct an exercise includes an organizer, facilitator, and note taker. The facilitator and the organizer may be the same person. However, the note taker should be a separate person; the facilitator will be too busy during the session to take notes.

The exercise organizer is in charge of putting the entire exercise together. An organizer's duties fall into three broad categories:

- planning and logistics:
  - Identify an exercise facilitator and note taker.
  - Identify and recruit participants.
  - Schedule a date and time for the exercise.
  - Identify and reserve a venue for the exercise.
  - Arrange for beverages and food to be provided at the exercise.
  - Obtain nametags for participants.
  - Create folders for participants.
  - Make copies of exercise materials.
- exercise customization and completion (explained in greater detail in Chapter Two and in Appendices A through D); the organizer and the facilitator should coordinate closely on this task:
  - Choose an exercise from the appendices to conduct.
  - Customize exercise discussion guide using exercise template.
  - Create visual presentation based on discussion guide.
  - Review exercise with facilitator and note taker.
- management:
  - Ensure participants have everything they need on the day of the exercise.
  - Set up the exercise room prior to the exercise.
  - Provide nametags to participants on exercise day.
  - Ensure beverages and food arrive at the exercise on time.

The exercise facilitator is the person in charge of leading the exercise discussion. Ideally, exercise facilitators should have experience with leading tabletop exercises. Chapter Three discusses the role of the facilitator and identifies training and preparation strategies for new facilitators.

The note taker has the important role of recording what happens in the exercise and generating an after-action report. Chapter Five discusses exercise assessment and how to prepare an after-action report.

Additional requirements to conduct an exercise include the following:

- conference room able to seat 12-15 people
- computer with presentation software and projector (optional)
- marker board, flip board, or chalkboard
- copies of exercise materials to give to participants

CHOOSING AND CUSTOMIZING AN EXERCISE

A customized exercise can be developed from one of the exercise templates in Appendices A through C. Figure 2.1 presents the different exercise templates available in this manual and the location of those templates in the appendices. Appendix D is a create-your-own-exercise template that lets users develop a customized short, medium, or long exercise.

Choosing an appropriate exercise template involves four primary considerations:

- amount of staff time dedicated for the exercise
- previous exercise experience
- the issue areas and capabilities the health department wishes to assess, enhance, or train on
- range of participants participating in the exercise.

Figure 2.1 Choices of Exercise Templates

Type	Agent	Length	Template Exercises
Short	Anthrax	2-hours	Appendix A1
	Botulism		Appendix A2
	Plague		Appendix A3
	Smallpox		Appendix A4
Medium	Anthrax	4-hours	Appendix B1
	Botulism		Appendix B2
	Plague		Appendix B3
	Smallpox		Appendix B4
Long	Multiple	6-hours	Appendix C1-4

Short, medium, and long exercises obviously differ in the amount of time that will need to be dedicated to the exercise. The primary reason for choosing a medium or long exercise over a short exercise is that the medium and long exercises provide more time to discuss important topics as well as a wider range of important topics. Short exercises, for example, focus on topics of surveillance and detection and diagnosis and investigation while medium exercises go beyond these topics to discuss system wide coordination, risk communication, and disease control. The long exercise adds one final topic not covered in the short or medium exercises: consequence management. Therefore the choice of

exercise length needs to be contrasted with the amount of time a public health agency has to dedicate to conducting an exercise and the range of topics that agency wants to cover.

There are also five agents or diseases (outlined in Chapter One) from which to choose. Choosing an agent is important for several reasons. First, public health agencies may feel over exercised on certain diseases like smallpox. The choice of different diseases allows agencies to diversify their exercise experiences. The choice of disease also has real ramifications for the issues that are covered in that exercise. For example, smallpox is contagious, whereas anthrax is not. Smallpox therefore involves many issues like quarantine and isolation that anthrax does not and therefore the discussion for these two exercises is usually very different.

Three components of the exercise can be customized to tailor exercises to a local environment and to the way in which local health departments relate to regional or state health departments:

- initial situation report
- case reports (e.g., names of local healthcare facilities, universities)
- Situation updates (e.g., names of local health care facilities).

The initial situation reports for the medium-length exercises can be customized to where an outbreak occurs first:

- within the public health agencies local jurisdiction
- in the same region of the country as the public health agency
- in a distant region of the country far away from the public health agency.

The choice between these three options is important. If health officials choose to do an exercise where the outbreak first occurs in their local jurisdiction, they will be testing an instance in which their public health agency has no advanced warning of the outbreak. In the initial part of the exercise this will involve a very different response than if health officials choose instead to focus on an exercise in which an outbreak happens somewhere else first and they have a heads up to begin preparations for an outbreak in their jurisdiction.

In the end, however, these choices of where the outbreak occurs first have an important influence over how a public health agency responds to an outbreak. For example, an agency that witnessed an outbreak of smallpox in a nearby state would have time to initiate active surveillance before they even responded to a single case, whereas if that same agency had no advanced notification, they would have to initiate active surveillance after the jurisdiction already had cases.

Public health agencies in major metropolitan areas (like New York, Los Angeles, or Chicago) may choose to focus on an outbreak that happens in their jurisdiction first because in reality this may be what they are expecting. Other public health agencies in more rural settings may feel that it is more realistic to start out with an outbreak that occurs in some other part of the country first.

All sections of the exercise templates requiring customization are highlighted in bold with brackets: **[example]**. The exercise templates also contain periodic instructions highlighted in italics with brackets: *[example]*.

Each section of the exercise templates has text that is contained within a gray box. These sections of the exercise templates provide templates for presentation slides that can be created to aid in the delivery of the exercise. For example, Figure 2.2 contains an example of highlighted text from the short anthrax exercise (Appendix A1). This type of information can be used to generate an appropriate presentation slide for the initial situation report.

Figure 2.2 Sample Template to Create a Presentation Slide

July 15, **[year]**:

- **[Local area]** is locked in a continuing heat wave with daytime high temperatures expected to reach over **[number]** degrees Fahrenheit.
- Summer vacation traffic is high and air quality is poor.
- The health department has been receiving a steady stream of calls with reports of dehydration, especially among infants and elderly.
- Some of the elderly patients have developed respiratory distress and two have died.
- Senior centers have begun to distribute fans to elderly citizens without air conditioning.

The exercise coordinator chooses an appropriate exercise template and customizes the parts of the exercise requiring customization. Chapter Four outlines each of the exercise components requiring customization.

CHOOSING AND RECRUITING PARTICIPANTS

The individuals invited to attend an exercise will depend on the structure of the health department and its relationship with the state or regional health department. The medium and long exercises are designed to simulate a likely flow of events that would also involve stakeholders outside the health department and will be more effective if such stakeholders are included. Suggested participants for these exercises include the following:

- local health department staff
    - health director
    - communicable disease control director
    - bioterrorism coordinator
    - epidemiologist
    - representative from a public health laboratory
    - public health nurse
    - public information officer
- local stakeholders
    - law enforcement

- Emergency Medical Services (EMS) personnel
- hospital infection control staff
- local physicians
- minority community leadership
- elected officials
- emergency management official.

Depending on the local environment and the relationship between the state, the regional (if such exists), and the local health departments, it may be useful to include regional or state health department staff in an exercise. (Actually recruiting participants is the responsibility of the exercise organizer.) Health department directors may decide to make the exercises required training experience for selected staff members.

CHOOSING A VENUE AND SETTING UP A ROOM FOR AN EXERCISE

Choosing an appropriate venue and properly preparing the meeting room are both important prerequisites for a successful exercise. Venues should be convenient for all participants. The room should be set up to facilitate casual group discussion, and all participants should be able to see one another. The ideal setup is a semicircular seating arrangement with participants facing a presentation-enabled projection screen.

Chapter Three.
Learning to Facilitate an Exercise

TRAINING AND PREPARATION TO FACILITATE AN EXERCISE

All the exercises outlined in this manual involve a facilitator whose job it is to do the following:

- Set up the exercise discussion with the initial situation report
- Introduce the case reports
- Answer participant's questions
- Ensure that all participants actively take part in the exercise
- Provide participants with situation updates during the exercise
- If necessary, use "probes" to ensure that all key issues are discussed
- Keep the discussion moving at a reasonable pace within the various timeframes allotted for the individual steps in the exercise
- Help participants think through the final "hot wash" stocktaking session

The facilitator could be the director or bioterrorism coordinator for another local health department if the goal of the exercise is training. If the goal of the exercise is assessment, it is more useful if the leadership personnel participate in the exercises. This chapter outlines strategies for first-time or beginner facilitators to hone and develop the skills required to perform the tasks cited above.

Prior to an exercise, the facilitator will want to become familiar with the exercise and the disease or agent being discussed in the exercise. The facilitator does not need to be a clinician or physician just because the case reports are clinical in nature; a facilitator need only have enough knowledge about the disease or agent being used to answer questions from participants and facilitate the exercise.

USING CHECKLISTS AND PROBES

Checklists help ensure that all major issue areas relevant to the exercise objectives are covered. Each of the exercise templates in the appendices contains checklists for the major issue areas addressed in that exercise. The facilitator can use the checklists to make sure that the discussion is not getting too far off-track and to help decide whether to guide the discussion with "probes." Examples of probes can be found in the exercises in the appendices.

Probes should be used on a case-by-case basis, keeping in mind the objectives for the exercise. For instance, if one objective were to assess whether health department staff know how to respond to a disease outbreak, it would be inappropriate to provide too much guidance about how to respond. On the other hand, the facilitator should not miss the opportunity to discuss critical parts of the response just because the participants did not think of them.

One solution is timing: the facilitator could first ask the participants to prepare a checklist for a particular issue area, and then make sure that the subsequent discussion covers all relevant topics, even if the participants did not put them on the checklist.

Figure 3.1 contains a sample checklist. This checklist can be used as a reference for the major topics that would be covered in a typical discussion of diagnosis and investigation. The facilitator could refer to the checklist periodically during the discussion to ensure that all key points are covered. The checklist does not prescribe an order for discussion topics. In fact, discussion rarely follows the order of items in a checklist.

Participants should be given the opportunity to raise topics without being guided, and facilitators will need to use their own judgment to determine if participants skipped a topic they are unlikely to return to later in the discussion. In this case, the facilitator may decide to use a probe to guide discussion toward an important topic. Additionally, the note taker can use checklists to aid note taking and to help create the after-action report.

Figure 3.1 Sample Checklist

Checklist: Diagnosis and Investigation

- ☐ Establish case definitions; find existing definition
- ☐ Confirm that the cases are “real” and identify the agent
- ☐ Establish background rate; decide if there is an outbreak
- ☐ Identify new cases through active or enhanced surveillance
- ☐ Investigate suspected cases identified by surveillance
- ☐ Examine descriptive epidemiology; define the scope of the outbreak
- ☐ Generate hypotheses about source of exposure
- ☐ Collect and test samples

ACHIEVING A BALANCED FACILITATION STYLE

Too little -- or too much -- facilitation can result in an unsuccessful exercise. The facilitator should keep the discussion moving forward on track, without over-leading the participants. This balance is learned through experience and observation. Figure 3.2 compares balanced facilitation (center) to too little facilitation (left) or too much facilitation (right).

Figure 3.2 Balanced Exercise Facilitation

Too Little Facilitation	Just Enough Facilitation	Too Much Facilitation
• Long or awkward pauses in the discussion • Some participants don't take part in the discussion • Facilitator lets the discussion regularly get off track without attempting to refocus it • Participants look bored • Participants must continually query the facilitator for guidance • Participants are confused and don't know what is expected of them • Facilitator is too rehearsed and does not improvise • Facilitator reads directly from the discussion guide • Participants are not challenged by the facilitator to make concrete decisions	• Discussion moves smoothly at a pace that is comfortable for all participants • All participants are able to contribute to the discussion • Transitions go unnoticed • Facilitator asks insightful questions • Participants understand the situation and what is expected of them • Facilitator appears experienced and confident • Facilitator encourages participants to consider all options and challenge one another's assumptions • Facilitator encourages participants to make decisions	• Discussion moves too quickly for participants to follow • Facilitator interrupts or cuts participants off while they are talking • Facilitator talks more than participants • Participants feel rushed • Participants feel patronized or intimidated • Participants look exasperated or frustrated • Participants feel facilitation was too "classroom" like • Facilitator makes decisions for participants • Facilitator interjects tangential comments at inappropriate times

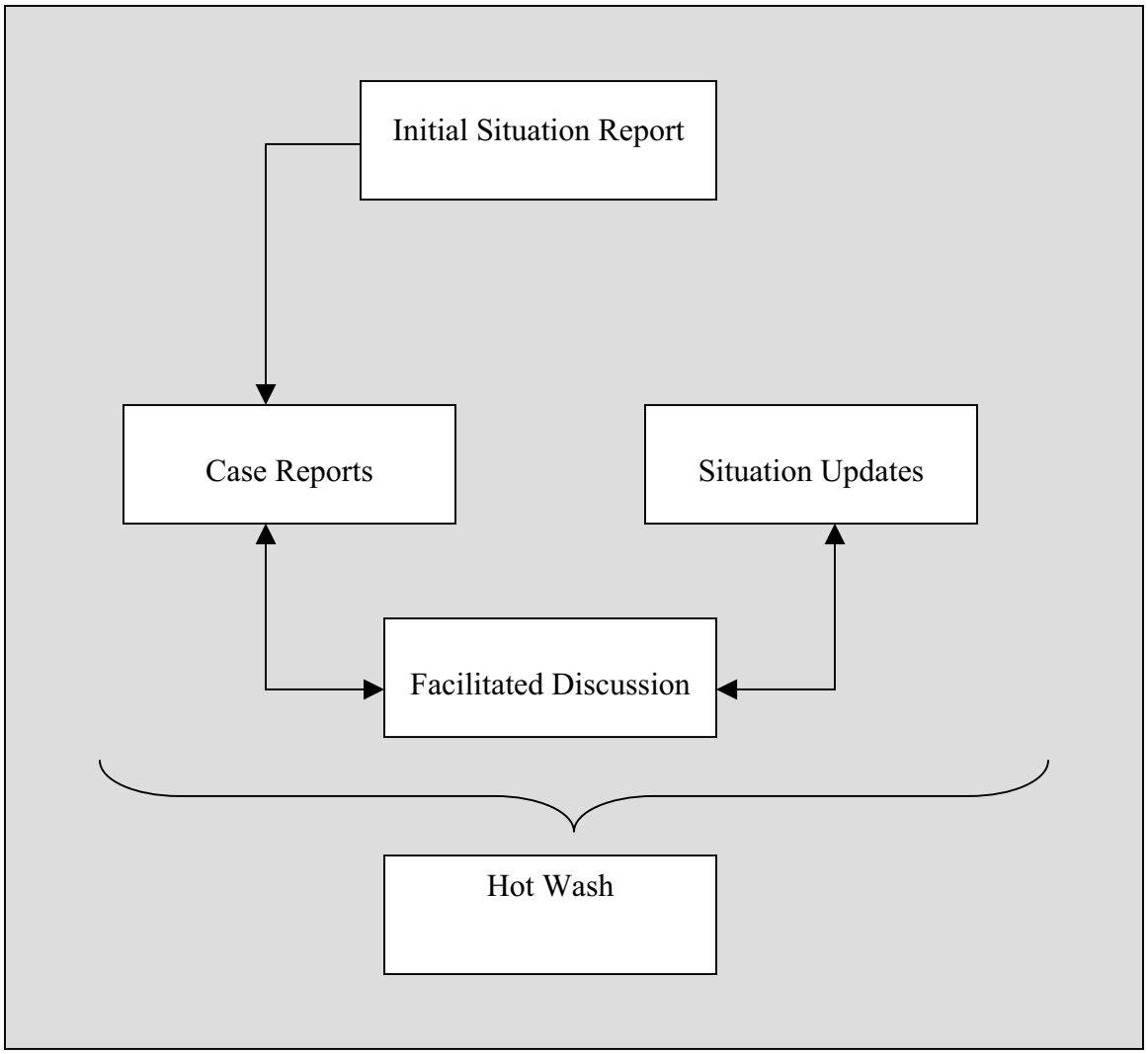
Chapter Four.
Conducting an Exercise

BROAD FRAMEWORK FOR CONDUCTING AN EXERCISE

The exercises in this manual were designed to generate an open and candid discussion. There is no rigid structure for any exercise. Exercises do, however, follow the broad framework outlined in Figure 4.1.

All exercises begin with an initial situation report. All exercises also have case reports (calls placed to the health department from healthcare workers who are reporting on a case or cases that they believe might have public health importance). After each case report, there is discussion regarding the actions the participants would take to address the case report. During the exercise, periodic situation updates provide participants with additional information to consider in their response, such as results from an epidemiological or laboratory investigation or the emergence of additional cases.

Figure 4.1 Framework for Conducting an Exercise



INITIAL SITUATION REPORT

The initial situation report sets up the entire exercise. This report provides the context for everything that happens during the exercise, and will influence participants' options throughout. It is therefore vital that the initial situation report be carefully reviewed at the outset of the exercise. There are three different options for initial situation reports:

- Option 1 (outbreak within the jurisdiction) —A localized disease outbreak originating in the health department's jurisdiction. Reflecting reality, this initial situation report may be ambiguous. The initial situation report also provides general information about the environment prior to the outbreak.
- Option 2 (outbreak within the region) —A regional outbreak that occurs first in a region close to but outside of the jurisdiction of the health department. The initial situation report details reports received by the local health department about the outbreak in the nearby region.
- Option 3 (distant outbreak) —A statewide outbreak that occurs in a state that is not geographically close to the health department (e.g., a state that does not share a border with the health department's state). The initial situation report details reports received by the local health department about the outbreak in the distant state.

As discussed in Chapter Two, the exercise organizer chooses and can tailor the exercise template used for an exercise based on perceived local training or assessment requirements, the local environment, and the relationship between the local health department and the regional or state health department.

If the health department is part of a major metropolitan area, all three of the above situations may be relevant. Major metropolitan areas typically receive heavy amounts of traffic from all over the country. As a result local health departments in these areas may interpret any outbreak, anywhere in the country (or the world, for that matter) as having the same level of threat as a local outbreak, and may respond with immediate surveillance and other appropriate activities. In rural health districts, the distinction between Situation 2 and Situation 3 may involve a different initial response (e.g., active surveillance for Situation 2, versus a less proactive "watch and wait" strategy for Situation 3).

CASE REPORTS

All exercises present participants with a series of two or three case reports that are received by the health department. The goal of these case reports is to elicit discussion from the participants about what steps they would take to address the issues raised by the reports. The facilitator guides the discussion about the case reports and answers any questions the participants might have about them. The discussion guide for some exercises provides clinical background stories about more complicated cases so that the facilitator is better able to answer questions from the participants about these cases.

In some instances, participants may ask questions that cannot be answered with the information provided in the exercise. For example, they may ask what the test results

were for a particular test. (The facilitator should respond that the test results are not yet available.) Detecting and responding to outbreaks more often than not involves acting in an environment of uncertainty. The facilitator should encourage participants to work around uncertainties and develop their response with the information they have, recognizing that they will very often not have all the information they would like to have.

Each exercise has three detailed case reports. Each case report contains patient information in seven different domains:

- Age
- Sex
- Ethnicity
- Language
- Comorbidities
- Symptoms
- Limited test results

Case reports provide participants with information to begin discussing how they would deal with each of the cases and to consider how each patient's characteristics may influence their investigation. For example, a non-English-speaking patient will require the health department staff to find a way to communicate.

In addition, some minority communities may respond to the health department disease investigation with skepticism and fear which could complicate contact tracing, collecting environmental and biological samples, and adherence to key public health recommendations.

The first case report presented in every exercise is often intentionally vague, requiring participants to consider a variety of explanations for what might be wrong with the patient and determine whether it rises to the level of being "actionable". The second case provides more clues; however, the explanation is often still not immediately apparent.

The third case should provide participants with the final information they need to begin establishing a case definition and determining if the cases are related. The cases are presented in this way to get participants to discuss how they would learn about the cases in their own communities and possibly link them.

SITUATION UPDATES

All exercises have at least one situation update that presents new information on the progress of the investigation. The situation updates keep the discussion moving forward, and require participants to respond with flexibility to "real-life" developments. There are two types of situation updates used in the exercises:

- Information updates
- Complication updates

There are three different kinds of information updates:

- Participants are updated about the status of one or more of the case reports they received earlier. The update gives additional information (e.g., laboratory test results, health status of cases, etc.) that can aid in developing the case definition.
- Participants are given initial results from the active surveillance efforts. This update provides information about possible additional cases and the extent of the outbreak (e.g., the number of patients in the local hospital emergency department matching the case definition, etc.).
- Participants receive information from the epidemiologic investigation that provides clues about the origin of the outbreak (e.g., the results of contact tracing, information from sanitarians in the field, etc.).

Complication updates present participants with one or more complications that must be addressed. There are three different kinds of complication updates:

- Participants are told about a press leak or inquiry from the media regarding the outbreak, forcing them to consider how they will deal with the media (e.g., need for press releases, need for a consistent message, etc.).
- Participants are told about staffing difficulties in the health department (e.g., staff not showing up for work, staff reporting that they are exhausted from working so much, etc.).
- Participants are told about public anxiety over the outbreak (e.g., problems of crowd control, looting, etc.).

Participants should discuss how they will address the problem raised by the update and how that problem might complicate their investigation.

In addition to situation updates, long exercises also include several brief scenarios that enable participants to discuss a wider range of issues than can be done in the short or medium exercises without forcing participates to re-discuss topics already covered (e.g., initiating active surveillance, establishing a case definition, etc.).

HOT WASH

All exercises end with a "hot wash" -- a time period reserved for participants to discuss the exercise itself and how the group responded to it. The hot wash allows participants to receive feedback from the facilitator as well as one another. The hot wash reinforces learning by doing the following:

- Giving participants time to reflect on their individual responses and the group's responses to the exercise
- Allowing participants to hear other peoples' perspectives and views about the quality of responses developed during the exercise

Participants can also learn from the facilitator who can perform these functions:

- Provide participants with feedback on how their responses might have differed
- Outline the strengths and weaknesses of the responses

Chapter Five.
Using Exercises for Continuous Quality Improvement

OVERVIEW

There are only a few examples of performance measurement in local public health agencies (Dausey et al., forthcoming; Lurie et al., 2004, Reedy et al., 2005). This manual provides health departments with tools that can be used for training and assessment of public health preparedness, with the ultimate goal of improving public health preparedness through performance measurement. To achieve this goal, the exercise templates in this manual have been designed so that they can be regularly used as part of a system of continuous quality improvement (CQI). CQI is a term used to describe a comprehensive management philosophy, emphasizing the continuous improvement of work processes for improved outcomes.

The exercises in this manual can also be used to help ensure that even a well-prepared health department maintains its level of skill and competency in the face of these challenges:

- Staff turnover
- New threats (e.g., emerging diseases, bioterrorism threats)
- Changes in laws or procedures related to public health
- Infrastructure changes in public health (e.g., new computer systems).

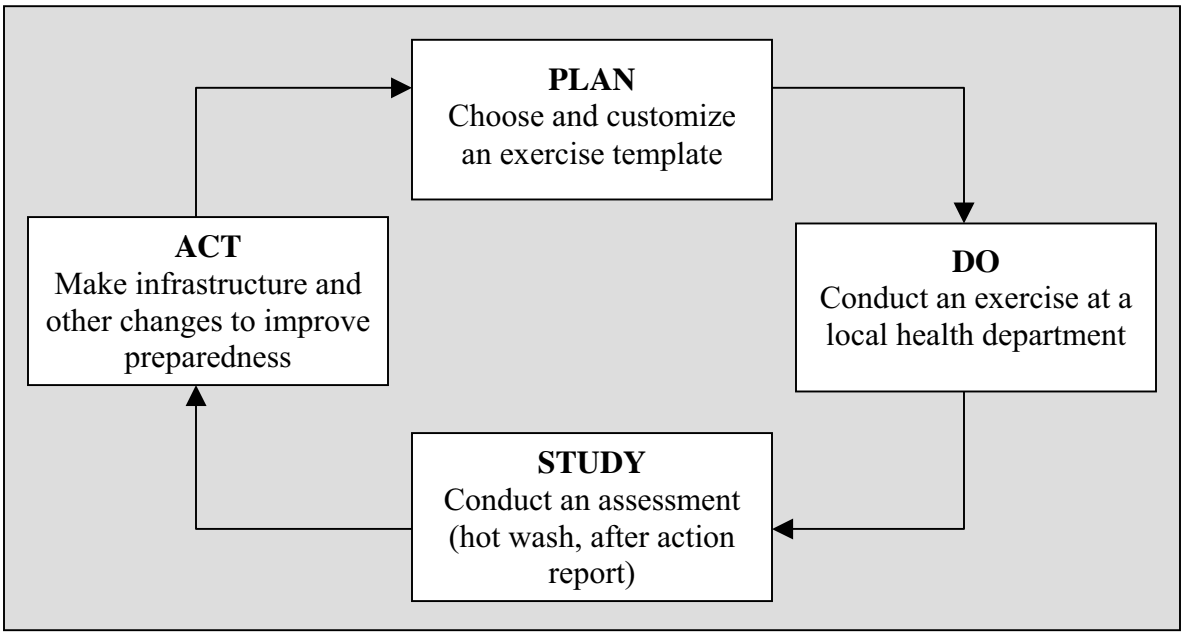
Local health departments that are part of a regional or state public health structure may also consider developing an exercise program with other local health departments in their region. This may be a particularly useful strategy for local health departments that are part of a loosely based, decentralized structure requiring collaboration during a disease outbreak. These departments could use this manual to develop tabletop exercises that assess the ability of several local health departments to function together as a unit. In this section, a framework for all of these activities is suggested using the Plan-Do-Study-Act Model as outlined in Figure 5.1.

PLAN-DO-STUDY-ACT

Throughout this manual we have discussed strategies for planning and conducting a successful exercise. Chapter Two highlighted pragmatic details for planning an exercise such as staffing and scheduling. Chapters Three and Four explained how to train to conduct an exercise and the process for conducting an exercise. These chapters provide a framework to complete the first two steps of the Plan-Do-Study-Act model.

The last two steps of the model focus on reviewing and reflecting on the exercise and making changes based on lessons learned. There are a number of different ways to review and reflect on an exercise. Chapter Four briefly discussed the idea of a "hot wash" session immediately after an exercise, so participants can openly reflect on the strengths and weaknesses of the exercise and their own performance while the experience is fresh in their minds.

Figure 5.1 Plan-Do-Study-Act Framework



Another way to aid in the learning process after an exercise is to generate an after-action report summarizing the exercise and highlighting the health department's strengths and areas for improvement. There is no specific or formal format for such a report. After-action reports can include brief summaries of the exercise as well as bulleted lists of strengths and areas for improvement highlighted from the exercise (e.g., by the issue areas covered in the exercise; see Figure 1.1).

A health department that decides to generate an after action report may find it useful to circulate the report to participants and then meet to discuss it. Such a meeting is useful because unlike the hot wash session, participants will have had more time to consider their performance during the exercise.

Once participants of an exercise have had time to discuss the strengths and weaknesses of an exercise, they should consider how these weaknesses should be addressed. Sometimes weaknesses can be addressed with minor changes; other times, more substantial changes are necessary. Whether the changes are big or small, their effectiveness should be assessed by conducting exercises over time and assessing improvement. The CDC recommends health departments engage in these types of exercises at least once each year.

Appendix A.
Short Exercises

A1. Anthrax Short Exercise Template 20

A2. Botulism Short Exercise Template 25

A3. Plague Short Exercise Template 30

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A1. Anthrax Short Exercise Template

OVERVIEW

This tabletop exercise is one exercise in a suite of exercises that have been developed to aid health department officials in assessing the ability of their department to effectively respond to a bioterrorism (BT) event. Each exercise in the suite focuses on a different type of bioterrorism event such as a bacterium, toxin, or virus. This exercise focuses on the purposeful spread of a bacterium-- aerosol anthrax -- in a population of people. The exercise will take approximately two hours to complete.

OBJECTIVES

Assess the ability of the health department in these areas:

- *Surveillance and Detection*
  - Use of existing surveillance systems to detect potential outbreaks
  - Initiation of active surveillance
- *Diagnosis and Investigation*
  - Establishing a case definition
  - Clinical and laboratory investigations
  - Epidemiologic investigation

Elements required to meet these objectives appear as checklists at the end of the suite of short exercises.

EXERCISE MANAGEMENT

Two individuals are needed to conduct this exercise:

- A facilitator who conducts the exercise and, as necessary, offers probes to the participants (The purpose of the probes is to keep the discussion moving forward, and to focus the discussion if it moves off track.)
- A note taker to take notes during the exercise.

Participants

Local health department staff:

- Health director
- Communicable disease control director
- Bioterrorism coordinator
- Epidemiologist
- Representative from a public health laboratory
- Public health nurse(s)

Materials Needed for the Exercise

- Conference room able to seat 5-10 people
- Computer with presentation software and projector (optional)
- Marker board, flip board, or chalkboard
- Copies of exercise materials to give to participants
- Refreshments (e.g., coffee, water)

Initial Situation Report

[Customize the exercise template by choosing one *of the below three options for the initial situation report]*

Option 1 (Outbreak within the jurisdiction) —A localized disease outbreak originating in the health department's jurisdiction.

July 15, **[year]**:
- ✓ **[Local area]** is locked in a continuing heat wave with daytime high temperatures expected to exceed **[number]** degrees Fahrenheit
- ✓ Summer vacation traffic is high and air quality is poor
- ✓ The health department has been receiving a steady stream of calls with reports of dehydration, especially among infants and elderly
- ✓ Some of the elderly patients have developed respiratory distress and two have died
- ✓ Senior centers have begun to distribute fans to elderly citizens without air conditioning

If Option 1 is chosen, the facilitator should immediately begin discussing the first case report after the initial situation report

Option 2 (Outbreak within the region) —A regional outbreak that occurs first in a region close to but outside of the jurisdiction of the health department.

July 15, **[year]**
[Local health department] officials receive an alert via the Health Alert Network about an outbreak of anthrax in nearby **[region]**. The alert cautions health departments in the region to be on the look out for patients with respiratory illnesses.

If Option 2 is chosen, the facilitator should allow participants to discuss what (if anything) they would do if they received such an alert. *[Consider using active surveillance probes listed after the first case report]*

Option 3 (Distant outbreak) —A statewide outbreak that occurs in a state not geographically close to the health department.

July 15, **[year]**
The Associated Press reports that **[distant state]** has an anthrax outbreak that has affected **[number]** people. The state health department is still trying to identify the cause of the outbreak however bioterrorism is strongly suspected.

If Option 3 is chosen, the facilitator should allow participants to discuss what (if anything) they would do had they received such information.

Case Reports

Facilitator Dialogue

Who is responsible for receiving case reports today? *[To identified person]:* You receive the following case report at 4:00pm (July 26) from an emergency medicine doctor at **[local hospital]**

July 26, a 56-year-old African American male presented to the emergency department at 9:20 AM after reportedly being unable to get an appointment with his primary care physician.

- ✓ He had two days of fever, malaise, purulent cough and drenching night sweats.
- ✓ He was found to be hypotensive and tachypneic.
- ✓ While he could still talk, he said he'd had a heart attack two years ago, and he had chest pain radiating to both shoulders.
- ✓ He was intubated. Chest X-ray (CXR) was consistent with pulmonary edema and showed an unexpectedly wide mediastinum, and bilateral pleural effusions, L>R.
- ✓ Echocardiogram (echo) did not show wall motion abnormality or dissecting aneurysm.
- ✓ Plural effusions were grossly bloody. Sputum gram stain revealed gram-positive bacilli.

Facilitator Probes

[To identified person]

- What other information (if any) would you like to have from the caller?
- What advice (if any) would you give the caller?
- Who in the health district would you contact regarding the case? What would you tell them?

[To all participants]

- Who would assume responsibility and take charge at this point?

[The designated official should be encouraged to take charge of the discussion]

- Can you outline the main steps you would take?

[These probes relate to active surveillance. If this was discussed during the initial situation report, move on.]

- At this point would you do anything to try to identify if there are more cases?
- Which entities would you need to contact to initiate active surveillance? What are you going to tell them?
- How would you do active surveillance in vulnerable populations?
- What would you do with potential or suspicious cases that you identified?
- How would you aggregate information on suspicious cases?
- What percentage of physicians in your community could you contact?
- Would your active surveillance include a general public health advisory?

Facilitator Dialogue

Who else here might handle a case report if *[the person responding to the first case report]* is not available? *[To identified person]* You receive the following case report at 3:00pm on the next day (July 27) from the nursing director of the intensive care unit (ICU) at **[local hospital]**.

[If the local health department is large enough that it has more than one affiliated hospital, choose a different hospital than the one that is used for the first case report]

On July 25, a 19-year-old white male in a summer program at **[local university]** presented to the student health center with a fever of 100.5 degrees and sore throat. He failed to improve after two days.

- ✓ On exam, appeared tanned and healthy, but had unilateral cervical adenopathy and two ulcerations at the base of his tongue.
- ✓ Rapid strep test was negative and he was sent home with ibuprofen.
- ✓ A day later (July 26) he returned to the student health center with increased pain and more difficulty breathing.
- ✓ The ulcerations were beginning to necrose, and he appeared to have impending airway obstruction.
- ✓ He was sent to **[local hospital]** and admitted for more tests.
- ✓ The ear-nose-throat (ENT) consultant biopsied the patient's tongue lesions.
- ✓ Today (July 27) gram positive bacilli were noted on culture specimens.

Facilitator Probes

[To identified person]

- What other information (if any) would you like to have from the caller?
- What advice (if any) would you give the caller?
- How, if at all, would you know about the first case reported the day before?

[To all participants]

- How would you begin thinking about establishing a case definition?
- When (if at all) would there be a meeting of the core local health department team who would respond to this problem? What happens at that meeting? How are activities coordinated among staff?
- When (if at all) would you contact your state health department and what would you tell them?
- What contact (if any) would local health department staff have with patients or their families (e.g., would staff call cases on the phone, conduct medical record reviews or personally visit the cases and possibly collect samples)?
- Who is in charge of dealing with lab samples?
- Where do lab samples get sent?
- How are lab samples packaged and delivered?
- Where do hospitals send lab samples?

Facilitator Dialogue:
How does the health department triage case reports that come in after hours? Who here might receive a case report after hours? *[To identified person]* You are woken at 11:45pm on July 27 and receive the following case report from an emergency department physician at **[local hospital]**:

On July 26, a 55-year-old Hispanic male presented to **[local hospital]**.
- ✓ He did not speak English and required a translator.
- ✓ He reported three days of fever, chills, malaise and chest heaviness.
- ✓ He had a slight, unproductive cough.
- ✓ He has a 20-year pack-a-day smoking history.
- ✓ He returned recently from visiting family for six weeks in Mexico, but denied contact with ill people or ingestion of unusual foods.
- ✓ He has a history of positive PPD
- ✓ Chest X-ray showed widened mediastinum and hilar adenopathy, but no discrete cavity
- ✓ He was given a mask and sent for induced sputums
- ✓ Tonight (July 27) he appeared confused and became more tachypneic and daughter noticed an episode of melena. Lumbar puncture revealed bloody cerebrospinal fluid (CSF) with many white blood cells (WBCs) and occasional gram positive bacilli.

Facilitator Probes
[To identified person]
- If you received a call like this after hours, what would you do?
- Would you wait until the morning to handle the situation or is it urgent enough to deal with immediately?

[To all participants]
- How would you deal with non-English speaking populations in your investigation?
- How would you reach out to minority communities?
- What would you like to know (if anything) from the family members of cases?
- How would you begin to connect the dots between the cases?

End of Exercise A1

A2. Botulism Short Exercise Template

OVERVIEW

This tabletop exercise is one exercise in a suite of exercises that have been developed to aid health department officials in assessing the ability of their department to effectively respond to a bioterrorism (BT) event. Each exercise in the suite focuses on a different type of bioterrorism event such as a bacterium, toxin, or virus. This exercise focuses on the purposeful spread of a toxin -- botulism -- in a population of people. The exercise will take approximately two hours to complete.

OBJECTIVES

Assess the ability of the health department in these areas:

- *Surveillance and Detection*
  - Use of existing surveillance systems to detect potential outbreaks
  - Initiation of active surveillance
- *Diagnosis and Investigation*
  - Establishing a case definition
  - Clinical and laboratory investigations
  - Epidemiologic investigation

Elements required to meet these objectives appear as checklists at the end of the suite of short exercises.

EXERCISE MANAGEMENT

Two individuals are needed to conduct this exercise:

- A facilitator who conducts the exercise and, as necessary, offers probes to the participants. (The purpose of the probes is to keep the discussion moving forward, and to focus the discussion if it moves off track.)
- A note taker to take notes during the exercise.

Participants

Local health department staff:

- Health director
- Communicable disease control director
- Bioterrorism coordinator
- Epidemiologist
- Representative from a public health laboratory
- Public health nurse(s)

Materials Needed for the Exercise

- Conference room able to seat 5-10 people
- Computer with presentation software and projector (optional)
- Marker board, flip board, or chalkboard
- Copies of exercise materials to give to participants
- Refreshments (e.g., coffee, water)

Initial Situation Report

[Customize the exercise template by choosing one *of the below three options for the initial situation report]*

Option 1 (Outbreak within the jurisdiction) —A localized disease outbreak originating in the health department's jurisdiction.

February **[year]**:
- ✓ There have been floods in **[local area]** due to inclement weather
- ✓ **[Local health department]** staff have been aiding flood victims
- ✓ **[Local health department's]** telephone line has been busy with a steady stream of calls about flood victims.

If Option 1 is chosen, the facilitator should immediately begin discussing the first case report after the initial situation report.

Option 2 (Outbreak within the region) —A regional outbreak that occurs first in a region close to but outside of the jurisdiction of the health department.

February **[year]**
[Local health department] officials receive an alert via the Health Alert Network about an outbreak of botulism in nearby **[region]**. The alert cautions health departments in the region to be on the look out for patients with signs and symptoms associated with botulism.

If Option 2 is chosen, the facilitator should allow participants to discuss what (if anything) they would do if they received such an alert. *[Consider using active surveillance probes listed after the first case report]*

Option 3 (Distant outbreak) —A statewide outbreak that occurs in a state that is not geographically close to the health department.

February **[year]**
The Associated Press reports that **[distant state]** has a botulism outbreak that has affected **[number]** people. The state health department is still trying to identify the cause of the outbreak; however initial evidence points to bioterrorism.

If Option 3 is chosen, the facilitator should allow participants to discuss what (if anything) they would do if they received such information.

Case Reports

Facilitator Dialogue

Who is responsible for receiving case reports today? *[To identified person]* You receive the following case report at 9:00a.m. this morning from the medical examiner who is at **[local hospital]:**

March 1, a 65-year-old white male was brought to the emergency room this morning at 8:15am after complaining of blurred vision and slurred speech. He has a history of a prior myocardial infarction (MI) and atrial fibrillation, and takes warfarin and a beta blocker. He reported generally had been feeling well, and played badminton with his grandchildren at a church picnic the day before.

- ✓ He did not report any chest pain, palpitations, or headache. In the emergency department, he was alert but his speech was slurred.
- ✓ His visual acuity was 20/40 in both eyes, but his eyelids were drooping (ptosis) bilaterally and his pupils were mildly dilated. His gag reflex was diminished. Sensation, motor strength in his arms and legs, and deep tendon reflexes however were intact.
- ✓ While getting a magnetic resonance imaging (MRI), he aspirated on his secretions, and had a respiratory arrest. He was intubated. MRI was negative for stroke, and he was admitted to the ICU.

In the last several hours, he has developed weakness in his upper extremities. Myasthenia was suspected but a Tensilon test is negative.

Facilitator Probes

[To identified person]

- What other information (if any) would you like to have from the caller?
- What advice (if any) would you give the caller?
- Who in the health district would you contact regarding the case? What would you tell them?

[To all participants]

- Who would assume responsibility and take charge at this point?

[The designated official should be encouraged to take charge of the discussion]

- Can you outline the main steps you would take?

[These probes relate to active surveillance. If this was discussed during the initial situation report, move on.]

- At this point would you do anything to try to identify if there are more cases?
- Which entities would you need to contact to initiate active surveillance? What are you going to tell them?
- How would you do active surveillance in vulnerable populations?
- What would you do with potential or suspicious cases that you identified?
- How would you aggregate information on suspicious cases?
- What percentage of physicians in your community could you contact?
- Would your active surveillance include a general public health advisory?

Facilitator Dialogue

Who else here might handle a case report if *[the person responding to the first case report]* is not available? *[To identified person]* You receive the following case report at 3:00pm on the same day from an infection control practitioner at **[local hospital]**:

March 1, a 22-year-old **[local university]** student was brought to **[local immediate care center]** at 8:30am complaining of double vision. Her roommate noted that she has slurred speech and her pupils are dilated. She had been at a rowdy party the night before and had returned about 4am.

- ✓ At first her roommate suspected that she was simply hung over, but began to get worried when she noted the dilated pupils and slurred speech that she had been given drugs at the party. The roommate was concerned that her friend had been abused at the party so brought her to **[local immediate care center]**.
- ✓ The patient was difficult to understand, but denied having been raped, and indicated she had only had two beers. The patient's speech became progressively more slurred during the history, and her speech was unintelligible.
- ✓ On exam she was afebrile with stable vital signs. Heart and lungs were normal, but there were only rare bowel sounds. A quick neurological exam noted bilateral ptosis and sixth nerve palsies. A gag reflex was absent. The patient began to drool and hyperventilate, and was intubated prophylactically. She was then transferred urgently to **[local hospital]** at 10:20am.
- ✓ Blood and urine tox screens were negative. Blood alcohol was less than 0.05. Over the ensuing few hours the patient developed progressive weakness of her neck and upper extremities. An LP was performed, and was unremarkable. A neurology consultant has been called. The nursing director of the ICU calls the health department because he believes this patient may have had a bizarre drug ingestion.

Facilitator Probes

[To identified person]

- What other information (if any) would you like to have from the caller?
- What advice (if any) would you give the caller?
- How, if at all, would you know about the first case reported earlier in the day?

[To all participants]

- How would you begin thinking about establishing a case definition?
- When (if at all) is there a meeting of the core local health department team who would respond to this problem? What happens at that meeting? How are activities coordinated among staff?
- When (if at all) would you contact your state health department and what would you tell them?
- What contact (if any) would local health department staff have with patients or their families (e.g., would staff call cases on the phone, conduct medical record reviews or personally visit the cases and possibly collect samples)?
- Who is in charge of dealing with lab samples?
- Where do lab samples get sent?

- How are lab samples packaged and delivered?
- Where do hospitals send lab samples?

Facilitator Dialogue

How does the health department triage case reports that come in after hours? Who here might receive a case report after hours? *[To identified person]* You are woken at 11:45pm and receive the following case report from an emergency department (ED) physician at **[local hospital]**:

March 1, a 34-year-old Hispanic male who speaks little English calls 911 from **[local high school]** where he works as a janitor, because he is experiencing blurred vision, dry mouth and shortness of breath. He has a history of bipolar disorder and panic attacks. Although his mental illness has been well controlled with lithium, he is alarmed by his symptoms and is worried that he is having a panic attack or becoming manic. He has taken an extra dose of clonazepam, but does not feel any better.

- ✓ He was taken to **[local hospital]**. An EMS staff member on the ambulance noted that he was afebrile, had normal vital signs, but had somewhat slurred speech. He remarked to the ED physician that this is the third case of this he has seen that day, and jokingly asks if there's a full moon.
- ✓ In the emergency room the patient appeared frightened, his pupils were dilated bilaterally, and he had bilateral third, sixth, and seventh nerve palsies. His shoulder muscles were weak, although the remainder of his upper extremities and lower extremities were normal.
- ✓ Despite his seemingly vehement denials, the ED staff were worried about a drug ingestion given his history of mental illness, and placed a nasogastric (NG) tube for charcoal lavage. He vomited, aspirated and was intubated.
- ✓ He was initially agitated, waving his arms for attention, but over last several hours he has become spontaneously less so. He is currently unable to move his arms on command, but is able to move his legs. Strength and sensation are normal in the lower extremities.
- ✓ The ED physician had recently returned from a Continuous Medical Education (CME) program on bioterrorism, and calls to ask if you've had any similar reports.

Facilitator Probes

[To identified person]

- If you received a call like this after hours, what would you do?
- Would you wait until the morning to handle the situation or is it urgent enough to deal with immediately?

[To all participants]

- How would you deal with non-English speaking populations in your investigation?
- How would you reach out to vulnerable communities?
- What would you like to know (if anything) from the family members of cases?

End of Exercise A2

A3. Plague Short Exercise Template

OVERVIEW

This tabletop exercise is one exercise in a suite of exercises that have been developed to aid health department officials in assessing the ability of their department to effectively respond to a bioterrorism (BT) event. Each exercise in the suite focuses on a different type of bioterrorism event such as a bacterium, toxin, or virus. This exercise focuses on the purposeful spread of a virus-- plague -- in a population of people. The response to a plague case(s) might vary depending whether the health department is in a plague endemic area. The exercise will take approximately two hours to complete.

OBJECTIVES

Assess the ability of the health department in these areas:

- *Surveillance and Detection*
  - Use of existing surveillance systems to detect potential outbreaks
  - Initiation of active surveillance
- *Diagnosis and Investigation*
  - Establishing a case definition
  - Clinical and laboratory investigations
  - Epidemiologic investigation

Elements required to meet these objectives appear as checklists at the end of the suite of short exercises.

EXERCISE MANAGEMENT

Two individuals are needed to conduct this exercise:

- A facilitator who conducts the exercise and, as necessary, offers probes to the participants; the purpose of the probes is to keep the discussion moving forward, and to focus the discussion if it moves off track.
- A note taker to take notes during the exercise.

Participants

Local health department staff:

- Health director
- Communicable disease control director
- Bioterrorism coordinator
- Epidemiologist
- Representative from a public health laboratory
- Public health nurse(s)

Materials Needed for the Exercise

- Conference room able to seat 5-10 people
- Computer with presentation software and projector (optional)
- Marker board, flip board, or chalkboard
- Copies of exercise materials to give to participants
- Refreshments (e.g., coffee, water)

Initial Situation Report

[Customize the exercise template by choosing <u>one</u> of the below three options for the initial situation report]

<u>Option 1</u> (Outbreak within the jurisdiction) —A localized disease outbreak originating in the health department's jurisdiction.

June **[year]**:
- ✓ **[Local area]** is locked in a continuing heat wave with daytime high temperatures expected to over **[number]** degrees Fahrenheit
- ✓ Summer vacation traffic is high and air quality is poor
- ✓ The health department has been receiving a steady stream of calls with reports of dehydration, especially among infants and elderly
- ✓ Some of the elderly patients have developed respiratory distress and two have died
- ✓ Senior centers have begun to distribute fans to centers without air conditioning.

If Option 1 is chosen, the facilitator should immediately begin discussing the first case report after the initial situation report

<u>Option 2</u> (Outbreak within the region) —A regional outbreak that occurs first in a region close to but outside of the jurisdiction of the health department.

June **[year]**
[Local health department] officials receive an alert via the Health Alert Network about an outbreak of plague in nearby **[region]**. The alert cautions health departments in the region to be on the lookout for patients with respiratory illnesses.

If Option 2 is chosen, the facilitator should allow participants to discuss what (if anything) they would do if they received such an alert. *[Consider using active surveillance probes listed after the first case report]*

<u>Option 3</u> (Distant outbreak) —A statewide outbreak that occurs in a state that is not geographically close to the health department.

June **[year]**
The Associated Press reports that **[distant state]** has a plague outbreak that has affected **[number]** people. The state health department is still trying to identify the cause of the outbreak; however bioterrorism is strongly suspected.

If Option 3 is chosen, the facilitator should allow participants to discuss what (if anything) they would do if they received such information.

Case Reports

Facilitator Dialogue

Who is responsible for receiving case reports today? *[To identified person]* You receive the following case report at 9:00a.m. from an emergency medicine doctor who is at **[local hospital]:**

> June 26, a 10-year-old male child is brought to the **[local emergency room]** with shortness of breath, a cough and blood-tinged sputum. He is accompanied by his mother, who works as a housekeeper in **[local area]**. The mother speaks little English but is also coughing. Both are from Guatemala. They are given masks, and asked to wear them while sputum examinations are pending. The boy is admitted to the hospital after he is found to be febrile and have a cavitary lesion on his chest X-ray. The mother has no health insurance and refuses a chest x-ray. A PPD test was placed on the child. AFB smears are preliminarily negative. You receive a call about a suspicious case of tuberculosis (TB) in a school-age child.

[Clinical background story: While this case could well be plague, it is most likely to be TB. However, the shortness of breath, cough and blood-tinged sputum are non-specific enough that you would catch this if doing active surveillance for plague. The suspicion about plague increases once the AFB smears are negative, although that does not definitively rule out TB either.]

Facilitator Probes

[To identified person]

- What other information (if any) would you like to have from the caller?
- What advice (if any) would you give the caller?
- Who in the health district would you contact regarding the case? What would you tell them?

[To all participants]

- Who would assume responsibility and take charge at this point?

[The designated official should be encouraged to take charge of the discussion]

- Can you outline the main steps you would take?
- How would you handle the language barrier?

[These probes relate to active surveillance. If this was discussed during the initial situation report, move on.]

- At this point would you do anything to try to identify if there are more cases?
- Which entities would you need to contact to initiate active surveillance? What are you going to tell them?
- How would you do active surveillance in vulnerable populations?
- What would you do with potential or suspicious cases that you identified?
- How would you aggregate information on suspicious cases?
- What percentage of physicians in your community could you contact?
- Would your active surveillance include a general public health advisory?

Facilitator Dialogue

Who else here might handle a case report if *[the person responding to the first case report]* is not available? *[To identified person]* You receive the following case report at 3:00pm on the same day from the infection control practitioner at **[local hospital]**:

June 26, a 72-year-old man with a history of recurrent congestive heart failure (CHF) is admitted to **[hospital]** with a cough and bloody sputum.

- ✓ He has obvious signs of fluid overload and is clinically in heart failure.
- ✓ He has a history of multiple admissions for CHF, often due to running out of medicines at the end of the month.
- ✓ The patient has no fever, and has no recent travel history.

You are called only because the ICU physician has been asked by the hospital infection control staff to report any cases of cough and bloody sputum. Sputum gram stain was over de-colorized, but negative.

[Clinical background story: This patient came to attention because he had cough and bloody sputum. You cannot rule out plague, but it is not as likely as simple heart failure.]

Facilitator Probes

[To identified person]

- What other information (if any) would you like to have from the caller?
- What advice (if any) would you give the caller?
- How if at all would you know about the first case reported earlier in the day?

[To all participants]

- How would you begin thinking about establishing a case definition?
- When (if at all) is there a meeting of the core local health department team who would respond to this problem? What happens at that meeting? How are activities coordinated among staff?
- When (if at all) would you contact your state health department and what would you tell them?
- What contact (if any) would local health department staff have with patients or their families (e.g., would staff call cases on the phone, conduct medical record reviews or personally visit the cases and possibly collect samples)?

Facilitator Dialogue

How does your health department triage case reports that come in after hours? Who here might receive a case report after hours? *[To identified person]* You are woken at 11:45pm and receive the following case report from an ED physician at **[local hospital]**:

June 26, a 42-year-old flight attendant reports for work at **[local airport]**. While waiting for his aircraft to arrive, he suddenly feels flushed, and over the next hour feels feverish and slightly confused. By the time he should board his plane, he feels too sick and weak to fly.

- ✓ He is sent to the emergency room at **[local hospital]**, where he is found to be hypotensive, and tachypneic.
- ✓ While still able to talk, he says he is human immunodeficiency virus (HIV) positive, on meds, and that his last viral load was low.
- ✓ He becomes too tachypneic to talk, and is intubated.
- ✓ CXR was consistent with acute respiratory distress syndrome (ARDS).
- ✓ Sputum gram stain revealed gram-negative bacilli.
- ✓ He is currently in the ICU.
- ✓ You are called because of the infectious disease alert sent to your hospital, but the doctor thinks the patient has an acquired immunodeficiency syndrome (AIDS)-associated infection.

[Clinical background story: This patient probably has plague. The HIV may have made him more susceptible or made the clinical progression faster. The gram-negative bacilli are consistent with plague, but this could also be another gram-negative pneumonia. But each of these people are "possible cases" and should be considered contagious until proven otherwise.]

Facilitator Probes

[To identified person]

- If you received a call like this after hours, what would you do?
- Would you wait until the morning to handle the situation or is it urgent enough to deal with immediately?

[To all participants]

- Is there anything that would cause you to link all of these case reports together?
- How would you begin to connect the dots?
- What other information would you need?

End of Exercise A3

A4. Smallpox Short Exercise Template

OVERVIEW

This tabletop exercise is one exercise in a suite of exercises that have been developed to aid health department officials in assessing the ability of their department to effectively respond to a bioterrorism (BT) event. Each exercise in the suite focuses on a different type of bioterrorism event such as a bacterium, toxin, or virus. This exercise focuses on the purposeful spread of a virus -- smallpox -- in a population of people. The exercise will take approximately two hours to complete.

OBJECTIVES

Assess the ability of the health department in these areas:

- *Surveillance and Detection*
  - Use of existing surveillance systems to detect potential outbreaks
  - Initiation of active surveillance
- *Diagnosis and Investigation*
  - Establishing a case definition
  - Clinical and laboratory investigations
  - Epidemiologic investigation

Elements required to meet these objectives appear as checklists at the end of the suite of short exercises.

EXERCISE MANAGEMENT

Two individuals are needed to conduct this exercise:

- A facilitator who conducts the exercise and, as necessary, offers probes to the participants (The purpose of the probes is to keep the discussion moving forward, and to focus the discussion if it moves off track.)
- A note taker to take notes during the exercise.

Participants

Local health department staff:

- Health director
- Communicable disease control director
- Bioterrorism coordinator
- Epidemiologist
- Representative from a public health laboratory
- Public health nurse(s)

Materials Needed for the Exercise

- Conference room able to seat 5-10 people
- Computer with presentation software and projector (optional)
- Marker board, flip board, or chalkboard
- Copies of exercise materials to give to participants
- Refreshments (e.g., coffee, water)

Initial Situation Report

[Customize the exercise template by choosing <u>one</u> of the below three options for the initial situation report]

<u>Option 1</u> (outbreak within the jurisdiction) —A localized disease outbreak originating in the health department's jurisdiction.

February **[year]**:
- ✓ There have been floods in **[local area]** due to inclement weather.
- ✓ **[Local health department]** staff have been aiding flood victims
- ✓ **[Local health department's]** telephone line has been busy with a steady stream of calls about flood victims

If Option 1 is chosen, the facilitator should immediately begin discussing the first case report after the initial situation report

<u>Option 2</u> (outbreak within the region) —A regional outbreak that occurs first in a region close to but outside of the jurisdiction of the health department.

February **[year]**
[Local health department] officials receive an alert via the Health Alert Network about an outbreak of smallpox in nearby **[region]**. The alert cautions health departments in the region to be on the look out for patients with signs and symptoms associated with smallpox.

If Option 2 is chosen, the facilitator should allow participants to discuss what (if anything) they would do if they received such an alert. *[Consider using active surveillance probes listed after the first case report]*

<u>Option 3</u> (distant outbreak) —A statewide outbreak that occurs in a state that is not geographically close to the health department.

February **[year]**
The Associated Press reports that **[distant state]** has a smallpox outbreak that has affected **[number]** people. The state health department is still trying to identify the cause of the outbreak; however initial evidence points to bioterrorism.

If Option 3 is chosen, the facilitator should allow participants to discuss what (if anything) they would do if they received such information.

Case Reports

Facilitator Dialogue

Who is responsible for receiving case reports today? *[To identified person]* You receive the following case report at 9:00am this morning (March 1) from the medical examiner who is at **[local hospital]:**

February 26, a 40-year-old Hispanic male who works as a maintenance man at **[local school]** presents to the **[local hospital]** with a fever of 102 and vomiting. He speaks very limited English. He improves with antiemetics and is sent home with a diagnosis of viral syndrome.

- ✓ On February 28, he was brought into [hospital A] by ambulance, now with fever, severe headache and rash, and is admitted with a presumptive diagnosis of meningitis.
- ✓ On March 1, he becomes hypotensive and subsequently dies, with cultures/diagnostic tests negative for N. meningitis, bacteria, and herpes. An autopsy is scheduled for March 2. The medical examiner calls the health department because of suspected meningitis.

[Clinical background story: This person may well have smallpox. The presentation could mimic meningitis, but when the cultures are negative it should be clear that he had a different problem. He has unrecognized HIV and that's why he gets sick and dies so fast.]

Facilitator Probes

[To identified person]

- What other information (if any) would you like to have from the caller?
- What advice (if any) would you give the caller?
- Do you recommend the use of personnel protective equipment (PPE)?
- Who in the health district would you contact regarding the case? What would you tell them?

[To all participants]

- Who would assume responsibility and take charge at this point?
- How would you deal with the language barrier?

[The designated official should be encouraged to take charge of the discussion]

- Can you outline the main steps you would take?

[These probes relate to active surveillance. If this was discussed during the initial situation report, move on.]

- At this point would you do anything to try to identify if there are more cases?
- Which entities would you need to contact to initiate active surveillance? What are you going to tell them?
- How would you do active surveillance in vulnerable populations?
- What would you do with potential or suspicious cases that you identified?
- How would you aggregate information on suspicious cases?
- What percentage of physicians in your community could you contact?
- Would your active surveillance include a general public health advisory?

Facilitator Dialogue

Who else here might handle a case report if *[the person responding to the first case report]* is not available? You receive the following case report at 3:00pm the same day (March 1) from and infectious disease practitioner at **[local hospital]**:

[If the local health department is large enough that it has more than one affiliated hospital, choose a different hospital than the one that is used for the first case report]

On February 28, a 42-year-old Asian businessman is seen at **[local hospital]** with a fever, headache, and backache. He had been on a recent business trip to Asia, and is admitted with a presumptive diagnosis of malaria.

- ✓ On March 1 he has a negative blood smear for malaria, no response to empirical therapy, and is beginning to develop a rash on his face, arms, and legs.
- ✓ Six other patients have appeared at **[local hospital]** within the last 48 hours with fevers and nascent rashes. The nurse practitioner in the hospital outpatient department thinks this may be odd and reports the cases to the infectious disease practitioner at the hospital. The infectious disease practitioner calls the **[local health department]** to report the cluster and to ask if the health district knows of anything going around.

[Clinical background story: This person could easily have smallpox, a drug reaction, or some other viral rash. A key will be whether all the lesions are in the same stages of development.]

Facilitator Probes

[To identified person]

- What other information (if any) would you like to have from the caller?
- What advice (if any) would you give the caller?
- How if at all would you know about the first case reported earlier in the day?

[To all participants]

- How would you begin thinking about establishing a case definition?
- When (if at all) is there a meeting of the core local health department team who would respond to this problem? What happens at that meeting? How are activities coordinated among staff?
- When (if at all) would you contact your state health department and what would you tell them?
- What contact (if any) would local health department staff have with patients or their families (e.g., would staff call cases on the phone, conduct medical record reviews or personally visit the cases and possibly collect samples)?

Facilitator Dialogue

How does your health department triage case reports that come in after hours? Who here might receive a case report after hours? *[To identified person]* You are woken at 2:00am and receive the following case report from an ED physician at **[local hospital]**:

February 27, a 21-year-old female student at **[local university]** presents to the Student Health Center with a fever, chills, and headache. She gives a history of a sister with the "flu," and mentions that she has been taking some of her roommate's trimethoprim-sulfa. A nasopharyngeal swab for influenza is performed. She is sent home with instructions to call for results, and with Tylenol for pain and fever.

- ✓ On February 28, the student returns to the **[local university]** student health center with continued fever, and a rash on her face and arms. She is sent to **[local hospital]** and admitted for observation with diagnoses of possible chickenpox versus drug allergy. The influenza test from her previous visit was negative.
- ✓ On March 2, an infectious disease consult is obtained on the student to verify a diagnosis of chickenpox versus drug rash, and to see if any isolation is warranted. The consultant doesn't think that the illness is consistent with varicella; the patient had a prodrome, and all of the lesions on her arms are in the same stage of development. The consultant reviews a dermatology textbook to confirm his clinical recognition, and decides to call the **[local health department]** on the off chance that this represents smallpox.

[Clinical background story: This is likely smallpox. The trimethoprim-sulfa causes a classic drug rash that is easy to distinguish from smallpox. The fact that all of the lesions are in the same stage of development suggests this is not chickenpox.]

Facilitator Probes

[To identified person]

- If you received a call like this after hours, what would you do?
- Would you wait until the morning to handle the situation or is it urgent enough to deal with immediately?

[To all participants]

- Is there anything that would cause you to link all of these case reports together?
- How would you begin to connect the dots?
- What other information would you need?

End of Exercise A4

A5. Checklists for Short Exercises

Preamble

These checklists are designed to be used by both the facilitator to aid in guiding the exercise and to aid in the assessment of exercise performance. The note taker should use the checklists by putting an "X" in a check box if exercise participants covered a checklist topic without being probed. The note taker should put a "/" in the box if the participants covered a checklist topic but only after being probed. The note taker should leave a checkbox empty if participants were probed for a particular checklist item but still never provided a response.

Surveillance and Detection Checklist

Detection

- ☐ Have infrastructure in place to respond to case reports 24/7/365
- ☐ Staff with clinical knowledge are able to respond to case reports

Initiating Active Surveillance

- ☐ Provided concrete details on how to go about initiating active surveillance
- ☐ Would contact a number of different individuals and organizations to assist with active surveillance efforts. Identified what those individuals would be asked to do, and would provide them with working case definition
  - ❑ Epidemiologists
  - ❑ Hospital administrators
  - ❑ Hospital infection control practitioners
  - ❑ Emergency departments (e.g., ED physicians, nurses)
  - ❑ Local physicians (e.g., primary care, private practice)
  - ❑ Law enforcement personnel
  - ❑ EMS
  - ❑ General public
- ☐ Would follow up all new suspected cases and insure that all such cases are monitored by appropriate health department personnel
- ☐ Discussed the process for tracking potential cases
- ☐ Would log all decisions in a log book
- ☐ Would collect and aggregate data on cases
  - ❑ Date of onset of illness
  - ❑ Place where case lives

- ❑ Place where case became ill
- ❑ Recent travel
- ❑ Individual characteristics of cases (e.g., age, sex, occupation)
- ❑ Contacts of cases
- ❑ Collection and maintenance of the case information in a "line list" format

Diagnosis and Investigation Checklist

Establishing a Case Definition

☐ Discussed clear process for establishing case definition

☐ Identified (have knowledge of) resources such as the state health department and the CDC's websites to aid in developing the case definition

☐ Discussed establishing an initial working case definition
- ❑ Kept broad
- ❑ Uniform
- ❑ Relatively simple
- ❑ Timely

☐ Discussed essential elements that would be used in case definition
- ❑ Time (date of onset)
- ❑ Place
- ❑ Person
- ❑ Symptoms
- ❑ Essential physical signs
- ❑ Laboratory confirmation

☐ Would begin to consider how to divide case definition into categories (laboratory confirmed case, probable cases, suspected cases).

☐ Discussed comparing working case definition with existing case definition for other known diseases

☐ Information on possible cases would come from a variety of sources
- ❑ Health care personnel (e.g., physicians, nurses, EMS)
- ❑ Hospitals
- ❑ Schools
- ❑ Affected individuals
- ❑ Close contacts and family members of affected individuals

☐ Information kept on all cases regardless of whether they are confirmed, probable, possible, or unlikely

- ☐ Data on cases would be collected and stored in a systematic fashion (ideally stored on a microcomputer, with other backup)

Clinical Investigation

- ☐ Would contact state health department to let them know of suspected cases
- ☐ At least one health department epidemiologist or communicable disease specialist would contact cases
- ☐ Personnel who visit suspected cases would wear PPE
- ☐ Participants know the general signs and symptoms to look for when examining suspected cases of anthrax (or botulism, plague or smallpox)
- ☐ Clinical specimens would be collected from every case. Participants know what to collect, how to store it, and so on
- ☐ Participants were clear about how they would handle suspected cases
- ☐ Addressed how to deal with non-English speaking cases
- ☐ Would focus on trying to find out what all of the cases had in common (identifying common source)

Laboratory Investigation

- ☐ Personnel trained in how to prepare, package, and ship hazardous biological materials would be responsible for sending samples to laboratories
- ☐ Participants know where to send specimens
- ☐ Participants understand the chain of custody for specimens
- ☐ Recipient of specimens would be alerted in advance

Appendix B.
Medium Exercises

B1. Anthrax Medium Exercise Template 44

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B3. Plague Medium Exercise Template.....62

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B5. Checklists for Medium and Long Exercises 80

B1. Anthrax Medium Exercise Template

OVERVIEW

This tabletop exercise is one exercise in a suite of exercises that have been developed to aid health department officials in assessing the ability of their department to effectively respond to a bioterrorism (BT) event. Each exercise in the suite focuses on a different type of bioterrorism event such as a bacterium, toxin, or virus. This exercise focuses on the purposeful spread of a bacterium -- aerosol anthrax -- in a population of people. The exercise will take approximately four hours to complete. It is divided into two steps. In the first step participants are presented with an outbreak and must first detect the problem and then begin connecting the dots by developing a case definition and conducting an epidemiologic investigation. In the second step, participants must interact with other stakeholders involved with the response.

OBJECTIVES

Assess the ability of the health department in these areas:

- *Surveillance and Detection*
  - Use of existing surveillance systems to detect potential outbreaks
  - Initiation of active surveillance
- *Diagnosis and Investigation*
  - Establishing a case definition
  - Clinical and laboratory investigations
  - Epidemiologic investigation
- *System-Wide Coordination*
  - Handoffs with regional or state health department
  - Coordination of efforts with other local and state actors (e.g., elected officials, law enforcement)
  - Establishment of an Emergency Operations Center
- *Risk Communication*
  - Effectively communicating essential messages to the public
  - Initiation of a public information campaign
  - Coordination of information to media
- *Disease Control*
  - Prophylaxis and vaccination capabilities
  - Isolation and Quarantine
  - Closing of schools, workplaces, hospitals, and similar facilities

Elements required to meet these objectives appear as checklists at the end of the suite of medium exercises.

EXERCISE MANAGEMENT

Two individuals are needed to conduct this exercise:

- A facilitator who conducts the exercise and, as necessary, offers probes to the participants. (The purpose of the probes is to keep the discussion moving forward, and to focus the discussion if it moves off track.)

- A note taker to take notes during the exercise.

Participants

Step 1 participants:

- Local health department staff only
  - Health director
  - Communicable disease control director
  - Bioterrorism coordinator
  - Epidemiologist
  - Representative from a public health laboratory
  - Public health nurse(s)
  - Public Information Officer (local health department)

Step 2 participants:
All participants from Step 1, and:

- Local Stakeholders
  - Law enforcement
  - EMS personnel
  - Hospital infection control staff
  - Local physicians
  - Minority community leadership
  - Elected officials
  - Emergency Management official

Depending on the local environment and the relationship between the state and local health departments, it may be useful to include regional or state health department staff in an exercise. See Chapter Four for more details.

Materials Needed for the Exercise

- Conference room able to seat 5-10 people
- Computer with presentation software and projector (optional)
- Marker board, flip board, or chalkboard
- Copies of exercise materials to give to participants
- Refreshments (e.g., coffee, water)

Sample Agenda

- 8:00am-8:15am Registration/breakfast
- 8:15am-8:30am Introductions and overview
- 8:30am-9:45am Step 1: Initial response
- 9:45am-10:00am Break/light refreshments
- 10:00am-11:45am Step 2: Intermediate response
- 11:45pm-12:15pm Break/lunch
- 12:15pm-1:30pm Step 3: Hotwash

Step 1

Initial Situation Report

[Customize the exercise template by choosing one of the below three options for the initial situation report. These options are designed to differ in the level of advanced notification that a health department has prior to an outbreak. In option 1 there is no advanced notification and in options 2-3 there is at least some advanced notification.]

Option 1 (Outbreak within the jurisdiction) —A localized disease outbreak originating in the health department's jurisdiction.

July **[year]**:

- ✓ **[Local area]** is locked in a continuing heat wave with daytime high temperatures expected to over **[number]** degrees Fahrenheit
- ✓ Summer vacation traffic is high and air quality is poor
- ✓ The health department has been receiving a steady stream of calls with reports of dehydration, especially among infants and elderly
- ✓ Some of the elderly patients have developed respiratory distress and two have died
- ✓ Senior centers have begun to distribute fans to elderly citizens without air conditioning.

If Option 1 is chosen, the facilitator should immediately begin discussing the first case report after the initial situation report

Option 2 (Outbreak within the region) —A regional outbreak that occurs first in a region close to but outside of the jurisdiction of the health department.

July **[year]**
[Local health department] officials receive an alert via the Health Alert Network about an outbreak of anthrax in nearby **[region]**. The alert cautions health departments in the region to be on the look out for patients with respiratory illnesses.

If Option 2 is chosen, the facilitator should allow participants to discuss what (if anything) they would do if they received such an alert. *[Consider using active surveillance probes listed after the first case report]*

Option 3 (distant outbreak) —A statewide outbreak that occurs in a state that is not geographically close to the health department.

July **[year]**
The Associated Press reports that **[distant state]** has an anthrax outbreak that has affected **[number]** people. The state health department is still trying to identify the cause of the outbreak however bioterrorism is strongly suspected.

If Option 3 is chosen, the facilitator should allow participants to discuss what (if anything) they would do if they received such information.

Case Reports

Facilitator Dialogue
Who is responsible for receiving case reports today? *[To identified person]:* You receive the following case report at 4:00pm (July 26) from an emergency medicine doctor at **[local hospital]**

July 26, a 56-year-old African American male presented to the emergency department at 9:20 AM after reportedly being unable to get an appointment with his primary care physician.

- ✓ He had two days of fever, malaise, purulent cough and drenching night sweats.
- ✓ He was found to be hypotensive and tachypneic
- ✓ While he could still talk, he said he'd had a heart attack two years ago, and he had chest pain radiating to both shoulders.
- ✓ He was intubated. CXR was consistent with pulmonary edema and showed an unexpectedly wide mediastinum, and bilateral pleural effusions, L>R.
- ✓ Echo did not show wall motion abnormality or dissecting aneurism.
- ✓ Plural effusions were grossly bloody. Sputum gram stain revealed gram-positive bacilli.

Facilitator Probes
[To identified person]

- What other information (if any) would you like to have from the caller?
- What advice (if any) would you give the caller?
- Who in the health district would you contact regarding the case? What would you tell them?

[To all participants]

- Who would assume responsibility and take charge at this point?

[The designated official should be encouraged to take charge of the discussion]

- Can you outline the main steps you would take?

[These probes relate to active surveillance. If this was discussed during the initial situation report, move on.]

- At this point would you do anything to try to identify if there are more cases?
- Which entities would you need to contact to initiate active surveillance? What are you going to tell them?
- How would you do active surveillance in vulnerable populations?
- What would you do with potential or suspicious cases that you identified?
- How would you aggregate information on suspicious cases?

- What percentage of physicians in your community could you contact?
- Would your active surveillance include a general public health advisory?

Facilitator Dialogue

Who else here might handle a case report if *[the person responding to the first case report]* is not available? *[To identified person]* You receive the following case report at 3:00pm on the next day (July 27) from the infection control practitioner at **[local hospital]**

[If the local health department is large enough that it has more than one affiliated hospital, choose a different hospital than the one that is used for the first case report]

On July 25, a 19-year-old white male in a summer program at **[local university]** presented to the student health center with a fever of 100.5 degrees and sore throat. He fails to improve after two days

- ✓ On exam, he appeared tanned and healthy, but had unilateral cervical adenopathy and two ulcerations at the base of his tongue
- ✓ Rapid strep test was negative and he was sent home with ibuprofen
- ✓ A day later (July 26) he returned to the student health center with increased pain and more difficulty breathing
- ✓ The ulcerations were beginning to necrose, and he appeared to have impending airway obstruction
- ✓ He was sent to **[local hospital]** and admitted for more tests
- ✓ The ENT consultant biopsied the patient's tongue lesions
- ✓ Today (July 27) gram-positive bacilli were noted on culture specimens.

Facilitator Probes

[To identified person]

- What other information (if any) would you like to have from the caller?
- What advice (if any) would you give the caller?
- How if at all would you know about the first case reported the day before?

[To all participants]

- How would you begin thinking about establishing a case definition?
- When (if at all) is there a meeting of the core local health department team who would respond to this problem? What happens at that meeting? How are activities coordinated among staff?
- When (if at all) would you contact your state health department and what would you tell them?
- What contact (if any) would local health department staff have with patients or their families (e.g., would staff call cases on the phone, conduct medical record reviews or personally visit the cases and possibly collect samples)?
- Who is in charge of dealing with lab samples?
- Where do lab samples get sent?

- How are lab samples packaged and delivered?
- Where do hospitals send lab samples?

Facilitator Dialogue

How does the health district triage case reports that come in after hours? Who here might receive a case report after hours? *[To identified person]* You are woken at 11:45pm on July 27 and receive the following case report from an emergency department physician at **[local hospital]**:

On June 26, a 55-year-old Hispanic male presented to **[local health clinic]**

- ✓ He did not speak English and required a translator
- ✓ He reported three days of fever, chills, malaise and chest heaviness
- ✓ He had a slight, unproductive cough
- ✓ He has a 20-year pack-a-day smoking history
- ✓ He returned recently from visiting family for six weeks in Mexico, but denied contact with ill people or ingestion of unusual foods
- ✓ History of positive PPD
- ✓ Chest X-ray showed widened mediastinum and hilar adenopathy, but no discreet cavity
- ✓ He was given a mask and sent for induced sputums
- ✓ Tonight (July 27) he appeared confused and became more tachypneic and daughter noticed an episode of melena. Lumbar puncture revealed bloody CSF with many WBC and occasional gram-positive bacilli.

Facilitator Probes

[To identified person]

- If you received a call like this after hours, what would you do?
- Would you wait until the morning to handle the situation or is it urgent enough to deal with immediately?

[To all participants]

- How would you deal with non-English speaking populations in your investigation?
- How would you reach out to minority communities?
- What would you like to know (if anything) from the family members of cases?
- How would you begin to connect the dots between the cases?

End of Step 1

Step 2

Facilitator Dialogue

The **[local health department]** has decided to convene a meeting with other local *[and possibly state]* actors that might be involved with a response to a potential outbreak to inform them about what has been happening.

[Depending on the local environment and the relationship between the state and local health department, state health department officials may also need to be included in this meeting].

Briefing for other stakeholders
- ✓ Local law enforcement
- ✓ Local elected officials

Facilitator Probes

[To the person identified as the leader during Step 1]

- You are in charge of this meeting. Outline the major areas you would like to discuss at the meeting.
- Would you still be in charge at this point or would someone else take over?

[To new participants]

- What kinds of questions would you ask the **[local health department]** at this point in time?
- What are your concerns?

[To local health department participants]

- How would all of you coordinate your epidemiologic investigation with the investigation that law enforcement will be conducting?
- What type of patient information are you allowed to give to law enforcement?

[To local law enforcement]

- During a public health emergency, who do you take orders from?
- If you need PPE to use during your investigation, do you have access to some?
- Have law enforcement personnel all been trained in how to put on PPE?

[To local decision makers]

- What role do you see yourselves having in a situation like this?
- How would you keep open lines of communication with the health department?

Facilitator Dialogue

The initial results of **[local health department]** active surveillance are as follows:

[The size of the outbreak in this exercise can be tailored to be most appropriate for the goals of the local health department participating in the exercise]

- ✓ The emergency department at **[major local hospital]** tells you they have seen nearly **[number]** people with respiratory illness in the last 24 hours. **[number]** have been admitted over the last shift, and their ICUs are now full. They are going on diversion.
- ✓ Other local hospitals are experiencing similar challenges. *[Only include if there is more than one local hospital associated with the health department participating in the exercise]*
- ✓ **[Local health center or clinic]** is reporting unusual numbers of cases with flu-like and respiratory illnesses
- ✓ **[Other local health care facility]** reveals that they have seen a few people with flu-like and respiratory illness, which seems a bit odd for June. They have **[number]** people with respiratory failure in the ICU.

Facilitator Probes

[To local health department participants]

- How do you coordinate your efforts with local health care facilities?
- Is it your responsibility to help a hospital with its divert schedules?
- Do you know the divert schedules of the hospital(s) in your region?

[To hospital staff present]

- What expectations do you have (if any) about the assistance you would get from your local health department during an emergency like this one?
- What type of a communication network do you have with the local health department?
- If you needed to acquire more respiratory equipment or other medical supplies, could your local health department help you? If so, whom would you contact for help?
- How do you deal with large numbers of "worried well" people coming to health care facilities? Is there anything the local health department could do to help?

[To local health department participants]

- How would you handle a large number of calls being placed to the health department by worried people?
- How would you manage staff and handle things like staff burnout, staff not coming into work, etc.

Facilitator Dialogue

The press has been hounding the **[local health department]** for a statement for over 24 hours. The local news has been reporting all of the information it can obtain.

- ✓ Representatives from the media surround the health department and request a press briefing
- ✓ Media are going to local hospitals and questioning doctors and nurses who have seen patients with respiratory illnesses
- ✓ Media have been interviewing patients discharged from local hospitals.

The media insists that you hold a press briefing.

Facilitator Probes

- Who is in charge of communicating with the media in an event like this?
- What are the major messages you would like to give to the press and the public?
- How do you manage your press campaign?
- How often do you speak with the press?
- How do you keep your message to the press consistent?
- Does the health department have templates that it can use to create fast messages for the media?
- How do you avoid frightening the public?
- How much information do you give the media?
- What advice do you have for the public?

End of Step 2

End of Exercise B1

B2. Botulism Medium Exercise Template

OVERVIEW

This tabletop exercise is one exercise in a suite of exercises that have been developed to aid health department officials in assessing the ability of their department to effectively respond to a bioterrorism (BT) event. Each exercise in the suite focuses on a different type of bioterrorism event such as a bacterium, toxin, or virus. This exercise focuses on the purposeful spread of a toxin -- botulism -- in a population of people. The exercise will take approximately four hours to complete. It is divided into two steps. In the first step participants are presented with an outbreak and must first detect the problem and then begin connecting the dots by developing a case definition and conducting an epidemiologic investigation. In the second step participants must interact with other key actors involved with the response.

OBJECTIVES

Assess the ability of the health department in these areas:

- *Surveillance and Detection*
  - Use of existing surveillance systems to detect potential outbreaks
  - Initiation of active surveillance
- *Diagnosis and Investigation*
  - Establishing a case definition
  - Clinical and laboratory investigations
  - Epidemiologic investigation
- *System-Wide Coordination*
  - Handoffs to regional or state health department
  - Coordination of efforts with other local and state stakeholders (e.g., elected officials, law enforcement)
  - Establishment of an Emergency Operations Center
- *Risk Communication*
  - Effectively communicating essential messages to the public
  - Initiation of a public information campaign
  - Coordination of information to media
- *Disease Control*
  - Prophylaxis and vaccination capabilities
  - Isolation and Quarantine
  - Closing of schools, workplaces, hospitals, and similar facilities

Elements required to meet these objectives appear as checklists at the end of the suite of medium exercises.

EXERCISE MANAGEMENT

Two individuals are needed to conduct this exercise:

- A facilitator who conducts the exercise and, as necessary, offers probes to the participants (The purpose of the probes is to keep the discussion moving forward, and to focus the discussion if it moves off track.)

- A note taker to take notes during the exercise.

Participants

Step 1 participants:

- Local health department staff only
  - Health director
  - Communicable disease control director
  - Bioterrorism coordinator
  - Epidemiologist
  - Representative from a public health laboratory
  - Public health nurse(s)
  - Public Information Officer (local health department)

Step 2 participants:
All participants from Step 1, and:

- Local stakeholders
  - Law enforcement
  - EMS personnel
  - Hospital infection control staff
  - Local physicians
  - Minority community leadership
  - Elected officials
  - Emergency Management official

Depending on the local environment and the relationship between the state and local health department, it may be useful to include regional or state health department staff in an exercise. See Chapter 4 for more details.

Materials Needed for the Exercise

- Conference room able to seat 5-10 people
- Computer with presentation software and projector (optional)
- Marker board, flip board, or chalkboard
- Copies of exercise materials to give to participants
- Refreshments (e.g., coffee, water)

Sample Agenda

- 8:00am-8:15am Registration/breakfast
- 8:15am-8:30am Introductions and overview
- 8:30am-9:45am Step 1: Initial response
- 9:45am-10:00am Break/light refreshments
- 10:00am-11:45am Step 2: Intermediate response
- 11:45pm-12:15pm Break/lunch
- 12:15pm-1:30pm Step 3: Hot Wash

Step 1

Initial Situation Report
[Customize the exercise template by choosing one of the below three options for the initial situation report. These options are designed to differ in the level of advanced notification that a health department has prior to an outbreak. In option 1 there is no advanced notification and in options 2-3 there is at least some advanced notification.]

Option 1 (Outbreak within the jurisdiction) —A localized disease outbreak originating in the health department's jurisdiction.

February **[year]**:
- ✓ There have been floods in **[local area]** due to inclement weather.
- ✓ **[Local health department]** staff have been aiding flood victims
- ✓ **[Local health department's]** telephone line has been busy with a steady stream of calls about flood victims.

If Option 1 is chosen, the facilitator should immediately begin discussing the first case report after the initial situation report

Option 2 (Outbreak within the region) —A regional outbreak that occurs first in a region close to but outside of the jurisdiction of the health department.

February **[year]**
[Local health department] officials receive an alert via the Health Alert Network about an outbreak of botulism in nearby **[region]**. The alert cautions health departments in the region to be on the look out for patients with signs and symptoms associated with botulism.

If Option 2 is chosen, the facilitator should allow participants to discuss what (if anything) they would do if they received such an alert. *[Consider using active surveillance probes listed after the first case report]*

Option 3 (Distant outbreak) —A statewide outbreak that occurs in a state that is not geographically close to the health department.

February **[year]**
The Associated Press reports that **[distant state]** has a botulism outbreak that has affected **[number]** people. The state health department is still trying to identify the cause of the outbreak however initial evidence points to bioterrorism.

If Option 3 is chosen, the facilitator should allow participants to discuss what (if anything) they would do if they received such information.

Case Reports

Facilitator Dialogue

Who is responsible for receiving case reports today? *[To identified person]* You receive the following case report on March 1 at 9:00am this morning from the medical examiner who is at [local hospital]:

March 1, a 65-year-old white male was brought to the emergency room his morning at 8:15am after complaining of blurred vision and slurred speech. He has a history of a prior MI and atrial fibrillation, and takes warfarin and a beta blocker. He reported generally had been feeling well, and played badminton with his grandchildren at a church picnic the day before.

- ✓ He did not report any chest pain, palpitations, or headache. In the emergency department, he was alert but his speech was slurred.
- ✓ His visual acuity was 20/40 in both eyes, but his eyelids were drooping (ptosis) bilaterally and his pupils were mildly dilated. His gag reflex was diminished. Sensation, motor strength in his arms and legs, and deep tendon reflexes however were intact.
- ✓ While getting an MRI, he aspirated on his secretions, and had a respiratory arrest. He was intubated. MRI was negative for stroke, and he was admitted to the ICU.
- ✓ In the last several hours, he has developed weakness in his upper extremities. Myasthenia was suspected but a Tensilon test is negative.

Facilitator Probes

[To identified person]

- What other information (if any) would you like to have from the caller?
- What advice (if any) would you give the caller?
- Who in the health district would you contact regarding the case? What would you tell them?

[To all participants]

- Who would assume responsibility and take charge at this point?

[The designated official should be encouraged to take charge of the discussion]

- Can you outline the main steps you would take?

[These probes relate to active surveillance. If this was discussed during the initial situation report, move on.]

- At this point would you do anything to try to identify if there are more cases?
- Which entities would you need to contact to initiate active surveillance? What are you going to tell them?
- How would you do active surveillance in vulnerable populations?
- What would you do with potential or suspicious cases that you identified?
- How would you aggregate information on suspicious cases?
- What percentage of physicians in your community could you contact?
- Would your active surveillance include a general public health advisory?

Facilitator Dialogue

Who else here might handle a case report if *[the person responding to the first case report]* is not available? *[To identified person]* You receive the following case report on March 1 at 3:00pm on the same day from the infection control practitioner at **[local hospital]**:

March 1, a 22-year-old **[local university]** student was brought to **[local immediate care center]** at 8:30am complaining of double vision. Her roommate noted that she has slurred speech and her pupils are dilated. She had been at a rowdy party the night before and had returned about 4am.

- ✓ At first her roommate suspected that she was simply hung over, but began to get worried when she noted the dilated pupils and slurred speech that she had been given drugs at the party. The roommate was concerned that her friend had been abused at the party so brought her to **[local immediate care center]**.
- ✓ The patient was difficult to understand, but denied having been raped, and indicated she only had 2 beers. The patient's speech became progressively more slurred during the history, and her speech was unintelligible.
- ✓ On exam she was afebrile with stable vital signs. Heart and lungs were normal, but there were only rare bowel sounds. A quick neurological exam noted bilateral ptosis and sixth nerve palsies. A gag reflex was absent. The patient began to drool and hyperventilate, and was intubated prophylactically. She was then transferred urgently to **[local hospital]** at 10:20am.
- ✓ Blood and urine tox screens were negative. Blood alcohol was less than 0.05. Over the ensuing few hours the patient developed progressive weakness of her neck and upper extremities. An LP was performed, and was unremarkable. A neurology consultant has been called. The nursing director of the ICU calls the health department because he believes this patient may have had a bizarre drug ingestion.

Facilitator Probes

[To identified person]

- What other information (if any) would you like to have from the caller?
- What advice (if any) would you give the caller?
- How if at all would you know about the first case reported earlier in the day?

[To all participants]

- How would you begin thinking about establishing a case definition?
- When (if at all) is there a meeting of the core local health department team who would respond to this problem? What happens at that meeting? How are activities coordinated among staff?
- When (if at all) would you contact your state health department and what would you tell them?
- What contact (if any) would local health department staff have with patients or their families (e.g., would staff call cases on the phone, conduct medical record reviews or personally visit the cases and possibly collect samples)?
- Who is in charge of dealing with lab samples?

- Where do lab samples get sent?
- How are lab samples packaged and delivered?
- Where do hospitals send lab samples?

Facilitator Dialogue

How does the health department triage case reports that come in after hours? Who here might receive a case report after hours? *[To identified person]* You are woken on March 1 at 11:45pm and receive the following case report from an ED physician at **[local hospital]**:

March 1, a 34 year old Hispanic male who speaks little English calls 911 from **[local high school]** where he works as a janitor, because he is experiencing blurred vision, dry mouth and shortness of breath. He has a history of bipolar disorder and panic attacks. Although his mental illness has been well controlled with lithium, he is alarmed by his symptoms and is worried that he is having a panic attack or becoming manic. He has taken an extra dose of clonazepam, but does not feel any better.

- ✓ He was taken to **[local hospital]**. An EMS staff member on the ambulance noted that he was afebrile, had normal vital signs, but had somewhat slurred speech. He remarked to the ED physician that this is the third case of this he has seen that day, and jokingly asks if there's a full moon.
- ✓ In the emergency room the patient appeared frightened, his pupils were dilated bilaterally, and he had bilateral third, sixth, and seventh nerve palsies. His shoulder muscles were weak, although the remainder of his upper extremities and lower extremities were normal.
- ✓ Despite his seemingly vehement denials, the ED staff were worried about a drug ingestion given his history of mental illness, and placed an NG tube for charcoal lavage. He vomited, aspirated and was intubated.
- ✓ He was initially agitated, waving his arms for attention, but over last several hours he has become spontaneously less so. He is currently unable to move his arms on command, but is able to move his legs. Strength and sensation are normal in the lower extremities.
- ✓ The ED physician had recently returned from a CME program on bioterrorism, and calls to ask if you've had any similar reports.

Facilitator Probes

[To identified person]

- If you received a call like this after hours, what would you do?
- Would you wait until the morning to handle the situation or is it urgent enough to deal with immediately?

[To all participants]

- How would you deal with non-English speaking populations in your investigation?
- How would you reach out to vulnerable communities?
- What would you like to know (if anything) from the family members of cases?

End of Step 1

Step 2

Facilitator Dialogue

The **[local health department]** has decided to convene a meeting with other local *[and possibly state]* actors that might be involved with a response to a potential outbreak to inform them about what has been happening.

[Depending on the local environment and the relationship between the state and local health department, state health department officials may also need to be included in this meeting].

Briefing for other local stakeholders
- ✓ Local law enforcement
- ✓ Local elected officials
- ✓ Etc.

Facilitator Probes

[To the person identified as the leader during Step 1]

- You are in charge of this meeting. Outline the major areas you would like to discuss at the meeting.
- Would you still be in charge at this point or would someone else take over?

[To new participants]

- What kinds of questions would you ask the **[local health department]** at this point in time?
- What are your concerns?

[To local health department participants]

- How would all of you coordinate your epidemiologic investigation with the investigation that law enforcement will be conducting?
- What type of patient information are you allowed to give to law enforcement?

[To local law enforcement]

- During a public health emergency, who do you take orders from?
- If you need PPE, to use during your investigation do you have access to some?
- Have law enforcement personnel all been trained in how to put on PPE?

[To local decision makers]

- What role do you see yourselves having in a situation like this?
- How would you keep open lines of communication with the health department?

Situation Update

The initial results of **[local health department]** epidemiologic investigation are as follows:
[Customize the size of the outbreak based on the goals and size of the health department participating in the exercise]

Follow up on initial cases
- ✓ The only commonality among the patients was that they had all eaten salad—one had purchased salad greens and vegetables at the local supermarket, and the other two had eaten garden salads at local cafes. Preliminary lab results come back with a positive identification of botulism type-A, a relatively common form of the toxin.
- ✓ Lab results definitively confirm type-A botulism

Additional cases
- ✓ **[Number]** additional patients complaining of weakness, blurred vision, diplopia come to the attention of the health department
- ✓ The additional cases do not share any geographic commonalities, but there does seem to be a pattern of ingesting salad prior to onset of botulism symptoms.
- ✓ CDC push packs are scheduled to arrive within two hours.
- ✓ **[Local hospital]** has exhausted all of its available ventilators and staff trained in their use.

Facilitator Probes
[To local health department participants]
- How do you coordinate your efforts with local health care facilities?
- Is it your responsibility to help a hospital with it's divert schedules?
- Do you know the divert schedules of the hospital(s) in your region?

[To hospital staff present]
- What expectations do you have (if any) about the assistance you would get from your local health department during an emergency like this one?
- What type of a communication network do you have with the local health department?
- If you needed to acquire more respiratory equipment or other medical supplies could your local health department help you? If so, whom would you contact for help?
- How do you deal with large numbers of "worried well" people coming to health care facilities? Is there anything the local health department could do to help?

[To local health department participants]
- How would you handle a large number of calls being placed to the health department by worried people?
- How would you manage staff and handle things like staff burnout, staff not coming into work, etc.

Facilitator Dialogue

The press has been hounding the **[local health department]** for a statement for over 24 hours. The local news has been reporting all of the information it can obtain.

- ✓ Representatives from the media surround the health department and request a press briefing
- ✓ Media are going to local hospitals and questioning doctors and nurses who have seen patients with respiratory illnesses
- ✓ Media have been interviewing patients discharged from local hospitals.

The media insists that you hold a press briefing.

Facilitator Probes

- Who is in charge of communicating with the media in an event like this?
- What are the major messages you would like to give to the press and the public?
- How do you manage your press campaign?
- How often do you speak with the press?
- How do you keep your message to the press consistent?
- Does the health department have templates that it can use to create fast messages for the media?
- How do you avoid frightening the public?
- How much information do you give the media?
- What advice do you have for the public?

End of Step 2

End of Exercise B2

B3. Plague Medium Exercise Template

OVERVIEW

This tabletop exercise is one exercise in a suite of exercises that have been developed to aid health department officials in assessing the ability of their department to effectively respond to a bioterrorism (BT) event. Each exercise in the suit focuses on a different type of bioterrorism event such as a bacterium, toxin, or virus. This exercise focuses on the purposeful spread of a virus -- plague -- in a population of people. The exercise will take approximately 4 hours to complete. It is divided into two steps. In the first step participants are presented with an outbreak and must first detect the problem and then begin connecting the dots by developing a case definition and conducting an epidemiologic investigation. In the second step participants must interact with other key actors involved with the response.

OBJECTIVES

Assess the ability of the health department in these areas:

- *Surveillance and Detection*
  - Use of existing surveillance systems to detect potential outbreaks
  - Initiation of active surveillance
- *Diagnosis and Investigation*
  - Establishing a case definition
  - Clinical and laboratory investigations
  - Epidemiologic investigation
- *System-Wide Coordination*
  - Handoffs with regional or state health department
  - Coordination of efforts with other local and state actors (e.g., elected officials, law enforcement, etc.)
  - Establishment of an Emergency Operations Center
- *Risk Communication*
  - Effectively communicating essential messages to the public
  - Initiation of a public information campaign
  - Coordination of information to media
- *Disease Control*
  - Prophylaxis and vaccination capabilities
  - Isolation and Quarantine
  - Closing of schools, workplaces, hospitals, and similar facilities

Elements required to meet these objectives appear as checklists at the end of the suite of medium exercises.

EXERCISE MANAGEMENT

Two individuals are needed to conduct this exercise:

- A facilitator who conducts the exercise and, as necessary, offers probes to the participants. (The purpose of the probes is to keep the discussion moving forward, and to focus the discussion if it moves off track.)

- A note taker to take notes during the exercise.

Participants

Step 1 participants:

- Local health department staff only
  - Health director
  - Communicable disease control director
  - Bioterrorism coordinator
  - Epidemiologist
  - Representative from a public health laboratory
  - Public health nurse(s)
  - Public Information Officer (local health department)

Step 2 participants:
All participants from Step 1, and:

- Local stakeholders
  - Law enforcement
  - EMS personnel
  - Hospital infection control staff
  - Local physicians
  - Minority community leadership
  - Elected officials
  - Emergency Management official

Depending on the local environment and the relationship between the state and local health department, it may be useful to include regional or state health department staff in an exercise. See Chapter 4 for more details.

Materials Needed for the Exercise

- Conference room able to seat 5-10 people
- Computer with presentation software and projector (optional)
- Marker board, flip board, or chalkboard
- Copies of exercise materials to give to participants
- Refreshments (e.g., coffee, water)

Sample Agenda

- 8:00am-8:15am Registration/breakfast
- 8:15am-8:30am Introductions and overview
- 8:30am-9:45am Step 1: Initial response
- 9:45am-10:00am Break/light refreshments
- 10:00am-11:45am Step 2: Intermediate response
- 11:45pm-12:15pm Break/lunch
- 12:15pm-1:30pm Step 3: Hot Wash

Step 1

Initial Situation Report

[Customize the exercise template by choosing one of the below three options for the initial situation report. These options are designed to differ in the level of advanced notification that a health department has prior to an outbreak. In option 1 there is no advanced notification and in options 2-3 there is at least some advanced notification.]

Option 1 (Outbreak within the jurisdiction) —A localized disease outbreak originating in the health department's jurisdiction.

June **[year]**:

- ✓ **[Local area]** is locked in a continuing heat wave with daytime high temperatures expected to exceed **[number]** degrees Fahrenheit
- ✓ Summer vacation traffic is high and air quality is poor
- ✓ The health department has been receiving a steady stream of calls with reports of dehydration, especially among infants and elderly
- ✓ Some of the elderly patients have developed respiratory distress and two have died
- ✓ Senior centers have begun to distribute fans to centers without air conditioning.

If Option 1 is chosen, the facilitator should immediately begin discussing the first case report after the initial situation report

Option 2 (Outbreak within the region) —A regional outbreak that occurs first in a region close to but outside of the jurisdiction of the health department.

June **[year]**
[Local health department] officials receive an alert via the Health Alert Network about an outbreak of plague in nearby **[region]**. The alert cautions health departments in the region to be on the lookout for patients with respiratory illnesses.

If Option 2 is chosen, the facilitator should allow participants to discuss what (if anything) they would do if they received such an alert. *[Consider using active surveillance probes listed after the first case report]*

Option 3 (Distant outbreak) —A statewide outbreak that occurs in a state that is not geographically close to the health department.

June **[year]**
The Associated Press reports that **[distant state]** has a plague outbreak that has affected **[number]** people. The state health department is still trying to identify the cause of the outbreak however bioterrorism is strongly suspected.

If Option 3 is chosen, the facilitator should allow participants to discuss what (if anything) they would do if they received such information.

Case Reports

Facilitator Dialogue

Who is responsible for receiving case reports today? *[To identified person]* You receive the following case report on June 26 at 9:00am from an emergency medicine doctor who is at **[local hospital]:**

> June 26, a 10-year-old male child is brought to the **[local emergency room]** with shortness of breath, a cough and blood-tinged sputum. He is accompanied by his mother, who works as a housekeeper in **[local area]**. The mother speaks little English but is also coughing. Both are from Guatemala. They are given masks, and asked to wear them while sputum examinations are pending. The boy is admitted to the hospital after he is found to be febrile and have a cavitary lesion on his chest X-ray. The mother has no health insurance and refuses a chest x-ray. A PPD test was placed on the child. AFB smears are preliminarily negative. You receive a call about a suspicious case of TB in a school-age child.

[Clinical background story: While this case could well be plague, it is most likely TB. However, the shortness of breath, cough and blood-tinged sputum are non-specific enough that you would catch this if doing active surveillance for plague. The suspicion about plague increases once the AFB smears are negative, although that does not definitively rule out TB either.]

Facilitator Probes

[To identified person]

- What other information (if any) would you like to have from the caller?
- What advice (if any) would you give the caller?
- Who in the health district would you contact regarding the case? What would you tell them?

[To all participants]

- Who would assume responsibility and take charge at this point?

[The designated official should be encouraged to take charge of the discussion]

- Can you outline the main steps you would take?
- How would you handle the language barrier?

[These probes relate to active surveillance. If this was discussed during the initial situation report, move on.]

- At this point would you do anything to try to identify if there are more cases?
- Which entities would you need to contact to initiate active surveillance? What are you going to tell them?
- How would you do active surveillance in vulnerable populations?
- What would you do with potential or suspicious cases that you identified?
- How would you aggregate information on suspicious cases?
- What percentage of physicians in your community could you contact?
- Would your active surveillance include a general public health advisory?

Facilitator Dialogue

Who else here might handle a case report if *[the person responding to the first case report]* is not available? *[To identified person]* You receive the following case report on June 26 at 3:00pm on the same day from the infection control practitioner at **[local hospital]**:

June 26, a 72-year-old man with a history of recurrent congestive heart failure (CHF) is admitted to **[hospital]** with a cough and bloody sputum.

- ✓ He has obvious signs of fluid overload and is clinically in heart failure.
- ✓ He has a history of multiple admissions for CHF, often due to running out of medicines at the end of the month.
- ✓ The patient has no fever, and has no recent travel history.
- ✓ You are called only because the ICU physician has been asked by the hospital infection control staff to report any cases of cough and bloody sputum. Sputum gram stain was over de-colorized, but negative.

[Clinical background story: This patient came to attention because he had cough and bloody sputum. You cannot rule out plague, but it is not as likely as simple heart failure.]

Facilitator Probes

[To identified person]

- What other information (if any) would you like to have from the caller?
- What advice (if any) would you give the caller?
- How if at all would you know about the first case reported earlier in the day?

[To all participants]

- How would you begin thinking about establishing a case definition?
- When (if at all) is there a meeting of the core local health department team who would respond to this problem? What happens at that meeting? How are activities coordinated among staff?
- When (if at all) would you contact your state health department and what would you tell them?
- What contact (if any) would local health department staff have with patients or their families (e.g., would staff call cases on the phone, conduct medical record reviews or personally visit the cases and possibly collect samples)?

Facilitator Dialogue

How does the your health department triage case reports that come in after hours? Who here might receive a case report after hours? *[To identified person]* You are woken on June 26 at 11:45pm and receive the following case report from an ED physician at **[local hospital]**:

June 26, a 42-year-old flight attendant reports for work at **[local airport]**. While waiting for his aircraft to arrive, he suddenly feels flushed, and over the next hour feels feverish and slightly confused. By the time he should board his plane, he feels too sick and weak to fly.

- ✓ He is sent to the emergency room at **[local hospital]**, where he is found to be hypotensive, and tachypneic.
- ✓ While still able to talk, he says he is HIV positive, on meds, and that his last viral load was low.
- ✓ He becomes too tachypneic to talk and is intubated.
- ✓ CXR was consistent with ARDS.
- ✓ Sputum gram stain revealed gram-negative bacilli.
- ✓ He is currently in the ICU.
- ✓ You are called because of the infectious disease alert sent to your hospital, but the doctor thinks the patient has an AIDS-associated infection.

[Clinical background story: This patient probably has plague. The HIV may have made him more susceptible or made the clinical progression faster. The gram-negative bacilli are consistent with plague, but this could also be another gram-negative pneumonia. But each of these people are "possible cases" and should be considered contagious until proven otherwise.]

Facilitator Probes

[To identified person]

- If you received a call like this after hours, what would you do?
- Would you wait until the morning to handle the situation or is it urgent enough to deal with immediately?

[To all participants]

- Is there anything that would cause you to link all of these case reports together?
- How would you begin to connect the dots?
- What other information would you need?

End of Step 1

Step 2

Facilitator Dialogue

The **[local health department]** has decided to convene a meeting with other local *[and possibly state]* actors that might be involved with a response to a potential outbreak to inform them about what has been happening.

[Depending on the local environment and the relationship between the state and local health departments, state health department officials may also need to be included in this meeting].

Briefing for other local actors
- ✓ Local law enforcement
- ✓ Local elected officials

Facilitator Probes

[To the person identified as the leader during Step 1]

- You are in charge of this meeting. Outline the major areas you would like to discuss at the meeting.
- Would you still be in charge at this point or would someone else take over?

[To new participants]

- What kinds of questions would you ask the **[local health department]** at this point in time?
- What are your concerns?

[To local health department participants]

- How would all of you coordinate your epidemiologic investigation with the investigation that law enforcement will be conducting?
- What type of patient information are you allowed to give to law enforcement?

[To local law enforcement]

- During a public health emergency, who do you take orders from?
- If you need PPE to use during your investigation do you have access to some?
- Have law enforcement personnel all been trained in how to put on PPE?

[To local decision makers]

- What role do you see yourselves having in a situation like this?
- How would you keep open lines of communication with the health department?

Facilitator Dialogue

The initial results of **[local health department]** active surveillance are as follows:

[The size of the outbreak in this exercise can be tailored to be most appropriate for the goals and size of the local health department participating in the exercise]

- ✓ The emergency department at **[major local hospital]** tells you they have seen nearly **[number]** people with respiratory illness in the last 24 hours. **[number]** have been admitted over the last shift, and their ICUs are now full. They are going on diversion.
- ✓ Other local hospitals are experiencing similar challenges. *[Only include if there is more than one local hospital associated with the health department participating in the exercise]*
- ✓ **[Local health center or clinic]** is reporting unusual numbers of cases with flu-like and respiratory illnesses
- ✓ **[Other local health care facility]** reveals that they have seen a few people with flu-like and respiratory illness, which seems a bit odd for June. They have **[number]** people with respiratory failure in the ICU.

Facilitator Probes

[To local health department participants]

- How do you coordinate your efforts with local health care facilities?
- Is it your responsibility to help a hospital with its divert schedules?
- Do you know the divert schedules of the hospital(s) in your region?
- What is your strategy for containing the spread of the disease?
- What is your strategy for reducing fatalities among those infected and exposed?
- Do you tell people experiencing certain symptoms to report only to those hospitals?

[To hospital staff present]

- What expectations do you have (if any) about the assistance you would get from your local health department during an emergency like this one?
- What type of a communication network do you have with the local health department?
- If you needed to acquire more respiratory equipment or other medical supplies could your local health department help you? If so, whom would you contact for help?
- How do you deal with large numbers of "worried well" people coming to health care facilities? Is there anything the local health department could do to help?

[To local health department participants]

- How would you handle a large number of calls being placed to the health department by worried people?
- How would you manage staff and handle things like staff burnout, staff not showing up for work, etc.

Facilitator Dialogue

The press has been hounding the **[local health department]** for a statement for over 24 hours. The local news has been reporting all of the information it can obtain.

- ✓ Representatives from the media surround the health department and request a press briefing
- ✓ Media are going to local hospitals and questioning doctors and nurses who have seen patients with respiratory illnesses
- ✓ Media have been interviewing patients discharged from local hospitals.

The media insists that you hold a press briefing.

Facilitator Probes

- Who is in charge of communicating with the media in an event like this?
- What are the major messages you would like to give to the press and the public?
- How do you manage your press campaign?
- How often do you speak with the press?
- How do you keep your message to the press consistent?
- Does the health department have templates that it can use to create fast messages for the media?
- How do you avoid frightening the public?
- How much information do you give the media?
- What advice do you have for the public?

End of Step 2

End of Exercise B3

B4. Smallpox Medium Exercise Template

OVERVIEW

This tabletop exercise is one exercise in a suite of exercises that have been developed to aid health department officials in assessing the ability of their department to effectively respond to a bioterrorism (BT) event. Each exercise in the suit focuses on a different type of bioterrorism event such as a bacterium, toxin, or virus. This exercise focuses on the purposeful spread of a virus -- smallpox -- in a population of people. The exercise will take approximately 4 hours to complete. It is divided into two steps. In the first step participants are presented with an outbreak and must first detect the problem and then begin connecting the dots by developing a case definition and conducting an epidemiologic investigation. In the second step participants must interact with other key actors involved with the response.

OBJECTIVES

Assess the ability of the health department in these areas:

- *Surveillance and Detection*
  - Use of existing surveillance systems to detect potential outbreaks
  - Initiation of active surveillance
- *Diagnosis and Investigation*
  - Establishing a case definition
  - Clinical and laboratory investigations
  - Epidemiologic investigation
- *System-Wide Coordination*
  - Handoffs with regional or state health department
  - Coordination of efforts with other local and state actors (e.g., elected officials, law enforcement)
  - Establishment of an Emergency Operations Center
- *Risk Communication*
  - Effectively communicating essential messages to the public
  - Initiation of a public information campaign
  - Coordination of information to media
- *Disease Control*
  - Prophylaxis and vaccination capabilities
  - Isolation and Quarantine
  - Closing of schools, workplaces, hospitals, and similar facilities

Elements required to meet these objectives appear as checklists at the end of the suite of medium exercises.

EXERCISE MANAGEMENT

Two individuals are needed to conduct this exercise:

- A facilitator who conducts the exercise and, as necessary, offers probes to the participants (The purpose of the probes is to keep the discussion moving forward, and to focus the discussion if it moves off track.)

- A note taker to take notes during the exercise.

Participants

Step 1 participants:

- Local health department staff only
  - Health director
  - Communicable disease control director
  - Bioterrorism coordinator
  - Epidemiologist
  - Representative from a public health laboratory
  - Public health nurse(s)
  - Public Information Officer (local health department)

Step 2 participants:
All participants from Step 1, and:

- Local stakeholders
  - Law enforcement
  - EMS personnel
  - Hospital infection control staff
  - Local physicians
  - Minority community leadership
  - Elected officials
  - Emergency Management official

Depending on the local environment and the relationship between the state and local health department, it may be useful to include regional or state health department staff in an exercise. See Chapter Four for more details.

Materials Needed for the Exercise

- Conference room able to seat 5-10 people
- Computer with presentation software and projector (optional)
- Marker board, flip board, or chalkboard
- Copies of exercise materials to give to participants
- Refreshments (e.g., coffee, water.)

Sample Agenda

- 8:00am-8:15am Registration/breakfast
- 8:15am-8:30am Introductions and overview
- 8:30am-9:45am Step 1: Initial response
- 9:45am-10:00am Break/light refreshments
- 10:00am-11:45am Step 2: Intermediate response
- 11:45pm-12:15pm Break/lunch
- 12:15pm-1:30pm Step 3: Hot Wash

Step 1

Initial Situation Report

[Customize the exercise template by choosing <u>one</u> of the below three options for the initial situation report. These options are designed to differ in the level of advanced notification that a health department has prior to an outbreak. In option 1 there is no advanced notification and in options 2-3 there is at least some advanced notification.]

<u>Option 1</u> (Outbreak within the jurisdiction) —A localized disease outbreak originating in the health department's jurisdiction.

February **[year]**:
- ✓ There have been floods in **[local area]** due to inclement weather.
- ✓ **[Local health department]** staff have been aiding flood victims
- ✓ **[Local health department's]** telephone line has been busy with a steady stream of calls about **flood** victims

If Option 1 is chosen, the facilitator should immediately begin discussing the first case report after the initial situation report

<u>Option 2</u> (Outbreak within the region) —A regional outbreak that occurs first in a region close to but outside of the jurisdiction of the health department.

February **[year]**
[Local health department] officials receive an alert via the Health Alert Network about an outbreak of smallpox in nearby **[region]**. The alert cautions health departments in the region to be on the look out for patients with signs and symptoms associated with smallpox.

If Option 2 is chosen the facilitator should allow participants to discuss what (if anything) they would do if they received such an alert. *[Consider using active surveillance probes listed after the first case report]*

<u>Option 3</u> (Distant outbreak) —A statewide outbreak that occurs in a state that is not geographically close to the health department.

February **[year]**
The Associated Press reports that **[distant state]** has a smallpox outbreak that has affected **[number]** people. The state health department is still trying to identify the cause of the outbreak however initial evidence points to bioterrorism.

If Option 3 is chosen, the facilitator should allow participants to discuss what (if anything) they would do if they received such information.

Case Reports

Facilitator Dialogue

Who is responsible for receiving case reports today? *[To identified person]* You receive the following case report at 9:00am this morning (March 1) from the medical examiner who is at **[local hospital]:**

February 26, a 40-year-old Hispanic male who works as a maintenance man at **[local school]** presents to the **[local hospital]** with a fever of 102 and vomiting. He speaks very limited English. He improves with antiemetics and is sent home with a diagnosis of viral syndrome.

- ✓ On February 28, he was brought into **[local hospital]** by ambulance, now with fever, severe headache and rash, and is admitted with a presumptive diagnosis of meningitis.
- ✓ On March 1, he becomes hypotensive and subsequently dies, with cultures/diagnostic tests negative for N. meningitis, bacteria, and herpes. An autopsy is scheduled for March 2. The infection control practitioner calls the health department because of suspected meningitis.

[Clinical background story: This person may well have smallpox. The presentation could mimic meningitis, but when the cultures are negative it should be clear that he had a different problem. He has unrecognized HIV and that's why he gets sick and dies so fast.]

Facilitator Probes

[To identified person]

- What other information (if any) would you like to have from the caller?
- What advice (if any) would you give the caller?
- Who in the health district would you contact regarding the case? What would you tell them?

[To all participants]

- Who would assume responsibility and take charge at this point?
- How would you deal with the language barrier?

[The designated official should be encouraged to take charge of the discussion]

- Can you outline the main steps you would take?

[These probes relate to active surveillance. If this was discussed during the initial situation report, move on.]

- At this point would you do anything to try to identify if there are more cases?
- Which entities would you need to contact to initiate active surveillance? What are you going to tell them?
- How would you do active surveillance in vulnerable populations?
- What would you do with potential or suspicious cases that you identified?
- How would you aggregate information on suspicious cases?
- What percentage of physicians in your community could you contact?
- Would your active surveillance include a general public health advisory?

Facilitator Dialogue

Who else here might handle a case report *if [the person responding to the first case report]* is not available? You receive the following case report at 3:00pm the same day (March 1) from and infectious disease practitioner at **[local hospital]**:

[If the local health department is large enough that it has more than one affiliated hospital, choose a different hospital than the one that is used for the first case report]

On February 28, a 42-year-old Asian businessman is seen at **[local hospital]** with a fever, headache, and backache. He had been on a recent business trip to Asia, and is admitted with a presumptive diagnosis of malaria.

- ✓ On March 1 he has a negative blood smear for malaria, no response to empirical therapy, and is beginning to develop a rash on his face, arms, and legs.
- ✓ Six other patients have appeared at **[local hospital]** within the last 48 hours with fevers and nascent rashes. The nurse practitioner in the hospital outpatient department thinks this may be odd and reports the cases to the infection control practitioner at the hospital. The infection control practitioner calls the **[local health department]** to report the cluster and to ask if the health district knows of anything going around.

[Clinical background story: This person could easily have smallpox, a drug reaction, or some other viral rash. A key will be whether all the lesions are in the same stages of development.]

Facilitator Probes

[To identified person]

- What other information (if any) would you like to have from the caller?
- What advice (if any) would you give the caller?
- How if at all would you know about the first case reported earlier in the day?

[To all participants]

- How would you begin thinking about establishing a case definition?
- When (if at all) is there a meeting of the core local health department team who would respond to this problem? What happens at that meeting? How are activities coordinated among staff?
- When (if at all) would you contact your state health department and what would you tell them?
- What contact (if any) would local health department staff have with patients or their families (e.g., would staff call cases on the phone, conduct medical record reviews or personally visit the cases and possibly collect samples)?
- What type of PPE (if any) should people coming in contact with cases wear?

Facilitator Dialogue

How does your health department triage case reports that come in after hours? Who here might receive a case report after hours? *[To identified person]* You are woken at 2:00am on March 2 and receive the following case report from an ED physician at **[local hospital]**:

February 27, a 21-year-old female student at **[local university]** presents to the Student Health Center with a fever, chills, and headache. She gives a history of a sister with the "flu," and mentions that she has been taking some of her roommate's trimethoprim-sulfa. A nasopharyngeal swab for influenza is performed. She is sent home with instructions to call for results, and with Tylenol for pain and fever.

- ✓ On February 28, the student returns to the **[local university]** student health center with continued fever, and a rash on her face and arms. She is sent to **[local hospital]** and admitted for observation with diagnoses of possible chickenpox versus drug allergy. The influenza test from her previous visit was negative.
- ✓ On March 2, an infectious disease consult is obtained on the student to verify a diagnosis of chickenpox versus drug rash, and to see if any isolation is warranted. The consultant doesn't think that the illness is consistent with varicella; the patient had a prodrome, and all of the lesions on her arms are in the same stage of development. The consultant reviews a dermatology textbook to confirm his clinical recognition, and decides to call the **[local health department]** on the off chance that this represents smallpox.

[Clinical background story: This is likely smallpox. The trimethoprim-sulfa causes a classic drug rash that is easy to distinguish from smallpox. The fact that all of the lesions are in the same stage of development suggests this is not chickenpox.]

Facilitator Probes

[To identified person]

- If you received a call like this after hours, what would you do?

[To all participants]

- Is there anything that would cause you to link all of these case reports together?
- How would you begin to connect the dots?
- What other information would you need?
- How many health department staff are vaccinated for Smallpox?
- Who else would be vaccinated?
- What strategy do you have in place for vaccinating staff?
- Would you also vaccinate staff's family
- How would you begin to vaccinate other first responders including law enforcement?

End of Step 1

Step 2

Facilitator Dialogue

The **[local health department]** has decided to convene a meeting with other local *[and possibly state]* actors that might be involved with a response to a potential outbreak to inform them about what has been happening.

[Depending on the local environment and the relationship between the state and local health department, state health department officials may also need to be included in this meeting].

Briefing for other local stakeholders
- ✓ Local law enforcement
- ✓ Local elected officials

Facilitator Probes

[To the person identified as the leader during Step 1]

- You are in charge of this meeting. Outline the major areas you would like to discuss at the meeting.
- Would you still be in charge at this point or would someone else take over?

[To new participants]

- What kinds of questions would you ask the **[local health department]** at this point in time?
- What are your concerns?

[To local health department participants]

- How would all of you coordinate your epidemiologic investigation with the investigation that law enforcement will be conducting?
- What type of patient information are you allowed to give to law enforcement?

[To local law enforcement]

- During a public health emergency, from whom do you take orders?
- If you need PPE to use during your investigation, do you have access to some?
- Have law enforcement personnel all been trained in how to put on PPE?

[To local decision makers]

- What role do you see yourselves having in a situation like this?
- How would you keep open lines of communication with the health department?

Situation Update

Facilitator Dialogue
The initial results of **[local health department]** active surveillance are as follows:

[The size of the outbreak in this exercise can be tailored to be most appropriate for the goals and size of the local health department participating in the exercise]

- ✓ The emergency department at **[major local hospital]** tells you they have seen nearly **[number]** people with smallpox-like rashes in the last 24 hours. **[number]** have been admitted over the last shift, and their ICUs are now full. They are going on diversion.
- ✓ Other local hospitals are experiencing similar challenges. *[Only include if there is more than one local hospital associated with the health department participating in the exercise]*

Facilitator Probes
[To local health department participants]

- How do you coordinate your efforts with local health care facilities?
- What do you tell them with regards to the use of isolation and quarantine?
- Is it your responsibility to help hospital with its divert schedule?
- Do you know the divert schedules of the hospital(s) in your region?
- What is your strategy for containing the spread of the disease?
- What is your strategy for reducing fatalities among those infected and exposed?
- Are you trying to establish and track contacts?
- Who should be vaccinated in this critical early period?
- Do you identify smallpox hospitals (i.e., those who will treat smallpox victims)?
- Do you tell people experiencing certain symptoms to report only to those hospitals?
- Do you set up triage facilities outside the entrances to all hospitals to screen patients before they enter smallpox and non-smallpox hospitals?
- Who is in charge of, and how do you handle and manage dead bodies?
- Who is in charge of, and how do you dispose of, biohazard wastes?

[To hospital staff present]

- What expectations do you have (if any) about the assistance you would get from your local health department during an emergency like this one?
- What type of a communication network do you have with the local health department?
- If you needed to acquire more respiratory equipment or other medical supplies could your local health department help you? If so, whom would you contact for help?

- How do you deal with large numbers of "worried well" people coming to health care facilities? Is there anything the local health department could do to help?

[To local health department participants]

- How would you handle a large number of calls being placed to the health department by worried people?
- How would you manage staff and handle things like staff burnout, staff not showing up for work, etc.

Facilitator Dialogue

The press has been hounding the **[local health department]** for a statement for over 24 hours. The local news has been reporting all of the information it can obtain.

- ✓ Representatives from the media surround the health department and request a press briefing
- ✓ Media are going to local hospitals and questioning doctors and nurses who have seen patients with respiratory illnesses
- ✓ Media have been interviewing patients discharged from local hospitals

The media insists that you hold a press briefing.

Facilitator Probes

- Who is in charge of communicating with the media in an event like this?
- What are the major messages you would like to give to the press and the public?
- How do you manage your press campaign?
- How often do you speak with the press?
- How do you keep your message to the press consistent?
- Does the health department have templates that it can use to create fast messages for the media?
- How do you avoid frightening the public?
- How much information do you give the media?
- What advice do you have for the public?

End of Step 1

End of Exercise B4

B5. Checklists for Medium Exercises

Preamble

These checklists are designed to be used by both the facilitator to aid in guiding the exercise and to aid in the assessment of exercise performance. The note taker should use the checklists by putting an "X" in a check box if exercise participants covered a checklist topic without being probed. The note taker should put a "/" in the box if the participants covered a checklist topic but only after being probed. The note taker should leave a checkbox empty if participants were probed for a particular checklist item but still never provided a response.

Surveillance and Detection Checklist

Detection

- ☐ Have infrastructure in place to respond to case reports 24/7/365
- ☐ Staff with clinical knowledge are able to respond to case reports

Initiating Active Surveillance

- ☐ Provided concrete details on how to go about initiating active surveillance
- ☐ Would contact a number of different individuals and organizations to assist with active surveillance efforts. Identified what those individuals would be asked to do, and would provide them with working case definition
  - ❑ Epidemiologists
  - ❑ Hospital administrators
  - ❑ Hospital infection control practitioners
  - ❑ Emergency departments (e.g., ED physicians, nurses)
  - ❑ Local physicians (e.g., primary care, private practice)
  - ❑ Law enforcement personnel
  - ❑ EMS
  - ❑ General public
- ☐ All new suspected cases would be followed up and monitored by appropriate health department personnel
- ☐ Discussed the process for tracking potential cases
- ☐ All decisions would be logged in a log book
- ☐ Would collect and aggregate data on cases
  - ❑ Date of onset of illness
  - ❑ Place where case lives

- ❑ Place where case became ill
- ❑ Recent travel
- ❑ Individual characteristics of cases (e.g., age, sex, occupation)
- ❑ Contacts of cases

Diagnosis and Investigation Checklist

Establishing a Case Definition

☐ Discussed clear process for establishing case definition

☐ Identified (have knowledge of) resources such as the state health department and the CDC's websites to aid in developing the case definition

☐ Discussed establishing an initial working case definition
- ❑ Kept broad
- ❑ Uniform
- ❑ Relatively simple
- ❑ Timely

☐ Discussed essential elements that would be used in case definition
- ❑ Time (date of onset)
- ❑ Place
- ❑ Person
- ❑ Symptoms
- ❑ Essential physical signs
- ❑ Laboratory confirmation

☐ Would begin to consider how to divide case definition into categories (laboratory confirmed case, probable cases, suspected cases).

☐ Discussed comparing working case definition with existing case definition for other known diseases

☐ Information on possible cases would come from a variety of sources
- ❑ Health care personnel (e.g., physicians, nurses, EMS)
- ❑ Hospitals
- ❑ Schools
- ❑ Affected individuals
- ❑ Close contacts and family members of affected individuals

☐ Information kept on all cases regardless of whether they are confirmed, probable, possible, or unlikely

☐ Data on cases would be collected and stored in a systematic fashion (ideally stored on a microcomputer, with other backup)

Clinical Investigation

- ☐ Would contact state health department to let them know of suspected cases
- ☐ At least one health department epidemiologist or communicable disease specialist would contact cases
- ☐ Personnel who visit suspected cases would wear PPE
- ☐ Participants know the general signs and symptoms to look for when examining suspected cases of anthrax (botulism, plague, or smallpox)
- ☐ Clinical specimens would be collected from every case. Participants know what to collect, how to store it, etc.
- ☐ Participants were clear about how they would handle suspected cases
- ☐ Addressed how to deal with non-English speaking cases
- ☐ Would focus on trying to find out what all of the cases had in common (identifying common source)

Laboratory Investigation

- ☐ Personnel trained in how to prepare, package, and ship hazardous biological materials would be responsible for sending samples to laboratories
- ☐ Participants know where to send specimens
- ☐ Participants understand the chain of custody for specimens
- ☐ Recipient of specimens would be alerted in advance

Risk Communication Checklist

Communicators

- ☐ Public Information Officer (PIO) and at least one alternative exists

- ☐ Have personnel other than the PIO to aid in communication
  - ❑ Public affairs specialist
  - ❑ Health Communication specialist
  - ❑ Health education specialist
  - ❑ Crisis communications specialist
  - ❑ Other _____

- ☐ Spokespersons/contacts for multiple audiences have been identified
  - ❑ Bilingual spokespersons available
  - ❑ Minority spokespersons available
  - ❑ Speakers for community meetings
  - ❑ Other _____

- ☐ Pre-existing relationships with community-based organizations that represent major minority groups

- ☐ Communications staff receives regular media relations training

- ☐ All communicators function together as part of a public information team

Risk Communication and Health Information Plan

- ☐ Have a formal written risk communication and health information dissemination plan
  - ❑ Plan includes clear lines of authority and division of responsibility
  - ❑ Plan has been tested
  - ❑ Plan for scheduling public information team in emergencies that may take longer periods of time (i.e., relief schedule for 24/7 coverage)

- ☐ Procedures developed to verify and approve of information that is to be released to the media and the public

- ☐ Procedures developed to coordinate public information campaign to ensure that messages are consistent

- ☐ Risk communication and health information plan has been previously discussed with state health department and/or federal emergency management entities

- ☐ Have established procedures for choosing the appropriate type and level of information to be presented to the media and public

- ☐ Identify who needs to approve messages to the media and the public

- ☐ Are able to articulate the clearance process for approving messages to the media and the public

Direct Communication with Media

- ☐ Have plan to triage media requests and inquiries

- ☐ Are prepared to formally communicate with the media
  - ❑ Predetermined locations for press conferences
  - ❑ Equipment and supplies for press conferences available

- ☐ Have the ability to produce media advisories, press releases, fact sheets, etc.

- ☐ Have pre-drafted templates for press releases, etc. during potential public health emergencies (e.g., infectious disease outbreaks, bioterrorist attacks)

- ☐ Have plan for handling press leaks and rumors

- ☐ Have a list of contacts at major local media outlets (broadcast and print) that can be used to communicate health information
  - ❑ Includes minority media outlets
  - ❑ Includes non-English language media

- ☐ Would consider briefing the press of situation before likely press leaks (i.e., during outbreak investigation before laboratory confirmation of cases)

- ☐ Would communicate regularly with the media

Direct Communication with the Public

- ☐ Existing telephone line for health department has been tested to handle surge capacity

- ☐ Would establish telephone information hotline for public
  - ❑ Described how hotline would function
  - ❑ Identified how it would be staffed
  - ❑ Know how many callers it could accommodate
  - ❑ Other _____

- ☐ Have ability to communicate with non-English speaking populations

- ☐ Would regularly put up-to-date information and communications directly on health department web site
- ☐ Would publicly advertise health department contact information
- ☐ Would elicit feedback from the public to see if messages were being interpreted correctly
- ☐ Have plans for direct communications to minority groups

Disease Control Checklist

- ☐ Outlined a strategy for controlling the disease
- ☐ Involved community partners in disease control strategies
- ☐ Reporting active steps for containing the disease
- ☐ Understood state and local laws related to disease control (e.g., the closure of schools and public places, isolation and quarantine, etc.)

Appendix C.
Long Exercise

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C1. Long Exercise

OVERVIEW

This tabletop exercise is one exercise in a suite of exercises that have been developed to aid health department officials in assessing the ability of their department to effectively respond to a bioterrorism (BT) event. Each exercise in the suite focuses on a different type of bioterrorism event such as a bacterium, toxin, or virus. This exercise focuses on the purposeful spread of a novel virus. The exercise will take approximately six hours to complete. The exercise is divided into three steps. In the first step participants are presented with an outbreak of a novel virus of unknown origin. Participants must first detect the problem and then begin connecting the dots by developing a case definition and conducting an epidemiologic investigation. At the end of this phase participants are presented with information that the novel virus is related to a bioterrorist attack. In the second step participants must interact with other key actors involved with the response. In the third step participants are presented with several brief scenarios that require them to detail their response to specific aspects of simulated bioterrorism events. Step 3 is designed to cover issue areas that were not able to be fully addressed in Steps 1 and 2 such as the public health response to a chemical attack and the public health response to a disease that spreads from animals to humans.

OBJECTIVES

Assess the ability of the health department to perform the following:

- *Surveillance and Detection*
  - Use of existing surveillance systems to detect potential outbreaks
  - Initiation of active surveillance
- *Diagnosis and Investigation*
  - Establishing a case definition
  - Clinical and laboratory investigations
  - Epidemiologic investigation
- *System-Wide Coordination*
  - Handoffs with regional or state health department
  - Coordination of efforts with other local and state actors (e.g., elected officials, law enforcement)
  - Establishment of an Emergency Operations Center
- *Risk Communication*
  - Effectively communicating essential messages to the public
  - Initiation of a public information campaign
  - Coordination of information to media
- *Disease Control*
  - Prophylaxis and vaccination capabilities
  - Isolation and Quarantine
  - Closing of schools, workplaces, hospitals, and similar facilities

- *Consequence Management*
    - Treatment of affected individuals
    - Assessing the provision of needed care
    - Surge capacity

Elements required to meet these objectives appear as checklists at the end of the long exercise.

EXERCISE MANAGEMENT

Two individuals are needed to conduct this exercise:

- A facilitator who conducts the exercise and, as necessary, offers probes to the participants; the purpose of the probes is to keep the discussion moving forward, and to focus the discussion if it moves off track.
- A note taker to take notes during the exercise.

Participants

Step 1 participants:

- Local health department staff only
    - Health director
    - Communicable disease control director
    - Bioterrorism coordinator
    - Epidemiologist
    - Representative from a public health laboratory
    - Public health nurse(s)
    - Public Information Officer (local health department)

Step 2 participants:
All participants from Step 1, and:

- Local stakeholders
    - Law enforcement
    - EMS personnel
    - Hospital infection control staff
    - Local physicians
    - Minority community leadership
    - Elected officials
    - Emergency Management official

Depending on the local environment and the relationship between the state and local health department, it may be useful to include regional or state health department staff in an exercise. Please see Chapter Four for more details.

Materials Needed for the Exercise

- Conference room able to seat 15-20 people
- Computer with presentation software and projector
- Marker board, flip board, or chalkboard

- Copies of exercise materials to give to participants
- Refreshments (e.g., coffee, water)

Sample Agenda

- 8:00am-8:15am Registration/breakfast
- 8:15am-8:30am Introductions and overview
- 8:30am-9:45am Step 1: Initial response
- 9:45am-10:00am Break/light refreshments
- 10:00am-11:45am Step 2: Intermediate response
- 11:45pm-12:15pm Break/lunch
- 12:15pm-1:30pm Step 3: Advanced response
- 1:30pm-2:00pm Step 4: Hotwash

C2. Step 1

Initial Situation Report
[Customize the exercise template by choosing <u>one</u> of the below three options for the initial situation report]

<u>Option 1</u> (Outbreak within the jurisdiction) —A localized disease outbreak originating in the health department's jurisdiction.

July **[year]**:
- ✓ **[Local area]** is locked in a continuing heat wave with daytime high temperatures expected to exceed **[number]** degrees Fahrenheit
- ✓ Summer vacation traffic is high and air quality is poor
- ✓ The health department has been receiving a steady stream of calls with reports of dehydration, especially among infants and elderly
- ✓ Some of the elderly patients have developed respiratory distress and two have died
- ✓ Senior centers have begun to distribute fans to centers without air conditioning.

If Option 1 is chosen, the facilitator should immediately begin discussing the first case report after the initial situation report.

<u>Option 2</u> (Outbreak within the region) —A regional outbreak that occurs first in a region close to but outside of the jurisdiction of the health department.

July **[year]**
[Local health department] officials receive an alert via the Health Alert Network about an outbreak of a novel respiratory illness in nearby **[region]**. The alert cautions health departments in the region to be on the look out for patients with respiratory illnesses.

If Option 2 is chosen, the facilitator should allow participants to discuss what (if anything) they would do if they received such an alert. *[Consider using active surveillance probes listed after the first case report]*

<u>Option 3</u> (Distant outbreak) —A statewide outbreak that occurs in a state that is not geographically close to the health department.

July **[year]**
The Associated Press reports that **[distant state]** has an outbreak of a novel respiratory illness that has affected **[number]** people.

If Option 3 is chosen, the facilitator should allow participants to discuss what (if anything) they would do if they received such information.

Facilitator Dialogue

Who is responsible for receiving case reports today? *[To identified person]* You receive the following case report at 10:00am this morning from a pathologist who works at **[local hospital]:**

July 10, a 55-year-old South Asian man who is an employee at **[local nursing home]** with no known history of disease was admitted two days ago with a persistent cough, hypoxia, and radiographic evidence of diffuse pneumonia.

- ✓ His condition rapidly deteriorated.
- ✓ He was intubated and expired early that morning of acute respiratory distress syndrome (ARDS).
- ✓ Preliminary cultures from mechanical suctioning were positive for Staph. aureus.
- ✓ Post is not complete yet however thus far does not reveal an immediate cause for respiratory failure, and subsequent cultures are negative so far.

Facilitator Probes

[To identified person]

- What other information (if any) would you like to have from the caller?
- What advice (if any) would you give the caller?
- Who in the health district would you contact regarding the case? What would you tell them?

[To all participants]

- Who would assume responsibility and take charge at this point?

[The designated official should be encouraged to take charge of the discussion]

- Can you outline the main steps you would take?

[These probes relate to active surveillance. If this was discussed during the initial situation report, move on.]

- At this point would you do anything to try to identify if there are more cases?
- Which entities would you need to contact to initiate active surveillance? What are you going to tell them?
- How would you do active surveillance in vulnerable populations?
- What would you do with potential or suspicious cases that you identified?
- How would you aggregate information on suspicious cases?
- What percentage of physicians in your community could you contact?
- Would your active surveillance include a general public health advisory?

Facilitator Dialogue

Who else here might handle a case report if *[the person responding to the first case report]* is not available? *[To identified person]* You receive the following case report at 12:00pm on the same day (July 10) from an infectious disease fellow at **[local hospital]** regarding a cluster of patients with similar symptoms:

- ✓ Patient 1 is a 26-year-old white male who reports that over the past three days he has been feeling very hot with muscle aches and a severe headache with intermittent nausea and vomiting. Last night, he developed a maculopapular rash on his torso and was suffering from respiratory distress.
- ✓ Patient 2 is a 35-year-old black female who presented to the ER this morning suffering from apparent respiratory distress. She reports vomiting and diarrhea for the past two days and is severely dehydrated. She also reports having a fever and severe headache. Her fever is now 103.
- ✓ Patient 3 is a 20-year-old white male who presented with severe vomiting. He has difficulty breathing and chest pain. He reports developing a fever and muscle aches sometime over the weekend and he is dehydrated.
- ✓ Preliminary lab and sputum gram stains from the three patients are unremarkable.

[Clinical background story: the doctor is calling because disease clusters are reportable to most health departments. The rash for patient 1 is really just a minor drug rash however it was added to keep participants actively discussing how they would establish a case definition]

Facilitator Probes

[To identified person]

- What other information (if any) would you like to have from the caller?
- What advice (if any) would you give the caller?
- How if at all would you know about the first case reported the day before?

[To all participants]

- How would you begin thinking about establishing a case definition?
- When (if at all) is there a meeting of the core local health department team who would respond to this problem? What happens at that meeting? How are activities coordinated among staff?
- When (if at all) would you contact your state health department and what would you tell them?
- What contact (if any) would local health department staff have with patients or their families (e.g., would staff call cases on the phone, conduct medical record reviews or personally visit the cases and possibly collect samples)?
- Who is in charge of dealing with lab samples?
- Where do lab samples get sent?
- How are lab samples packaged and delivered?
- Where do hospitals send lab samples?

Situation Update

Facilitator Dialogue
The next day (July 11) you receive the following update from **[local hospital]** regarding the three disease cluster patients:

- ✓ Patient 1 and 2 expired during the night from acute respiratory distress syndrome (ARDS) following mechanical ventilation.
- ✓ Patient 3 is intubated and in critical condition.
- ✓ Cultures are all negative.

Facilitator Probes
- What happens now?
- Who else gets involved at this point?
- What is your interaction with other agencies?

Facilitator Dialogue
On July 12 in the early morning active surveillance efforts identify:

- ✓ Several residents at **[local nursing home]** have been suffering from low-grade fever, muscle aches, and cough.
- ✓ The number of affected residents has grown from three to eight within the last two days, with no patients showing improvement
- ✓ The nurse practitioner on site has seen all of them, and says that physical exams on all have been unremarkable with the exception that four have showed signs of fluctuation in mental status. One appears to have a faint drug rash.

[Clinical background story: see if participants try to link the rash that one of these patients has with a rash that on of the patients in the disease cluster had. The rashes are just coincidence.]

Facilitator Probes
- How do you follow up with these cases?
- What would you ask of them or their families?

Facilitator Dialogue
That same day (July 12) in the afternoon, you receive the following information on the patients from **[local nursing home]**:

- ✓ All eight of the initial symptomatic residents were admitted to **[local hospital]** with severe shortness of breath, nausea, and poor mental status.
- ✓ Two of the residents have expired
- ✓ Four of the remaining six were intubated
- ✓ Two are developing progressive respiratory distress. These two also have a distinct maculopapular rash on their torsos. Bronchial alveolar cultures and stains are non-diagnostic.

Facilitator Probes

- When would you set up an Incident Command System ICS or Emergency Operations Center EOC?
- Who is in charge once the EOC has been established?

Facilitator Dialogue
You receive the following information:

- ✓ Press
  - ✓ CNN is reporting that there is an outbreak of an unusual respiratory illness in three major cities across the country.
  - ✓ AP reports the FBI has discovered three chem-bio protection suites and laboratory equipment suitable for growing biological agents in a U-Haul mini-storage facility in New York; there is evidence that this equipment may have been brought to the United States from China
  - ✓ Department of Homeland Security raises its threat advisory level from yellow to orange, citing increased bioterror potential

- ✓ Health Alert Network
  - ✓ An unusual febrile respiratory illness outbreak has occurred in 3 states
  - ✓ The origin of the illness is currently unknown, however there is mounting evidence that it is somehow related to bioterrorism
  - ✓ Health departments are encouraged to initiate active surveillance if they have not already for patients with severe respiratory illnesses.

End of Step 1

C3. Step 2

Facilitator Dialogue

The **[local health department]** has decided to convene a meeting with other local *[and possibly state]* actors that might be involved with a response to a potential outbreak to inform them about what has been happening.

[Depending on the local environment and the relationship between the state and local health department, state health department officials may also need to be included in this meeting].

Briefing for other local actors
- ✓ Local law enforcement
- ✓ Local elected officials

Facilitator Probes

[To the person identified as the leader during Step 1]

- You are in charge of this meeting. Outline the major areas you would like to discuss at the meeting.
- Would you still be in charge at this point or would someone else take over?

[To new participants]

- What kinds of questions would you ask the local health department at this point in time?
- What are your concerns?

[To local health department participants]

- How would all of you coordinate your epidemiologic investigation with the investigation that law enforcement will be conducting?
- What type of patient information are you allowed to give to law enforcement?

[To local law enforcement]

- During a public health emergency, who do you take orders from?
- If you need PPE to use during your investigation, do you have access to some?
- Have law enforcement personnel all been trained in how to put on PPE?

[To local decision makers]

- What role do you see yourselves having in a situation like this?
- How would you keep open lines of communication with the health department?

Facilitator Dialogue

The press has been hounding the **[local health department]** for a statement for over 24 hours. The local news has been reporting all of the information it can obtain.

- ✓ Representatives from the media surround the health department and request a press briefing
- ✓ Media are going to local hospitals and questioning doctors and nurses who have seen patients with respiratory illnesses
- ✓ Media have been interviewing patients discharged from local hospitals.

The media insists that you hold a press briefing.

Facilitator Probes

[To all participants]

- Who is in charge of communicating with the media in an event like this?
- What are the major messages you would like to give to the press and the public?
- How do you manage your press campaign?
- How often do you speak with the press?
- How do you keep your message to the press consistent?
- Does the health department have templates that it can use to create fast messages for the media?
- How do you avoid frightening the public?
- How much information do you give the media?
- What advice do you have for the public?

End of Step 2

C4. Step 3

Scenario A: Phosgene Gas Attack

Facilitator Dialogue
I am going to read you a short scenario and afterwards we will focus on specific issues and how you would respond to them.

[The size of the outbreak in this scenario can be tailored to be most appropriate for the goals of the local health department participating in the exercise]

July 14, **[year]**
- ✓ 10:00pm-**[number]** adults, **[number *(should be greater than number for adults)*]** infants/children present to local health care facilities across **[local area]** complaining of coughing, burning in throat, dizziness, nausea, blurred vision
- ✓ Many patients reported attending an outdoor concert at the **[local amphitheater or park]**
- ✓ **[number]** adults and **[number]** infants/children develop pulmonary edema

July 15, **[year]**
- ✓ Concert drew **[number]** and hundreds of patients (most of them concertgoers) arrive at hospitals overnight
- ✓ About a quarter are stable **[number]** small children are critical and on ventilators
- ✓ By 4:00am, it is evident that **[number]** are suffering bronchitis-like symptoms. Many showed improvement upon leaving the concert

July 16, **[year]**
- ✓ Lab tests to identify agent are all negative
- ✓ **[number]** patients (**[number]** adults, **[number]** children) have died of heart failure; **[number]** adults & **[number]** children develop pulmonary edema

Facilitator Probes
Who is in charge if something like this happens?
- How does the health department interact with local hospitals regarding things like respirators for children?
- If more respirators needed to be obtained-could the health department help out?
- How does the health department assist with an environmental investigation?
- What is different about a "gas" attack verses the response to a virus?
- Who is in charge of and how do you handle and manage dead bodies?
- When does law enforcement become involved?
- How would your response to a chemical attack differ from the response you outlined in the earlier "SARS-like" exercise?

Scenario B: Smallpox Attack

Facilitator Dialogue

I am going to read you a short scenario and afterwards we will focus on specific issues and how you would respond to them.

December 25, [year]

- ✓ 2:20am Christmas morning: **[local hospital]** reports HIV+ patient with headache, backache, sore throat, and high fever. Empiric PCP was initiated. Pan-cultures negative for bacterial/fungal infections. Yesterday had sores on tongue, and today developed pustular rash.
- ✓ 10:00am, **[local hospital]** reports 18-year-old female with vesicular rash on her face, arms, and legs. Developed fever/headache four nights ago and was bed-ridden two days ago. Yesterday, mouth broke out in sores, and today rash spread to extremities
- ✓ 12:00pm, two patients report to a local emergency department with classic smallpox symptoms
- ✓ 4:00pm **[number]** new patients present to local hospitals with prodrome, 50 percent of them with rash in mouth/throat. 20 percent have with raised lesions on arms.
- ✓ 7:00pm news reports suspicion of highly contagious outbreak in progress—**[local health department]** is reportedly the hardest hit.
- ✓ 9:00pm, streets/highways are jammed and public transit is packed. Some are fleeing, some are rushing home after Christmas, others are trying to purchase essential items

Facilitator Probes

Who is in charge in a situation like this?

- How do you vaccinate the public?
- How do you keep vaccine stockpiles safe?
- Who is in charge of law enforcement (especially with regards to dealing with isolation and quarantine enforcement)
- If you needed to quarantine an area, how would you do so?
- What level of force should law enforcement use to enforce a quarantine?
- How would your response to smallpox differ from the response you outlined in the earlier "SARS-like" exercise?

Scenario C: Rift Valley Fever

Facilitator Dialogue
I am going to read you a short scenario and afterwards we will focus on specific issues and how you would respond to them.

Rodent and Pet Population
- ✓ April 10: **[Nearby city or city of health department]** animal control report increased collection of dead rats and strays. Veterinarians notice increase in acute sepsis resulting in fatality among puppies/kittens
- ✓ April 12: ample evidence of citywide infectious outbreak in pet population

Livestock Population [if applicable]
- ✓ April 10: outside the city, farmers notice higher than normal rate of livestock abortions. Seems to be virulent, fatal infectious disease spreading among young animals
- ✓ April 12: a quarter of local adult cattle develop fever and show excessive salivation, anorexia, and weakness; some develop a fetid diarrhea

Among Human Population
- ✓ Slow, unsteady rise in flu-like symptoms with epigastric discomfort and sometimes photophobia
- ✓ Living close to animals appears to be risk factor
- ✓ By April 15, there are **[number]** unusual cases
- ✓ By April 22, **[number]** patients have been admitted
- ✓ Two to four days after developing fever, 10 percent are vomiting blood and develop jaundice, petechiae and bloody diarrhea
- ✓ By April 30th, **[number]** human cases have resulted in death from a meningoencephalitis and massive hemorrhaging

Facilitator Probes
Who is in charge in a situation like this?
- How would the health department coordinate its efforts with the agricultural community and agencies like the state department of agriculture?
- Who would be responsible for contacting local veterinarians? How would you contact them?
- Who is in charge of making decisions about destroying livestock or animal populations? Who enforces these decisions?
- How would your response to rift valley fever differ from the response you outlined in the earlier "SARS-like" exercise?

End of Step 3

End of Long Exercise

C5. Checklists for Long Exercise

Preamble

These checklists are designed to be used by both the facilitator to aid in guiding the exercise and to aid in the assessment of exercise performance. The note taker should use the checklists by putting an "X" in a check box if exercise participants covered a checklist topic without being probed. The note taker should put a "/" in the box if the participants covered a checklist topic but only after being probed. The note taker should leave a checkbox empty if participants were probed for a particular checklist item but still never provided a response.

Surveillance and Detection Checklist

Detection

- ☐ Have infrastructure in place to respond to case reports 24/7/365
- ☐ Staff with clinical knowledge are able to respond to case reports

Initiating Active Surveillance

- ☐ Provided concrete details on how to go about initiating active surveillance
- ☐ Would contact a number of different individuals and organizations to assist with active surveillance efforts. Identified what those individuals would be asked to do, and would provide them with working case definition
  - ❑ Epidemiologists
  - ❑ Hospital administrators
  - ❑ Hospital infection control practitioners
  - ❑ Emergency departments (ED physicians, nurses, etc.)
  - ❑ Local physicians (primary care, private practice, etc.)
  - ❑ Law enforcement personnel
  - ❑ EMS
  - ❑ General public
- ☐ All new suspected cases would be followed up and monitored by appropriate health department personnel
- ☐ Discussed the process for tracking potential cases
- ☐ All decisions would be logged in a log book
- ☐ Would collect and aggregate data on cases
  - ❑ Date of onset of illness
  - ❑ Place where case lives

- ❑ Place where case became ill
- ❑ Recent travel
- ❑ Individual characteristics of cases (age, sex, occupation, etc.)
- ❑ Contacts of cases

Diagnosis and Investigation Checklist

Establishing a Case Definition

☐ Discussed clear process for establishing case definition

☐ Identified (have knowledge of) resources such as the state health department and the CDC's web sites to aid in developing the case definition

☐ Discussed establishing an initial working case definition
- ❑ Kept broad
- ❑ Uniform
- ❑ Relatively simple
- ❑ Timely

☐ Discussed essential elements that would be used in case definition
- ❑ Time (date of onset)
- ❑ Place
- ❑ Person
- ❑ Symptoms
- ❑ Essential physical signs
- ❑ Laboratory confirmation

☐ Would begin to consider how to divide case definition into categories (laboratory confirmed case, probable cases, suspected cases).

☐ Discussed comparing working case definition with existing case definition for other known diseases

☐ Information on possible cases would come from a variety of sources
- ❑ Health care personnel (physicians, nurses, EMS, etc.)
- ❑ Hospitals
- ❑ Schools
- ❑ Affected individuals
- ❑ Close contacts and family members of affected individuals

☐ Information kept on all cases regardless of whether they are confirmed, probable, possible, or unlikely

☐ Data on cases would be collected and stored in a systematic fashion (ideally stored on a microcomputer, with other backup)

Clinical Investigation

- ☐ Would contact state health department to let them know of suspected cases
- ☐ At least one health department epidemiologist or communicable disease specialist would contact cases
- ☐ Personnel who visit suspected cases would wear PPE
- ☐ Participants know the general signs and symptoms to look for when examining suspected cases of anthrax (botulism, plague, or smallpox)
- ☐ Clinical specimens would be collected from every case. Participants know what to collect, how to store it, and so on.
- ☐ Participants were clear about how they would handle suspected cases
- ☐ Addressed how to deal with non-English speaking cases
- ☐ Would focus on trying to find out what all of the cases had in common (identifying common source)

Laboratory Investigation

- ☐ Personnel trained in how to prepare, package, and ship hazardous biological materials would be responsible for sending samples to laboratories
- ☐ Participants know where to send specimens
- ☐ Participants understand the chain of custody for specimens
- ☐ Recipient of specimens would be alerted in advance

Risk Communication Checklist

Communicators

- ☐ Public Information Officer (PIO) and at least one alternative exists

- ☐ Have personnel other than the PIO to aid in communication
  - ❑ Public affairs specialist
  - ❑ Health Communication specialist
  - ❑ Health education specialist
  - ❑ Crisis communications specialist
  - ❑ Other _____

- ☐ Spokespersons/contacts for multiple audiences have been identified
  - ❑ Bilingual spokespersons available
  - ❑ Minority spokespersons available
  - ❑ Speakers for community meetings
  - ❑ Other _____

- ☐ Pre-existing relationships with community-based organizations that represent major minority groups

- ☐ Communications staff receives regular media relations training

- ☐ All communicators function together as part of a public information team

Risk Communication and Health Information Plan

- ☐ Have a formal written risk communication and health information dissemination plan
  - ❑ Plan includes clear lines of authority and division of responsibility
  - ❑ Plan has been tested
  - ❑ Plan for scheduling public information team in emergencies that may take longer periods of time (i.e., relief schedule for 24/7 coverage)

- ☐ Procedures developed to verify and approve of information that is to be released to the media and the public

- ☐ Procedures developed to coordinate public information campaign to ensure that messages are consistent

- ☐ Risk communication and health information plan has been previously discussed with state health department and/or federal emergency management entities

- ☐ Have established procedures for choosing the appropriate type and level of information to be presented to the media and public

- ☐ Identify who needs to approve messages to the media and the public

- ☐ Are able to articulate the clearance process for approving messages to the media and the public

Direct Communication with Media

- ☐ Have plan to triage media requests and inquiries

- ☐ Are prepared to formally communicate with the media
  - ❑ Predetermined locations for press conferences
  - ❑ Equipment and supplies for press conferences available

- ☐ Have the ability to produce media advisories, press releases, fact sheets, and similar communications

- ☐ Have pre-drafted templates for press releases, etc. during potential public health emergencies (i.e., infectious disease outbreaks, bioterrorist attacks, etc.)

- ☐ Have plan for handling press leaks and rumors

- ☐ Have a list of contacts at major local media outlets (broadcast and print) that can be used to communicate health information
  - ❑ Includes minority media outlets
  - ❑ Includes non-English language media

- ☐ Would consider briefing the press of situation before likely press leaks (i.e., during outbreak investigation before laboratory confirmation of cases)

- ☐ Would communicate regularly with the media

Direct Communication with the Public

- ☐ Existing telephone line for health department has been tested to handle surge capacity

- ☐ Would establish telephone information hotline for public
  - ❑ Described how hotline would function
  - ❑ Identified how it would be staffed
  - ❑ Know how many callers it could accommodate
  - ❑ Other _____

- ☐ Have ability to communicate with non-English speaking populations
- ☐ Would regularly put up-to-date information and communications directly on health department website
- ☐ Would publicly advertise health department contact information
- ☐ Would elicit feedback from the public to see if messages were being interpreted correctly
- ☐ Have plans for direct communications to minority groups

Disease Control Checklist

- ☐ Outlined a strategy for controlling the disease
- ☐ Involved community partners in disease control strategies
- ☐ Reporting active steps for containing the disease
- ☐ Understood state and local laws related to disease control (e.g., the closure of schools and public places, isolation and quarantine)

Consequence Management Checklist

- ☐ Outlined a strategy for managing the consequences of the disease
- ☐ Discuss strategies to alleviate public fear and anxiety
- ☐ Outlined an approach to return "life to normal" as soon as possible
- ☐ Established an EOC
- ☐ Developed consequent management priorities
- ☐ Consequent management practices discussed were realistic

Appendix D.
Create-Your-Own Exercise

OVERVIEW

In this section we discuss how to create a completely custom exercise. This exercise can be of any length (short, medium, or long), can deal with a wide number of biological or chemical agents (including those not covered in this manual), and can cover any of the six major issue areas covered in this manual:

- *Surveillance and Detection*
  - Use of existing surveillance systems to detect potential outbreaks
  - Initiation of active surveillance
- *Diagnosis and Investigation*
  - Establishing a case definition
  - Clinical and laboratory investigations
  - Epidemiologic investigation
- *System-Wide Coordination*
  - Handoffs with regional or state health department
  - Coordination of efforts with other local and state actors (e.g., elected officials, law enforcement)
  - Establishment of an Emergency Operations Center
- *Risk Communication*
  - Effectively communicating essential messages to the public
  - Initiation of a public information campaign
  - Coordination of information to media
- *Disease Control*
  - Prophylaxis and vaccination capabilities
  - Isolation and Quarantine
  - Closing of schools, workplaces, hospitals, etc.
- *Consequence Management*
  - Treatment of affected individuals
  - Assessing the provision of needed care
  - Surge capacity

Creating a custom exercise can be done in three steps:

- Choose and research the agent or agents to be tested
- Decide what issue areas to cover
- Develop exercise

CHOOSING AN AGENT

The first step to creating a custom exercise is to decide the biological or chemical agent or agents that will be included in the exercise. The choice of agent is important because it determines the actors who might be involved in the response as well as aspects of the response that can be tested (e.g., mass prophylaxis can only be tested with agents that have vaccines or antibiotics available, etc.). If one of the agents covered in this manual is chosen, all of this work has already been done. If an agent not covered in this manual is chosen, background research on the disease chosen will need to be conducted.

DECIDING WHAT ISSUE AREAS TO COVER

As noted above, the agent chosen can in some ways restrict the topics within each issue area that can be covered in any exercise. The decision on what issue areas to cover in an exercise depends on the health department being tested and the goals of the exercise. If a health department has a particular weakness or has new staff assigned to particular tasks, the choice of issue area may be an easy one. Otherwise a health department may decide to choose issue areas that logically flow together. For example, a health department may choose to develop an exercise that focuses on surveillance and detection and diagnosis and investigation.

DEVELOP THE EXERCISE

The exercises in this manual have one or more of the following components:

- Initial Situation Report
- Case Reports
- Facilitated Discussion
- Situation Updates
- Hot wash

INITIAL SITUATION REPORT

The goal of the initial situation report is to set up the exercise. In the exercises in this manual there were three different choices of initial situation report:

- Option 1 (outbreak within the jurisdiction) —A localized disease outbreak originating in the health department's jurisdiction. Reflecting the probable real-life ambiguity of this situation, the initial situation report provides general information about the environment prior to the outbreak.
- Option 2 (outbreak within the region) —A regional outbreak that occurs first in a region close to but outside of the jurisdiction of the health department. The initial situation report details reports received by the local health department about the outbreak in the nearby region.
- Option 3 (distant outbreak) —A statewide outbreak that occurs in a state that is not geographically close to the health department (e.g., a state that does not share the same border with the health department's state). The initial situation report details reports received by the local health department about the outbreak in the distant state.

These options allow the initial discussion to move in a variety of ways. An initial situation report similar to the ones presented in this manual can be developed for any chemical or biological agent by simply changing the name of the agent in the template reports provided in any of the exercises.

CASE REPORTS

Case reports take a considerable amount of time and resources to develop. They must be epidemiologically and clinically sound. The case reports in this manual can be used for a customized exercise of one of the diseases covered in this manual. If developing an exercise for a disease not covered in this manual, case reports will likely need to be either developed by a physician or epidemiologist. Alternatively, they could be developed from case reports from an actual outbreak as reported by the CDC and then reviewed by someone with clinical and epidemiological knowledge.

The goal of case reports is to help stimulate discussion and to present participants with puzzles that require them to collectively think together to develop a response strategy. Therefore, if the goal of an exercise, for example, is to test surveillance and detection, it would not make sense to present participants with case reports which were part of an obvious outbreak with the disease defined for them.

The number of case reports is not so important as the content of the reports. Case reports are also best when supported by a clinical background story (e.g., a brief explanation of the cases symptoms). A discussion of more than three case reports is usually not necessary and can bore participants.

FACILITATED DISCUSSION

All of the exercises in this manual are facilitated discussions meaning they are discussions lead by a discussion leader or a facilitator. A customized exercise will need to contain discussion probes for the exercise facilitator. The probes provided in this manual that focus on particular topic areas can be applied to a wide variety of chemical and biological agents. For example, the probes for dealing with the media and the press could be applied to a discussion of the same topics for a different disease outbreak than the ones covered in this manual.

SITUATION UPDATES

The goal of situation updates is to keep the discussion of the exercise moving forward. Situation updates may not be necessary for short exercises; however they are most likely necessary for medium to long exercises. In this manual there were two different types of situation updates: information updates and complication updates.

There were three different information updates:

- Participants are updated about the status of one or more of the case reports they received earlier. The update gives additional information (e.g., laboratory test results, health status of cases) that can aid in developing the case definition.

- Participants are given initial results from the active surveillance efforts. This update provides information about possible additional cases and the extent of the outbreak (e.g., number of patients in local hospital emergency department matching case definition).
- Participants receive information from the epidemiologic investigation that provides clues about the origin of the outbreak (e.g., the results of contact tracing, information from sanitarians in the field).

There were three different complication updates:

- Participants are told about a press leak or inquiry from the media regarding the outbreak, forcing them to consider how they will deal with the media (e.g., need for press releases, need for a consistent message).
- Participants are told about staffing difficulties in the health department (e.g., staff not showing up for work, staff reporting that they are exhausted from working so much).
- Participants are told about public anxiety over the outbreak (e.g., problems of crowd control, looting).

These same types of updates could be applied generically to any number of different disease scenarios.

HOT WASH

The hot wash for all exercises is very similar. It allows participants to receive feedback from the facilitator as well as one another. The goal of the hot wash is to provide participants with a period after the exercise for self-assessment of their performance and to hear from the facilitator an unbiased view of performance.

Appendix E.
Frequently Asked Questions

Q. Who developed the exercises?

A. The RAND Corporation developed and tested these exercises in 2004 under contract from the U.S. Department of Health and Human Services.

Q. How were the exercises developed?

A. The exercises were conceptualized using guidelines developed by the CDC in 2003. They were beta tested at a wide variety of local health departments across the country from April 2004 through October 2004.

Q. Can exercise components be mixed and matched to create a custom exercise?

A. Yes. Appendix D contains a guide for creating a custom exercise using the components from the exercises presented in the manual.

Q. How should exercises be chosen?

A. Exercises should be chosen based on a number of factors, including the issue areas to be covered, the range of participants to be invited to the exercise, the time available, and the health department's previous exercise experience. Chapter Two provides more detail on exercise planning.

Q. What is the optimal number of participants for an exercise?

A. Generally speaking, 20 participants is the maximum. With a larger group, the discussion becomes difficult to manage and some participants may not have an equal chance to participate in the exercise.

Q. What if some key local level health department employees are unavailable to participate in an exercise?

A. The exercise can still be conducted as long as five to seven local health department employees are available. In some instances, it might even be preferable to test a department when some key staff members are unavailable, to ensure the department is prepared even if one of its leaders is on vacation or becomes ill during an outbreak. In other instances, staff can be asked to role-play for people who are unavailable. The exercise organizer should decide whether the department can accomplish its goals with the people available for the exercise.

Q. If participants skip an important topic, how can the facilitator be sure that they won't return to it later?

A. The facilitator can provide a few probes that, without giving away the topic, will allow the facilitator to assess whether participants have thought about the topic at all. If participants do not respond to these probes adequately, the facilitator can assume that this is an area of response that participants are not familiar with and can provide more detailed probes. Examples of probes are found in the exercises in the appendixes.

Q. How was the time length of each exercise determined?

A. The exercises were tested in seven local health departments to gauge the approximate time length required to complete each exercise.

Q. Can an exercise have two facilitators?

A. Yes. In some instances, having two facilitators can improve the discussion. Beginning facilitators can benefit by having a more experienced facilitator at the exercise to help lead the discussion.

Q. What happens if the exercise ends too early?

A. The exercise lengths are only approximate. In some cases, exercises may end early because all of the topics are covered. In other cases, an exercise may end early because it was not appropriately facilitated. However, this mistake can be immediately corrected: the facilitator can use the extra time to encourage participants to go back and rethink some of the issues that did not receive sufficient attention.

Q. What is the appropriate length of an after-action report?

A. There is no set length for an after-action report. However, the report should be as brief and concise as possible. A typical after-action report is around three pages in length.

Q. Who should have access to the after-action report when it is complete?

A. Ideally, every person who participated in the exercise should be allowed to read the after-action report.

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