



Bioterrorism

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The anthrax attacks in 2001 left many providers concerned about the impact of future attacks on their clients and their facilities. What was once a remote possibility became a stark reality for many in the United States. Even though relatively few people were directly affected by the anthrax incidents, concern about safety was widespread.

Since the anthrax attacks, much has been reported about other possible threats involving nuclear, biological, and chemical agents. This chapter is an overview of the major infectious agents most likely to be utilized for bioterrorism. Some common organisms such as *Salmonella* have not been included, although this bacteria has been used in terrorist events in the USA. Providers of services for homeless persons should be on the alert for any unusual clusters of illness and consult with medical and/or public health providers if they suspect a patient has been infected with any of the organisms or agents discussed in this chapter.

While the exact nature and time of any future terrorist attempts cannot be predicted, several steps can be taken to identify and respond to any unexpected emergency, whether man made or a natural disaster.

Prevention and Control: Emergency Preparedness

Education

All clinical staff should be educated about the biologic agents of concern as described in Table

1. Likewise, staff members should be familiar with the infectious diseases that are reportable to local or state health departments. For any suspected case that is reportable, contact the appropriate public health authorities immediately, even though the likelihood of diseases such as smallpox, plague, or botulism occurring is low. Public health authorities will conduct an epidemiological investigation to determine the causative agent and to identify anyone who may have been exposed to the patient during the infectious period. Obtaining a list of places the patient has stayed will assist greatly in determining possible exposures.

The Emergency Operations Plan (EOP)

- *Create an emergency operations plan (EOP)*

An EOP spells out actions to be taken when any given situation exceeds the program's capability or routine response, clarifies lines of authority, outlines how all actions will be coordinated, and provides guidelines about internal and external communications. The EOP identifies people, resources, and mutual aid agree-

*Illustration by
Pat Mullaly*

Table 1: Biologic Agents of Concern

Agent	Incubation	Symptoms	Transmission	Precautions	Treatment*
Anthrax <i>Bacillus anthracis</i>	Usually <7 days but can occur up to 60 days post-exposure	Cutaneous: raised itchy bump initially; progresses to ulcerated blister with necrotic center Inhalation: initially, nonspecific flu like illness, characterized by fever, myalgia, headache, nonproductive cough, and mild chest discomfort; followed by marked high fever, dyspnea, stridor, cyanosis, and shock	Person-to-person spread extremely unlikely Person-to-person	Standard precautions	Multiple antibiotics including doxycycline, fluoroquinolones and others effective for both types
Botulism <i>Clostridium botulinum</i>	Usually 12-36 hours (range of 6 hours-2 weeks)	Double vision, blurred vision, drooping eyelids, slurred speech, and difficulty swallowing and dry mouth	Not spread person-to-person	Standard precautions	Antitoxin effective if diagnosed early; supportive care
Plague <i>Yersinia pestis</i>	2-4 days	Fever, chills, headache, severe debilitation, rapidly developing shortness of breath, and chest pain	Person-to-person	Airborne, droplet, and contact precautions recommended	Early treatment crucial. Streptomycin, gentamicin when streptomycin not available. Other antibiotics also effective.
Smallpox <i>Variola major</i>	7-17 days	Initially, high fever, fatigue, headache and backaches; rash usually develops 2 to 3 days after onset of symptoms. Rash appears first on the mouth, face, and forearms, then spreads inward to trunk of the body	Person-to-person	Airborne and droplet precautions recommended	Supportive therapy; antibiotics to treat secondary infections
Tularemia <i>Francisella tularensis</i>	Usually 3-5 days (range of 1-14 days)	Insect bite, slow-healing sore and swollen lymph nodes Inhalation: high fever, chills, headache, fatigue, cough and chest pain Ingestion: sore throat, abdominal pain, diarrhea, and vomiting	Not spread person-to-person		Streptomycin; gentamicin also effective.
Viral Hemorrhagic Fevers	Usually <2 weeks (range of 4-21 days)	Fever, fatigue, dizziness, muscle aches, loss of strength, and exhaustion. Severe cases often show signs of bleeding under the skin, in internal organs, or from body orifices. Severely ill patients may also experience shock, nervous system malfunction, coma, delirium, and seizures. Some types of VHF are associated with renal (kidney) failure	Person-to-person	Airborne and droplet precautions recommended	Supportive care; some types responsive to antiviral medication

*Consult local or state health department for most up to date guidelines.

ments for responding to an emergency before it happens.

- *Find out what's already in place in your organization*

The first step in creating an EOP is to do research. Find out if your organization already has a plan, what the plan says, and if it needs to be updated. Look into what others have done in facilities that are similar to yours. Find out about assistance available through a partner hospital (if you have one), affiliated health care providers, your local or state health department, and from your local, state, or federal emergency management agency.

- *Build a planning team*

The team should consist of a broad spectrum of people from your organization who will bring different perspectives and provide expertise in various areas. The team can consist of medical and mental health clinicians, case managers, outreach workers, and others. The team should also include administrators, as well as human resources and fiscal representatives who have knowledge of contractual and compensation issues so that costs associated with an emergency can be tracked. Facilities and operations staff have knowledge of the layout of the building, have access to all areas of the building, and can help manage flow of people. Once the team is formed, identify a group leader who is responsible for managing the project.

- *Format the plan*

Although causes of emergencies differ, many consequences are the same, so an "all-hazards" format is suggested. This format provides a basic framework to respond to various emergencies and a foundation from which to build hazard specific plans. It consists of the following sections: purpose; roles and responsibilities of an emergency response team; conditions under which the plan will be activated; and phases. Phases of the plan are as follows.

- identification of the emergency: how will the emergency be identified?
- assessment of situation: how will the urgency of the situation, the proxim-

ity of the event to your facility, and the seriousness of the potential impact be determined?

- notification of team members: how will you get in touch with those charged with responding to an emergency?
- meeting of team and planning of response: where will your team meet to plan its response in a crisis? Planning should take into account issues such as staff skills, building capacity, possible need for isolation and/or quarantine, patient flow/crowd control, security, supply source and availability, and communications to staff, to clients, and to other agencies included in your plan. Isolation and quarantine may pose a significant challenge for those with chemical dependence, post traumatic stress disorder, or other psychiatric conditions, so special consideration of security/crowd control, detoxification, and mental health counseling may be needed. Scenarios should include either the need to shelter in place or to evacuate your building;
- communication and execution of response plan: are those people identified to report in an emergency aware of the roles they are expected to play? Do they have a plan in place for their own families that will allow them to respond to an emergency?
- monitoring and adjustment of plan during an event: how will changes in the situation and effectiveness of the



John Noble MD, Director of the Center for Primary Care at Boston University School of Medicine and longtime advocate of the HCH Program, demonstrates his recent small pox vaccination at McInnis House. Dr. Noble worked on small pox eradication with the CDC in the 1960s. Photo by James O'Connell MD

response be assessed in order to determine if adjustments need to be made?

- post-emergency review: discuss elements of the response that worked well, those that needed improvement, how you can take what was learned from a particular situation, and how to improve your plan.

- *Exercise the plan*

Once you have developed a plan, make sure that all staff members are familiar with it. It is important to exercise your plan to identify areas for improvement and to integrate it into your agency's culture so that the plan can be successfully executed when needed.

Summary

Disasters can affect all segments of a community, including homeless individuals and families living in shelters or on the streets. Unfortunately, bioterrorism is a threat that must now be faced. Planning for a bioterrorism threat will enable those who work with homeless populations to respond more effectively to a range of emergencies, whether manmade or natural.

Providing health care to homeless persons during a crisis requires responding to many of the same issues providers deal with each day, some of which may be magnified by the crisis. When formulating a plan for your agency, utilize your expertise with this population by considering issues that are specific to working with transient populations, persons with substance abuse issues, those dealing with post-traumatic stress disorder, and those with other mental health issues. ■■

References

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