Case Study II – Anthrax in Florida

Objectives / topics for Case Study II

1. Understanding public health investigations, including:
   - Defining exposed population(s)
   - Providing prophylaxis to exposed persons
   - Identifying the source (i.e., perpetrators / reservoir)
2. Understanding how a public health investigation differs from and is similar to a criminal investigation.
3. Addressing communication challenges, including media relations and risk communication (including public health needs vs. law enforcement restriction).
4. Addressing interagency communication.
5. Maintaining simultaneous epidemiologic and criminal investigations.
6. Defining jurisdictional issues.
7. Understanding of issues related to the law surrounding entry into and sampling of homes and workplaces.

Problem and questions

Facts I: On October 2, 2001, the Palm Beach Health Department was notified by an infectious disease physician about unusual test results using gram stain (a special dye used to identify bacteria) for a patient with meningitis (bacterial infection of the tissues covering the brain); the patient was a county resident. The State Epidemiologist was contacted and a team of local epidemiologists began an investigation. The state made arrangements for further laboratory testing in the state laboratory. On October 3, specimens were sent to the state laboratory and further information suggested that this case could be a suspect case of systemic anthrax (i.e., anthrax bacteria in the blood). The State Epidemiologist notified the CDC about this case according to established protocol. CDC notified the FBI Headquarters in Washington, D.C., of the situation in Florida, and the FBI field office in Miami dispatched personnel to assist in assessing this unfolding situation.

Question 1: What are the implications of one or more suspected or confirmed cases of anthrax in the United States?

Answers / discussion points: In the United States, the background level of occurrence of anthrax cases is extremely low. Therefore, suspected or confirmed cases of anthrax should raise the suspicion that this biologic agent has been used as part of a deliberate bioterrorism attack and that additional cases of anthrax and additional attacks may be possible. Cases of anthrax must be investigated to determine whether they have occurred naturally (i.e., not as the result of an intentional act) and also individually evaluated as the possible result of terrorist attacks or other criminal acts. The occurrence of a confirmed case may indicate the commission of state and federal crimes. If there is suspicion that exposure

was the result of an intentional act, the FBI would assume the lead role in responding to and investigating anthrax threats and attacks.

Question 2: How is a suspected case of anthrax confirmed and where are human samples sent?

Answers / discussion points: Materials and specimens obtained from cases or suspected cases are sent to the LRN. (This is arranged between the health-care practitioner and the public health department.) Typically, human specimens obtained in a clinical setting may be sent to a hospital or commercial laboratory. If there is suspicion regarding use of a possible bioterrorism agent, then the specimen would be forwarded to a public health laboratory which is part of the LRN network.

Facts II: Early on the morning of October 4, the state laboratory, part of the U.S. Laboratory Response Network (LRN), determined that the organism in the patient's specimen was anthrax bacteria – *Bacillus anthracis*, or *B. anthracis* for short. Although the tests were deemed to be conclusive, this rare finding needed independent confirmation. Arrangements were made for samples to be transported to CDC's national reference laboratory in Atlanta, which later verified the Florida results. That same morning, state and federal investigators joined the local staff to conduct an intense investigation of the possible source of the patient's infection. From the public health perspective, this single case of confirmed anthrax is considered to be an epidemic because this form of infection is so rare.

Question 3: What are the goals of this phase of a public health investigation of an epidemic?

Answers / discussion points: The goals involve the reinforcement of outbreak investigation principles from background lecture and other points, including:

- Verification of diagnosis
- Intensive efforts to identify and characterize additional cases
- Development and testing of hypotheses regarding potential sources / modes of spread (including, e.g., examining patient's medical and recent travel history and notifying state epidemiologists in states through which patient traveled)
- Implementation of preventive / other intervention measures.

Question 4: At this point, how should the investigators handle media relations in terms of what the public needs to know?

Answers / discussion points: First, anticipate the occurrence of both "leaks" of information and the public reporting of erroneous information. Also anticipate that the news media will demand continuous updates, including threat assessments. Anticipate that the news media will widely disseminate any details regarding an incident, some or all of which may be inaccurate or exaggerated with respect to dangers for the public.

As early as possible, public safety and public health officials should confer about and select appropriate spokesperson(s) and should make timely releases of accurate information. The establishment of a Joint Information Center (JIC) with FBI, CDC, and state and local officials will facilitate the development of coordinated messages from public health and law enforcement. Such information must assure that the public is protected from harm while at the same time minimizing any negative impact on a related criminal investigation. The spokesperson(s) should be the only source of official information.

Facts III: Because the patient's medical condition had deteriorated such that he could not be interviewed, public health and FBI investigators interviewed his wife and daughter. Investigation of the patient's history revealed that he had traveled by car from Florida to North Carolina and back to Florida in the week prior to his admission to the hospital. The incubation period (i.e., the time interval between the initial infection and the onset of clinical features of disease) for systemic anthrax is believed to range from 1 to 60 days, but is usually from 3 to 7 days. The information collected to this point suggested that the patient's potential exposure could have occurred in either state or any point in between. This information led to environmental investigations (including outdoor activity locations, and residential and work settings) in both North Carolina and Florida in an attempt to identify the possible source of the patient's infection. In addition, because of the potential for this case to have resulted from a criminal act, by October 4, law enforcement officials in both states had been notified. In Florida, local and state law enforcement, the FBI, and public health were now joined in the investigation.

Question 5: Based on the information above, at this stage of the investigation what are the roles of public health officials and law enforcement authorities in the investigation, and under what circumstances might the respective roles of public health and law enforcement officials change?

Answers / discussion points: This is not yet a full-fledged criminal investigation: public health is still in the lead while the FBI and state and local law enforcement is assisting. The FBI will coordinate its threat assessment process to determine whether the situation is the result of terrorist or nation-state actors by evaluating the known facts from public health and analyzing additional law enforcement and intelligence information. At this stage of the initial response, it is unlikely that criminal intent will be evident. This assessment process will continually evaluate the additional information derived from public health, law enforcement, and intelligence sources.

Management-level public safety and public health officials should begin coordinating as soon as possible (for example, though systems such as the Incident Command System [ICS] or Unified Command System [UCS]). Such coordination enables implementation of appropriate measures to protect and treat public safety personnel who are exposed to suspect material at the scene and elsewhere, as well as to protect and treat the public.

If circumstances warrant suspicion that the event is intentional, the FBI will focus their efforts and resources on conducting the criminal investigation. This investigation is intended to identify the extent of the threat to national security and to lead to the identification, apprehension, and prosecution of the perpetrator(s). Public health officials will focus their efforts and resources on conducting an epidemiological investigation which is aimed at identifying the source(s) and mode(s) of spread of the disease-causing agent, identifying other exposed or at-risk persons, implementing measures to prevent further exposures, and treating exposed persons.

Criminal and epidemiological investigations must be carefully coordinated to (1) avoid unnecessary exposures and duplication of efforts, (2) facilitate sharing of relevant information, and (3) otherwise complement each other. In a bioterrorism attack, the most important evidence may be the bioterrorism disease- or injury-causing biological or chemical agent itself. For investigative purposes, the evidence may include: (1) the specific agent (weapon) itself, (2) "fingerprints" (through DNA and other analyses), or (3) trail markers (i.e., the agent material could have contaminated every place it has been or used by perpetrators, including containers, vehicles, and buildings). In most instances, the public health investigators who are trained to collect environmental samples and the state public health / LRN laboratory will be needed by law enforcement authorities to positively identify the bioterrorism agent, compare that specific agent with other agents, and track the path of the agent.

If the FBI determines that the act may be the result of an intentional attack, the FBI will assume the lead role in the response and criminal investigation. A joint investigation with the CDC and state and local public health will be coordinated through the Joint Operations Center (JOC) established by the FBI. Other federal, state, and local response agencies will also be represented in both the JOC and the JIC to ensure that information is evaluated and shared within an organized response structure with connectivity to each agency's emergency operations center.

Circumstances could evolve such that the roles of law enforcement and public health have equal priority, and their functions and roles become more closely integrated as the investigation progresses. For example, with more widespread exposure to anthrax, public health's need to identify and treat exposed and infected persons and to contain the source of exposure would overlap with law enforcement's need to identify, apprehend, and prosecute perpetrator(s).

Question 6: What is the law surrounding entry into and sampling of homes and workplaces?

Answers / discussion points:

In general

The law regarding entry to premises is governed by the Fourth Amendment to the Constitution of the United States. The law generally provides for entry with consent or with a search warrant. However, courts have recognized very specific situations when exigent circumstances are present as exceptions. Obtaining consent from a person with authority to provide such consent is often the easiest means to secure evidence that will not be legally suppressed.

Consultation with agency legal counsel is recommended in all access situations in the absence of consent. Law enforcement, public health, and public safety personnel may properly enter homes and workplaces without a warrant when circumstances represent a serious, credible, and immediate threat to the public. (These are exigent circumstances; for example, the U.S. Supreme Court has indicated that a burning building creates an exigency that justifies a warrantless entry by fire officials to fight a blaze). Law enforcement / public health / public safety officials may be able to take samples from within those premises if such sampling is required to determine the specific nature and extent of the threat. The authority of these officials to take samples ultimately could turn on their ability to articulate the degree of seriousness and danger posed to the public, and the immediacy of that threat. In a court challenge, a judge would consider the totality of the circumstances to determine whether to admit evidence from the intrusion and the sampling, as well as other evidence discovered as a result. For example, the U.S. Supreme Court has excluded evidence of arson seized by investigators returning to the scene without a warrant six hours after the blaze had already been extinguished and the house was in the process of being boarded up. The Court ruled that the warrant requirement applies, and that any official entry must be made pursuant to a warrant in the absence of consent or exigent circumstances.

Evidence found during a warrantless search of a location may be admissible in court if the suspect has no standing to assert that he had a reasonable expectation of privacy at the location. For example, a person who sent a letter containing anthrax to another person's workplace likely would not be able to assert a reasonable expectation of privacy at the target person's workplace. In contrast, if a person placed an envelope containing anthrax on a target co-worker's desk and a warrantless search resulted in the discovery of evidence in a locked briefcase under the perpetrator's desk located in the same office suite as the target's desk, then the perpetrator may have grounds to assert that the search violated his rights to privacy because he had a reasonable expectation of privacy for items kept in his locked briefcase under his desk. The evidence might be

ruled inadmissible if investigators did not obtain a search warrant for the search of the building and/or the briefcase.

Law Enforcement in Criminal Investigations

Ordinarily, if circumstances involving a warrantless intrusion by law enforcement personnel indicate that a criminal investigation is required and that the location should be processed as a crime scene, then law enforcement should delay both the sampling process and any additional processing until a search warrant for the location has been obtained, absent a reasonable belief that an immediate threat to public safety exists.

Public Health Working with Law Enforcement

One real dilemma occurs when law enforcement and public health investigations intersect. For example, if law enforcement determines that the location is a crime scene and begins the process of obtaining a search warrant, should law enforcement then restrict public health officials from entering the premises to obtain samples? Conventional law enforcement policies and procedures dictate that once a location has been designated as a crime scene (which might include evidence to be used in court), then, to limit the possibility of scene contamination, no one other than law enforcement personnel should enter the location.

State laws often address the authority of public health officials, in the absence of a criminal investigation, to proceed with or without an administrative warrant when they enter premises to inspect or to obtain samples during a disease outbreak investigation. The admissibility of evidence collected during such inspections may vary depending upon the circumstances of the case and the legal challenges brought by the defendant at trial. Caution suggests that once a criminal investigation is begun, all sample collection from an identified crime scene be carried out jointly between public health and law enforcement with the advice and counsel of agency attorneys.

Question 7: What are the requirements for training and protection of those who may be asked to enter facilities to collect environmental samples?

Answers / discussion points: Public health and safety personnel who enter facilities to collect samples should be both trained and equipped to respond to hazardous materials incidents. However, in a suspected bioterrorism incident, FBI and public health officials should conduct the collection of environmental samples in a coordinated manner. Any environmental samples collected at the location could have important value for both the epidemiological and criminal investigations.

Facts IV: From October 5-8, public health and law enforcement officials continued the investigation, defining the patient's activities in greater detail and conducting additional environmental testing for the presence of *B. anthracis*. On October 8, the Florida Department of Health's laboratory reported the detection of *B. anthracis* from environmental samples obtained from a mailbox in the patient's workplace, the surfaces in the workplace mailroom, and the patient's computer workstation keyboard. Based on this information, mail was implicated as the potential source of the patient's infection.

Question 8: Does this investigation now become a criminal investigation and, if so, how does this change the role of public health and law enforcement investigators?

Answers / discussion points: Yes. The discovery of evidence of an intentional delivery / release of anthrax indicates the possible commission of serious crimes under federal law. As such, the lead of the continuing joint public health/FBI investigation shifts to an FBI lead under national response authorities and plans.

The high priorities of both disciplines must be balanced, including those of law enforcement (to identify, apprehend, and prosecute the perpetrator) and public health (to protect the public by identifying the source / mode of spread, determining the extent of contamination / exposure, limiting further exposure, and treating those who have been exposed). Access to contaminated crime scenes should be coordinated to ensure that both law enforcement and public health objectives are met.

Federal (and, perhaps, state) statutes are violated when there has been an intentional threat involving a delivery / release of a bioterrorism agent (e.g., anthrax). Per established national policy and authorities, the FBI is the lead federal agency for a suspected bioterrorism incident in the United States. The FBI would proceed with the criminal investigation, drawing upon the assistance of other federal, state, and local law enforcement agencies, often through established Joint Terrorism Task Forces (JTTFs).

Question 9: Who is responsible for determining whether a building should be evacuated and sealed and, if so, when it can be re-entered?

Answers / discussion points: Although public safety officials might, as part of the initial threat assessment process, determine that a building should be evacuated, public health officials should be consulted and the decision made cooperatively, as soon as is possible. Once law enforcement officials have concluded their crime scene investigation and public health officials have conducted their epidemiological investigation of the site, then public health officials should make the ultimate determination as to if and when a building can be re-occupied.

Question 10: What are responsibilities of law enforcement in protecting such a crime scene for the purposes of further investigations and possible prosecution?

Answers / discussion points: Law enforcement officials in charge of the crime scene should be able to testify in court that, from the point at which they took control of the scene until the point they relinquished control to the owner / custodian, no persons entered the scene other than law enforcement officers and others who were specifically needed and authorized to be there. The purpose of this is to assure that no one could have added to or otherwise altered or contaminated the scene.

Under normal circumstances, evidence / property items removed from the scene must be inventoried, and a copy of that inventory must be provided to the owner / custodian. Typically, law enforcement officials would need to be able to describe the specific location where each item of evidence was found. Law enforcement officials (or technicians, expert witnesses, etc.) would need to be able to explain what processes were used at the scene, why they were used, and what the results were. Such information also would be required for items processed and analyzed in the laboratory.

Question 11: What are the responsibilities of public health authorities in preventing further cases of anthrax in workers in and visitors to the original case's workplace?

Answers / discussion points: Public health authorities will be concerned about limiting or preventing access to the location where the original patient's exposure occurred. The extent of the area of concern will depend on what is known about the locations where positive and negative environmental cultures were obtained, the usual movements of people and mail in the building, and the airflow in the building. The extent of the area may include the entire building. Further testing of environmental samples may be needed to clarify which areas are at risk.

Public health officials also will be concerned about identifying all persons with significant exposures in the building and assuring that they receive appropriate medical management, including post-exposure antibiotic treatment and, perhaps, vaccination. Interviews (jointly by law enforcement and public health officials) and nasal cultures (to detect exposure to anthrax spores) of these employees and visitors also may be used to help understand the likely mode of spread, which work areas pose a risk, and which people are at risk.

Question 12: Who is in charge of the investigation at the patient's workplace and residence?

Answers / discussion points: This could be a dynamic situation that is dependent upon the specific circumstances. When the epidemiologic investigation indicates that natural causes are not likely responsible for disease, the control of the scene would transition from public health to law enforcement officials. The scene could be secured and protected by law enforcement, and decisions about sampling and

processing could be decided through a collaborative effort between public safety and public health.

To underscore points made previously, it is important to note that chain of custody does not exist in a vacuum. To understand it and to protect its intended goals, public health and law enforcement officials should keep the following in mind. Chain of custody exists only to assure the finder of fact (i.e., the jury in a criminal trial) that the item of evidence in question is what it is purported to be. To achieve this, the government witness, typically a law enforcement officer, needs to be able to assure that the process used to gather evidence and protect the scene from contamination is trustworthy. For this purpose, law enforcement typically will appoint an "on-scene commander." As such, the officer will be able to testify as to all relevant facts regarding the evidence-gathering process. One of the most basic needs of the on-scene commander is to know who had access to the site. Public health professionals can easily adapt their methodology by documenting who was at the scene and the locations from which all samples were taken. The on-scene commander will be able to adopt the public health report and assure the jury that the evidence is, indeed, trustworthy.

Other related discussion issues are: (1) how public health and law enforcement officials can work together to assure that each is able to collect data they need (e.g., environmental sampling); and (2) how approaches to sampling may differ between law enforcement and public health investigators.

Law enforcement authorities might utilize non-law enforcement experts (e.g., epidemiologists) for purposes of conducting specific processes and examinations of the scene or of evidence taken from the scene. However, before any such findings would be admitted in court, such experts may be required to testify in court regarding the what/why/how of the conduct of their examinations and specimen collections.

Facts V: The Palm Beach County Health Department issued an order closing the building in which the patient worked on October 8. The building's management voluntarily closed the building when informed of the impending order. Within hours, the FBI declared the building a crime scene and took control of the building.

Based on building plan information, the building's air supply system, and the incubation period of anthrax, the decision was made to offer antibiotic prophylaxis from the National Pharmaceutical Stockpile to all employees and visitors who had been in the patient's workplace building during August 1 through October 7 (this number was approximately 1,114 persons). On October 12, the New York City Department of Public Health reported a suspected case of cutaneous anthrax in an office worker at a large broadcast media outlet in New York City. The onset of illness in that worker appeared to pre-date that of the case in Florida, and the New York City patient recalled having received a letter with suspicious contents approximately 11 days

prior to onset of disease. The letter was retrieved by the FBI, and its contents were confirmed to include *B. anthracis* spores.

Question 13: How does the FBI coordinate among local, state, and federal law enforcement efforts during a national investigation?

Answers / discussion points: As previously noted, JTTFs help to facilitate dissemination of terrorism-related information among agencies. In the event of a bioterrorism incident, the FBI will establish a JOC and JIC to coordinate federal, state, and local law enforcement, intelligence, and public health information.

Question 14: How does public health coordinate among local, state, and federal public health efforts during a national investigation?

Answers / discussion points: The CDC has primary federal responsibility for assisting local and state authorities in outbreak investigations and in implementing control measures required to protect public health. In a jurisdiction where an outbreak is occurring, a JOC will be established to coordinate federal, state, and local efforts. The CDC has additional authority for assisting local and state health departments in a federal response to a bioterrorism event. The authority for this responsibility derives from the Federal Response Plan and the Terrorism Incident Annex. The CDC works under the direction and authority of the Department of Health and Human Services (DHHS) and its Secretary. Depending on the magnitude of the response, DHHS may provide some coordination and communication support directly. If a Federal State of Emergency is requested by a governor and/or declared by the President, the Federal Emergency Management Agency coordinates all of the other federal agencies in assisting the local and state response to a bioterrorism event.

The CDC is the primary agency of DHHS responsible for public health communication and guidance to state and local health departments regarding bioterrorism preparedness. The CDC works through several mechanisms in coordination. The CDC communication networks include a web-based system, as well as several direct list-serve communication mechanisms to health care providers, state public health departments, and other partner agencies. The representative committees for the state epidemiologists (the Council of State and Territorial Epidemiologists [CSTE]) and the Association of Public Health Laboratories [APHL]) serve as primary points of contact. In addition, the CDC and APHL have worked on the development of the LRN.