Bioterrorism Training and Emergency Preparedness Curriculum

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Acknowledgements

This curriculum is a collaborative effort among the four departments in the College of Health and Human Services namely, Health Science, Health Care Administration, Nursing, and Professional Studies.

Thanks to our project collaborators, to all those who provided feedback on the content, material selection and/or technical assistance to our consultants, our website designers and developers, and most of all to OUR STUDENTS for their unflagging work, persistence and patience in helping to bring this project together.

Introduction to Bioterrorism

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Intro to Bioterrorism
Learning Objectives

• Define bioterrorism (BT)
• Describe the potential characteristics of a BT event
• Describe the general public health response to a BT event
• Identify and describe your potential roles and responsibilities in a BT event

What Is Bioterrorism?
Definition

• Terrorism (FBI definition): "The unlawful use of force or violence against persons or property to intimidate or coerce a government, the civilian population, or any segment of it, in furtherance of political or social objectives."

What Is Bioterrorism?
Definition

• The intentional use of micro-organisms or toxins derived from living organisms to produce death or disease in humans, animals, or plants
• The goal of bioterrorism is to produce fear in the population with subsequent disruption of society
What Is Bioterrorism?

Potential

• An "overt" attack is announced.

• Resembles the traditional HAZMAT event: Response to explosives and chemical exposures.

• First responders are likely to be "traditional" first-responders: fire, HAZMAT, police.

What is Bioterrorism?

Definite

• A "covert" attack is unannounced.

• Thought to be likely scenario bioterrorism.

• First responders are likely to be health care providers, including Emergency Departments, primary care physicians, and hospitals.

History of Bioterrorism

• Biological warfare (BW) employed as far back as 6th century BC.

• Examples of past BW:
  – 14th Century: Mongols catapulted corpses with bubonic plague over walls into Crimea.
  – 15th Century: Pizarro presented native South Americans with smallpox-contaminated clothing.
  – 1940: Japan’s "Unit 731" dropped plague-infected fleas over Manchuria & China.
**History of Bioterrorism**

**Recent Examples**

- 1984: Rajneeshee Cult contaminated restaurant salad bars with *Salmonella typhimurium*.
- 2001: Anthrax-contaminated letters to U.S. media and government offices.

**State-sponsored Bioweapons Research**

- 1972 Biological Weapons Convention
  - Treaty prohibiting stockpiling and research into biological agents for offensive purposes
  - Ratified by >140 countries
  - Not adhered to in some countries (former Soviet Union)
- United States Bioweapons program
  - Offensive program: 1943-1969
  - Defensive program: 1953-today at USAMRIID

**Recognition of a BT Event**

**Surveillance/Detection**

- Goal: Detect unusual medical events sooner rather than later
- Depends on ability to identify a greater than expected number of “cases” or syndromes
- Requires sensitivity to unusual clusters of disease syndromes compatible with naturally occurring or BT-related outbreaks
Recognition of a BT Event
General Characteristics

- Many agents initially produce a specific and/or flu-like illness
- Aerosol dissemination
  - Not detectable: odorless, colorless, tasteless
  - Particle size 1-5um
  - Potential wide-spread dissemination
- May require special treatment approach

Recognition of BT Event
Epidemiologic Clues I

- Increase in persons ill with a similar or unusual syndrome
- Increase in unexplained disease or deaths
- Single case of disease due to an uncommon agent
- Unexpected geographic or seasonal distribution of disease
- Unusual age distribution
  - e.g., varicella, measles in adults

Recognition of BT Event
Epidemiologic Clues II

- Illness in persons with common ventilation system or other exposure
- Atypical route of transmission
  - e.g., aerosol botulism
- Unusual illness among animals preceding or accompanying human illness
- Failure to respond to usual antibiotic therapy
Recognition of BT Event
Surveillance/Detection

• By California State statute
• Medical Examiner (Government Code, State of California section 27491)

Recognition of BT Event
Surveillance/Detection

• Effective September 2000, the following are immediately reportable to the local health jurisdiction
  – All suspected illnesses caused by potential bioterrorism agents
  – Unexplained critical illness or death
  – Rare diseases of public health importance

Public Health Response to a BT Event
General Characteristics

• Old skills applied in new ways
  – Disease/illness investigation
  – Informing and educating the public
  – Providing medications and immunizations
  – Referring and connecting people to resources
  – Informing and educating health care workers
  – Enforcing laws that protect the public’s health
  – Coordinating activities with other agencies
Public Health Response to a BT Event

General Characteristics

• …with a few additional factors
  – Coordination of activities with local law enforcement and FBI
    • Preservation of evidence
  – Early notification and involvement of federal health officials
  – Epidemiologic characteristics of disease may differ from typically expected

Key Preparedness Elements

• Hazard Analysis
  – Determining what emergencies might occur & the availability of local resources for emergency response

• Emergency Response Planning

• Health Surveillance and Epidemiologic Investigation
  – Monitoring the health status of the community & investigating when it differs from expected

Key Preparedness Elements

• Laboratory Diagnosis and Characterization
  – Identifying the cause of illness

• Consequence Management
  – Responding to the emergency
  – Immediate response & long-term recovery
Potential Roles for Public Health Workers in BT Response:

**Clinical Staff**

- Dispensing mass antibiotic prophylaxis
- Administering mass immunizations
- Triage (e.g., phone calls or clinic visits) and referring individuals as appropriate
- Referring individuals to social support and informational resources
- General counseling and reassurance of anxious clients
- Assisting in conducting interviews during disease investigations and follow-up

**Epidemiologists and Communicable Disease Staff**

- Assisting communicable disease epidemiologists in disease investigation:
  - Case interviewing and data collection
  - Data entry and analysis
  - Case contact tracing and identification
  - Case follow-up

**Public Health Leaders**

- Emergency response planning
- Activation of the emergency response plan
- Supervising and coordinating public health efforts
- Coordination and communication with other agencies
- Providing information to the media and general public
- Risk communication
Potential Roles for Public Health Workers in BT Response:

Public Health Information Staff

• Educating and informing the public on BT health risks and response efforts (including dispelling myths)
• Assisting in the development of press releases
• Referring individuals to social support and informational resources
• General counseling and reassurance of anxious clients

Potential Roles for Public Health Workers in BT Response:

Assessment Coordinators

• Assisting communicable disease epidemiologists in disease investigation
• Assisting in the creation and dissemination of press releases, health alerts, and other informational resources
• Coordination and communication with other agencies
• Identifying populations in the community that may require special services in the event of an emergency

Potential Roles for Public Health Workers in BT Response: Technical and Support Staff

• Answering phone calls
  • Delivering critical baseline information
  • Referring calls as appropriate
• Assisting in the creation and dissemination of press releases, health alerts, and other informational resources
• Arranging sites for delivery of mass immunizations or antibiotics
• Coordinating delivery of lab specimens
Potential Roles for Public Health Workers in BT Response: Environmental Health

- Environmental health risk assessment
- Food and water inspection
- Assisting in illness investigation

Introduction to Bioterrorism
Summary of Key Points

- A bioterrorist attack is likely to be covert.
- First responders in a covert attack are likely to be health care providers.
- Public health workers will use many of the same skills in response to a bioterrorism incident as they do in a routine workday.
- The manner in which job skills are implemented will potentially differ from a routine workday.

Resources

- Centers for Disease Control & Prevention
  [http://www.bt.cdc.gov](http://www.bt.cdc.gov)
- Federal Emergency Management Agency
  [http://www.fema.gov](http://www.fema.gov)
- Johns Hopkins Center for Civilian Biodefense
  Studies fact sheets and links to other info, including JAMA series from Working Group on Civilian Biodefense
- USAMRIID
Resources

- Long Beach Public Health Department
  http://www.ci.long-beach.ca.us
- (562) 570-7999
- Los Angeles County –
  http://www.lapublichealth.org/
- California State Department of Health Services
  http://www.dhs.ca.gov/
- Division of Communicable Disease Control
  1-510-540-2566 (regular business hours) OR 1-800-971-9631 (24 hour emergency)

Resources

- State of California Emergency Preparedness Office
  http://www.dhs.ca.gov/epo/EPOIndex.htm
- Los Angeles County Department of Public Health
  800-397-3993 (communicable disease reporting system)
  http://lapublichealth.org/acd/cdrsl.htm or
- To report a possible bioterrorist incident contact
  ACDC Bioterrorism and Response at 213-240-7941

In Case of An Event…
Web Sites with Up-to-Date Information and Instructions

- Centers for Disease Control and Prevention
  http://www.bt.cdc.gov/EmContact/index.asp
- Level A Lab Protocols: Presumptive Agent ID
  http://www.bt.cdc.gov/LabIssues/index.asp
In Case of An Event...
Web Sites with Up-to-Date Information and Instructions

- FBI Terrorism Web Page
  http://www.fbi.gov/terrorism/terrorism.htm

- Mail Security

- NIOSH – Worker Safety and Use of PPE
  http://www.cdc.gov/niosh/emres01.html