

Bioterrorism Training and Emergency Preparedness Curriculum



California State University, Long Beach
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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.

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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.

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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.



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History of Bioterrorism

Recent Examples

- 1984: Rajneeshee Cult contaminated restaurant salad bars with *Salmonella typhimurium*.
- 1995: Aum Shinrikyo cult attempted unsuccessfully to disperse BW agents in aerosol form; sarin gas attack in Tokyo.
- 2001: Anthrax-contaminated letters to U.S. media and government offices.

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History of Bioterrorism

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

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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

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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



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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

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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

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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

**Potential Roles for Public Health Workers
in BT Response:**
*Epidemiologists and Communicable Diseases
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

**Potential Roles for Public Health Workers
in BT Response:**
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

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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.

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Resources

- Centers for Disease Control & Prevention
<http://www.bt.cdc.gov>
- Federal Emergency Management Agency
<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
<http://www.hopkins-biodefense.org/>
- USAMRIID <http://www.usamriid.army.mil>

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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/cdrs.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
<http://www.usps.com/news/2001/press/serviceupdates.htm>
- NIOSH – Worker Safety and Use of PPE
<http://www.cdc.gov/niosh/emres01.html>
