

**Bioterrorism: A Deliberate Public Health Disaster**  
**Department of Community Health Sciences**  
**CHS 256**  
**Winter Quarter, 2003**  
**Tuesdays 3-5pm**  
**CHS 41-235**

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*Course Objective: To recognize the public health significance of biological terrorist events and to identify strategies that public health professionals can use to prevent, detect, and intervene in bioterrorist events in order to prevent morbidity and mortality in the population.*

**General Texts/Readings:**

Emerging Infectious Diseases, 1999; 5: 491-592 (provides a series of articles) Available on-line at <http://www.cdc.gov/ncidod/EID/index.htm>

THE PUBLIC HEALTH RESPONSE TO BIOLOGICAL AND CHEMICAL TERRORISM: INTERIM PLANNING GUIDANCE FOR STATE PUBLIC HEALTH OFFICIALS. Available at: <http://www.bt.cdc.gov/Documents/Planning/PlanningGuidance.PDF>

Reader available at COURSE READER MATERIALS on Westwood Blvd.

**Assignments and Exams:**

Take-Home Midterm examination, covering the biomedical and epidemiologic aspects of detecting a bioterrorism event. This take-home exam will be due at session 5 and will be worth 40% of the final class grade.

Final paper requiring development of a plan for a small to mid-size community for a possible bioterrorism event. The final paper is to be 10-12 pages double spaced. It is due at the scheduled final exam period for the class and is worth 60% toward the final class grade.

**Session 1: January 6**

**Topic:** Bioterrorism- Risks and Realities

- What is bioterrorism?
- Why use biological agents?
- Biological versus other types of agents
- Intentional versus non-intentional events
- Who would use bioweapons and for what purpose?
- History of bioterrorism/biowarfare
- The public health context
- Primary and secondary prevention

**Objective(s):**

Possess a clear understanding of what bioterrorism is and why a concern exists over the potential use of biological agents. Recognize the public health context of bioterrorism.

**Required Readings:**

Henderson DA. The Looming Threat of Bioterrorism. *Science* 1999;238:1279-1281

Hughes JM. The emerging threat of bioterrorism. *Emerging Infectious Diseases* 1999; 5:494-95.

Shalala DE. Bioterrorism: How prepared are we? *Emerging Infectious Diseases* 1999; 5: 492-3.

**Session 2: January 13**

**Topic:** Likely agents of bioterrorism and methods of dispersal

- Bacterial agents
- Viral agents
- Biological toxins

**Objectives:** Recognize the likely agents of bioterrorism, their natural history and probable method(s) of dispersal.

**Required Readings:**

Henderson DA. Smallpox: clinical and epidemiologic features. *Emerging Infectious Diseases* 1999; 5: 537-39.

Inglesby TV, Henderson DA, Bartlett JG, et al. Anthrax as a biological weapon; Medical and public health management. *JAMA* 1999; 281: 1735-45.

Swartz, MN. Recognition and Management of Anthrax – An Update. *New England Journal of Medicine* 2001; 345(22):1621-26.

Kortepeter MG and Parker GW. Potential biological weapons threats. *Emerging Infectious Diseases* 1999; 5: 523-27.

Burrows WD, Renner SE. Biological warfare agents as threats to potable water. *Environ Health Perspect* 1999;27:461-2.

**Session 3: January 20**

**Topic:** The Anthrax Outbreak of 2001: A Lesson in Bioterrorism Response

**Objectives:** Understand the intentional outbreak of Anthrax and the response by the CDC, local public health agencies, FBI and other agencies.

**Required Readings:**

Lipton E. & Johnson, K. Tracking Bioterror's Tangled Course. *The New York Times*, Dec 26, 2001.

Jernigan, JA, Stephens, DS, Ashford, DA et al. Bioterrorism-Related Inhalational Anthrax: The first 10 Cases Reported in the United States. *Emerging Infectious Diseases* 2001; 7(6):933-44.

Roche, KJ, Hang, MW, & Lazarus, H. Cutaneous Anthrax Infection. *New England Journal of Medicine* 2001; 345(22):1611.

Bush, LM, Abrams, BH, Beall, A., & Johnson, CC. Index Case of Fatal Inhalational Anthrax Due to Bioterrorism in the United States. *New England Journal of Medicine* 2001; 345(22):1607-10.

**Session 4: January 27**

**Topic:** Recognizing bioterrorism (Part 1).

- Public health surveillance principles
- Surveillance systems

**Objectives:** Understand the surveillance clues to recognizing a possible bioterrorist event. Recognize the importance of augmented surveillance systems and development of an effective alert network.

**Required Readings:**

Pavlin J. Epidemiology of bioterrorism. *Emerging Infectious Diseases* 1999; 5: 528-530

Bryan JL, Fields HF. An ounce of prevention is worth a pound of cure – shoring up the public health infrastructure to respond to bioterrorist attacks. *JAMA* 2000; 283:242-9.

CDC Smallpox Response Plan. Guide A: Surveillance, Contact Tracing and Epidemiological Investigation.

## Session 5: February 3

**Topic:** Recognizing bioterrorism (Part 2).

- Laboratory surveillance principles
- Laboratory systems
- Environmental monitoring

**Objectives:** Define the role of laboratories in the early detection and mitigation of a bioterrorist event.

### Required Readings:

Biological and Chemical Terrorism: Strategic Plan for Preparedness and Response. MMWR, April 21,2000 Vol 49, No. RR-4.

Campbell J, Francesconi S, Boyd J, Worth L, Moshier T. Environmental air sampling to detect biological warfare agents. *Mil Med* 1999; 164:541-2.

Layne SP and Beugelsdijk. Laboratory firepower for infectious disease research. *Nature Biotechnology* 1998;16:825-29.

## Session 6: February 10

**Topic:** Combating bioterrorism

- Preparation: public health systems, vaccines, biologicals
- Deterrence: policy, intelligence, military

**Objectives:** Recognize the role of existing and augmented public health systems (and other agencies) necessary to prepare for and combat bioterrorism.

### Required Readings:

McDade JE. Addressing the potential threat of bioterrorism: Value added to an improved public health infrastructure. *Emerging Infectious Diseases* 1999; 5: 591-92.

Inglesby, TV, Grossman, R & O'Toole, T. A Plague on Your City: Observations from TOPOFF. *Clinical Infectious Diseases*, 2001; 32:436-45.

CDC, Executive Summary for CDC Interim Smallpox Response Plan and Guidelines.

Meltzer, MI, Damon, I. , LeDuc, JW & Millar, JD. Modeling Potential Responses to Smallpox as a Bioterrorist Weapon. *Emerging Infectious Diseases*, 2001; 7(6):959-69.

Wetter, DC, Daniell, WE, & Treser, CD. Hospital Preparedness for Victims of Chemical or Biological Terrorism. *American Journal of Public Health*, 2001; 91(5):710-16.

Sidel, VW, Cohen, HW, & Gould, RM. Good Intentions and the Road to Bioterrorism Preparedness. *American Journal of Public Health*, 2001; 91(5):716-19.

## Session 7: February 17

**Topic:** Responding to bioterrorism (Part 2)

- Role of the media

**Objective:** To understand the relationship between public health responders and the media in a bioterrorism event. To understand key skills necessary to communicate with the media during a disaster situation such as a bioterrorism event.

### Readings:

Burkhart, F.N. (1991) *Media, Emergency Warnings, and Citizen Response*. Westview Press, San Francisco, CA: 1991.

CDC (1989) *CDC Monograph: The Public Health Consequences of Disasters, 1989*. USDHHS. Chapter 2 Working with the News Media.

Ball-Rokeach, S & Loges, W.E. (2000) "Ally or Adversary? Using the Media Systems for Public Health" *Prehospital and Disaster Medicine* 15(4):62-9.

Howard, R.J. Getting it Right in Prime Time: Tools and Strategies for Media Interaction. *Emerging Infectious Diseases*, 2000; 6(4):426-7.

## Session 8: February 24

**Topic:** Potential for psychological trauma

**Objective:** To identify the potential for psychological distress and trauma as a result of bioterrorist attacks and to understand the process and potential for prevention and treatment of such trauma.

### Readings:

Schuster, MA, Stein, BD, Jaycox, LH et al. A National Survey of Stress Reactions after the September 11, 2001 Terrorist Attacks. *New England Journal of Medicine*, 2001; 345(20):1507-12.

DiGiovanni C Jr .Domestic terrorism with chemical or biological agents: psychiatric aspects. *Am J Psychiatry* 1999;156:1500-5.

Amir, Marianne; Kaplan, Zeev; Kotler, Moshe. Type of trauma, severity of posttraumatic stress disorder core symptoms, and associated features. *Journal of General Psychology*, 1996 Oct, v123 (n4):341-351.

Young, Marlene A. Crime, violence, and terrorism. IN: *Psychosocial aspects of disaster*. Richard Gist, Ed; Bernard Lubin, Ed; et al. John Wiley & Sons, New York, NY, USA. 1989. p. 140-159 of xiv, 357 pp.

Duffy, John C. The Porter Lecture: Common psychological themes in societies' reaction to terrorism and disasters. *Military Medicine*, 1988 Aug, v153 (n8):387-390.

## Session 9: March 3

**Topic:** Responding to a bioterrorist event (Part 2).

- Applying lessons from natural disasters
- Public health role
- Role of primary/emergency care
- Interagency communication/coordination

**Objectives:** Understand the public health, medical community and other agencies' roles in responding to a bioterrorist event.

### Required Readings:

Lillibridge SR, Bell AJ, Roman RS. Centers for Disease Control and Prevention bioterrorism preparedness and response. *Am J Infect Control* 1999;27:463-4.

Inglesby TV, et al. Anthrax as a biological weapon: Medical and public health management. *JAMA* 1999; 281:1736-45.

CDC. Bioterrorism alleging the use of anthrax and interim guidelines for management – United States, 1998. *MMWR* 1999; 48:69-73.

Macintyre AG, Christopher GW, Eitzen E, et al. Weapons of Mass Destruction Events with Contaminated Casualties: Effective Planning for Health Care Facilities. *JAMA* 2000; 283:242-249.

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<http://www.bt.cdc.gov/Documents/Planning/PlanningGuidance.PDF>

## Session 10: March 10

**Topic:** Bioterrorism Scenarios

- anthrax
- smallpox
- other

**Objective:** Be able to work through likely scenarios of a bioterrorist act focusing on the public health professionals' role in recognition and response.

### Required Readings:

*No readings this week. Be prepared to participate in a tabletop exercise.*