Interdisciplinary Response to Infectious Disease Emergencies: A Public Health Perspective
Department of Community Health Sciences
CHS 256
4 Units

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Course Goal: To recognize the significance of biological terrorist events and other infectious disease emergencies across the health professions, and to identify interdisciplinary strategies health professionals can use to prevent, detect, and intervene in infectious disease emergencies in order to reduce morbidity and mortality in the population. To recognize the specific role of public health during infectious disease outbreaks and to reinforce public health practices and tools used during such events to measure, monitor and control morbidity and mortality.

Course Objectives and Competencies:
By the end of this course students will be able to:

<table>
<thead>
<tr>
<th>Objective</th>
<th>ASPH MPH Competency</th>
<th>PHPR Competency</th>
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<tr>
<td>Demonstrate an understanding of the pathophysiology of infectious diseases</td>
<td>PHBio.1 Specify the role of the immune system in population health</td>
<td>1.3 Facilitate collaboration with internal and external emergency response partners</td>
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<td>Describe the role of public health and other health care disciplines in responding to an infectious disease emergency</td>
<td>PHBio.4 Explain the biological and molecular basis of public health</td>
<td>1.1 Solve problems under emergency conditions</td>
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<td>Identify appropriate public health interventions for infectious disease emergencies</td>
<td>PHBio.7 Articulate how biological, chemical and physical agents affect human health</td>
<td>1.4 Maintain situational awareness</td>
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<td>PHBio.8 Apply biological principles to development and implementation of disease prevention, control or management programs.</td>
<td>1.6 Act within the scope of one’s legal authority</td>
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Write an emergency response plan for a public health or health care agency.

**General Texts/Readings:**

There is a lot of reading for this course. All of the reading is available through the course Moodle site. There may be additional relevant readings added to the site throughout the quarter. It is not expected that all of the readings will be completed. You may pick and choose articles as they supplement the knowledge you have, your interest and the lectures.


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](http://www.bt.cdc.gov/Documents/Planning/PlanningGuidance.PDF)


[Writing a Disaster Plan: A Guide for Health Departments](http://www.cphd.ucla.edu) available at www.cphd.ucla.edu

Other readings available at Class Moodle Site
Assignments and Exams:

One hundred (100) points will be assigned for the course.

- Class Participation, based on attendance and contribution to class discussion (15 points)
- Interdisciplinary Problem Based Learning (PBL-I) case (25 points).
  - 25 points will be awarded for a 10 minute group presentation and a 5 page paper (group assignment) assessing the PBL case.
- Participation in the second PBL including a 2-page individual paper (10 points).
- Participation in an interdisciplinary tabletop exercise in Session 10 (10 points).
- Students will also be required to write a disaster plan (40 points)

Disaster Plan assignment: The student should choose a public health agency for which they will write an all-hazards disaster plan. The plan will follow the guidelines provided in the Section III of “Writing a Disaster Plan: A Guide for Health Departments”. Special attention should be paid to the section entitled “Public Health Concept of Operations”. This section describes the public health response to an emergency and is the key to effective response.

If a student wishes to write a plan for a hospital, the student should refer to the Hospital Incident Command System Guidebook, to supplement the material in the Writing a Disaster Plan: A Guide for Health Departments.

Session 1: January 7

Topic:

- Introduction to the Course
- Introduction to the principles of infectious disease
  - Biologic Principles
  - Bacteria
  - Viruses
  - Immune System
  - Pathogenesis
- Likely agents of bioterrorism
  - Bacterial agents
  - Viral agents
  - Biological toxins

Objective: To introduce public health students to the basic principles of infectious disease as well as to what bioterrorism is and why a concern exists over the potential use of biological agents. Recognize the public health context of bioterrorism. Recognize the likely agents of bioterrorism, their natural history and probable method(s) of dispersal.

Suggested Reading


Frischknecht F. The History of Biological Warfare: Human experimentation, modern nightmares, and lone madmen in the twentieth century. EMBO Reports. 2003; 4: S47-S52.


Lisa D. Rotz, Ali S. Khan, Scott R. Lillibridge, Stephen M. Ostroff, and James M. Hughes, Public Health Assessment of Potential Biological Terrorism Agents. Emerging Infectious Diseases • Vol. 8, No. 2, February 2002


Session 2: January 14

Topic: 
• Public Health Response to Infectious Disease Emergencies
  • Recognizing bioterrorism
  • Combating bioterrorism
  • Preparation: public health systems, vaccines, biologicals

•Introduction to Problem-Based Learning

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

Suggested Readings:

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


Dworkin MS, Ma X, Golash RG. Fear of bioterrorism and implications for public health preparedness. Emerg Infect Dis 2003 Apr. (online article)


Session 3: January 21 (MLK Day)

Session 4: January 28

Problem-based learning exercise 1. Students will work with interdisciplinary teams to solve an infectious disease case. This will reinforce the idea of a common emergency health problem and the need for a coordinated response.

Suggested Readings:


Session 5: February 4

**Topic:**

- Bioterrorism Response and Problem-based learning exercise 1
  - Responding to bioterrorism

- Responding to a bioterrorist event
  - Applying lessons from natural disasters
  - Public health role
  - Role of primary/emergency care
Interagency communication/coordination

- PBL Presentations
- Paper Due

**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 and other agencies in disaster situations such as a bioterrorism event. 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. Understand the public health, medical community and other agencies’ roles in responding to a bioterrorist event.

**Suggested Readings:**


**THE PUBLIC HEALTH RESPONSE TO BIOLOGICAL AND CHEMICAL TERRORISM: INTERIM PLANNING GUIDANCE FOR STATE PUBLIC HEATHL OFFICIALS.** Available at: [http://www.bt.cdc.gov/Documents/Planning/PlanningGuidance.PDF](http://www.bt.cdc.gov/Documents/Planning/PlanningGuidance.PDF)


**Session 6: February 11**

**Topic:**
- Developing an Incident Command System for Public Health
  - Review the role of public health in disasters and bioterrorist events
  - Multi-use emergency management planning
  - SEMS-Standardized Emergency Management System and NIMS-
    National Incident Management System
  - Incident Command System
  - Plan Writing

**Objective:** To understand the necessity and structure of the incident command system in a public health setting and write an appropriate emergency response plan for a public health agency.

**Required Readings:**


*Writing a Disaster Plan: A Guide for Health Departments*

**Session 7: February 18 (Holiday)**

**Session 8: February 25**

**Topic**
- Surveillance and Case Tracking
  - Case definitions
  - Law Enforcement
  - Questionnaire development
  - Laboratory Response Network
  - Disease reporting
- PBL Case II
The discipline specific problem based learning exercise will be introduced here. Students will work in teams to determine the appropriate public health response to the scenario and develop strategies to deal with the problem.

**Objective:** To expand students’ knowledge and resourcefulness for conducting surveillance and case tracking.

**Required Readings:**


Los Angeles County Department of Health Services Reportable Diseases and Conditions.


**Session 9: March 4**

Topic
- PBL Case II Presentations
- Isolation and Quarantine/ Other Non-Pharmaceutical Interventions
  - History
  - Legal authority to quarantine animals and humans.
  - Ethics
  - Case Study: SARS

**Objective:** Students will learn the power of public health officers during an infectious disease outbreak with specific detail on California law and the appropriate application of this power.

**Required Readings:**


**Session 10: March 11**

• Tabletop exercise

Come prepared to participate in a simulated response to an infectious disease emergency

**Finals Week**  Disaster plan due