PH 412
Control and Prevention of
Communicable Disease – 1.0 Credit
Spring Quarter, 2013
Thursday, 6:00 to 9 pm
McGaw 2-322

Rebecca Wurtz, MD, MPH
rwurtz@northwestern.edu
Office 312.503.5875
cell 773.351.0288

Control and Prevention of Communicable Disease will focus on the surveillance, identification, control, and prevention of selected infectious diseases of PH importance. Specific areas that may be addressed include the causative agent, the routes of transmission, the host responses, environmental factors, unique risk factors, outbreak investigations, surveillance, strategies for control and prevention, methods for evaluating interventions and control efforts, culture, politics, and economics. We will incorporate the history of communicable disease control efforts where relevant. We will not emphasize microbiology, pathophysiology, or medical treatment. Special attention will be focused on outbreak investigations because they provide a unique opportunity to apply many principles of public health practice, including use and interpretation of surveillance data, risk factor analysis, implementation of control measures, and assessment of interventions.

Each week will focus on a disease or type of disease (HIV, malaria, foodborne illness, etc) and a public health tool (vector control, immunization, outbreak investigation, etc). Practical exercises will be incorporated.

Learning objectives
Upon completion of this course, the student will be able to:

1. describe principles of surveillance, prevention, and control for communicable diseases
2. discuss specific methods used to investigate outbreaks, control disease, and prevent selected communicable diseases
3. discuss the relative importance of selected infectious diseases in the overall health of the nation and the global community

Reading
Assigned reading will be available as .pdfs or via urls on the course’s Blackboard site (https://courses.northwestern.edu/webapps/login). Please be sure to have read the assigned articles before class. I will ask questions! Also, I urge you to read at least one of the books listed under Supplemental Media at the end of the syllabus.

**Outbreak presentations**

Each student will review the literature on a specific outbreak—the cause, detection, investigation, intervention and control—and report the outbreak to the class. Students can either select an outbreak from a list provided by Dr. Wurtz (“Outbreak Presentation Options,” in the Syllabus folder on the course Blackboard site), or find one of their own choosing (with Dr. Wurtz’s approval). The article cited in the Outbreak Presentation Options is the starting place for understanding the outbreak; the presenter should become familiar with a few of the scientific citations referenced in the outbreak publication and review additional material about the organism or similar outbreaks. The presentation should consist of a .ppt, including

1. a description of the first case(s)
2. the epidemiologic investigation
3. conclusions from that investigation
4. a summary of the microorganism, and its epidemiology, identification, control, and disease prevention

It is not necessary to provide hand-outs. It is necessary to be clear and concise. The entire presentation should be no longer than 15 minutes. The student audience for each presentation is encouraged to ask questions.

**Student Evaluation**

Students will be evaluated based on

1. participation in class discussions (30%)
2. outbreak presentation (20%)
3. a take-home open-book final examination (50%)

**Course evaluation**

The MPH Program administers web-based course evaluations to students for each course near the end of the quarter. *Your completion of both the unit (course) and faculty evaluation components is required; failure to complete either of the evaluations will result in an incomplete grade until the evaluations are submitted.* You will be sent the web link and instructions via email later in the quarter. You will have about two weeks to complete the evaluations before grades are submitted.

**Academic Integrity**
Every Northwestern faculty member and student belongs to a community of scholars where academic integrity is a fundamental commitment. The Program in Public Health abides by the standards of academic conduct, procedures, and sanctions as set forth by The Graduate School at Northwestern University. Students and faculty are responsible for knowledge of the information provided by The Graduate School on their Web page at http://www.tgs.northwestern.edu/academics/academic-services/integrity/index.html

Academic misconduct includes, but is not limited to:
1. Receiving or giving unauthorized aid on examinations or homework
2. Plagiarism
3. Fabrication
4. Falsification or manipulation of academic records
5. Aiding or abetting any of the above

The PPH follows The Graduate School’s procedure for evaluating alleged academic misconduct, as outlined on the TGS website. http://www.tgs.northwestern.edu/academics/academic-services/integrity/dishonesty/index.html

Faculty reserve the right to use the “Safe Assignment: Plagiarism Detection Tool” that is part of the Course Management System to evaluate student assignments. Information about this tool can be found at http://www.it.northwestern.edu/education/course-management/support/assessments/safeassignment.html

Reading
Articles are listed on the syllabus and will be provided on the Blackboard site in .pdf format or by reference to a url. I will provide one question per article to jumpstart discussion in class.

Syllabus

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Instructor</th>
<th>Topic</th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>April 4</td>
<td>Wurtz</td>
<td>Globalization and infectious diseases</td>
<td>☐ If you own a iPhone or an iPad, please download Plague, Inc (Ndemic Creations) (it’s available on iTunes) and bring it to class. If you don’t have an iPhone, don’t worry—I’ll bring the analog version.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>--------</td>
<td>-----------------------------------------------------------------</td>
<td>-----------------------------------------------------------------</td>
<td>-----------------------------------------------------------------</td>
</tr>
<tr>
<td>2.</td>
<td>April 11</td>
<td>Carol Ciesielski, MD, Captain, USPHS (ret)</td>
<td>HIV/AIDS</td>
<td>Hammer S. Antiretroviral treatment as prevention. NEJM 2011;365:561-562</td>
</tr>
<tr>
<td></td>
<td></td>
<td>□ former Director, CDC, Cambodia International Health Consultant, assigned to CDC</td>
<td>PH tool: prevention education</td>
<td>□ Cohen MS, et al. Prevention of HIV-1 infection with early ART. NEJM 2011;365:493-505</td>
</tr>
<tr>
<td>3.</td>
<td>April 18</td>
<td>Mark Dworkin, MD, MPHTM, Associate Professor, UIC SPH, former IL state epidemiologist and EIS officer</td>
<td>Surveillance and outbreaks</td>
<td>□ Dworkin MS. Chapter 1, “How an outbreak is investigated,” and Chapter 18, “Whipping whooping cough in Rock Island County, Illinois.” In Outbreak investigations around the world. Jones &amp; Bartlett, 2010.</td>
</tr>
<tr>
<td>4.</td>
<td>April 25</td>
<td>Wurtz</td>
<td>Foodborne disease</td>
<td>□ EFORS. Form for Investigation of a Foodborne Outbreak, CDC, 2004. (How long would it take to fill this out?)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Practical exercise: outbreak investigation</td>
<td></td>
</tr>
<tr>
<td>Week</td>
<td>Date</td>
<td>Lecturer</td>
<td>Topic</td>
<td>PH Tools</td>
</tr>
<tr>
<td>------</td>
<td>---------</td>
<td>----------</td>
<td>----------------------</td>
<td>-----------------------------------------------</td>
</tr>
</tbody>
</table>
| 5.   | May 2   | Wurtz    | Tuberculosis, BT     | PH tools: DOTS and case management            | [ATS/CDC/IDSA. Treatment of tuberculosis. Am J Respir Crit Care Med 2003;167:603-662](#) Skim the Summary (pp. 604-613) **(What is the role of the health department [HD] in TB control, and how does the HD carry it out?)**
|      |         |          |                      |                                               | □ Cegielski JP. Extensively drug-resistant tuberculosis: “there must be some kind of way out of here.” Clin Infect Dis. 2010;50 Suppl 3:S195-200 **(Why does MDR/XDR TB happen, and what can we do to prevent it?)** |
| 7.   | May 16  | Wurtz    | STIs                 | PH tools: contact tracing, social networks, partner notification, partner-delivered therapy | [Herzog TJ, et al.](#) Initial lessons learned in HPV vaccination. Gyne Onc 2008;109:S4-S11 **(Describe some of the barriers to HPV vaccination.)**
|      |         |          |                      |                                               | □ Hogben M. Partner notification for sexually transmitted diseases. Clin Infect Dis 2007;Supp4:160-174 **(How can new communication and social network technologies be used to assess communicable disease spread?)** |
### Supplemental media

**Books (there are lots more, but these have some redeeming literary value)** * = fiction

10. *Outbreak investigation around the world.* M Dworkin, 2010 (in fact, bring your copy when Dr. Dworkin speaks, and I bet he’d be willing to autograph it for you!)

**Movies (there are lots more, but these have some redeeming cinematic value)**

1. *Contagion,* 2011
2. *Outbreak,* 1995
3. *28 days later*, 2002
5. *I am legend*, 2007
8. *Shaun of the Dead*, 2004 (okay, maybe this one doesn’t have redeeming cinematic value, but it’s funny)

**Games**
Pandemic, [http://www.crazymonkeygames.com/Pandemic-EoM.html](http://www.crazymonkeygames.com/Pandemic-EoM.html)