Clinical Microbiology
Syllabus
2015

Overview
Microbiology and Immunology is taught in two interrelated parts. The M1 courses cover the basic biology of microbial pathogens and the immune system. The goal of the M2 year is to begin the integration of this knowledge into the clinical practice. In addition to a few introductory lectures, the curriculum provides an overview of basic infectious disease. However, the material is integrated between Clinical Microbiology and Pathophysiology, with anti-infective drugs covered in Pharmacology. A complete list of objectives for infectious disease in these courses is listed and should be used as a study guide for Step 1.

Personnel

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Textbooks and Materials

Required Textbooks

• Medical Microbiology for the New Curriculum: A Case-Based Approach by Roberta B. Carey, Mindy G. Schuster, Karin L. McGowan, Wiley Online Library
• Review of Medical Microbiology and Immunology, 12th Edition by Warren Levinson, MD, PhD, The McGraw-Hill Companies

Medical Microbiology for the New Curriculum: Available Online. Assigned sections will be posted on the website.

Review of Medical Microbiology and Immunology is a free ebook; also available as Inkling interactive text and is the same text used in M1.

Assessment
The examinations will all be multiple choice in the USMLE format and will be combined exams with Pathology, Pathophysiology, Pharmacology and HxPxD. The Clin Micro part of each exam is graded separately. There will be approximately 15 questions for the first three basic lectures and approximately 12 questions for each session covering the lecture, written chapters and cases, accounting for a total of ~75 points for the year. The minimum pass level is defined by the Angoff score of the questions used, but is expected to be between 60 and 65%. Note that there are 8 such combined exams throughout the year, but there are no Clin Micro sessions covered in Exams 2 or 7.

Exam 1, 15/75 pts = 20%; Exams 3, 4, 5, 6, 8, 12/75 pts = 16% EACH

Note also that those "infectious disease" lectures given in Pathophysiology are tested in Pathophysiology and count toward the Pathophys grade, NOT the Clin Micro grade.

At the end of the year, we will take the NBME Microbiology and Immunology Basic Science Exam. The score will NOT count toward your grade. I reserve the right to give some credit for taking the exam.

Mission

Provide students with current information about important microbial pathogens and the mechanisms by which they cause disease; encourage an understanding of basic molecular pathogenic mechanisms so that students can deal with unfamiliar pathogens by fitting them into a paradigm they have already learned; prepare students to go into clerkships and feel comfortable in responding effectively in clinical settings; and give them the tools they need so that they can understand the literature and not feel overwhelmed by the rapidly changing area of medical microbiology.

Format for the course

For each organ system, there will be a presentation by a physician. The lecture slides will be provided. Cases will also be assigned as "independent study," but we suggest that you cover these in small groups. A chapter will also accompany each session and should be read prior to coming to class. You should also review the characteristics, virulence factors, identification, etc. of the pathogens most important in that particular system from "Levinson" and review for the microbiology underlying the clinical presentation.

Course objectives

At the end of this course the student should:

1. Know characteristics of pathogens important in each organ system and how each can be controlled
2. Know major host defenses of each organ system
3. Appreciate the role in disease of host response to infectious agents
4. Understand the molecular bases for vaccine design, treatment strategies, and clinical diagnostic testing
5. Understand the necessity and timing of vaccination and how vaccines work
6. Know the clinical importance of antibiotic resistance, mechanisms of resistance, and control of resistant organisms
7. Appreciate the importance of emerging and reemerging infectious diseases and know the factors that permit new diseases to emerge and old diseases to reemerge, difficulties in diagnosing such diseases, and what diseases are currently emerging or reemerging
8. Know pathological manifestations of infectious diseases and how they are detected in the pathology lab and controlled in the hospital environment
9. Know the major agents likely to be used by bioterrorists and how they can be identified and treated

Learning Objectives

Use as outlines for Step 1 preparation
• **Infectious Disease Objectives**
  ◦ These are the overall ID objectives being covered in Clin Micro and Pathophysiology

• **Clinical Immunology Objectives**
  ◦ These of the overall Immuno objectives taught in M1 and other places in the curriculum

• **Core Knowledge Objectives**
  ◦ These are the Objectives proposed by the "Association of Medical Schools Microbiology and Immunology Chairs"
  ◦ The numbers indicate relative importance with 3 being most important
  ◦ These objectives are (in general) the basis of both the M1 and M2 Micro curricula
  ◦ There is clear redundancy with the ID objectives above, but this list also includes the basic (M1) objectives