

M 11-17-17

Hospital Infection Control and Epidemiology training

A. Overview:

Every infectious disease specialist should have a working knowledge of epidemiology, especially hospital epidemiology as it relates to hospital infection control and the concepts and practices of antibiotic stewardship. Nosocomial infections in most instances are complications superimposed on an underlying diseases or co-morbidity. Hospital-acquired infections can represent a significant proportion of the infections seen in consultation. Many of these infections are not preventable, but studies have shown that up to one-third can be avoided through the use of a variety of infection control intervention. This is especially so when the nosocomial infections occur in clusters. In order to work up these mini-epidemics, the fellow needs to learn the basics of epidemiologic investigations. Such investigation requires the knowledge of surveillance techniques, arranging the data and a working ability to use the applicable statistics. The ID fellow should be able to look for common denominator situations and recommend corrective actions, incl. isolation procedures.

Courses on hospital epidemiology and infection control are available online through the Infectious Diseases Society (IDSA) and as a live intensive symposium by the Society for Healthcare Epidemiology of America (SHEA). This symposium is offered yearly. Either of these options satisfies the didactic training experience in hospital infection control required during the infectious diseases fellowship. The IDSA online course contains interactive assessment questions and a certification following completion of the course.

First year infectious diseases fellows are required to successfully complete the IDSA online course. Second year fellows attend the live intensive SHEA course.

In addition to the formal hospital infection control course work, the first year fellow attends and participates in Shands Hospital Pharmacy and Therapeutics (P&T) committee meetings regularly. The senior infectious diseases fellow attends weekly epidemiology rounds and the monthly Infection Control Committee meeting at Shands Hospital under the mentorship of the director and co-director of Hospital Infection Control (Drs. Vandavelde and Guzman, respectively). This practical experience allows the senior fellow to work directly with hospital infection control personnel and to be a participant in decision making regarding hospital infection control issues.

B. Goals and Objectives:

The goal is to teach the fellows to become competent and effective infectious disease consultants in the area of hospital infection control and antibiotic stewardship.

The infectious disease fellow should be able to:

- Differentiate between community-acquired and hospital-acquired infections.
- Discuss antimicrobial resistance patterns of nosocomial pathogens
- List risk factors for developing antimicrobial colonization and infection
- Review the data supporting important infection control and antibiotic management strategies
- Discuss the workings of an infection control committee within the hospital system
- Discuss the impact of nosocomial infections on patient safety and morbidity/mortality
- Discuss concepts of antibiotic stewardship
- Demonstrate the ability to communicate in a consultative fashion with an infection control committee

C. Competency based objectives

PGY 4/5

Patient Care

- Gather essential and accurate information about the patient to evaluate for possible nosocomial infection.
- Discuss the diagnosis and management of nosocomial infections.
- Demonstrate the application of data driven prevention strategies in avoiding hospital acquired infections.

Medical Knowledge

- Demonstrate the clinical knowledge of the basic and clinical sciences underlying infectious diseases and microbiology;
- Access and critically evaluate current medical information and scientific evidence as it applies to hospital acquired infection and antibiotic stewardship
- Discuss the syndrome approach to infectious diseases diagnosis;
- Apply basic principles of infectious diseases epidemiology;
- List the presentations of nosocomial infectious diseases in general medical, surgical, obstetrical, and critical-care patients; and
- Discuss the spectrum of activity of antimicrobial agents and their potential limitations in hospital acquired infections.

Practice-Based Learning and Improvement

- Develop an organized approach to the evaluation of hospital acquired infectious diseases.
- Apply information technology to assist data acquisition and information management.
- Locate, evaluate and incorporate evidence from scientific databases, guidelines and studies related to hospital acquired infectious disease problems.
- Identify deficiencies in one's knowledge, skill and attitudes in the identification and management of the patient with a hospital acquired infectious disease.
- Develop strategies for correcting deficiencies in one's knowledge, skills and attitudes in the identification and management of the patient with a hospital acquired infectious disease.

Interpersonal Skills and Communication

- Communicate effectively with other members of the infection control team and hospital staff regarding hospital infection control questions and issues.

Professionalism

- Demonstrate respect, compassion, and integrity in all interactions with patients, families, colleagues and members of the infection control team;
- Discuss ethical principles of care;
- Discuss ways to be sensitive and respectful when discussing differences of opinion among the members of the infection control team.

Systems-Based Practice

- Apply the analytic tools and techniques necessary to identify and interrupt outbreaks of nosocomial infections
- provide cost-effective, data driven hospital infection control recommendations that assure high level quality of care;
- Discuss the relationships among the various elements of the health care system;

Knowledge to be assessed

The resident should have knowledge and understanding of the following hospital acquired infections and principles (though not exclusively):

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|-------------------------------------------------------|-----------------------------------------|
| Practical approach to infectious disease consultation | Infections in transplant recipients |
| Nosocomial pneumonia | Neutropenic fever |
| Tuberculosis | Epidemiology and infection control |
| Sepsis and septic shock | Hospital acquired infections |
| Endocarditis | Line-associated infections |
| Fever of unknown origin | Post-partum infections |
| Evaluation of patient with fever and rash | Infections in the ICU |
| Meningitis and encephalitis | Candidiasis |
| Intraabdominal infections | Principals of microbiological diagnosis |
| Urinary tract infections | Principals of antimicrobial therapy |
| Osteomyelitis | |
| Septic joint and prosthetic joint infections | |
| Skin and soft tissue infections | |
| Necrotizing fasciitis | |

Methods of achieving objectives

- Participation in the online IDSA /SHEA Infection Control Fellows Course at the 1st year fellows level
- Participation in the Shands Hospital Pharmacy and Therapeutics (P&T) Committee meetings as a first year fellow
- Attendance at the SHEA/CDC Training Course in Healthcare Epidemiology as a second year fellow
- Participation in the Shands Hospital Infection Control Committee meetings as a second year fellow
- Mentorship under the Director and Co-director of Shands Hospital Infection Control as a second year fellow
- Teaching rounds with the attending physicians on the ID service
- Attendance and discussion at didactic core lectures (the ID "core curriculum")
- Attendance and discussion at microbiology rounds (three mornings per week)
- Attendance and participation at division conferences including but not limited to: case conferences, board review conferences, journal clubs, Med-Peds conferences, HIV topical reviews, TB conferences, Research conferences, travel and tropical medicine conferences and transplant ID conferences.
- Reading in recommended texts and journals (Harrison's Principles and Practice of Internal Medicine; Mandell, Douglas and Bennett's Principles and Practice of Infectious Diseases, Clinical Infectious Diseases Journal)
- Review of IDSA guidelines i.e. antibiotic stewardship, catheter related infections, hospital acquired pneumonias, Clostridium difficile, hand hygiene
- Electronic databases and computerized resources (UF databases, Up To Date, ID resource CD set)

Assessment tools

- Attending physician will monitor the quality of patient consultative evaluation.
- Attending physician will assess the quality of case presentations.
- Attending physician will critique the subspecialty resident's assessment and plan.
- Attending physician will observe the resident's interactions with patients and staff.
- Attending physician will determine evidence of the resident's self-directed learning and reading (during rounds, microbiology rounds, case presentations and division conferences, didactic sessions, or MKSAP question reviews.)
- Hospital infection control chairperson will observe the fellows interaction at P&T Committee and Hospital Infection Control Committee meetings

Evaluation process

- Goals and Objectives will be reviewed with the fellows at the beginning of each academic year.
- The fellow will sign the attestation statement verifying receipt of goals and objectives.
- The attending physician will provide verbal feedback to the fellow throughout the rotation period.
- The attending physician will complete the fellow's evaluation form and review the form with the subspecialty resident at the conclusion of the rotation.
- The fellow will sign the attestation statement verifying review of the evaluation form.
- Upon completion of the IDSA online course, the fellow will receive a certificate, a copy of which will be forwarded to the administrative office
- At the completion of the SHEA/CDC course, the fellow should submit a claim for the 22.5 hours of CME credit and submit the documentation to the administrative office.
- The evaluations and certificates of completion submitted to the Administrative Office will be reviewed by the PD and progress discussed with the fellows during the subsequent monthly PD mentoring session