Infectious Disease Consult Service Curriculum

The infectious disease consult service provides evaluation and consultative management of those patients with various infectious diseases who have been admitted to both medicine and non-medicine services including ICU patients. The infectious disease division includes the following individuals:

Timothy Endy, MD, MPH – Chief and Program Director, Division of Infectious Diseases
Donald Blair, MD
Waleed Javaid, MD
Mark Polhemus, MD
Ambika Eranki MD
Elizabeth Reddy, MD
Tasaduq Fazili, MD, FACP
Mitchell Brodey, MD

I. Educational Purpose

The general internist/hospitalist should be competent to evaluate and treat those patients with an infectious disease process as well as understand when a referral to an infectious disease specialist is appropriate. The general internist should also be well-trained in the choice of antimicrobial agents as well as the techniques of infectious disease prevention (i.e. handwashing). The housestaff will be exposed to the various causes of infectious disease (bacteria, fungi, viruses, and protozoa) and the bodily manifestations that result. Examples of the latter include meningitis/encephalitis, pneumonia/empyema, tuberculosis, infectious endocarditis, infectious colitis, urinary infections, bacteremia/septicemia, cellulitis, abscesses, soft-tissue infections, osteomyelitis, and sexually transmitted diseases. The housestaff will receive extensive training in the care of patients with HIV/AIDS. The housestaff will be trained in the evaluation and management of fever of unknown origin. The housestaff will also learn prevention techniques including handwashing, gowning/masking, instrument cleaning, as well as immunization schedules. The housestaff will be educated on antimicrobial decision-making including cost and pharmacodynamics/pharmacokinetics. The housestaff will gain a further understanding of immunology and its importance in infectious disease.

II. Learning Venue

A. Rotation description - The infectious disease consult service is a University Hospital-based service that will allow the housestaff officer to see patient’s ages 18 and older, of male and female gender, and of varying ethnicities/cultures. The service averages 6-10 patients and consists of the attending, a fellow, a senior resident and/or intern, and sometimes includes medical students.

Expectations of the PGY-1 and PGY-2: The resident will 1) complete detailed history and physicals on all consult patients and complete progress notes on a daily basis. 2) Have detailed knowledge of every patient on the service (up to 12 patients). 3) Be
expected to interpret basic laboratory and radiographic tests including the results of gram stains and cultures. 4) Be expected to teach the medical students on the service as well as further his/her own learning through the use of reading materials outlined below. Intellectual curiosity and evidence based patient care should be demonstrated. 5) Display professionalism and good communication skills with other team members, nursing, patients and families. 6) Work efficiently with nursing, social workers and case managers on quality and timely patient care.

Expectations of the Senior Resident, PGY-3: The senior resident will 1) demonstrate leadership and should model professionalism and good communication skills. 2) Continue to expand their knowledge of infectious diseases with the aid of the reading materials outlined below. (Active mentoring of evidence based pt care should be demonstrated thru the use of PICO’s, online searches and interpretation of newer studies) 3) model systems based practice competencies by working efficiently with nursing, social workers and case managers on quality and timely patient care.

B. Teaching Methods:
1. Daily Attending Rounds
The entire team (students, housestaff, fellow, and attending) will discuss patient issues and formulate consult recommendations. The team will be expected to have seen each of their assigned patients, collected all relevant data, and present in a concise, logical format to the attending.

2. Recommended Reading:

- Mandell, Douglas, Bennett; Principles and Practices of Infectious Diseases; 8th Edition; Churchill Livingstone 2014
- Bailey & Scott's Diagnostic Microbiology; 10th Edition; Mosby 1998
- Keceas, Crowe, Grayson, Hoy; The Use of Antibiotics; 5th Edition; Butterworth Heinmann 1997
- Sande and Volberding; The Medical Management of AIDS; 6th Edition 1999
- Mayo Clinic Proceeding Review of Antimicrobial Agents
- MKSAP for Infectious Diseases and AIDS
- Armstrong and Cohen; Infectious Diseases; Mosby 1999
- Goodman & Gilman's; The Pharmacological Basis of Therapeutics; 10th Edition; McGraw Hill 2002
- Yu, Merigan, Barriers; Antimicrobial Therapy and Vaccines; Williams & Wilkins 1999
- Dolin, Masur, Saas; AIDS Therapy; Churchill Livingstone 1999
- For recent studies and peer reviewed scientific literature visit the ACP online PIER site [http://pier.acponline.org/index.html?hp](http://pier.acponline.org/index.html?hp)

3. Unique Learning Opportunities:
ID Conference (Tuesdays from 4-5PM) – pre-determined topics are presented here by faculty and fellows.
Case Conference (Wednesdays from 4-5PM) – the faculty and fellows present infectious disease cases to the division.

Journal Club (Wednesday 3:30-4:00 pm) – the faculty and fellows review and critique articles relevant to their specialty.

Microbiology Rounds Wed and Friday at 1:30 – the team will meet with the clinical microbiologists to review material/studies relevant to the team’s patients.

Daily Pharmacology Rounds – the team will meet with a clinical pharmacologist to discuss the pharmacokinetics/pharmacodynamics and cost of antimicrobial agents being currently used on the service.

C. Mix of Diseases and Patient Characteristics

1. Common Clinical Presentations and Diseases:

   Central Nervous System
   - meningitis
   - encephalitis
   - brain/spinal cord abscess

   Respiratory
   - pneumonia (bacterial, fungal, viral)
   - Tuberculosis
   - empyema
   - sinusitis
   - bronchitis

   Skin/Soft Tissue
   - cellulitis/erysipelas
   - diabetic infections
   - abscesses

   Bone
   - osteomyelitis

   Cardiovascular
   - infective endocarditis
   - aortitis/vasculitis

   Genitourinary
   - pyelonephritis
   - cystitis
   - urinary infections

   Sexually Transmitted Diseases
   - Chlamydia
   - Herpes Simplex
   - Gonorrhea
   - Syphilis
   - pelvic inflammatory disease

   Reproductive
   - orchitis
   - epididymitis

   Gastrointestinal
- gastroenteritis
- colitis
- infectious diarrhea

Sepsis
Solid Organ Transplantation
- temporal occurrence of infections

Cancer Chemotherapy
- neutropenic fevers
Bioprosthesis Infections
Fever of Unknown Origin
Adult Immunization
Travel-Related Illness
Ophthalmologic Infections
Nosocomial Infections
HIV/AIDS
Illicit Drug-Related Infections

2. Procedures:
Gram staining and interpretation
Culturing and interpretation
Lumbar puncture
Thoracentesis
Paracentesis
Joint Aspiration
PPD testing and interpretation

III. Educational Content

<table>
<thead>
<tr>
<th>Central nervous system</th>
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<tbody>
<tr>
<td>Brain abscess</td>
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<tr>
<td>Encephalitis</td>
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<td>Meningitis</td>
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<td>Conjunctivitis</td>
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<td>Endocarditis</td>
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<tr>
<td>Fever of unknown origin</td>
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<tr>
<td>Fungal (histoplasmosis, coccidioidomycosis, cryptococcosis)</td>
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<tr>
<th>Gastrointestinal</th>
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<tr>
<td>Biliary tract infection</td>
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<td>Gastroenteritis</td>
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<td>Infectious diarrhea</td>
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<td>Liver abscess</td>
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<td>Peritonitis</td>
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<td>Viral hepatitis</td>
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<tr>
<th>Genitourinary</th>
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</table>
- Cervical cancer (HPV)
- Cervicitis, vaginitis
- Common sexually transmitted diseases (gonorrhea, chlamydia, trichomonas, herpes simplex, syphilis)
- Pelvic inflammatory disease
- Prostatitis, epididymitis
- Urethritis
- Urinary tract infection
- HIV disease *(see HIV Infection)*
- Infection in the immunosuppressed patient
- Lyme disease
- Malaria
- Pericarditis
- Otitis

**Respiratory**
- Acute epiglottitis, pharyngitis
- Empyema
- Pneumonia (community and nosocomial), bronchitis
- Sinusitis
- Upper respiratory infection

**Rheumatologic/musculoskeletal**
- Osteomyelitis
- Septic arthritis
- Rocky Mountain Spotted Fever
- Sepsis, septic shock syndrome

**Skin Infections**
- Cellulitis
- Folliculitis
- Ulcers
- Viral exanthems

**Tuberculosis**
- Active infection
- Positive tuberculin skin test

**Viral**
- Cytomegalovirus
- Herpes simplex infection
- Influenza
- Mononucleosis
- Varicella zoster infection

**AIDS-defining malignancies**
- Kaposi’s sarcoma
- Non-Hodgkin’s lymphoma
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<th><strong>Squamous cell carcinoma (cervix or anus)</strong></th>
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<td><strong>Cardiovascular Complications</strong></td>
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<td>Cardiomyopathy</td>
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<td>Myocarditis</td>
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<td>Pericarditis</td>
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<td><strong>Dermatologic complications</strong></td>
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<tr>
<td>Bacillary angiomatosis</td>
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<td>H. zoster</td>
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<tr>
<td>Kaposi’s sarcoma</td>
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<td>Molluscum contagiosum</td>
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<td>Scabies</td>
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<tr>
<td>Seborrheic dermatitis</td>
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<td><strong>Endocrine Complications</strong></td>
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<td>Hypoadrenalism</td>
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<td>Hypogonadism</td>
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<td>Hypothyroidism</td>
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<td>Lipodystrophy</td>
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<td><strong>Gastrointestinal complications</strong></td>
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<tr>
<td>Diarrhea</td>
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<tr>
<td>Esophageal candidiasis</td>
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<td>Esophageal ulcer disease</td>
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<td>Hepatomegaly, hepatitis, jaundice</td>
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<td>Wasting syndrome</td>
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<td><strong>General management</strong></td>
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<td><strong>Evaluation and management of early disease</strong></td>
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<td>Advance directives evaluation</td>
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<td>Assessment of alternative health practices</td>
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<td>Assessment of social support systems</td>
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<td>Monitoring progression to AIDS</td>
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<td><strong>Ongoing staging</strong></td>
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<td>Diagnosing AIDS-defining opportunistic infections</td>
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<td>Functional assessment</td>
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<td>Mental status evaluation</td>
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<td>Nutritional assessment</td>
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<td>Referral to case-management agencies</td>
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<td>Palliative and terminal care</td>
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<td>Pregnancy counseling (pretest, post-test, risk factors)</td>
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<td><strong>Gynecologic complications</strong></td>
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<td>Cervical dysplasia/neoplasia</td>
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<td>Pelvic inflammatory disease</td>
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<td>Vaginal candidiasis</td>
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<td><strong>Hematologic Complications</strong></td>
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<tr>
<td>Anemia</td>
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<tr>
<td><strong>Antiphospholipid antibody</strong></td>
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<td><strong>Immune thrombocytopenic purpura</strong></td>
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<td><strong>Thrombotic thrombocytopenia purpura</strong></td>
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**Infectious diseases (see also Preventive measures and specific organ-based complications)**

- Cytomegalovirus disease
- Mycobacterial disease
- *Pneumocystis carinii* pneumonia
- Syphilis (diagnosis, treatment)

**Neurologic complications**

- Central nervous system mass lesions
- Cryptococcal meningitis
- Dementia
- Myelopathy
- Myopathy
- Neurosyphilis
- Peripheral neuropathy
- Polyneuropathy
- Wasting syndrome

**Ocular Complications**

- Conjunctivitis
- Iritis
- Keratitis
- Retinitis

**Oral complications**

**Pregnancy counseling (pretest, post-test, risk factors)**

**Ongoing staging**

- Diagnosing AIDS-defining opportunistic infections

  - Functional assessment
  - Mental status evaluation
  - Nutritional assessment
  - Referral to case management agencies

- Palliative and terminal care

**Preventive measures**

- **Antibiotic prophylaxis**
- *Pneumocystis carinii* pneumonia
- Tuberculosis
- Antiretroviral drug therapy
- Immunizations
- *Mycobacterium avium* complex
- Protease inhibitor therapy
- Toxoplasmosis
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<th>Transmission of HIV</th>
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<tr>
<td>Psychiatric Complications</td>
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<td>Anxiety-panic disorders</td>
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<td>Depression</td>
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<td>Renal</td>
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<td>Lactic acidosis</td>
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<td>Renal tubular acidosis</td>
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IV. Method of Evaluation

Evaluations are based on the six core competencies. All team members are expected to complete formal evaluations at the end of each rotation using the web-based E-Value evaluation software. Mid rotation verbal feedback should be sought by residents. Residents at all levels of training are evaluated by their attendings, peers and students.

V. Rotation specific Competency Objectives – link to Competency based learning objectives document

A. Patient Care/Medical knowledge – this rotation offers concentrated learning in the areas of ID and HIV care. It also provides ICU based management of patients with infectious disease issues.

B. Professionalism – link

C. Interpersonal and communication skills – link

D. Practice based learning – link

E. Systems based practice – Residents have the opportunity to learn about coordinating long term care for HIV patients and also the use of indwelling catheters and their complications in the outpatient setting.

Reviewed and Revised by: Timothy Endy MD
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