

## **Infectious Disease Consult Service**

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:

Donald Blair, MD  
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### **I. Educational Purpose**

The general internist 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: The intern 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: 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

Here 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; 5th Edition; Churchill Livingstone 2000
- 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>

3. Unique Learning Opportunities:

HIV/AIDS Conference (Mondays from 8:30-9:30AM) – didactic sessions covering all aspects HIV/AIDS, but primarily devoted to care of the HIV/AIDS patient.

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 (once per month on Fridays 8-9AM) – the faculty and fellows review and critique articles relevant to their specialty.

Daily Microbiology Rounds – 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

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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

<i>Central nervous system</i>
Brain abscess
Encephalitis
Meningitis
Conjunctivitis
Endocarditis
Fever of unknown origin
Fungal (histoplasmosis, coccidioidomycosis, cryptococcosis)
<i>Gastrointestinal</i>
Biliary tract infection
Gastroenteritis
Infectious diarrhea
Liver abscess
Peritonitis
Viral hepatitis
<i>Genitourinary</i>
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
<i>Respiratory</i>
Acute epiglottitis, pharyngitis
Empyema
Pneumonia (community and nosocomial), bronchitis
Sinusitis
Upper respiratory infection
<i>Rheumatologic/musculoskeletal</i>
Osteomyelitis
Septic arthritis
Rocky Mountain Spotted Fever
Sepsis, septic shock syndrome
<i>Skin Infections</i>
Cellulitis
Follirulitis

Ulcers
Viral exanthems
<i>Tuberculosis</i>
Active infection
Positive tuberculin skin test
<i>Viral</i>
Cytomegalovirus
Herpes simplex infection
Influenza
Mononucleosis
Varicella zoster infection
<i>AIDS-defining malignancies</i>
Kaposi's sarcoma
Non-Hodgkin's lymphoma
Squamous cell carcinoma (cervix or anus)
<i>Cardiovascular Complications</i>
Cardiomyopathy
Myocarditis
Pericarditis
<i>Dermatologic complications</i>
Bacillary angiomatosis
H. zoster
Kaposi's sarcoma
Molluscum contagiosum
Scabies
Seborrheic dermatitis
<i>Endocrine Complications</i>
Hypoadrenalism
Hypogonadism
Hypothyroidism
Lipodystrophy
<i>Gastrointestinal complications</i>
Diarrhea
Esophageal candidiasis
Esophageal ulcer disease
Hepatomegaly, hepatitis, jaundice
Wasting syndrome
<i>General management</i>
<i>Evaluation and management of early disease</i>
Advance directives evaluation
Assessment of alternative health practices
Assessment of social support systems
Monitoring progression to AIDS
<i>Ongoing staging</i>
Diagnosing AIDS-defining opportunistic infections
Functional assessment
Mental status evaluation

Nutritional assessment
Referral to case-management agencies
Palliative and terminal care
Pregnancy counseling (pretest, post-test, risk factors)
<i>Gynecologic complications</i>
Cervical dysplasia/neoplasia
Pelvic inflammatory disease
Vaginal candidiasis
<i>Hematologic Complications</i>
Anemia
Antiphospholipid antibody
Immune thrombocytopenic purpura
Thrombotic thrombocytopenia purpura
<i>Infectious diseases (see also Preventive measures and specific organ-based complications)</i>
Cytomegalovirus disease
Mycobacterial disease
<i>Pneumocystis carinii</i> pneumonia
Syphilis (diagnosis, treatment)
<i>Neurologic complications</i>
Central nervous system mass lesions
Cryptococcal meningitis
Dementia
Myelopathy
Myopathy
Neurosyphilis
Peripheral neuropathy
Polyneuropathy
Wasting syndrome
<i>Ocular Complications</i>
Conjunctivitis
Iritis
Keratitis
Retinitis
Oral complications
Pregnancy counseling (pretest, post-test, risk factors)
<i>Ongoing staging</i>
Diagnosing AIDS-defining opportunistic infections
Functional assessment
Mental status evaluation
Nutritional assessment
Referral to case management agencies
Palliative and terminal care
<i>Preventive measures</i>
<i>Antibiotic prophylaxis</i>
<i>Pneumocystis carinii</i> pneumonia
<i>Tuberculosis</i>
Antiretroviral drug therapy
Immunizations

<i>Mycobacterium avium</i> complex
<i>Protease inhibitor therapy</i>
Toxoplasmosis
Transmission of HIV
<i>Psychiatric Complications</i>
Anxiety-panic disorders
Pain management
Depression
<i>Renal</i>
Lactic acidosis
Renal tubular acidosis

#### **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.

Updated 10/05 by Dr's Childres and Frechette

## **Infectious Disease Division Consultation Service Purpose, Structure, Organization and function, Priorities, Logistics**

### **I. Purpose of the ID Consultation Service**

- To provide expert consultation regarding patients with possible infectious diseases
  - The diseases
  - The therapy
    - Clinical considerations and judgment

- Pharmacotherapeutic considerations
  - Cost effectiveness considerations
  - Antibiotic resistance considerations
  - Microbiologic spectrum considerations
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- To provide a quality educational experience to trainees
  - Department of Medicine residents
  - UMU Medical Students
  - Department of Pharmacy trainees
  - Clinical Microbiology trainees
  - Visiting residents and students

## **II. Structure, Organization and Function**

- The ID Consultation service is directed by an I.D. Attending physician. The Attending directs the ID Fellow, Medicine Residents, Medicine Students.
  - Consultations
  - Reviews previous days antibiotic approval, case by case, teaching.
  - Progress notes
  - Oversees ID consult rounds
  - Didactic talks and other educational exercises at ID consult rounds
  - Case Discussions
  - Oversees interaction with Department of Pharmacy
- The Department of Pharmacy assigns a liaison Attending Pharmacist who
  - Directs the Pharmacy Trainees
  - Coordinates the Pharmacy interaction with ID Consult Service
  - Didactic talks to ID consult rounds
  - Oversees the monitoring of the antibiotic approval process, from the Pharmacy perspective

## **III. Availability of laboratory data:**

- Each day's Microbiological data are often not ready until late-morning, although the majority of hematologic and chemistry data are available quite early.
- There is a time tension between obtaining daily lab data and beginning consult rounds. Thus, it is difficult to conduct early rounds, and most days they begin at 11:00 or somewhat later.
- Educationally, the trainee (resident, student) traditionally has the opportunity to acquire the daily data (lab and clinical), examine the patient, and formulate an

opinion prior to the ID Attending becoming involved. This has been viewed as providing the milieu for a desirable progression of responsibility for learning.

- The number of persons on the service to perform the data accrual/patient examination varies a great deal: new residents, experienced residents, no residents; new fourth year students; no students; new fellow, experienced fellow, no fellow. The common denominator is the Attending.
- Each ID Attending has ongoing responsibilities, and occasional responsibilities; and, these differ from Attending to Attending, making standardization difficult. Thus the timing of rounds may differ from rotation to rotation; but within a rotation they are reasonably fixed, and always announced the previous day.
- Similarly, the Pharmacy Attending has regular and occasional constraints on his availability.

#### **IV Clinical Microbiology interface**

- Clinical Microbiology Rounds at 1:30 have long been a vital component of ID training, although currently in abeyance because of faculty staffing in the Clinical Microbiology laboratory. The Fellow is to be present at each Clinical Microbiology Rounds, and asserts himself/herself as leader of the ID group. The ID Group volunteers clinical information on cases being discussed, and on other cases which might be of microbiologic interest.
  - ID Fellows, residents and students arrive at this conference with formulated lists and questions regarding cultures on specific patients.

#### **V. DAC patients in the ED**

- If a fellow is called about an HIV-positive patient in the ED, immediately ascertain if he/she is a DAC patient: Check DACIS and/or check on CAIS for DAC notes.
- If he/she is a DAC patient, call Craig and ask that the NP assigned to that patient come to the ER as soon as possible, with copies of the DAC records. You may also wish to talk with the NP directly.
- Evaluate the patient, and confer with the NP as to whether admission is necessary. Frequently it is not.

#### **VI. Call from an outside physician requesting consultation or transfer of patient.**

- Do NOT engage the physician in a discussion/presentation of the case.
- DO ascertain the physician's opinion as to urgency: Routine, call tomorrow; Urgent, Within xx hours; Emergent, ASAP. Get the physician's name, phone number.
- DO inform the physician that the ID Attending will call him.

- During the day, call Craig, give him the information, and he will contact the ID Consult Attending
- Evenings and weekends, the Fellow will call the Attending immediately for urgent and emergent calls; Routine calls can be transmitted when the Fellow and Attending next meet.

## **VII Need for Fellows to come to the hospital evenings, nights.**

- Remaining at home and seeing the patient the next day is not a priority goal of the fellowship, and is not a “Right”
- No rule can cover all cases.
- In general, the Fellow must come in when:
  - The calling physician clearly needs help.
  - Certain diagnoses: Endocarditis, meningitis. Call the ID Attending before you leave home to go in. [If such a consult is received during the day, call the Attending before you go to evaluate the patient. Attending involvement asap is highly desirable.]
- In general, the Fellow need not come in for:
  - Routine, uncomplicated issues which can wait until morning.
  - “Punitive” or convenience consults:
    - “If you won’t give me the drug I want, come see the patient now.”
    - “The patient is going home tomorrow; we want a note tonight (for a call after 5:00); Seeing such a patient first thing the next morning is a priority, however.
    - “My Attending wants a note on the chart tonight”, and it does not meet above criteria
  - Remember: For the above situations, and for antibiotic approvals, it is not the Fellow’s responsibility to resolve the issue. He should deliver his/her measured message, then tell the team “If you wish further discussion, have your Attending call my Attending”

## **VIII Inappropriate behavior toward a Fellow:**

- There have been rare cases of verbal abuse of the Fellow. If this is happening, say quietly but firmly: “This is an inappropriate discussion. Please have your attending call Dr. \_\_\_\_\_”, if it is a resident; or, “Please call Dr. \_\_\_\_\_”, if it is an attending (Give the ID Attending’s name, of course.). You should immediately contact the ID Attending, and give him/her a ‘heads up’. All such situations should be reported to Dr. Blair the next day, or right then if his input is desired.

## **IX Teaching Residents and Students.**

- Part of the graduated responsibility essential to fellowship training is the teaching of trainees.

- The Fellow should assign patients, meet briefly with the trainee before rounds to hear about the patient, should initiate discussions and teaching sessions about patients being followed, should read the trainees' notes, and critique them. etc.
- The Fellow should orient each beginning trainee as to teaching conferences, where schedules are posted, etc.