

## UNC Hospitals Outpatient ID Clinic Curriculum

### I. Description of Rotation

*Site:* The UNC ID Clinic is located on the 5<sup>th</sup> floor of the UNC Eastowne Medical Offices Building approximately 11 minutes-drive from the main hospital campus. There are 16 examination rooms, two nurses' stations, ample well-equipped workspace for clinical providers, a telehealth room, two private counseling rooms and office space for the Outpatient Parenteral Antimicrobial Therapy (OPAT) team, ID social workers, financial counselors, and a research screener. Fellows will attend the Infectious Diseases Clinic for 1/2 day per week for 96 weeks under the supervision of 1-2 attendings. Of the 35 ABIM-certified ID Faculty at UNC Hospitals, 20 attend in the UNCCMC ID clinic, all of whom enthusiastically welcome our fellows. Fellows are usually paired with the same attending throughout the 1<sup>st</sup> year of fellowship and then with a different attending throughout their 2<sup>nd</sup> year.

- II. On an average day, fellows will see 5 - 7 patients per 1/2 day clinic session. Clinic slots are assigned to visits with patients who have HIV/viral hepatitis and patients who have other infectious diseases so as to ensure an appropriate ID training experience that includes development of expertise in providing continuity care for people living with HIV. The General ID patients include people who need continued outpatient follow-up after discharge from the hospital, patients receiving OPAT, and new patients referred for outpatient consultation.

*Clinic Day:* Our ID Clinic team is multidisciplinary and includes nurses, medical assistants, social workers, a nutritionist, ID advanced-practice providers (APPs), ID physicians, and psychiatrists who collaborate to provide comprehensive care for our patients. ID Fellows initially see the patients by themselves, review their electronic medical record, obtain new history, perform a focused physical exam, formulate a diagnostic or treatment plan and present this information to their attending. The attending then sees the patient and engages the fellow in clinical assessment and decision-making.

*Evaluation:* There is informal and formal assessment of the fellows' skills, including ongoing feedback from the attending during/after clinic including history and physical exam skills, collection of relevant clinical data, differential diagnosis, diagnostic and treatment plans, and communication with patients and caregivers. Attendings also review, edit, and sign all outpatient initial and follow-up notes of the ID Fellows. The attending formally communicates feedback twice each year to communicate strengths and areas for improvement in ACGME milestone competencies. These evaluations are reviewed with the PD and discussed with the fellows individually.

- III. **Goals of the Rotation:** The fellows should be able to:

- a. Manage continuous care of more than 25 HIV patients per year and evaluate 50 individual patients living with HIV during their training to become familiar with antiretroviral therapy (ART), resistance mutations, non-AIDS complications of HIV, prophylaxis and

treatment of opportunistic infections, and health maintenance for people living with HIV.

- b. Learn ACIP guidelines for adult vaccination and immunization and apply them
- c. Manage patients receiving out-patient intravenous antimicrobials
- d. Provide necessary care to ID consult patients requiring on-going follow-up
- e. See new outpatients in consultation across the spectrum of Infectious Diseases.

### **III. Core Competencies**

#### **a. Patient Care - Fellows will:**

- a) Gather essential, accurate, comprehensive diagnostic information and carry outpatient management plans
- b) Use an evidence-based decision-making process when selecting appropriate antimicrobial therapy including Infectious Diseases Society of America guidelines for anti-infectives
- c) Use information technology to support patient care decisions and patient education
- d) Use evidence-based guidelines when incorporating elements of prevention into management plans
- e) Provide patient-focused care in collaboration with other health care professionals, including those from other disciplines
- f) Incorporate social determinants of health appropriately in evaluation of patients' concerns, disease processes, and treatment plans
- g) Make informed decisions about diagnostic and therapeutic interventions based on patient information and preferences, up-to-date scientific evidence, and clinical judgment
- h) Provide health care services aimed at disease prevention

#### **b. Medical Knowledge - Fellows will:**

- a) Demonstrate knowledge of established and evolving biomedical, clinical, epidemiological, and social-behavioral sciences, as well as the application of this knowledge to patient care.
- b) Demonstrate the scientific method of problem solving and evidence-based decision making,
- c) Be proficient in the prevention, diagnosis, and management of the following infectious disease areas:
  - (1) bacterial infections
  - (2) fungal infections
  - (3) viral infections, including HIV and hepatitis
  - (4) parasitic infections
  - (5) mycobacterial infections
- d) Demonstrate the method infectious diseases clinicians take in their approach to the following groups of patients (diagnosis, prevention, management):
  - (1) The febrile outpatient, including FUO
  - (2) Febrile patients with prominent cutaneous manifestations
  - (3) Skin and soft tissue infections, including cellulitis and necrotizing fasciitis
  - (4) Immunization recommendations for outpatients
  - (5) Bone and joint infections including septic arthritis (native and prosthetic joints) and osteomyelitis

- (6) Management of upper and lower respiratory infections including pleuropulmonary infections
  - (7) Diagnosis and treatment of gastrointestinal and intraabdominal infections
  - (8) Management of urinary tract infections
  - (9) Diagnosis and management of sexually transmitted infections in outpatients, including patient counseling, contact tracing, and public health control measures
  - (10) Infections and other complications in patients with HIV/AIDS
  - (11) Infections related to trauma
  - (12) infections in outpatients with impaired host defenses (neutropenic, HIV, underlying malignancies, solid organ and BM Transplant recipients) in contrast to normal hosts
  - (13) infections in post-surgical patients
  - (14) infections in travelers
  - (15) infections of reproductive organs
- e) Demonstrate knowledge of:
- (1) Management of Infectious Disease emergencies (e.g. sepsis)
  - (2) Management of vector-borne illnesses and zoonoses
  - (3) Identification, recognition, and initial management of disease entities which mimic infectious diseases, such as Behçet's disease, Sweet's syndrome, pyoderma gangrenosum, Still's disease, and pulmonary hypersensitivity syndromes
  - (4) Mechanisms of action and adverse reactions to antimicrobial agents; antimicrobial and antiviral resistance; drug-drug interactions between antimicrobial agents and other compounds; the appropriate use and management of antimicrobial agents in the clinic
  - (5) Appropriate procedures for specimen collection relevant to infectious disease, including but not limited to bronchoscopy, thoracentesis, arthrocentesis, lumbar puncture, and aspiration of abscess cavities;
  - (6) principles of prophylaxis and immunoprophylaxis to enhance resistance to infection
  - (7) characteristics, use, and complications of antiretroviral agents, mechanisms and clinical significance of viral resistance to antiretroviral agents, and recognition and management of opportunistic infections in patients with HIV/AIDS;
  - (8) fundamentals of host defense and mechanisms of microbial pathogenesis
  - (9) Appropriate infection control measures when patients have suspected or proven infections that can be readily transmitted to others such as tuberculosis, MRSA, influenza
- f) Demonstrate the ability to:
- (1) Recommend appropriate pre-travel vaccinations and malaria prophylaxis to patients traveling to South America, Africa, and Southeast Asia
  - (2) Manage pre-treatment screening and infection prophylaxis for patients receiving solid organ transplants or immunosuppressive therapy
  - (3) Manage health maintenance on long term patients with HIV infection including management of comorbidities (hepatitis, diabetes, hypertension, hyperlipidemia), prophylaxis of opportunistic infections
  - (4) Recognize easily communicable diseases such as tuberculosis, STIs, influenza, VZV, meningococcal meningitis, MRSA, C diff infection and

understand how to implement methods to prevent transmission as well as how to treat them

(5) Manage patients with chronic infections diagnosed on the inpatient service and discharge to the ID Clinic

(6) Diagnose and manage tuberculosis as well as recommending prophylaxis to family members and other exposed people

c. . *Practice-Based Learning and Improvement* Fellows will

a.) demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and life-long learning.

b.) Systematically analyze practice, using quality improvement methods and implement changes with the goal of practice improvement

c.) Incorporate formative evaluation feedback into daily practice

d.) Locate, appraise, and assimilate evidence from scientific studies related to their patients' health problems and apply new information to the management and care of their patients

e.) Use information technology to optimize learning including accessing databases of relevance to the care and management of individuals with infectious diseases

g.) Assess the clinical efficacy of current and novel antimicrobial therapies and their appropriate utilization in different patients and clinical settings

h.) Learn about new immunosuppressive therapies (i.e., TNF alpha antagonists) and the risks for infection that they impart

i.) Evaluate adherence of HIV infected patients to their therapies and propose methods to improve

d. *Interpersonal and Communication Skills* Fellows will:

a.) Demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals.

b.) Communicate effectively with patients, families, and the public, as appropriate, across a broad range of socioeconomic and cultural backgrounds

c.) Communicate effectively with physicians, other health professionals, and health related agencies

d.) Work effectively as a member or leader of a health care team or other professional group

e.) Act in a consultative role to other physicians and health professionals

f.) Maintain comprehensive, timely, and clear medical records

g.) Inform patients about their diagnoses and outline a proposed treatment strategy

h.) Notify public health authorities about reportable diseases such as meningococcal meningitis

i.) Counsel patients effectively about the risks of injection drug use to themselves and others, as well as harm reduction strategies to minimize those risks

j.) Respond in a knowledgeable fashion when other health professionals request information about antimicrobial use and direct them to appropriate web sites to gather additional information as needed

k.) Counsel patients effectively about risks of travel to specific geographic locales and provide them with effective preventive measures to minimize risks of infection

- l.) Document interventions in the medical record and keep an accurate immunization record
- m.) Counsel and educate patients and their families
- n.) Participate in the education of patients, families, students, fellows and other health professionals
- o.) Educate immunocompromised patients about environmental risks

e. *Professionalism* Fellows will:

- a.) demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles, including
  - (1) Compassion, integrity, and respect for others
  - (2) Responsiveness to patient needs that supersedes self-interest
  - (3) Respect for patient privacy and autonomy
  - (4) Accountability to patients, society, and the profession
  - (5) Sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation
  - (6) High standards of ethical behavior which includes maintaining appropriate professional boundaries, including relationships with other physicians and conflicts of interest
  - (7) Informing patients about stigmatizing diagnoses without being judgmental or pejorative
  - (8) Willingness to evaluate patients with illnesses such as tuberculosis or SARS that may pose some element of risk to the provider

f. *Systems-Based Practice* Fellows will:

- a. Demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care.
- b.) Work effectively in various health care delivery settings and systems relevant to infectious diseases
- c.) Coordinate patient care within the health care system relevant to clinical management of infectious diseases
- d.) Incorporate considerations of cost awareness and risk-benefit analysis in patient and/or population-based care as appropriate
- e.) Advocate for quality patient care and optimal patient care systems
- f.) Work in interdisciplinary teams to enhance patient safety and improve patient care quality
- g.) Participate in identifying system errors and implementing potential systems solutions
- h.) Understand and participate in the development of appropriate antibiotic utilizations and restriction policies
- i.) Participate in the management of outpatient antibiotic therapy, including interaction with pharmacy, nursing, and other home care services
- j.) Know when to contact public health officials if patients have a reportable communicable disease such as tuberculosis
- k.) Know how to acquire medications from the CDC or other sources to treat infections for which there are no commercially available therapies

- I.) Work with the financial counselor and the social worker to facilitate financing for HIV patient's medications
- m.) Demonstrate an ability to utilize public health resources when providing travel advice and counseling

#### **IV. Teaching Methods**

- a. Individual interactions with attending
  - All fellows will be working one-on-one with a board certified ID Attending in the ID Clinic with whom they will discuss patient assessment and plans.
  - Given the nature of the interaction, the opportunity for directed, patient-centered teaching is immediately available.
- b. Required reading
  - Fellows will be provided with a textbook reference and with access to a web-based travel information site (see below) and encouraged to perform reading on core topics throughout the course of the 2 years and prior to each clinic
- c. Independent reading
  - It is expected that fellows will perform focused, independent reading following clinic on topics and problems encountered that day in clinic

#### **V. Assessment Method (Fellows)**

- a. Semiannual evaluations completed by their clinic supervising attending
- b. 360° evaluations completed by the clinic staff and patients.

#### **VI. Assessment Method (Program)**

- a. Annual (anonymous) evaluations completed by the fellows and attendings
- b. Performance of the fellows on the In Service Training Examination
- c. Performance of the fellows on the ABIM Infectious Diseases Board Examination

#### **VII. Level of Supervision**

- a. Fellows will be directly supervised in clinic by their attending who will be onsite and will evaluate patients after they have been seen by the fellow.
- b. All individual patient assessments and plans will be discussed personally with the supervising attending, who will modify plans as needed.

#### **VIII. Educational Resources**

- a. *Principles and Practice of Infectious Diseases* (Mandell, et al, eds.)
- b. *PubMed*
- c. *Inf Dis Society of America Guidelines* [www.idsociety.org](http://www.idsociety.org)
- d. US Public Health Service Guidelines [www.cdc.gov](http://www.cdc.gov)
- e. CDC STI Guidelines <https://www.cdc.gov/std/treatment-guidelines/default.htm>
- f. HIV Treatment Guidelines [www.aidsinfo.nih.gov](http://www.aidsinfo.nih.gov)