January 2019

Goals and Objective for the Infectious Disease Rotation

The Infectious Disease rotation takes place at the Health Sciences Centre and St. Clare's Mercy Hospital. Residents are responsible for seeing and following-up on in-patient ID consults at both sites. Time permitting, they will also attend out-patient general ID clinic, as well as HIV clinic at Major's Path Clinic. Residents are expected to do at least one case presentation during their rotation at ID noon rounds on Mondays. Clinical learning will be supplemented by completing a series of formative Learning Cases, which will be reviewed with the attending staff.

It is expected that trainees will demonstrate ongoing development in each of the CanMEDS roles such that the depth, sophistication, efficiency and proficiency of their performance increases with experience. Review of rotation objectives will be done in conjunction with creation of a learning contract at the beginning of the rotation. Trainees completing the program should expect to achieve the key competencies described. This will be documented using an end of rotation in-training evaluation report (ITER). In accordance with CBD principles, all residents are required to submit EPA assessments with documented narrative coaching via the MUNCAT app per week to evaluate and guide their progress. This will also be documented using an end of rotation in-training evaluation report (ITER) or longitudinal rotational assessment, depending on the applicable resident curriculum.

In addition to the rotational objectives and key competencies described below, the following EPAs may be covered during the Infectious Diseases rotation. These will depend on the learner's stage of training, progress and individual learning needs. The learning contract and rotational goals created at the beginning of the rotation can help specify which EPAs the learner may want to focus on throughout their rotation.

Transition to Discipline:

TD1: Performing histories and physical exams, documenting and presenting findings, across clinical settings for initial and subsequent care

Foundations:

F7: Identifying personal learning needs while caring for patients, and addressing those needs

Core:

C1: Assessing, diagnosing, and managing patients with complex or atypical acute medical presentations

C2: Assessing and managing patients with complex chronic conditions

C3: Providing internal medicine consultation to other clinical services

C7: Discussing serious and/or complex aspects of care with patients, families, and caregivers

MEDICAL EXPERT

1. **Medical History**
   Elicit a history that is relevant, concise, accurate, and appropriate to the patient's health problem(s). This includes other medical conditions, animal and vector exposures, sexual practices, street drug and needle use, prior infections, recent hospitalizations and prior surgeries, immunization history, use of immunomodulator drugs, antimicrobial use and allergies, occupational background, travel, and hobbies.

2. **Physical Examination**
   Perform a physical examination that is relevant and appropriate, including examination of the lymphatic system and skin and mucous membranes.

3. **Diagnostic Tests**
   a. Select appropriate laboratory (haematology and biochemistry) and diagnostic imaging (radionuclide, CT, MRI, and plain films) to diagnose infection.
   b. Appropriately order and properly interpret the results of microbiologic tests (gram stains, culture and susceptibility, acute and convalescent serologies, antibiotic levels, and quantitative viral load).

4. **Clinical Diagnosis/Decision**
   Analyse, synthesize, and integrate all relevant data to formulate a rational and effective diagnostic and therapeutic strategy for the patient's illness, focusing on the presence or absence of infection, and the appropriate antimicrobial and adjunctive therapies.

5. **Documentation/Presentation**
   a. Document well organized, complete, and legible histories and physical examinations in the written medical record.
   b. Deliver well organized, precise, clear, and coherent oral presentations of the patient's history and physical examination.

6. **Procedural Skills**
   There are no specific procedural skills to this rotation.

7. **Consultation Skills**
   Effectively communicate recommendations focused on the diagnosis and treatment of infection, recognizing the relevance of the patient's other medical and surgical conditions.

8. **Medical Knowledge**
   a. Familiarity with the etiology, epidemiology, pathogenesis, clinical features, diagnostic tests, and treatment of:
   - i. community-acquired lower respiratory infections
   - ii. central nervous system infections, including meningitis, encephalitis, and brain abscess
   - iii. endovascular infections including endocarditis and graft infections
   - iv. pyelonephritis and complicated urinary tract infections
   - v. infectious diarrhea
   - vi. tuberculous and non-tuberculous mycobacterial infections
   - vii. sexually transmitted infections
   - viii. infections in immigrants/refugees and travellers
   - ix. health care-associated infections, including postoperative infections
   - x. human immunodeficiency virus (HIV) infection and its complications

xi. infections in the neutropenic host and solid organ and hematopoietic stem cell transplant recipient
xii. skin and soft tissue infections, including necrotizing soft tissue infections
xiii. bone and joint infections including septic arthritis, osteomyelitis, and discitis
xiv. infections of the liver and biliary tree, including viral hepatitis and liver abscess

b. Clinical and laboratory approach and differential diagnosis of complex problems in which infections may play a role, such as:

i. fever of unknown origin
ii. acute rapidly progressive illness perhaps due to sepsis from an undefined site; sepsis, systemic inflammatory response syndrome and multiple organ dysfunction syndrome
iii. pulmonary infiltrates of uncertain etiology
iv. post-operative fever

c. Principles and practice of prevention of infection by immunization and chemoprophylaxis. This should include the indications, contraindications, and adverse effects of:

i. passive and active immunization for hepatitis A and B, varicella, tetanus
ii. pneumococcal, meningococcal, *H. influenzae* and influenza vaccination
iii. chemoprophylaxis and immunization for invasive meningococcal disease exposure

d. Antimicrobials and other therapies in infectious diseases:

i. classification
ii. pharmacokinetics and pharmacodynamics in the normal and abnormal host
iii. mechanism of action
iv. mechanism of resistance
v. toxicity and drug interactions
vi. clinical indications and use
vii. principles of pharmacoeconomics

9. Emergency Management

Identify and respond promptly and effectively to the following infectious diseases medical emergencies: sepsis, malaria, meningitis, fever in the neutropenic patient, necrotizing soft tissue infection.

10. Evidence-based Practice

Apply evidence-based investigative strategies and treatments to the management of the patient with an actual or potential infection.

COMMUNICATOR

Verbal communication

1. Patients/Families

Establish and maintain the rapport required to elicit a detailed history, including issues which may be of a sensitive nature. Aware of age, ethnic, gender, spiritual, and cultural differences and values, as well as differing definitions of family. Sensitive to the confidentiality and privacy concerns of patient and family. Develop a respectful and trusting relationship that will facilitate an effective management plan to meet the patient's goals and expectations. Use terminology and language that the patient and family will understand. Listen effectively and respond appropriately to concerns.

2. Consulting Physicians/Service/Team
Communicate clearly, concisely, and in a timely manner with other physicians in order to effect an appropriate diagnostic and treatment plan. Recognize the primary role of the consulting team in the patient's management.

3. Other Health Care Professionals
Communicate in a timely and professional manner with other health care professionals in order to acquire collateral and/or additional information about the patient's condition and to develop and implement a treatment plan. Communicate with other health professionals in a manner that facilitates the delivery of consistent messages to the patients and their families.

Written communication

4. Initial Consultation
Provide a comprehensive, but succinct, legible written summary of the history and physical examination, and of the suggested management of the question asked by the consulting service/team/physician for review and endorsement by the infectious diseases staff physician.

5. Progress Notes and Orders
See patients daily as needed with appropriate and timely written suggestions for the infectious disease management. Orders are legible and written as suggestions for endorsement by the consulting physician/service/team.

COLLABORATOR

1. Patients/Families
Develop a collaborative relationship with patients and families, recognizing their important roles in decision-making and treatment adherence. Enlists the participation of patients and their families in their care, including education about their illness and its management and in research opportunities.

2. Other Health Professionals
Establish and maintain respectful working relationships with other physicians and health professionals, recognizing the unique and essential skills that they bring to the care and education of patients and their families. In particular, learn the roles played by medical microbiologists and technologists, infection control and prevention professionals, and public health nurses and physicians. Demonstrate the ability to accept, consider and respect the opinions of other health professionals.

LEADER

1. Medical Management
Able to manage the common, multisystem, or undifferentiated infectious disease problem (actual or potential) experienced by patients, integrating that management into the overall care of the patient. Access and apply a broad base of information to the care of patients in ambulatory care, hospitals and other health care settings, including knowledge of the most cost effective laboratory procedures.

2. Resource Utilization
Knowledge of the structure of the health care system to understand how care is financed and organized. Work effectively and efficiently in a health care organizations. Make

appropriate and efficient use of health care resources. Consider the pre-test probability of disease when ordering diagnostic tests. Understand the likely cost-effectiveness of treatment strategies. Appreciate the cost effectiveness of many infection prevention strategies, particularly immunization. Utilize information technology to optimize patient care, life-long learning and other activities. Practice time management skills including punctuality, prioritization and triage. Maintain a balance of work and personal activities.

3. Leadership skills

Able to work effectively with the infectious disease consulting team. Is a role model to and a resource for other team members, particularly junior housestaff. Present a positive image of the infectious disease consulting service to those requesting advice. Make and defend clinical decisions and judgements based on sound clinical evidence for the benefits of individual patients and the population served.

SCHOLAR

1. Self-directed Learning

Utilize infectious diseases textbooks, journals, and other learning tools as suggested by attending staff and colleagues. Prepare in advance for the infectious disease learning exam. Independently seek information around patient problems prior to presenting at rounds. Begin to develop a personal continuing education strategy to maintain and advance professional competence in infectious diseases relevant to career path.

2. Critical Appraisal Skills

Able to critically appraise studies reported in the medical literature in terms of validity and applicability.

3. Teaching/Supervisory Skills

Facilitate and contribute to the learning of patients, housestaff, students, attending staff, and other health professionals on both the consulting service and the infectious diseases consultation team. Demonstrate an understanding of preferred learning methods in dealing with students, residents, and colleagues. Provide constructive feedback.

4. Scholarly Activity

Participate in ID case rounds, including presentation of clinical cases and syndromic or disease specific reviews of infectious diseases.

HEALTH ADVOCATE

1. Risk Factor Identification

Identify personal and environmental risk factors for acquiring infection such as sexual behaviours, use of recreational drugs, exposures to vectors, animals, contaminated food or water, community outbreaks, and recent contact with the health care system. Recognize the role of the determinants of health in the patient's wellbeing.

2. Appropriate Response

Identify and promote to patients, families, and other health professionals strategies to ameliorate or avoid exposure to infectious agents, such as personal risk reduction behaviours, immunization, home and personal hygiene, and infection control. In all health care settings, promote and practice proper infection control and prevention measures. Knowledgeable of when to contact public health and infection control personnel regarding

communicable infections. Optimize use of antimicrobial agents to minimize the emergence of antimicrobial resistant organisms.

3. Knowledge/Promotion of Available Resources

Aware of local and national, private and public sources of information and other resources regarding infection prevention and control measures and shares this with patients, families, and other health professionals.

PROFESSIONAL

1. Attitudes, Values, Behaviours

Deliver the highest quality care with integrity, honesty, and compassion. Recognize the responsibility a physician has for the patient's care. Exhibit proper personal and interpersonal professional behaviours. Adopt specific strategies to heighten personal and professional awareness and explore and resolve interpersonal difficulties in professional relationships. Demonstrate flexibility and a willingness to adjust to changing circumstances.

2. Ethical Practice

Practise medicine ethically, consistent with the obligations of a physician. Know and understand the professional, legal and ethical codes to which physicians are bound; these include issues of confidentiality (eg; results of HIV and STD tests) and consent. Demonstrate appropriate conduct when interacting with industry, including the manufacturers and distributors of antimicrobials and diagnostics products. Recognize, analyse and attempt to resolve in clinical practice ethical issues such as honesty, reliability, informed consent, advanced directives, confidentiality, end-of-life care, conflict of interest, resource allocation, and research ethics.

3. Self-assessment Skills

Demonstrate insight into limitations of knowledge. Use appropriate strategies to maintain and advance professional competence. Evaluate continually one's abilities, knowledge and skills and know one's limitations of professional competence and exhibit a willingness to call upon other with special expertise whenever appropriate. Responsive to constructive feedback when errors in diagnosis or treatment are identified.