Goals and Objectives for Pathology Resident in Infectious Disease

GENERAL OVERVIEW

Infectious Diseases is a subspecialty of Internal Medicine that takes the clinical skills and approach of General Internal Medicine and combines it with microbiologic principles. At times, the Infectious Diseases consultant acts as the liaison between the clinical service and the Microbiology Laboratory. At other times, they help the laboratory differentiate between clinically relevant and irrelevant specimens.

As this is a consultation service, the main role of the resident is to see a series of consultations under the supervision of the attending physician. The consultations are performed as requested. As well, the resident should visit both the Hematology floor (5 west) and the ICU once or twice during the day to ensure that there are no infectious diseases concerns.

Tasks and Responsibilities:

1. Residents are expected to attend:
   i. a weekly microbiology lab teaching session, when these sessions are available.
   ii. weekly Infectious Diseases Teaching Rounds (Tuesday at noon) - alternate between the General and Civic Campuses, and CHEO
   iii. weekly Infectious Diseases Case Rounds (Fridays at 1pm) – General Campus
   iv. weekly Infectious Diseases and Medical Microbiology Journal Club (Fridays at 8am) – General Campus

2. Residents rotating through the ID Hem/ICU Service may be expected to contribute to one noon rounds presentation per block with the residents and medical students rotating through the regular ID Consultation Service.

3. Residents may be given the opportunity to participate in clinical research under the direction of the attending physician.

4. In order for the resident to be evaluated, they must be present and working for 14 days of the block rotation.

Resources:

The Infectious Diseases Resident’s Room, as well as the offices of the ID attending physicians have fairly extensive files on a wide array of infectious diseases topics. When a consultation is seen, residents rotating through the Infectious Diseases HEM/ICU Service are
free to look through copies of these files for appropriate articles. If any of them may be useful for a particular patient, a copy can be made. As well, a copy of any interesting articles may be worthwhile to append to the chart. All of the attending physicians have basic textbooks on infectious diseases which can also be reviewed at any time.

Computers are readily available on all wards and in the Infectious Diseases Resident’s Room.

Medical Library access is granted to all residents 24 hours/day.

**How to write an appropriate consult note:**

a) A consultation is **not** a re-hash of the chart.

b) Consultation notes should briefly summarize the patient’s relevant history with emphasis on ID-associated problems of travel history, STDs, animal exposure, previous antibiotics and antibiotic allergies.

c) Physical exam should emphasize significant positive and negative findings.

d) Only pertinent lab data should be summarized.

e) A consultation is requested for your opinion and suggestion. Therefore, a thorough summary discussion of the problem and recommendation should be emphasized. This often requires supplementary reading and appending or citing references is often helpful for the education of the resident and that of who will read the consultation note.

**MEDICAL EXPERT**

*Elements*

1. The etiology, epidemiology, pathogenesis, natural history, pathology, clinical features, prevention and management of bacterial, viral, parasitic, fungal and mycobacterial infections occurring in the following special hosts:

   1. more specialized concentrations of higher risk infectious diseases patients, including those immune-compromised after HSCT, hematopoietic stem cell transplants, those with hematologic malignancies and underlying hematological pathology

   2. infections in critically ill hosts

2. Clinical and laboratory approach and differential diagnosis of complex problems in hematology and critical care (ICU) patients in which infections may play a role, such as:

   1. fever of unknown origin

   2. febrile neutropenia

   3. acute rapidly progressive infectious illness
4. sepsis from an undefined site; sepsis, systemic inflammatory response syndrome and multiple organ dysfunction syndrome

5. pulmonary infiltrates of uncertain etiology

6. post-operative fever

7. recurrent/relapsing infections/fever

8. invasive fungal infections

3. The study of microbes and proteinaceous particles to include:
   1. an understanding of pathology, virulence factors, life cycles, taxonomy, structure/physiology, pathogenesis of organisms occurring in this subset of patients

4. Immunology, including:
   1. details of innate and adaptive immunity
   2. pathogenic mechanisms by which immune responses facilitate or prevent disease, including the role of cytokines

5. Principles and practice of prevention of infection. This should include the indications, contraindications, efficacy, effectiveness, and adverse effects of:
   1. environmental and behavioural interventions (i.e. handwashing, sterilization)
   2. surveillance for nosocomial infection and infections of public health importance

6. Antimicrobials and other therapies in infectious diseases:
   1. classification
   2. pharmacokinetics and pharmacodynamics in the normal and abnormal host
   3. mechanism of action
   4. mechanism of resistance
   5. toxicity and drug interactions
   6. clinical indications and use
   7. principles of pharmacoeconomics

7. Principles of epidemiology as they relate to infectious diseases:
   1. characteristics of diagnostic tests, for example sensitivity, specificity and positive predictive value
   2. basics of study design
3. critical appraisal
4. outbreak investigation

Key Competencies

Residents who rotate through the ID HEM/ICU Service should be able (and are expected to):

1. elicit a history that is relevant, concise, accurate and appropriate to the patient's problem(s), including the relevant epidemiologic and travel history related to particular infectious diseases.
2. perform a physical examination that is relevant and appropriate.
3. select medically appropriate investigative tools, including microbiologic tests, in a cost-effective, ethical and useful manner.
4. retrieve and implement the information necessary to provide health care services to patients.
5. access, retrieve, appraise and apply relevant information of all kinds to problem-solving and introduce new therapeutic options to the clinical practice of infectious diseases.
6. anticipate short and long term complications of infectious diseases and their treatments.
7. appropriately deliver patient/family education using the above-mentioned knowledge.
8. demonstrate insight into his/her own limitations.
9. demonstrate ability to obtain specimens for bacteria, fungal and viral cultures

COMMUNICATOR

Communication skills are essential for the functioning of the Infectious Diseases specialist, and are necessary for obtaining information from, and conveying information to patients and their families. Furthermore, these abilities are critical in eliciting patients' beliefs, concerns, and expectations about their illnesses, and for assessing key factors impacting on patients' health.

Elements

Residents who rotate through the ID HEM/ICU Service are expected to:

1. establish therapeutic relationships with patients/families.
2. obtain and synthesize relevant history from patients/families/caregivers.
3. listen effectively.
4. discuss appropriate information with patients/families and the health care team including the Infectious Diseases Housestaff.

5. communicate effectively and concisely with ID Supervising/Attending Staff.

**Key Competencies**

*Residents who rotate through the ID HEM/ICU Service should be able (and are expected to):*

1. demonstrate the skills to impart infectious diseases-related knowledge to patients, colleagues, hospital staff and the general public. Recognize that being a good communicator is an essential function of a physician, and understand that effective patient-physician communication can foster patient satisfaction and adherence/cooperation as well as influence the manifestations and outcome of a patient's illness.

2. establish a relationship with the patient that should be characterized by understanding, trust, respect, empathy and confidentiality.

3. be able to gather information about a particular infectious disease affecting a patient and to obtain information about the patient's beliefs, concerns and expectations about their illness, in a sensitive and caring manner. These should be considered within the context of the influence of age, gender, ethnic, cultural and socio-economic status and spiritual values. Wherever appropriate critical information in the above categories must be communicated to others who are involved in the care of the patient.

4. be able to succinctly present key information to patients and families in a manner that enables them to be active participants in decision-making related to the infectious diseases affecting them.

5. be aware of the potential for mixed messages to be delivered to patients and their families, particularly as this relates to choice of diagnostic procedures, antimicrobial agents and duration of antimicrobial therapy. Communicate with other health professionals in a manner that facilitates the delivery of consistent messages to the patients and their families.

6. know the basic principles that guide the provision of information to the general public and media about issues of local concern. Such issues may include (but are not limited to) natural communicable disease outbreaks, potential threats such as bioterrorism, antimicrobial resistance and inappropriate resource utilization.

**COLLABORATOR**

It is essential for the infectious diseases specialist to be able to collaborate effectively with patients and a multidisciplinary team of expert health professionals for provision of optimal patient care, education, and research.
**Elements**

*Residents who rotate through the ID HEM/ICU Service are expected to:*

1. consult effectively with other physicians and health care professionals including laboratory personnel, Infection control practitioners and Public Health personnel.
2. contribute effectively to other interdisciplinary team activities.

**Key Competencies**

*Residents who rotate through the ID HEM/ICU Service should be able (and are expected to):*

1. be aware of pivotal roles of other health care providers in facilitating the activities of infectious diseases specialists. Such individuals include, but are not limited to those performing surgical and radiological diagnostic procedures for microbiological examination.
2. demonstrate the ability to accept, consider and respect the opinions of other team members.
3. be capable of assuming a decisive role while functioning as a member of a multidisciplinary team.

**MANAGER**

Specialists require the abilities to prioritize and effectively execute tasks through teamwork with colleagues, and make systematic decisions when allocating finite health care resources.

**Elements**

*Residents who rotate through the ID HEM/ICU Service are expected to:*

1. utilize resources effectively to balance patient care, learning needs, and outside activities.
2. allocate finite health care resources wisely.
3. work effectively and efficiently in a health care organization, including the management of interaction with other services involved in patient care.
4. utilize information technology to optimize patient care, life-long learning and other activities.

**Key Competencies**
Residents who rotate through the ID HEM/ICU Service should be able (and are expected to):

1. demonstrate a basic understanding of the structure; financing and operation of the Canadian health care system.

2. demonstrate knowledge of:
   
   a. pharmacotherapy that would enable one to participate in the selection for the hospital formulary of antimicrobial agents and immunization products, with consideration being given to cost-effectiveness of these agents/products;
   
   b. the different ways of delivering care to patients with a variety of infectious diseases in different settings, including the ability to participate in planning, budgeting and evaluation of special modes of delivering infectious diseases care (e.g., outpatient parenteral antibiotic therapy and directly observed therapy);
   
   c. practice and time management skills including punctuality, prioritization and triage.

3. demonstrate the ability to:
   
   a. 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;
   
   b. make and defend clinical decisions and judgements based on sound clinical evidence for the benefits of individual patients and the population served;
   
   c. use information technology as a tool in patient management.

HEALTH ADVOCATE

Elements

Residents who rotate through the ID HEM/ICU Service are expected to:

1. identify the important determinants of health affecting patients.

2. contribute effectively to improved health of patients and communities.

3. recognize and respond to those issues where advocacy is appropriate.

4. promote the health of individual patients and the population.
Key Competencies

Residents who rotate through the ID HEM/ICU Service should be able (and are expected to):

1. apply knowledge of epidemiology, etiology and pathogenesis to prevent the development and facilitate the management of infectious diseases. In order to accomplish this, the residents should demonstrate understanding of:
   
a. determinants of health by identifying the most important determinants of health as these relate to the burden of illness from diseases caused directly or indirectly by micro-organisms.
   
b. infectious diseases and public health-related public policy by describing how such policies are developed; identifying current policies that affect health, either positively or negatively, such as childhood immunizations, infection control, and antimicrobial utilization.

2. have an understanding of the above concepts in order to identify:
   
a. biologic, psychosocial, cultural, environmental and economic determinants of health and use this information in a management plan; ensuring that the patient accesses the relevant public health and social services required to manage their particular microbial disease(s). Examples of such diseases include HIV, sexually transmitted diseases, tuberculosis and vaccine-preventable diseases.
   
b. patient groups that are at risk of infectious diseases and their consequences in order to appropriately target primary and secondary preventive strategies (HIV, sexually transmitted diseases, tuberculosis and vaccine-preventable diseases).
   
c. the key issues and opportunities to reduce or minimise the morbidity and mortality from infectious diseases in the community.

SCHOLAR

Elements

Residents who rotate through the ID HEM/ICU Service are expected to:

1. develop, implement and monitor a personal continuing education strategy to establish a practice of lifelong learning.

2. critically appraise sources of medical information.
3. facilitate learning of patients, house staff/students and other health professionals.

4. contribute to the creation, dissemination, application and translation of new knowledge.

**Key Competencies**

*Residents who rotate through the ID HEM/ICU Service should be able (and are expected to) practice the following key competencies:*

1. Clinical
   a. pose a clinical infectious disease question;
   b. recognize and identify gaps in knowledge and expertise around the clinical question;
   c. formulate a plan to fill the gap:
      i. conduct an appropriate literature search based on the clinical question;
      ii. assimilate and appraise the literature;
      iii. develop a system to store and retrieve relevant literature;
      iv. consult others (physicians and other health professionals) in a collegial manner;
   d. propose a solution to the clinical question;
   e. implement the solution in practice. Evaluate the outcome and reassess the solution (re-enter the loop at c i) or c ii);
   f. identify practice areas for research.

2. Education
   a. show an appreciation of the infectious diseases literature with the ability to critically evaluate it and apply the results thereof.
   b. demonstrate an understanding of preferred learning methods in dealing with students, other residents, and supervisors.
   c. develop effective teaching skills to address the needs of students, other residents, and supervisors.

**PROFESSIONAL**

Specialists are committed to the highest standards of excellence in clinical care and ethical conduct, and to continually perfecting mastery of their discipline.
Elements

Residents who rotate through the ID HEM/ICU Service are expected to:

1. deliver highest quality care with integrity, honesty and compassion.
2. exhibit appropriate personal and interpersonal professional behaviours.
3. practice medicine ethically consistent with obligations of a physician.

Key Competencies

Residents who rotate through the ID HEM/ICU Service should be able (and are expected to) practice the following objectives:

1. Discipline-Based Objectives:
   i. Display attitudes commonly accepted as essential to professionalism;
   ii. Use appropriate strategies to maintain and advance professional competence;
   iii. Evaluate continually one's abilities, knowledge and skills and know one's limitations of professional competence and exhibit a willingness to call upon others with special expertise whenever appropriate.

2. Personal/Professional Boundary Objectives:
   a. Adopt specific strategies to heighten personal and professional awareness and explore and resolve interpersonal difficulties in professional relationships;
   b. Strive consciously to balance personal and professional roles and responsibilities and to demonstrate ways of attempting to resolve conflicts and role strain;
   c. Demonstrate flexibility and a willingness to adjust to changing circumstances.

3. Objectives Related to Ethics and Professional Bodies:
   a. Know and understand the professional, legal and ethical codes to which infectious diseases physicians are bound; these include:
      1. confidentiality issues that are critical to the proper practice of infectious disease (e.g., HIV disclosure);
2. appropriate conduct when interacting with industry, including the manufacturers and distributors of antimicrobials and diagnostics products.

b. 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;

c. Understand and be able to apply relevant legislation that relates to the health care system in order to guide one's clinical practice;

d. Recognize, analyse and know how to deal with unprofessional behaviours in clinical practice, taking into account local and provincial regulations.

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