

MEDICINE

Education Coordinator: Ana Malbrecht, ana.malbrecht@lhsc.on.ca

Education Assistant: Marika Wilton, domume@lhsc.on.ca

***NOTE:** After the lottery, ELECTIVES must be arranged through domume@lhsc.on.ca

GENERAL DESCRIPTION

During a clinical elective, the Year 4 student will be scheduled to a specific clinical service. Where possible, emphasis will be placed on ambulatory medicine, and every effort will be made to avoid overlapping with Year 3 students doing their clerkship selective. The Year 4 student's duties may vary from service to service and are clearly set out in the Department of Medicine Clinical Elective "handbook" (following). At times, this may involve participation in an "on-call" schedule. The clinical elective supervisor will act as the Year 4 student's mentor/advisor and will be responsible for his or her end-of-rotation evaluation.

In general terms, the student will be expected to apply and develop the skills acquired during the clinical clerkship. The clinical electives programme offers an opportunity for the student to strengthen those skills he/she feels may be weak and to enhance her/his knowledge in areas of interest. These objectives are best served by active participation in patient care, investigation and clinical decision making and an enthusiastic approach to the learning process.

EVALUATION

This will be based on observation of the student's performance and it is intended to determine whether the student, at the end of the clinical elective, has met expectation.

Appraisal of personal-professional attributes in various aspects of clinical skills will be based on the student's performance during the clinical elective. When necessary, the supervisor will discuss strengths or weaknesses with the student during the rotation. At the end of the rotation the supervisor will complete the standard assessment form on line through one45. The students will be responsible to distribute the evaluation form to the appropriate supervisor for completion.

There is also opportunity for the student to evaluate the clinical elective learning experience. The Dean's Office will be collecting information from you that can guide future students seeking clinical electives and provide important feedback to clinical elective supervisors about strengths and weaknesses of individual clinical electives.

SUMMARY OF MEDICINE ELECTIVES

* May be required to participate in On-call

** City-wide rotation

SERVICE	# PLACES AVAILABLE IN EACH HOSPITAL/PER BLOCK		
	LHSC VICTORIA	LHSC UNIVERSITY	SJHC
Allergy/Immunology	N/A	N/A	1
Ambulatory General Internal Medicine	1	1 Rotation will assign site	
Cardiology	1*	1*	N/A
Critical Care Medicine	2* Rotation will assign site		N/A
Emergency Medicine **	6 * Rotation will assign site		N/A
Endocrinology	N/A	N/A	1
Gastroenterology	1	1	N/A
General Medicine Team (GACTU)	1*	1*	N/A
Geriatrics ** (includes Parkwood)	N/A	N/A	1
Hematology	1	N/A	N/A
Infectious Diseases **	2* Rotation will assign site		
Nephrology	1	1	N/A
Respirology **	1* Rotation will assign site		N/A
Rheumatology	N/A	N/A	1

DEPARTMENT OF MEDICINE LONDON HEALTH SCIENCES CENTRE – CITY-WIDE

EMERGENCY MEDICINE

Supervisor: Dr. L. Price, lprice4@uwo.ca, (519) 685-8500, extension 55005

This clinically oriented elective provides students with an opportunity to further develop core competencies in emergency medicine begun in their mandatory rotation. Students will be expected to assess and manage undifferentiated patients as they present to the Emergency Department. They will participate as a member of the Emergency team in resuscitating critically ill patients. Students will be responsible for attending Emergency Medicine grand rounds once weekly. Due to the nature of Emergency Medicine, students will be expected to work varying shifts and some weekends. Students will experience one week at each hospital. Students will be evaluated daily by supervising Emergency physicians based on their clinical performance.

Objectives:

MEDICAL EXPERT (GENERAL)

- Describe a basic differential diagnosis including the significant worst-case diagnosis for every patient assessed
- Demonstrate a basic systematic, prioritized approach to resuscitation and stabilization of emergencies
- Demonstrate a basic ability to distinguish seriously ill or injured patients from those with minor conditions
- Demonstrate a focused history and physical examination
- Distinguish which conditions are life-threatening or emergent from those that are less urgent
- Demonstrate the ability to evaluate and initiate treatment of the undifferentiated patient
- Describe the concept of triage and prioritization of care
- Recognize that certain groups of patients require a high index of suspicion for serious illness (e.g. immunocompromised, intoxicated, extremes of age)

MEDICAL EXPERT (PRESENTING PROBLEM)

Demonstrate an approach to patients presenting to the ED with the following problems (including basic differential diagnosis, initial investigations and initial treatments):

- Chest pain
- Shortness of breath
- Altered level of consciousness
- Anaphylaxis/severe allergic reaction
- Abdominal pain
- Syncope
- Shock
- Seizure
- Cardiorespiratory arrest
- Headache
- Minor trauma
- Head injury – minor
- Fever
- Dizziness/vertigo
- Cardiac dysrhythmias
- Vaginal bleeding – pregnant

MEDICAL EXPERT – TECHNICAL SKILLS

Demonstrate competency in performing the following procedural skills (including indications, contraindications):

- Suturing simple laceration
- Perform wound cleansing and simple dressing
- Local anesthetic infiltration
- Perform basic airway maneuvers (head tilt, chin lift, jaw thrust, oral/nasal airway insertion, bag-valve mask ventilation)
- Place patient on oxygen (nasal prongs, nonrebreather mask)
- Apply an extremity plaster splint
- Place patient on pulse oximeter
- CPR (chest compressions)

MEDICAL EXPERT – TECHNICAL SKILLS INTERPRETATION

Demonstrate competency in performing the following interpretive skills:

- 12-lead ECG – myocardial infarction
- 12-lead ECG – rhythm analysis
- Cardiac monitor (rhythm analysis)
- CXR interpretation
- Pulse oximetry
- Extremity radiograph interpretation
- C-spine radiograph interpretation
- Urinalysis – dipstick and microscopy

COMMUNICATOR

- Demonstrate the ability to present a patient case in a clear, concise and complete manner
- Communicate effectively and empathetically with patients and their families
- Demonstrate thorough, clear and concise documentation and charting
- Provide clear discharge instructions for patients and ensure appropriate follow-up care

COLLABORATOR

- Establish and maintain effective working relationships with colleagues and other health care professionals
- Describe the role of other health professionals in the management of the patient in the ED

ADVOCATE

- Demonstrate effective advocacy for patient comfort (including pain management, basic needs)
- Demonstrate an awareness of the underlying psychosocial and economic problems that may precipitate an ED visit

SCHOLAR

- Demonstrate an ability to access various educational resources available to enhance patient care
- Demonstrate a basic ability to self-guide professional development, including identifying and addressing learning needs

PROFESSIONAL

- Recognize and accept one's limitations and know when to ask for help
- Be reliable and responsible in fulfilling obligations
- Take the appropriate measure to protect oneself from illness and injury
- Demonstrate honesty and integrity in patient care

- Demonstrate sensitivity to cultural issues (e.g. age, sex, culture, disability)
- Maintain a professional appearance
- Demonstrate compassion and nonjudgmental approach to all patients
- Protect information provided by or about patients, keeping it confidential and divulge it only with the patient's permission except when otherwise required by law
- Demonstrate ethical decision making

Number of Students accepted per block: 6

INFECTIOUS DISEASES

Supervisor: Dr. S. Elsayed, Sameer.Elsayed@lhsc.on.ca , (519) 685-8300 extension 61717

CONSULTANTS

Dr. Michael Silverman (Division Chief) Email: Michael.Silverman@sjhc.london.on.ca Pager # 17797	Dr. Seyed Hosseini Email: Seyed.Hosseini@lhsc.on.ca Pager # 18212
Dr. Lise Bondy Email: Lise.Bondy@sjhc.london.on.ca Pager # 16265	Dr. Sarah Shalhoub Email: Sarah.Shalhoub@lhsc.on.ca Pager # 16776
Dr. Megan Devlin Email: Megan.Devlin@sjhc.london.on.ca Pager # 17057	Dr. Nikhath Zeeshan Email: Nikhath.Zeeshan@sjhc.london.on.ca
Dr. Sameer Elsayed Email: Sameer.Elsayed@lhsc.on.ca Pager # 13929	

Note: the rotation will assign students to either University Hospital or Victoria Hospital.

OBJECTIVES and ROTATION SPECIFIC GOALS

The Division of Infectious Diseases provides a very broad educational experience in the management of patients with common infectious diseases problems. The following educational objectives have been developed for 4th year clinical clerks:

At the end of the rotation, the student will be able to:

1. Understand the pathophysiology of selected infectious diseases
2. Understand the pharmacology of selected anti-infective agents
3. Elicit a history relevant to the immune system and infectious etiologies. This should include:
 - a) symptoms suggestive of an infectious process, including identification of potential anatomic foci of infection
 - b) symptoms suggestive of a non-infectious process
 - c) recreational or occupational exposures posing a risk of infection
 - d) travel history
 - e) risk factors for immunosuppression
 - f) prior antimicrobial use and drug allergies

4. Perform a physical exam to detect infectious and non-infectious causes of the symptoms. This should include:
 - a) examination of the skin, looking for viral exanthems, signs of syphilis, toxic shock syndromes, drug reactions, and signs of endocarditis
 - b) head and neck examination, including assessment of the oral cavity, lymph nodes, eyes, and ears
 - c) cardiac, respiratory, neurological, and abdominal exams
 - d) examination of the limbs and joints
 - e) assessment of other anatomic sites as appropriate
5. Select appropriate investigations to order, including cultures, serology, radiological tests, and blood work
6. Justify initial management, including empiric therapy, taking into account the patient's immune status, and data gathered from history, physical examination and preliminary investigations. The student should be able to suggest modification to initial treatment plans as further laboratory and microbiological information becomes available, and to justify the duration of therapy.
7. Develop evidence-based approaches to the investigation and management of patients presenting with:
 - a) fever
 - b) leukocytosis
 - c) sepsis/septic shock
 - d) stiff neck and headache
 - e) heart murmurs
 - f) lymphadenitis/lymphadenopathy
 - g) soft tissue inflammation
 - h) inflamed joints
 - i) cough and sputum production
 - j) sore throat, ears, and sinuses
8. Develop evidence-based management strategies for the following diseases:
 - a) fever of unknown origin
 - b) septicaemia
 - c) meningitis, encephalitis, brain abscess
 - d) pneumonia, bronchitis
 - e) endocarditis
 - f) intraabdominal abscess, peritonitis, hepatitis, biliary tract infections
 - g) cystitis, pyelonephritis
 - h) osteomyelitis, septic arthritis
 - i) HIV infection, AIDS
 - j) viral hepatitis
 - k) other viral syndromes
 - l) infections in neutropenic and transplant patients
 - m) pharyngitis, otitis, sinusitis
 - n) soft tissue infections
 - o) sexually transmitted diseases
7. Demonstrate proficiency in the following procedures:
 - a) use and interpretation of microbiology investigations including stains, cultures, and serology
 - b) TB skin testing
 - c) monitoring HIV infection with laboratory tests

CONSULTATION SERVICE

The Infectious Diseases Service provides comprehensive inpatient consultations to a wide variety of clinical services, including various surgical disciplines (Cardiac Surgery, General Surgery, Obstetrics and Gynaecology, Orthopaedic Surgery, Plastic Surgery, Neurosurgery, Thoracic Surgery, Vascular Surgery, Urology) as well as Critical Care, General Internal Medicine, Internal Medicine subspecialty services, Neurology, Palliative Care, Transplant Medicine, and a variety of other disciplines. Consultation services are provided for patients admitted to University Hospital and Victoria Hospital. You will be assigned to either the University Hospital or Victoria Hospital Infectious Diseases consult service (for in-patients) during your rotation.

During the rotation on the inpatient service, you will be working in a team setting with one Infectious Diseases consultant, resident physicians, and clinical clerks. At Victoria Hospital, an Infectious Diseases pharmacist is an integral part of the team. Teams at each site usually meet in the morning between 8:00 am and 8:30 am to go over the plans for the day. On average, the team at each site will be asked to see approximately 3 to 5 new patients each day. Patients that have previously been seen that require ongoing management by the Infectious Diseases service will continue being seen on a daily basis, as deemed necessary. At the start of your rotation, you will be provided with access to the active Infectious Diseases patient list on the hospital electronic medical record (Powerchart) at your site. On your first day, please contact the Infectious Diseases Consultant or senior resident you are working with.

AMBULATORY CARE

During your rotation, you will have an opportunity to attend a variety of outpatient clinics, including General Infectious Diseases Clinics, Cellulitis Clinics, HIV Clinics, Hepatitis C Clinics, Transplant ID Clinics, Diabetic Foot Clinics, and Cellulitis Clinics.

Outpatients may be seen in the General Infectious Diseases Clinics at St. Joseph's Hospital (3rd Floor, B wing) and Victoria Hospital (E tower, 5th floor), while HIV Clinics (also referred to as Infectious Diseases Care Program Clinics) are held only at St. Joseph's Hospital (3rd floor, B wing). Transplant ID Clinics are held at University Hospital (4th Floor Outpatient Clinics). Diabetic Foot Clinics are held at Creative Orthotic Solutions at 310 Wellington Rd South, just a couple of blocks north of Victoria Hospital.

Morning Clinics usually start at 8:30 am while afternoon clinics usually start at 1:00 pm. Cellulitis Clinics start at 7:30 am.

CURRENT EDUCATIONAL ROUNDS AND SEMINARS

Infectious Diseases Care Program Rounds are held monthly at St. Joseph's Hospital from 12:00 pm to 1:00 pm and occur on the second Wednesday of each month. Presentations focus on the care of patients with HIV or Hepatitis C. No rounds during July/August.

Medical Grand Rounds are held at University Hospital from 12:00 pm to 1:00 pm every Thursday, while similar rounds are held at Victoria Hospital from 12:00 pm to 1:00 pm every Friday. Residents and clinical clerks are encouraged to attend these rounds at their assigned hospital site during their rotation.

Formal and Informal Teaching Sessions will be provided to residents and clerks throughout the rotation.

Number of Students accepted per block: 2

RESPIROLOGY

Supervisor: Dr. A. Kashgari, alia.kashgari@lhsc.on.ca, (519) 519-685-8094

Note: Students will be assigned to either the SERD Team located at Victoria Hospital or to the NERD Team at University Hospital.

This elective is a combined in-patient and out-patient rotation offering exposure to (1) patients with chest problems admitted to the Respiriology Unit, (2) out-patient (clinic) referrals and (3) diagnostic services: radiology rounds, procedures (bronchoscopy, etc.) and pulmonary function tests.

Objectives:

DYSPNEA

A. KNOWLEDGE: Students should be able to define, describe, and discuss:

1. Major organ systems/pathologic states causing dyspnea and their pathophysiology, including:
 - Cardiac
 - Pulmonary
 - Anemia/hypovolemia
 - Acid-base disorders and other metabolic derangements
 - Neuromuscular weakness
 - Central neurologic derangements
2. The symptoms, signs, and laboratory values associated with respiratory failure and ventilatory failure.
3. The alveolar-arterial oxygen gradient and the pathophysiologic states that can alter it.
4. The potential risks of relying too heavily on pulse oximetry as the sole indicator of arterial oxygen content.
5. The common causes of acute dyspnea, their pathophysiology, symptoms, and signs, including:
 - Pulmonary edema
 - Pulmonary embolism
 - Pneumonia
 - Acute exacerbation of COPD
 - Asthma
 - Cardiac ischemia
 - Pneumothorax
 - Anxiety
6. The common causes of chronic dyspnea their pathophysiology, symptoms, and signs, including:
 - Congestive heart failure
 - COPD
 - Pulmonary parenchymal disease
 - Pulmonary vascular disease
 - Anemia
 - Neuromuscular weakness
7. Basic treatment options for the common causes of acute and chronic dyspnea.

8. The utility of supplemental oxygen therapy and the potential dangers of overly aggressive oxygen supplementation in some pathophysiologic states.

B. SKILLS: Students should be able to demonstrate specific skills, including:

1. **History-taking skills:** Students should be able to obtain, document, and present an age-appropriate medical history, that differentiates among etiologies of disease, including:

- Quantity, quality, severity, duration, ameliorating/exacerbating factors of the dyspnea.
- Associated symptoms such as fevers, chills, sweats, orthopnea, paroxysmal nocturnal dyspnea, wheezing, edema, chest pain, cough, sputum production, hemoptysis, palpitations, nausea, anxiety, dizziness, orthostasis, and weakness.
- History of pulmonary, cardiac, neuromuscular/neurologic, renal, hepatic, and coagulopathic disorders.
- Risk factors for deep vein thrombosis/pulmonary embolism.
- Ingestion of drugs and toxic substances, administration of IV fluids.
- smoking and environmental exposures.

2. **Physical exam skills:** Students should be able to perform a physical exam to establish the diagnosis and severity of disease, including:

- Accurately determining respiratory rate and level of respiratory distress. Assessing the use of accessory muscles for breathing.
- Accurately measuring pulsus paradox.
- Identifying bronchial breath sounds, rales, rhonchi, wheezes, and subcutaneous emphysema.
- Identifying signs of pulmonary consolidation and hyperresonance.
- Identifying signs of pleural effusion.
- Identifying signs of elevated central venous pressure.
- Identifying signs of hypovolemia.
- Identifying S3 gallop, edema, and pallor.
- Identifying signs of deep vein thrombosis.

3. **Differential diagnosis:** Students should be able to generate a prioritized differential diagnosis recognizing specific history and physical exam findings that suggest a specific etiology of dyspnea

4. **Laboratory interpretation:** Students should be able to recommend when to order diagnostic and laboratory tests and be able to interpret them,

- Electrolytes, BUN/Cr, GLC
- Pulse oximetry
- ABG
- Chest radiograph
- 12-lead ECG

Pulmonary function tests.) Students should be able to define the indications for and interpret (with consultation) the results of:

- Ventilation perfusion scintigraphy
- Chest CT
- Venous Doppler studies
- Cardiac stress test
- Echocardiography

Bed side Ultrasound:

- Students should observe a bed side ultrasound imaging done by a senior resident.

UPPER RESPIRATORY COMPLAINTS

A. KNOWLEDGE: Students should be able to define, describe, and discuss:

1. A rational approach to the common URIs: nasal congestion, rhinorrhea, facial pain/tenderness, cough, sputum production, sore throat, and ear pain.
2. Common constitutional symptoms that accompany URIs: generalized weakness, fatigue, malaise, headache, mild myalgias, and modest fever.
3. The microbiology of URIs, highlighting the relative frequencies of viral and bacterial etiologies.
4. The most common microbiologic agents that cause the common URIs.
5. The pathophysiology and typical clinical presentation of the common URIs:
 - Common cold.
 - Acute bronchitis.
 - Pharyngitis.
 - Acute sinusitis.
 - Otitis media.
6. The pathophysiologic similarities between the common cold and acute sinusitis.
7. The clinical features and microbiology of acute compared to chronic sinusitis.
8. The pathophysiology and symptomatology of allergic rhinitis and the clinical features that may help differentiate it from the common cold and acute sinusitis.
9. The clinical features that may help differentiate the common URIs from influenza.
10. The pathophysiology and clinical features of acute compared to chronic bronchitis.
11. The pathophysiology and clinical features of acute bronchitis compared to pneumonia.
12. The pathophysiology and clinical features of otitis media and Eustachian tube malfunction.
13. The signs and symptoms that may help distinguish viral from bacterial pharyngitis.
14. Symptomatic treatment for URIs and the major side effects/contraindications for these treatments.
15. The general role of antibiotics in the treatment of URIs and specific evidence-based indications for them.
16. The basic elements of the treatment of allergic rhinitis.
17. The use of antiviral agents in the prophylaxis and treatment of influenza.

B. SKILLS: Students should be able to demonstrate specific skills, including:

1. **History-taking skills:** Students should be able to obtain, document, and present an age-appropriate medical history, that differentiates among etiologies of disease, including:
 - The predominant symptom (nasal congestion/rhinorrhea, purulent nasal discharge with facial pain/tenderness, sore throat, cough with or without sputum, sore throat or ear pain).
 - Constitutional symptoms.
 - Symptoms of potential pneumonia.
 - History of or symptoms of serious cardiopulmonary diseases (e.g. asthma, chronic obstructive pulmonary disease, congestive heart failure) that may alter the treatment plan.

2. **Physical exam skills:** Students should be able to perform a physical exam to establish the diagnosis and severity of disease, including:
 - Examination of the nasal cavity, pharynx, and sinuses.
 - Otoscopic examination.
 - Evaluation of the head and neck for lymphadenopathy.
 - Auscultation of the lungs to distinguish pulmonary consolidation, pleural effusion, pulmonary congestion, and chronic obstructive pulmonary disease.

3. **Differential diagnosis:** Students should be able to generate a prioritized differential diagnosis recognizing specific history and physical exam findings that suggest a specific etiology of upper respiratory complaints:
 - Common cold
 - Acute sinusitis
 - Chronic sinusitis
 - Allergic rhinitis
 - Pharyngitis
 - Otitis media
 - Otitis external
 - Acute bronchitis
 - Chronic bronchitis
 - Influenza
 - Pneumonia
 - Infectious mononucleosis

4. **Laboratory interpretation:** Students should be able to recommend when to order diagnostic and laboratory tests and be able to interpret them, both prior to and after initiating treatment based on the differential diagnosis, including consideration of test cost and performance characteristics as well as patient preferences. Laboratory and diagnostic tests should include, when appropriate:
 - CBC with differential
 - Rapid strep test
 - Throat culture
 - Chest radiograph
 - PFTs
 - Monospot/heterophile antibody

5. **Management skills:** Students should be able to develop an appropriate evaluation and treatment plan for patients that includes:
 - Determining when to obtain a chest radiograph
 - Determining when to prescribe antibiotics
 - Selecting the most appropriate antibiotic for acute bacterial sinusitis, streptococcal pharyngitis, and bacterial otitis media

- Prescribing symptomatic treatments
- Determining when to obtain consultation from an allergist, otolaryngologist, or pulmonologist
- Using a cost-effective approach based on the differential diagnosis
- Accessing and utilizing appropriate information systems and resources to help delineate issues related to URIs

PNEUMONIA

A. KNOWLEDGE: Students should be able to define, describe, and discuss:

1. The epidemiology, pathophysiology, symptoms, signs, and typical clinical course of community-acquired, nosocomial, and aspiration pneumonia and pneumonia in the immunocompromised host.
2. The conceptualization of “typical” and “atypical” pneumonia and its limitations.
3. Common pneumonia pathogens (viral, bacterial, mycobacterial, and fungal) in immunocompetent and immunocompromised hosts).
4. Identify patients who are at risk for impaired immunity.
 1. Indications for hospitalization and ICU admission of patient with pneumonia.
 2. The radiographic findings of the various types of pneumonia.
 3. The antimicrobial treatments (e.g. antiviral, antibacterial, antimycobacterial, and antifungal) for community-acquired, nosocomial, and aspiration pneumonia, and pneumonia in the immunocompromised host.
 4. The implications of antimicrobial resistance.
 5. The pathogenesis, symptoms, and signs of the complications of acute bacterial pneumonia including: bacteremia, sepsis, parapneumonic effusion, empyema, meningitis, and metastatic microabscesses.
 6. The indications for and complications of chest tube placement.
 7. The indications for and efficacy of influenza and pneumococcal vaccinations.
 8. The indications and procedures for respiratory isolation.
 9. The Centers for Medicare & Medicaid Services (CMS) and the Joint Commission on the Accreditation of Healthcare Organizations (JCAHO) quality measures for community-acquired pneumonia treatment.

B. SKILLS: Students should be able to demonstrate specific skills including:

1. **History-taking skills:** Students should be able to obtain, document, and present an age-appropriate medical history that differentiates among etiologies of disease, including:
 - The presence and quantification of fever, chills, sweats, cough, sputum, hemoptysis, dyspnea, and chest pain.
 - Historical features consistent with potential immunocompromise.
 - Potential tuberculosis exposure.
2. **Physical exam skills:** Students should be able to perform a physical exam to establish the diagnosis and

severity of disease, including:

- Accurately determining respiratory rate and level of respiratory distress
- Identifying bronchial breath sounds, rales, rhonchi, and wheezes
- Identifying signs of pulmonary consolidation
- Identifying signs of pleural effusion
- Identifying signs of the complications of pneumonia

3. **Differential diagnosis:** Students should be able to generate a prioritized differential diagnosis recognizing specific history and physical exam findings that suggest a specific etiology of pneumonia and other possible diagnoses, including:

- Common cold
- Acute bronchitis
- Influenza
- Acute exacerbation of COPD
- Asthma exacerbation
- CHF
- Pulmonary embolism
- Aspiration
-

4. **Laboratory interpretation:** Students should be able to recommend when to order diagnostic and laboratory tests and be able to interpret them when appropriate:

- CBC
- Blood cultures
- ABG
- Pleural fluid chemistry, cell counts, staining, and culture
- Chest radiograph

Students should be able to define the indications for and interpret (with consultation) the results of:

- Chest CT.

5. **Management skills:** Students should be able to develop an appropriate evaluation and treatment plan for patients that include:

- Selecting an appropriate empiric antibiotic regimen for community-acquired, nosocomial, immunocompromised-host, and aspiration pneumonia, taking into account pertinent patient features.
- Adjusting antimicrobial treatment according to the sputum staining and culture results.
- Recognizing the complications of pneumonia.
- Determining when to obtain consultation from a pulmonologist or infectious diseases specialist.

COPD/OBSTRUCTIVE AIRWAYS DISEASE

A. KNOWLEDGE: Students should be able to define, describe, and discuss:

1. The epidemiology, risk factors, symptoms, signs, and typical clinical course of the common forms of COPD, including chronic bronchitis and emphysema.

2. Common causes of acute exacerbations of COPD (AECOPD), including:

- Acute infectious bronchitis
- Pneumonia
- Pulmonary edema

- Poor air quality (e.g. ozone, pollutants, tobacco smoke)
 - Occupational exposures
 - Medical noncompliance
3. The etiology, pathogenesis, evaluation, and management of hypoxemia and hypercapnia.
 4. The genetics and role of alpha-1 antitrypsin deficiency in some patients with emphysema.
 5. The epidemiology, risk factors, symptoms, signs, and typical clinical course of asthma.
 6. Allergic and non-allergic factors that may precipitate bronchospasm and exacerbate asthma, including:
 - Grass and tree pollen
 - Animal dander
 - Cockroaches
 - Dust mites
 - Allergic rhinitis/post-nasal drip
 - Acute/chronic infectious sinusitis
 - Acute infectious bronchitis
 - Pneumonia
 - Pulmonary edema
 - Exercise
 - Anxiety/stress
 - Poor air quality (e.g. ozone, pollutants, tobacco smoke)
 - Occupational exposures
 - Medical noncompliance
 7. Therapies for COPD and asthma, including:
 - Beta-agonist bronchodilators
 - Anticholinergic bronchodilators
 - Leukotriene inhibitors
 - Mast cell stabilizers
 - Theophylline
 - Inhaled corticosteroids
 - Systemic corticosteroids
 - Antimicrobial agents
 - Supplemental oxygen
 - Immunotherapy.
 8. The indications for and the efficacy of influenza and pneumococcal vaccines.

B. SKILLS: Students should be able to demonstrate specific skills, including:

1. History-taking skills: Students should be able to obtain, document, and present an age-appropriate medical history, that differentiates among etiologies of disease including:

- Existence, duration, and severity of dyspnea, orthopnea, paroxysmal nocturnal dyspnea, cough, sputum production, wheezing, fever, chills, sweats, chest pain, hemoptysis.
- Smoking history and passive exposure to tobacco smoke.
- Occupational history.
- Family history of pulmonary problems.

2. Physical exam skills: Students should be able to perform a physical exam to establish the diagnosis and

severity of disease including:

- Accurately determining respiratory rate and level of respiratory distress.
- Assessing the use of accessory muscles for breathing.
- Identifying bronchial breath sounds, rales, rhonchi, and wheezes.
- Identifying signs of pulmonary consolidation, pleural effusion, and pneumothorax.
- Identifying the signs of pulmonary hyperresonance/hyperexpansion.

3. **Differential diagnosis:** Students should be able to generate a prioritized differential diagnosis recognizing specific history and physical exam findings that suggest a diagnosis of chronic bronchitis, emphysema, asthma, or other conditions with similar findings.

10. **Laboratory interpretation:** Students should be able to recommend when to order diagnostic and laboratory tests and be able to interpret them, both prior to and after initiating treatment based on the differential diagnosis, including consideration of test cost and performance characteristics as well as patient preferences. Laboratory and diagnostic tests should include, when appropriate:

- Pulse oximetry
- ABG
- Chest radiograph
- Pulmonary function tests

5. **Management skills:** Students should be able to develop an appropriate evaluation and treatment plan for patients that include:

- The use of bronchodilators and inhaled corticosteroids
- The key components of the care of patients admitted with acute exacerbations of COPD and asthma
- Using systemic corticosteroids appropriately
- Judicious use of antimicrobial agents
- The principles of oxygen therapy
- Determining when to obtain consultation from a pulmonologist or allergist/immunologist
- Smoking cessation strategies

The student will participate in in-patient care and/or attend out-patient clinics. The proportion of in-patient and ambulatory experience can be tailored to the students' needs.

The student will be expected to attend all clinical teaching sessions. Formal sessions (journal club, respiratory teaching rounds, city-wide lecture series, and a multi-disciplinary Radiology Round - each held once weekly) provide focus for the educational experience. The evaluation will include assessment in out-patient clinics and during clinical and diagnostic rounds.

The student is not expected to take call during this service, although this can be arranged if so desired.

Number of Students accepted per block: 1

ALLERGY/CLINICAL IMMUNOLOGY

Supervisor: Dr. Wm Moote, dmoote@uwo.ca, (519) 685-8167

This elective in Clinical Immunology and Allergy is based out of St. Joseph’s Hospital. Specialty clinics in this block consist of the following: Allergy Clinic, Immunodeficiency Clinic, Adverse Drug Reaction Clinic, Venom Allergy Clinic, and adult Asthma Clinic. This rotation will be predominantly an outpatient clinical experience, including both adults and children, with an opportunity for inpatient consultations and hospital rounds. The student will learn unique aspects of the history and physical exam applicable to Allergy and Clinical Immunology, as well as how to apply and interpret skin tests, and develop an approach to immunodeficiency. Seminars are held at least twice monthly on common diseases. The student will be expected to attend the clinics and teaching sessions and will have clinics with at least three consultants. A presentation may be required. There will be immediate feedback after each patient is reviewed and teaching will occur around all CanMEDS roles. Learners will have their dictated notes reviewed by a consultant and provided with feedback.

No night or weekend call is expected.

Awards: *Dr. David McCourtie Memorial Award in Allergy and Immunology*

Essay submissions are to be emailed to Undergraduate Medical Education (awards.ume@schulich.uwo.ca) and reviewed by Dr. Wm Moote.

Deadline for essay submissions is March 31, 2019

Number of Students accepted per block: 1

ENDOCRINOLOGY

Supervisor: Dr. Charlotte McDonald, Charlotte.McDonald@sjhc.london.on.ca, (519) 646-6170

This citywide elective will provide the student an excellent opportunity to assess and manage ambulatory patients with diabetes mellitus, thyroid problems, lipid and other endocrine disorders. The student will work closely with the supervising consultants. Eight half-day clinics per week include Diabetes, General Endocrine, Thyroid, Lipid and Metabolic bone clinics. The student will conduct the initial assessment (history and physical) on new patients, review this with the consultant, and then with the consultant develop a plan of management for the patient’s problems. The student then dictates a letter to the referring physician. The student will have an opportunity to observe and to discuss diabetic education with nurse educators and dieticians at the Lawson Diabetes Centre. The student will also attend Endocrinology Grand Rounds and Lunch Teaching Rounds.

The student’s final assessment is completed by a consensus of the consultants and resident and reviewed with Dr. Charlotte McDonald. The learning objectives of this elective are to provide the student with the opportunity to become more familiar with the investigation and management of common endocrine problems. Opportunities may arise to participate in the endocrinology inpatient consult service depending on scheduling.

No night or weekend call is expected.

Objectives:

- 1) To know the acute and chronic complications of diabetes.
- 2) To know the treatments for Type 1 and Type 2 diabetes including those for glucose control, lipid control and blood pressure control.
- 3) To have reliably palpated at least one enlarged thyroid gland.
- 4) To know the presentation of hyperthyroidism and hypothyroidism.
- 5) To know the investigations important to hyperthyroidism and hypothyroidism.
- 6) To know the treatments for hyperthyroidism and hypothyroidism.

Number of Students accepted per block: 1

GERIATRIC MEDICINE

Supervisor: Dr. L. Diachun, laura.diachun@sjhc.london.on.ca, (519) 685-4021

Geriatric Medicine offers the student the opportunity to become familiar with the skills necessary for assessment and management of the frail elderly with multiple medical, psychological, functional and social problems. Specialized Geriatric Services provides a wide range of in-hospital and ambulatory care services for the elderly. Common ethical issues, including capacity assessment, will be addressed. Clinical settings are diverse, including a 30-bed inpatient Geriatric Rehabilitation Unit at Parkwood Hospital and specialty Geriatric clinics (Aging Brain, Continence, General Geriatric, Wound Clinic and Osteoporosis). Consultations on acute care wards and home visits are also possible. It is expected that the student will participate in ward rounds, learn how to function as part of a multidisciplinary team and communicate effectively with the elderly and their caregivers as well as become familiar with community support services.

The multidisciplinary geriatric teams are comprised of:

Geriatricians	Geriatric psychiatrists	Psychologists
Social workers	Family physicians	Speech-Language Pathologists
Nurses	Pharmacists	Occupational therapists
Spiritual services	Physiotherapists	Therapeutic Recreation Specialists
Dietitians		

Outreach visits for patients unable to come into any of the specialty clinics for various reasons may be scheduled through the Regional Geriatric Program, which conducts outreach into Southwestern Ontario, seeing patients in their homes, in institutions and in acute care facilities. There is an emphasis on both patient assessment and professional provider education. This experience would be relevant to anyone contemplating community practice outside the Teaching Centres. Based on the availability of specific opportunities, an individualized schedule will be created in order to help each student meet their personal learning objectives. The evaluation procedure will be formal.

No night or weekend call is expected.

Awards: The Collins Memorial Prize in Geriatric Medicine

Objectives:

- a) At the end of the elective the student will be able to:
 - Define the components of a geriatric psychiatric assessment.

- Define the components of a comprehensive geriatric assessment.
 - Recite what comprises ADL's / IADL's.
 - Summarize the DSM-V diagnostic criteria for:
 - Dementia
 - Delirium.
 - List several behavioural and psychological symptoms of dementia.
 - List the features of depression that may present atypically in the elderly compared to the younger population.
 - List major areas of risk assessment for seniors with cognitive impairment who are living alone at home.
 - List physiological, pharmacokinetic, and pharmacodynamic changes with age and know how these changes influence dosing and medication interactions.
 - List types of community resources to help promote health and provide support for the elderly and their families.
 - Demonstrate an awareness of the burden of multiple medical and psychiatric co-morbidities through their recognition, acknowledgement and integration in the diagnosis and treatment plan of a frail elderly person.
- b) At the end of the elective the student will have the following skills:
- Administer an MMSE, GDS, MoCA and test of verbal fluency and can interpret the results in clinical context.
 - Conduct a mental status examination and an assessment of cognition appropriate for the elderly.
 - Use principles of geriatric assessment to evaluate, diagnose, and develop a preliminary treatment plan for a patient with dementia, depression or delirium.
 - Assess and develop a treatment plan for patients with behavioural and psychological symptoms of dementia.
- c) *At the end of the elective the student will be able to:*
- Obtain a thorough and comprehensive history from a geriatric patient.
 - Obtain a collateral history from the family or caregiver(s) of the patient.
 - Demonstrate how to obtain a history from a person with sensory impairment.
 - Demonstrate skill in the presentation and discussion of elderly patients at teaching rounds and clinics.
 - Conduct patient-centered interviews that explore the patient's feelings, ideas, impact on function, and expectations.
 - Develop relationships with patients characterized by compassion, empathy, respect and genuineness, demonstrating a willingness to collaborate with the patient about management.
 - Perform a physical and cognitive assessment without causing the patient embarrassment.
 - Adapt treatment plans to the individual with consideration for the patient's age, general health, special needs, expectations, cultural background, progress or changes in condition.
 - Demonstrate skill in communication of information with clear, concise explanations that are understandable to patients.
 - Recognize risk factors and be able to counsel patients and their caregivers on risk reduction.
- d) At the end of the elective the student will be able to:
- Identify the rights and legal responsibilities of physicians to patients and the community.
 - Describe the determinants of health and apply them appropriately to enhance individual and community well being.
 - Apply the concept of cost-effectiveness to public health interventions.
 - Discuss the impact of social and economic factors which predispose and/or exacerbate geriatric syndromes.

- e) At the end of the elective the student will be able to:
- Demonstrate skill in self-directed learning by:
 - Ability to identify areas of deficiency in one's own knowledge and skills
 - Ability to find appropriate educational resources
 - Ability to evaluate personal learning progress
 - Ability to use new knowledge in the care of patients.
 - Determine the validity and applicability of published data through critical appraisal.
- f) At the end of the elective the student will be able to:
Recognize and incorporate the skills of interdisciplinary team members in the collaborative care of the elderly.
- Demonstrate the ability to work effectively as a member of a team, as participant or leader.
 - Collaborate effectively with patients and families without having to take charge.
 - Demonstrate skill in finding common ground when differences of opinion exist.
 - Establish effective relationships with colleagues and other members of the health care team by:
 - Considering their suggestions and criticisms
 - Tactful handling of differences of opinion.
 - Demonstrate the ability to place the needs of patients and families first.
 - Demonstrate honesty and trustworthiness in assessment, study and learning.
 - Demonstrate responsibility and respect.
 - Recognize personal biases and ensure they do not interfere with the patient's best interests.
 - Be willing to seek help, advice or consultation when needed.
 - Respond to personal and family needs and develop effective support systems.
 - Acknowledge the potential of personal bias and emotional response and how this may influence one's attitude, team function, and patient care.
- g) At the end of the elective the student will be able to:
- Identify and discuss community services and programs available to help maintain the autonomy and independence of community dwelling elders.
 - Appropriately consult interdisciplinary team members in developing care plans for elderly patients.
 - Assist patients in accessing the health care system for physical, psychological, social and economic rehabilitation or long-term care.
 - Use the concepts of evidence-based medicine to guide patient care decisions.
 - Identify potential conflict between individual and population interests and seek advice from others.

Number of Students accepted per block: 1

RHEUMATOLOGY

Supervisor: Dr. P. Basharat, Pari.Basharat@sjhc.london.on.ca, (519) 646-6000, extension 61334

This rotation offers outpatient experience in Rheumatology 5 days per week at the St. Joseph's under the consolidated Rheumatology Service. The student will also be involved in the care of outpatients and consults. It is anticipated upon completion of the rotation that the student will have learned to carry out a musculoskeletal examination, have become acquainted with common rheumatic disease problems and have gained experience in their investigation and management. Students will improve their injection techniques. Both in and outpatient clinical experience will be gained in this rotation. Evaluation will be continuous throughout the rotation. There are regular academic rounds and teaching at Rheumatology academic half day.

No night or weekend call is expected.

Objectives:

- 1) Develop the ability to order and understand interpretation of common rheumatologic investigations including serology and synovial fluid analysis.
- 2) Differentiate inflammatory arthritis, degenerative arthritis, and fibromyalgia.
- 3) Develop the ability to construct a relevant history, examination, limited investigation, assessment, and management for a patient presenting with the following:
 - an acute mono-arthritis;
 - a chronic mono-arthritis;
 - an acute inflammatory oligoarthritis;
 - a persistent oligoarthritis;
 - an acute polyarthritis;
 - a more chronic polyarthritis.
- 4) Possess the knowledge, skills, and attitude to diagnose, initially manage and to know when to immediately refer a patient (to urgent subspecialty care if necessary) with temporal arteritis.
- 5) Possess the knowledge, skills, and attitude to diagnose and initially manage polymyalgia rheumatica.
- 6) Possess the knowledge, skills, and attitude to take a relevant history, to identify and characterize inflammatory back disorders such as ankylosing spondylitis.
- 7) Possess the knowledge, skills and attitude to construct an appropriate differential diagnosis and plan of patient enquiry, examination, limited investigation and assessment for a patient presenting with low back pain.
- 8) Specify the symptoms, signs and predisposing factors; to outline the assessment and appropriate investigations; to propose a differential diagnosis, and; to outline the principles of management of a patient with the following:
 - connective tissue disease such as systemic lupus erythematosus;
 - vasculitis
- 9) Possess the knowledge, skills, and attitude to take a relevant history, to identify and characterize:
 - proximal muscle weakness and/or elevated muscle enzymes;
 - glucocorticoid-induced osteoporosis.
- 10) Able to be familiar with the major indications, adverse effects, drug interactions and contra-indications of drugs commonly used in the management of musculoskeletal conditions. This includes analgesics, non-steroidal anti-inflammatory drugs, antidepressants in pain management, corticosteroids, hypouricaemic drugs, disease modifying and cytotoxic drugs, therapy for osteoporosis, acute and chronic pain management therapy and disease-modifying therapy.
- 11) Possess the knowledge, skills and attitude to diagnose and initially manage fibromyalgia.

Number of Students accepted: 1

**DEPARTMENT OF MEDICINE
LONDON HEALTH SCIENCES CENTRE - UNIVERSITY HOSPITAL**

PERIOPERATIVE & AMBULATORY GENERAL INTERNAL MEDICINE

Supervisor: Dr. M. Mrkobrada, mmrkobr@uwo.ca, (519) 646-6142

This elective mainly comprises of an inpatient consultation service, with some opportunity for participating in ambulatory clinics. In the inpatient setting, the student will participate in medical consultations on the surgical services. This is a team experience and the student will have the opportunity to work as a part of a team with medicine residents on this rotation. In the ambulatory setting the student will participate in General Medical Clinics, Urgent Medical Clinics (referrals from the ER to the outpatient setting) and Pre-Admission Clinics.

The student is not expected to take call during this service, although this can be arranged if so desired.

Number of Students accepted per block: 1

CARDIOLOGY – UNIVERSITY HOSPITAL

Supervisor: Dr. Bryan Dias, Bryan.Dias@lhsc.on.ca, (519) 663-3830

The 4th year elective/selective program provides experiences in the inpatient Cardiology setting. The student will have opportunity to see a wide variety of cardiovascular problems, including acute and chronic ischemic heart disease, valvular heart disease, heart failure and arrhythmia. The student will be part of the inpatient Cardiology team (ward or CCU), consisting of PGY1/2, ± M3, and possibly a nurse practitioner. There will be ample opportunity for exposure to the noninvasive techniques of cardiologic evaluation i.e. ECG, stress testing, and echocardiography. In addition, the student will have opportunity to view invasive diagnostic procedures i.e. cardiac catheterization, and interventional procedures i.e. coronary angioplasty, and if desired, ICD/pacemaker implants and ablations. The elective/selective is meant to provide an opportunity for students to improve their approach to common cardiovascular clinical scenarios and treatment.

Awards: *The University of Western Ontario Award in Cardiology*

Objectives:

- 1) Proficiency in performing a focused and accurate cardiovascular history and physical examination
- 2) Develop an appropriate differential diagnosis and management plan for common clinical scenarios in cardiology
- 3) Develops competence in basic ECG interpretation
- 4) Develops an understanding of the indications and limitations of cardiac diagnostic tests
- 5) Develops adequate knowledge of cardiovascular therapeutic agents
- 6) Recognizes, identifies and manages early and late complications of acute coronary syndromes (ACS)
- 7) Is familiar with the presentation, natural history and management of other common cardiovascular disorders (esp. heart failure)
- 8) Understands the role of revascularization procedures in coronary disease
- 9) Communicates effectively with on-call and attending cardiologists
- 10) Is able to identify knowledge gaps and independently formulate appropriate learning objectives to close those gaps

- 11) Uses information technology (e.g., Medline, Internet) to rapidly update knowledge base
- 12) Prepares and presents topics and cases as requested
- 13) Functions effectively as a member of the clinical team

Number of Students accepted per block: 1

GASTROENTEROLOGY

Supervisor: Dr. M. Beaton, Melanie.Beaton@lhsc.on.ca, (519) 663-3344

General description and type of clinical experience: The 4th year elective/selective program provides exposure to both the inpatient and outpatient setting. The student will work with the gastroenterology team caring for in-patients with acute gastrointestinal disorders, as well as assessing patients referred to for evaluation of symptoms to outpatient gastroenterology and hepatology clinics. The student obtains a complete history, does a physical, formulates a problem list, and makes a differential diagnosis, diagnostic and therapeutic plans for each problem. After thorough discussion with the consultant the student dictates and then corrects the consultation note to the referring physician. If the patient undergoes a diagnostic procedure in the endoscopy unit the student may view that procedure.

Objectives:

- 1) Obtain a basic knowledge and understanding of the wide spectrum of the GI disease.
- 2) The clinical presentation of the common GI diseases will be stressed as well as the most efficient use of the diagnostic resources used in the investigation of these diseases.

Evaluation procedure: The consultants and senior residents with whom the student has had contact will evaluate the student. The evaluation procedure will be similar to that used for clinical trainees on the service and is based upon non-cognitive skills relating to patient contact and interpersonal skills with co-workers as well as an assessment of clinical skills and competence in compiling a clinical record.

Expectations and attendance requirements: The student is required to attend the GI Team handover meeting each morning and has the opportunity to attend outpatient clinics (which currently are scheduled every afternoon of the week). In addition the student is required to participate in the rounds and teaching conferences of the department, which include GI-pathology rounds, sessions in Hepatology and Gastroenterology, all of these are held weekly. The student is expected to attend the twice-monthly GI rounds and monthly inter-hospital GI rounds. . The student is not required to participate in the on-call schedule.

Number of Students accepted per block: 1

GENERAL INTERNAL MEDICINE CLINICAL TEACHING UNIT

Supervisors:

Team 1: Dr. M. Goldszmidt, mgoldszm@uwo.ca (519) 685-5800, extension 35995

Team 2: Dr. K. Myers, Kathryn.myers@sjhc.london.on.ca (519) 646-6142

Team 3: Dr. B. Larocque, larocque@uwo.ca (519) 646-6117

Note: Students will be assigned to a Team at the discretion of the scheduler.

This 4th year elective is an inpatient experience on the General Internal Medicine Clinical Teaching Unit. The fourth-year clinical clerk choosing this elective is expected to integrate with the team and assume responsibility for the initial work-up and continuing care for a proportion of the team's patients. This implies participation in team rounds and sharing in the call schedule. This elective is designed to develop clinical skills in history taking and physical examination, to facilitate clinical decision-making under supervision, and to allow time for independent reading and learning. Each student should also anticipate at least one clinical presentation at the weekly team rounds. Evaluations are carried out by the Consultants and team Resident and are conveyed to the trainee at the end of the rotation.

Awards: *The J.B. Campbell Memorial Scholarship in Medicine*

Number of Students accepted per block: 1

NEPHROLOGY

Supervisor: Dr. J. Johnson, john.johnson@lhsc.on.ca, (519) 685-8524

The 4th-year clinical elective student is encouraged to participate in both the clinical and research activities within the nephrology program. The medical staff includes seven nephrology consultants. Students are expected to participate in both the inpatient and outpatient activities of the service. Nephrology inpatients are, in general, admitted under one of the general internal medicine teams, with nephrology providing consultative support. Renal transplant patients are accommodated in the 12-bed Multi Organ Transplant Unit on the 4th floor. Staff provides a nephrology consultative service throughout the hospital, with an average of 3-5 new consults weekly. Ten to thirteen outpatient clinics occur weekly, including transplant follow up clinics, general nephrology clinic and a chronic kidney disease clinic. There is approximately 300-patients/month that flow through the various outpatient clinics. Students can thus expect to encounter a broad range of nephrological patients in both the inpatient and outpatient settings. Students will be exposed to the range of practical procedures unique to nephrology including renal biopsy and the placement of temporary and permanent indwelling dialysis catheters. The service also runs a busy chronic hemodialysis service, with 14 in-centre stations and approximately 100 patients on satellite dialysis in the community, as well as providing renal transplant services (70-80 transplants annually) for the Southwestern Ontario region and much of Northern Ontario. Research activities of staff members range from basic research into immunologic aspects of renal disease and organ transplantation to clinical research.

Objectives:

A. Fluid and Electrolyte Disorders

1. Knowledge

Students should be able to define, describe and discuss:

- a. The pathophysiology of
 - Hypo- and hypervolemia
 - Hypo- and hypernatremia
 - Hypo- and hyperkalemia
 - Hypo- and hypercalcemia
 - Simple and mixed acid-base disorders
 - Respiratory acidosis and alkalosis
 - Metabolic acidosis and alkalosis.
- b. Presenting symptoms and signs of the above disorders.
- c. The importance of total body water and its distribution.

- d. The differential diagnosis of hypo- and hypernatremia in the setting of volume depletion, euvoolemia, and hypervolemia.
- e. How to distinguish hyponatremia from pseudohyponatremia.
- f. How to identify spurious hyperkalemia or acidosis-related hyperkalemia.
- g. Risks of too rapid or delayed therapy for hyponatremia.
- h. The most common causes of respiratory acidosis, respiratory alkalosis, metabolic acidosis and metabolic alkalosis.
- i. How to calculate the anion gap and explain its relevance to determining the cause of a metabolic acidosis.
- j. Changes in total body water distribution that occurs with aging.
- k. How altered mental status can contribute to electrolyte disorders.
- l. Tests to use in the evaluation of fluid, electrolyte, and acid-base disorders.
- m. Indications for obtaining an ABG.
- n. The types of fluid preparations to use in the treatment of fluid and electrolyte disorders.

2. Skills

- a. History-Taking Skills – students should be able to obtain, document and present an age-appropriate medical history that differentiates among etiologies of disease including:
 - Eliciting appropriate information from patients with volume overload, including recent weight gain, edema or ascites, symptoms of heart failure, dietary sodium intake, changes in medications, noncompliance and intravenous fluid regimens.
 - Eliciting appropriate information from patients with volume depletion, including recent weight loss, thirst, gastrointestinal losses, urinary losses, oral intake, insensible losses, and intravenous fluid regimens.
 - Eliciting appropriate information from patients with electrolyte problems, including use of diuretics and other medications, gastrointestinal losses, and history of relevant medical conditions (e.g., heart failure, liver disease, renal disease, pulmonary disease, central nervous system disease, and malignancy).
- b. Physical Exam Skills – students should be able to perform a physical exam to establish the diagnosis and severity of disease, including:
 - Measurement of orthostatic vital signs.
 - Identification of signs of volume overload including peripheral edema, pulmonary edema, ascites, edema.
 - Identification of signs of volume depletion including tachycardia, orthostatic hypotension, dry mucous membranes, poor skin turgor.
 - Identification of signs of sodium disorders including lethargy, weakness, encephalopathy, delirium, seizures.
 - Identification of signs of potassium disorders including weakness, fatigue, constipation, ileus, cramping, tetany, hypo- or hyperreflexia.
 - Identification of signs of calcium disorders including cramping, tetany, Chvostek's and Trousseau's sign, seizures, anorexia, constipation, polyuria, hypo- or hyperreflexia, stupor, coma.
- c. Differential Diagnosis – students should be able to generate a prioritized differential diagnosis recognizing specific history, physical exam, and laboratory findings that distinguish between:
 - Hypo- and hypervolemia
 - Hypo- and hypernatremia
 - Hypo- and hyperkalemia
 - Hypo- and hypercalcemia
 - Hypo – and hyperphosphatemia
 - Hypo- and hypermagnesemia

- Respiratory acidosis and alkalosis
 - Metabolic acidosis and alkalosis.
- d. Laboratory Interpretation – Students should be able to recommend when to order diagnostic and laboratory tests and be able to interpret them, both prior to and after initiating treatment based on the differential diagnosis, including consideration of test cost and performance characteristics as well as patient preferences. Laboratory and diagnostic tests should include, when appropriate:
- Serum electrolytes, BUN/Cr
 - Anion gap
 - ABG
 - Serum and urine osmolality
 - Urinary sodium
 - Fractional excretion of sodium
 - ECG findings in hyper- and hypokalemia
 - Serum BUN to Cr ratio.
- e. Basic and Advanced Procedural Skills – students should be able to:
- Insert a peripheral intravenous catheter
 - Obtain an ABG
 - Assist in the insertion of a central venous catheter
 - Perform a urine microscopic examination.
- f. Management Skills – Students should be able to develop an appropriate evaluation and treatment plan for patients that includes:
- Writing appropriate fluid orders for the treatment of hypo- and hypervolemia, hypo- and hypernatremia, hypo- and hyperkalemia, hypo- and hypercalcemia.
 - Writing appropriate orders for replacing sodium, potassium, calcium, phosphates and magnesium.
 - Writing appropriate orders for correcting hyperkalemia, hypercalcemia, hyperphosphatemia and phylermagnesemia.
 - Calculating the water deficit that needs to be corrected to treat hypernatremia.
 - Identifying indications for administration of bicarbonate.

B. Acute Kidney Injury and Chronic Kidney Disease

1. Knowledge

- a. Students should be able to define, describe and discuss:
- The distinction between the three major pathophysiologic etiologies for acute renal failure (ARF):
 - Decreased renal perfusion (prerenal)
 - Intrinsic renal disease (renal)
 - Acute renal obstruction (postrenal).
 - The pathophysiology of the major etiologies of “prerenal” ARF, including:
 - Hypovolemia
 - Decreased cardiac output
 - Systemic vasodilation
 - Renal vasoconstriction.
 - The pathophysiology of the major etiologies of intrinsic “renal” ARF, including:
 - Vascular lesions
 - Glomerular lesions
 - Interstitial nephritis
 - Intra-tubule deposition/obstruction
 - Acute tubular necrosis (ATN).

- The pathophysiology of the major etiologies of “postrenal” ARF, including:
 - Urethral (e.g., tumors, calculi, clot, sloughed papillae, retroperitoneal fibrosis, lymphadenopathy)
 - Bladder neck (e.g., tumors, calculi, prostatic hypertrophy or carcinoma, neurogenic)
 - Urethral (e.g., stricture, tumors, obstructed indwelling catheters).
- The pathophysiology and clinical findings of uremia.
- The natural history, initial evaluation and treatment, and complications of ARF.
- The most common etiologies of chronic kidney disease (CKD):
 - DM
 - Hypertension
 - Glomerulonephritis
 - Polycystic kidney disease
 - Autoimmune diseases (e.g., systemic lupus erythematosus)
- The staging scheme for CKD
- The significance for proteinuria in CKD
- The use of ACE-Is and ARBs in the management of CKD
- The importance of secondary hyperparathyroidism in CKD
- The pathophysiology of anemia in CKD
- The value of glycemic and hypertension control in limiting the progression of CKD
- The value of CAD risk factor modification in patients with CKD, particularly those treated with dialysis
- The basic principles of renal replacement therapy (e.g., hemodialysis and peritoneal dialysis) as well as the complications.

2. Skills

- a. History-Taking Skills – students should be able to obtain, document and present an age-appropriate medical history that differentiates among etiologies of disease including:
 - Eliciting an age-appropriate history that distinguishes among the three major reasons for ARF (pre-renal, renal, post-renal), including the predisposing conditions, nephrotoxic drugs or agents, and systemic disease and the major causes of CKD
 - Eliciting appropriate information from patients with volume overload, including recent weight gain, edema or ascites, symptoms of heart failure, dietary sodium intake, changes in medications, noncompliance and intravenous fluid regimens.
 - Eliciting appropriate information from patients with volume depletion, including recent weight loss, thirst, gastrointestinal losses, urinary losses, oral intake, insensible losses, and intravenous fluid regimens.
- b. Physical Exam Skills – Students should be able to perform a physical exam to establish the diagnosis and severity of disease, including:
 - The determination of a patient’s volume status through estimation of the central venous pressure using the height of jugular venous distention and measurement of pulse and blood pressure in the lying/standing positions.
 - Palpitation and percussion of the bladder to recognize bladder distention
 - Palpation of the prostate
 - Determination of the presence of pulmonary edema, peripheral edema, ascites, and signs of heart failure
 - Findings consistent with uremia
 - Examination for evidence of systemic disease, including but limited to skin, joints, and nails.
- c. Differential Diagnosis – Students should be able to generate a prioritized differential diagnosis recognizing specific history, physical exam, and laboratory findings that distinguish between:

- Acute renal failure and chronic kidney disease.
- d. Laboratory Interpretation—Students should be able to recommend when to order diagnostic and laboratory tests and be able to interpret them, both prior to and after initiating treatment based on the differential diagnosis, including consideration of test cost and performance characteristics as well as patient preferences. Laboratory and diagnostic tests should include, when appropriate:
- Serum electrolytes, BUN/Cr
 - Anion gap
 - ABG
 - Urinary sodium
 - Fractional excretion of sodium
 - Serum BUN to Cr ratio
 - CBC, ferritin
 - Performing and interpreting a urinalysis, including microscopic examination for casts, red blood cells, white blood cells, and crystals.
 - Calculating fractional excretion of sodium and appreciate its usefulness in distinguishing between pre-renal and intrinsic renal disease
 - Calculating creatinine clearance using the Cockcroft-Gault or MDRD (“modification of diet in renal disease study”) equations
 - Serum parathyroid hormone level
- ECG findings in hyperkalemia
 - Renal ultrasonography.
- e. Basic and Advanced Procedural Skills – Students should be able to :
- Insert a peripheral intravenous catheter
 - Obtain an ABG
 - Assist in the insertion of a central venous catheter
 - Perform a urine microscopic examination.
- f. Management Skills – Students should be able to develop an appropriate evaluation and treatment plan for patients that includes:
- Designing an appropriate management plan for initial management of ARF, including volume management, dietary recommendations, drug dosage alterations, electrolyte monitoring, and indications for dialysis.
 - Developing a management plan to effectively treat HTN and DM
 - Recommending treatment with phosphate binders, calcium replacement, and Vitamin D replacement
 - Recommending treatment for dyslipidemia
 - Recommending treatment for anemia secondary to CKD
 - Recommending acute treatment for hyperkalemia
 - Determining when to obtain consultation from a nephrologist
 - Using a cost-effective approach based on the differential diagnosis.
 - Accessing and utilizing appropriate information systems and resources to help delineate issues related to renal failure
 - Incorporating patient preferences.

Objectives:

- 1) Explain to a patient and his or her family why intravenous fluids are needed.
- 2) Communicate the diagnosis, treatment plan, and subsequent follow up to the patient and his or her family.
- 3) Elicit input and questions from the patient and family about the management plan.

4) Counsel patients regarding a renal diet.

Number of Students accepted per block: 1

PERIOPERATIVE & AMBULATORY GENERAL INTERNAL MEDICINE

Supervisor: Dr. Dongmei Sun, Dongmei.Sun@lhsc.on.ca , (519) 646-6142

This elective mainly comprises of an inpatient consultation service, with some opportunity for participating in ambulatory clinics. In the inpatient setting, the student will participate in medical consultations on the surgical services. This is a team experience and the student will have the opportunity to work as a part of a team with medicine residents on this rotation. In the ambulatory setting the student will participate in General Medical Clinics, Urgent Medical Clinics (referrals from the ER to the outpatient setting) and Pre-Admission Clinics.

The student is not expected to take call during this service, although this can be arranged if so desired.

Number of Students accepted per block: 1

CARDIOLOGY

Supervisor: Dr. Bryan Dias, Bryan.Dias@lhsc.on.ca , (519) 663-3830

The 4th year elective/selective program provides experiences in the inpatient Cardiology setting. The student will have opportunity to see a wide variety of cardiovascular problems, including acute and chronic ischemic heart disease, valvular heart disease, heart failure and arrhythmia. The student will be part of the inpatient Cardiology team (ward or CCU), consisting of PGY1/2, ± M3, and possibly a nurse practitioner. There will be ample opportunity for exposure to the noninvasive techniques of cardiologic evaluation i.e. ECG, stress testing, and echocardiography. In addition, the student will have opportunity to view invasive diagnostic procedures i.e. cardiac catheterization, and interventional procedures i.e. coronary angioplasty, and if desired, ICD/pacemaker implants and ablations. The elective/selective is meant to provide an opportunity for students to improve their approach to common cardiovascular clinical scenarios and treatment.

Awards: The University of Western Ontario Award in Cardiology

Objectives:

- 1) Proficiency in performing a focused and accurate cardiovascular history and physical examination
- 2) Develop an appropriate differential diagnosis and management plan for common clinical scenarios in cardiology
- 3) Develops competence in basic ECG interpretation
- 4) Develops an understanding of the indications and limitations of cardiac diagnostic tests
- 5) Develops adequate knowledge of cardiovascular therapeutic agents
- 6) Recognizes, identifies and manages early and late complications of acute coronary syndromes (ACS)
- 7) Is familiar with the presentation, natural history and management of other common cardiovascular disorders (esp. heart failure)
- 8) Understands the role of revascularization procedures in coronary disease
- 9) Communicates effectively with on-call and attending cardiologists
- 10) Is able to identify knowledge gaps and independently formulate appropriate learning objectives to close those gaps

- 11) Uses information technology (e.g., Medline, Internet) to rapidly update knowledge base
- 12) Prepares and presents topics and cases as requested
- 13) Functions effectively as a member of the clinical team

Number of Students accepted per block: 1

CRITICAL CARE TRAUMA CENTRE

Supervisor: Dr. Mithu Sen, mithu.sen@lhsc.on.ca , (519) 667-6577

Note: Students will be assigned to either the CCTC or the MSICU at the discretion of the scheduler.

An elective in our critical care units will offer exposure to patients with multiple systems organ failure and acute traumatic illnesses admitted to Victoria Hospital's Critical Care Trauma Centre (CCTC) and/or University Hospital Medical Surgical ICU (MSICU). These large units and major referral centres for Southwestern Ontario will provide exposure to critically ill patients with diverse diagnoses including multitrauma, medical and surgical critically ill patients, as well as obstetrics and the neurosciences.

This rotation will help develop the student's ability to assess, resuscitate based on ACLS and ATLS guidelines, and manage critically ill patients by being an integral member of the critical care team. We tailor the experience to the students' abilities, needs and interests. Our educational sessions occur daily in the form of: fundamentals of critical care morning seminars, quality improvement lectures, journal club, and multidisciplinary Critical Care rounds twice daily form an integral part of the educational process.

We provide the student with an opportunity to acquire confidence in the clinical assessment of critically-ill patients. These valuable skills and knowledge will help to prepare the student for any discipline or type of centre the student will eventually choose as a career path.

Objectives:

- 1) Identify a critically ill patient
- 2) Describe the immediate resources required to support a critically ill patient, including contacting appropriate services necessary (at LHSC- Critical Care Outreach Teams (CCOT) is a key resource; contacting Critical Care services or the Code Blue Team in an emergent situation is also considered a resource). The student will gain an appreciation for the supports available.
- 3) Demonstrate the ability to rapidly ascertain the clinical stability of the acutely ill patient and to prioritize therapeutic interventions.
- 4) Demonstrate an understanding of the basic physiologic principles, differential diagnosis and initial management of shock.
- 5) Describe the basic approach to the initial stabilization and management of a patient with increased intracranial pressure.
- 6) Define acute lung injury and demonstrate an understanding of some of the management strategies.
- 7) Demonstrate an understanding of the principles of mechanical ventilation.
- 8) Explain the principles of infection control in the ICU setting, including antibiotic stewardship, and understand the role that resistant organisms play in the clinical course of critically ill adults.
- 9) Be able to list a differential diagnosis and initial management plan for a patient with a suspected underlying metabolic disorder.
- 10) Be able to synthesize and communicate clearly to present pertinent aspects of a critically ill patient emphasizing areas that are a priority, including airway, breathing, and circulation

Expectations and attendance requirements:

Students will be expected to accept responsibility for the initial and daily evaluation of patient(s), as assigned by the senior resident and consultant and to attend all components of the Critical Care Teaching Program.

Evaluation: This will include clinical skills assessment in the bedside evaluation of critically ill patients. Enthusiasm is a must!

The student is not expected to take call during this service, although this can be arranged if so desired.

Number of Students accepted per block: 2

GASTROENTEROLOGY

Supervisor: Dr. T. Ponich, terry.ponich@lhsc.on.ca, (519) 667-6582

The objective of the elective is to obtain a basic knowledge and understanding of the wide spectrum of the GI disease. The clinical presentation of the common GI diseases will be stressed, as well as the most efficient use of the diagnostic resources used in the investigation of these diseases. The student will receive both inpatient and outpatient clinical experience in adults (and Pediatric GI on request). The evaluation procedure is by consensus of the attending consultants. No night or weekend call is expected.

The student will see gastroenterological patients at the outpatient clinics and on the wards. They will be given the opportunity to prepare and present patients and do a number of the in-hospital consultations. Since much of what is important in arriving at the diagnosis comes from the history, the student will learn the value of a thorough history in GI diagnosis. They will have the opportunity to see most, if not all, of the GI procedures. And thus the opportunity to see how rapidly and precisely endoscopic techniques permit the precise corroboration of the diagnosis.

Objectives:

- 1) Obtain a basic knowledge and understanding of the wide spectrum of the GI disease.
- 2) The clinical presentation of the common GI diseases will be stressed as well as the most efficient use of the diagnostic resources used in the investigation of these diseases.

Evaluation Procedure:

The consultants and senior residents with whom the student has had contact will evaluate the student based on their overall clinical performance with patient care.

Number of Students accepted per block: 1

GENERAL INTERNAL MEDICINE CLINICAL TEACHING UNIT

Supervisors:

CTU ACE Team: Dr. M. Taabazuing, marymargaret.taabazuing@lhsc.on.ca, (519) 685-4000, extension 44021

CTU BLUE Team: Dr. S. Zafar, saira.zafar@lhsc.on.ca (519) 519-685-8500, extension 58132
CTU GOLD Team: Dr. B. Wyllie, blair.wyllie@lhsc.on.ca (519) 685-8500, extension 58132

Note: Students will be assigned to a Team at the discretion of the scheduler.

General Internal Medicine Clinical Teaching Unit at Victoria Hospital is comprised of specialists in Internal Medicine. The patients admitted by these Consultants are cared for by a team consisting of Senior General Internal Medicine Residents (IM3 and/or IM2), Junior Residents (2 or 3 either rotating or straight medicine) and clinical clerks. The patient census varies between 15 and 25. The fourth-year clinical clerk choosing this elective is expected to integrate with the team and assume responsibility for the initial work-up and continuing care for a proportion of the team's patients. This implies participation in team rounds and sharing in the call schedule. This elective is designed to develop clinical skills in history taking and physical examination, to facilitate clinical decision-making under supervision, and to allow time for independent reading and learning. Each student should also anticipate at least one clinical presentation at the weekly team rounds. Evaluations are carried out by the Consultants and team Resident and are conveyed to the trainee at the end of the rotation.

Awards: *The J.B. Campbell Memorial Scholarship in Medicine*

Number of Students accepted per block: 1

HEMATOLOGY

Supervisor: Dr. Chai Phua, Chai.Phua@lhsc.on.ca, (519) 685-8500, extension 58342

In a very busy outpatient service, students would see patients with all types of haematological malignancies (lymphomas, myelomas, leukemias, etc.). In addition there is a steady flow of consultations on benign haematological disorders including coagulation disorders, all aspects of anemias and cytopenias, hemoglobinopathies, etc. The objective of this elective is to learn to manage common haematological disorders. The student is expected to see follow-up patients and consultations on his/her own and discuss the findings and his/her approach with a consultant for teaching and management purposes. If interested, the student has the opportunity to spend time in the Haematology Laboratory to get a good introduction into interpretative morphology and other aspects of laboratory haematology and blood banking. The student will be evaluated by the quality of his/her clinical approach including history taking, physical examination skills and case presentations and his/her written reports. The rotation takes place primarily at LHSC-VH and London Regional Cancer Program.

No night or weekend call is expected.

Awards: *The Dr. David Meltzer Undergraduate Award in Haematology*

Essay submissions are to be emailed to Undergraduate Medical Education (awards.ume@schulich.uwo.ca) and reviewed by Dr. J. Mangel.

Deadline for essay submissions is March 31, 2019

Objectives:

1) During the Haematology rotation, the student should: Develop an approach to the assessment of patients presenting with haematologic problems, including eliciting a relevant, concise, and accurate medical history.

Learn to perform an appropriate physical examination in haematology patients, including examination of the lymph node regions, liver and spleen.

Learn how to select medically appropriate investigative tools for the work-up of patients with haematological disorders.

Observe (and potentially attempt) the most common procedure used in the diagnosis and management of haematologic patients, the bone marrow aspiration and biopsy.

Become exposed to morphological examination of blood films and bone marrow aspirates.

2) During the Haematology rotation, the student should:

- Recognize the importance of good communication in the therapeutic relationship between patient and physician.
- Develop relationships with patients characterized by compassion, empathy, mutual respect, and genuineness, demonstrating a willingness to collaborate with the patient about management.
- Demonstrate skill in communication of information with clear, concise explanations that are understandable to patients.
- Adapt treatment plans to the individual with consideration for the patient's age, general health, special needs, expectations, cultural background, progress, or changes in condition.
- Deliver care with integrity, honesty and compassion.
- Understand the ethical issues relevant to the care of the haematology patient (end of life care, consent to transfusion of blood products, etc.).

3) During the Haematology rotation, the student should be able to:

- Identify the important determinants of health as they contribute to haematologic diseases, such as nutritional anemias and secondary malignancies.
- Understand the importance of preventative strategies in haematologic disease.
- Recognize populations "at risk" for haematologic diseases and contribute to promotion of health in "at risk" groups.
- Recognize and respond to issues, settings, circumstances, or situations in which advocacy on behalf of patients, professions, or society is appropriate.

4) During the Haematology rotation, the student should:

- Demonstrate skill in self-directed learning by:
- Ability to identify areas of deficiency in one's own knowledge and skills.
- Ability to find appropriate educational resources.
- Ability to evaluate personal learning progress.
- Ability to use new knowledge in the care of patients.
- Learn the physiology of important topics in haematology, including haematopoiesis, the immune system, and haemostasis.
- Learn the pathophysiology underlying the common haematological disorders, such as disorders of iron and haemoglobin, autoimmune destruction of red cells and platelets, haematologic malignancies, venous thromboembolism and bleeding disorders.
- Learn about the medications commonly used in patients with haematological disorders.
- Determine the validity and applicability of published data through critical appraisal.

5) During the Haematology rotation, the student should: Recognize and respect the roles of physicians, nursing staff, physiotherapists, occupational therapists, pharmacists and social workers in provision of optimal care of the haematology patient.

Work together with all the members of a multidisciplinary health care team to develop care plans for haematology patients, including investigation, treatment and continuing care.

- Establish effective relationships with colleagues and other members of the health care team.
 - Demonstrate responsibility and respect.
 - Recognize personal biases and ensure that they do not interfere with the patient's best interests.
 - Be willing to seek help, advice or consultation when needed.
 - Respond to personal and family needs and develop effective support systems.
 - Exhibit appropriate personal and interpersonal professional behaviours.
- 6) During the Haematology rotation, the student should:
- Assist patients in accessing the health care system.
 - Use the concepts of evidence-based medicine to guide patient care decisions.
 - Identify potential conflicts between individual and population interests and seek advice from others including ethicists, when necessary, to help resolve issues.
 - Demonstrate effective organizational and time management skills to achieve balance between career and personal responsibilities.
 - Use diagnostic tests appropriately and consider cost-benefit issues when selecting diagnostic and therapeutic strategies.
- 7) During the Haematology rotation, the student should:
- Assess the effectiveness of practice and engage in continuous quality improvement.
 - Support and value the work of scientists as vital to the health of patients with haematological problems.

Number of Students accepted per block: 1

NEPHROLOGY

Supervisor: Dr. Nabil Sultan, Nabil.Sultan@lhsc.on.ca, (519) 685-8500, extension 58524

This 2-week rotation will provide exposure to the nephrology ward inpatient service, nephrology consultation service, outpatient nephrology clinics, and hemodialysis and peritoneal dialysis.

One week before the rotation, the student will receive an email to their @meds.uwo.ca email account from Dr. Sultan's assistant, Ms. Robin Szuch, Robin.Szuch@lhsc.on.ca . **Please check this account.** The email will contain an orientation package, clinic schedule, and indicate where to report for duties; either Nephrology Inpatients D6-200 or the Kidney Clinic A2-351.

Duties:

1) One week on the ward service (D6-200)

The student will function as part of the nephrology team with the junior and senior residents. The student will be expected to take responsibility for the care of at least 3 patients with appropriate supervision, commensurate with their level of training and experience. Please see orientation package for details.

2) One week on clinics AND consult service

a) *CLINICS*

The student is expected to attend at least 5 outpatient clinics. You will receive a clinic schedule with your orientation package. You may choose clinics that have no more than one learner. **Please email Ms. Robin Szuch, Robin.Szuch@lhsc.on.ca or Dr. Sultan, nsultan@uwo.ca with the clinics you have chosen to attend.**

The student will see patients on his/her own, review them with the consultant in the clinic, and then dictate an appropriate new consultation or follow-up note. The 3rd year students are encouraged to start with follow-up patients, while 4th students may see new consultations.

b) *CONSULTS*

When the student is not in clinic, they are expected to round on the consult service with the nephrology fellow (please page the consult fellow on your first day to set up a schedule). The student may also be asked to see new consults and write follow-up notes on 2-3 patients per day to enhance their learning experience.

Evaluations:

Evaluations will be completed on one45. Please distribute your evaluation to the consultant you worked with the most during your rotation. Also please fill out the Faculty and Rotation evaluations along with feedback so that we may improve future rotations for others.

Objectives:

The following objectives pertain to the Medical Expert/Decision Maker part of the CanMEDS Roles. For the other roles, please see the Undergraduate Medical Curriculum Competencies.

By the end of the rotation, the student will become familiar with the following:

1) Volume Status

- a) Assessment of volume status (volume depletion, volume overload, and euvoemia) using history and physical exam.
- b) Recognition of pulmonary and interstitial edema on CXR.
- c) Strategies to treat volume depletion and volume overload.

2) Electrolyte Disorders

- a) Diagnosis, pathophysiology, and acute treatment of life-threatening electrolyte disorders, including:
 - i) hypo and hypernatremia
 - ii) hypo and hyperkalemia
 - iii) metabolic acidosis - including normal and increased anion gap metabolic acidosis

3) Acute Kidney Injury

- a) Approach to the diagnosis of pre-renal, post-renal, and renal causes of AKI - *specifically understanding the importance of urinalysis in arriving at a diagnosis*
- b) Management of pre-renal and post-renal causes of AKI
- c) Recognition of indications for urgent dialysis
- d) Recognition of when urgent nephrology referral is required for diagnosis and/or management of AKI
 - eg. renal causes such as ATN, AIN, nephritic / nephrotic syndrome, TTP/HUS
 - eg. urgent dialysis indicated

4) Chronic Kidney Disease

- a) Understanding measures of renal function, including:
 - i) how to interpret serum creatinine, creatinine clearance, and eGFR

- ii) approach to persistent hematuria and proteinuria
- c) Appropriate management of cardiovascular risk factors in patients with CKD
- d) Recognition of complications of CKD, including uremic symptoms, anemia, and abnormalities of phosphate metabolism
- e) Recognition of when nephrology referral is required for management of CKD

5) Drugs and the Kidney

- a) Recognition of commonly prescribed nephrotoxic drugs
- b) Recognition of when dose adjustments are required for reduced renal function

1. Procedures

1. Recognize the indications for central venous access
2. Understand common complications of obtaining central venous access
3. Assist the fellow or consultant in insertion of dialysis catheters (optional)

It is your responsibility to ensure you have covered these topics during the rotation. Please read, ask questions, and seek help from the residents, fellows, and consultants.

Number of Students accepted per block: 1

DEPARTMENT OF MEDICINE BASE HOSPITAL & EMS MEDICINE

BASE HOSPITAL /EMS

Main Contact: Dr. Sean Doran, sean.doran@lhsc.on.ca , (519) 685-8500, 78987

Rotation Objectives

Medical Student Elective Experience in Base Hospital and EMS Medicine

Medical Expert *The trainee will be able to....*

- (a)** Differentiate and describe various EMS models. **(IV, XI)**
- (b)** Discuss the administrative/operational structure of EMS in Ontario. **(IV)**
- (c)** List features or characteristics of a tiered response - (first responder, BLS responder, ALS responder). **(IV, X, XI)**
- (d)** Discuss the role of a Base Hospital. **(IV, XI)**
- (e)** Understand the difference between off-line and on-line medical control. **(IV, XI)**
- (f)** Understand the responsibility of the off-line medical director. **(IV, XI)**
- (g)** Have an awareness of the procedure and use of EMS/ED radio communication. **(IV, VIII, IX)**
- (h)** List medications available to PCP and ACP providers. **(IV, V, IX)**
- (i)** Have an awareness of EMS medical protocols. **(V, VII, IX)**
- (j)** Become familiar with the Ambulance Call Record be able to extract pertinent data. **(VII)**

Communicator

The trainee will be able to...

- 1.** List pieces of priority information which physicians must gain from the EMS unit patient report. **(IX)**

2. Communicate effectively with paramedics and base hospital staff **(VIII, IX)**

Collaborator

The trainee will be able to...

1. Gain an understanding of Central Ambulance Communications Centre's role and responsibilities in EMS care. **(VIII)**
2. Foster team building/communication with various members of the SWORBHP. **(VI,VII)**
3. Consult effectively with emergency department physicians and nurses. **(IX)**

Manager

The trainee will be able to...

1. Gain an understanding of data processing and management from a Quality Assurance process at SWORBHP. **(VI, VII)**
2. Perform ACR audits to gain a familiarity with the QA process. **(VII)**

Health Advocate

The trainee will be able to...

1. Identify evidenced based areas for improvement in pre-hospital management to provide optimal patient care. **(XII)**

Scholar

The trainee will be able to...

1. Discuss current literature in EMS and be able to discern which practices in EMS are evidence based and which are not. **(XII, XIII)**
3. Contribute to the "summary" database of EMS Studies **(XIII)**
4. Have an awareness of current EMS research being conducted at LHSC/SWORBHP **(IV)**.

Professional

The trainee will....

1. Demonstrate professional behaviour toward patients, paramedics, base hospital staff, support staff and allied health professionals. **(IV,VI,VIII, IX,X)**
2. Demonstrate a strong self directed work ethic and a desire to learn issues pertaining to the above objectives. **(I-XIII)**

Action Plan for Successfully Completing the Objectives

Before Rotation Begins

Review online EMS content on www.lhsc.on.ca/About_Us/Base_Hospital_Program

During Rotation

- Orientation meeting with Matt Davis (Medical Director Education).
- Review PCP and ACP medical directives/protocols.
- Complete ACR audits after meeting with Matt Davis or delegate. Suggest reviewing VSA and relevant directives/protocols prior to completing audits.
- Attend CACC to observe EMS dispatch operations.
- Complete 4 EMS ride-outs and keep relevant log.
- Read Relevant Rosen/Tintinalli EMS chapters
- Read provided EMS literature/studies.
- Complete a "Bottom Line" which will be added to ongoing database or other educational project to be determined at the start of the rotation.

- Meet with Sean Doran mid-rotation to discuss any concerns, positive/negative experiences, suggestions for rotation improvements.

Ride-out Experience.

Thames EMS safety seminar must be completed prior to ride-out.

Ride-outs are observation only. There will be no direct patient care or contact.

If you are unable to attend for some reason you must contact: 1) the duty manager 2) email Jay Loosely if he is not the duty manager & 3) email Dr. Sean Doran.

Ride-outs must be completed and logs submitted to Dr. Sean Doran by end of rotation.

Contacts

Dr. Sean Doran
Medical Director of Education
SWORBHP
(519) 685-8500 extension 78987
sean.doran@lhsc.on.ca

Dr. Matt Davis
Regional Medical Director
SWORBHP
(519) 685-8500 extension 76718
matthew.davis@lhsc.on.ca

Susan Kriening
Regional Manager
SWORBHP
(519) 685-8500 extension 75715
Susan.kriening@lhsc.on.ca

Lisa Ragogna
Operations Manager
London Central Ambulance Communications Centre
1510 Woodcock Street, Suite #20
London, Ontario N6H 5S1
(519) 661-1789
lisa.ragogna@ontario.ca

Jay Loosley
Superintendent MLEMS - EMS Ride-out Schedule
340 Waterloo Street London ON
jloosley@mlems.ca
(519) 679-5466, extension 103