### Pulmonary/Critical Care Rotation: Consultative Inpatient and Outpatient
#### PGY-2/3
(1-month rotation)

#### Description of Rotation or Educational Experience

**Locations:** MCSA, MCW

All primary care physicians encounter patients with pulmonary diseases. The pulmonary consultative rotation familiarizes the resident with the appropriate evaluation and treatment of patients with pulmonary diseases.

The rotation is an inpatient consultative and outpatient rotation lasting for one month. The trainee will work under the guidance and supervision of an attending faculty member with Board Certification in Pulmonary/Critical Care. On the medical-surgical floors, the pulmonary team consists of one resident and one pulmonary/critical care attending. However, at MCW MICU floor, the resident and pulmonary attending will interact with the MICU team, which may include other residents, medical students, pharmacists, pharmacy students, RNs, and nutritionists. The pulmonary team will be asked to perform as consultants to patients for physicians requesting pulmonary consultation. Patients are seen and examined by the PGY-2/3 trainee, who formulates a hypothesis and a treatment plan and presents it to the attending faculty. Both the trainee and the attending then examine the patient and discuss the care. No orders should be placed by the resident trainee in advance unless agreed upon by the attending. Emphasis is placed upon a pertinent history and physical with review of laboratory and imaging studies. This information is used to formulate a differential diagnosis, which then becomes a starting point for teaching. Teaching focuses on evaluation and management of the specific case as well as similar generalized clinical situations. There will also be formal lectures given by the attending to the resident and MICU team weekly. Residents are expected to attend and participate in clinical discussions.

In the ambulatory setting, the trainee will be expected to participate in the pulmonary clinic and will work under the guidance and supervision of an attending faculty member with board certification in pulmonary medicine. Patients with pulmonary diagnoses are scheduled to the clinic. A history and physical is obtained by the PGY-2/3 trainee, who formulates a hypothesis and a treatment plan that is presented to the attending faculty. Both the trainee and the attending then examine the patient and discuss the care. Emphasis is placed upon a pertinent history and physical with review of laboratory studies, imaging, and pulmonary function testing. This information is used to formulate a differential diagnosis, which then becomes a starting point for teaching. Teaching focuses on evaluation and management of the specific case as well as similar generalized clinical situations. A detailed plan for follow-up is discussed and communicated with the patient. There are times when a patient will have a pulmonary function test done at the office. Resident trainees are strongly encouraged to observe at least one pulmonary function test to understand how it is performed. In primary care, patients are referred to have PFTs.
done oftentimes. It is pertinent for primary care physicians to be able to explain the purpose, benefits and method of administration of this test to a patient.

GOALS
After completing this rotation, the PGY-2/3 trainee should be able to:
• Provide evidence-based evaluation and management of common pulmonary problems.
• Develop the necessary knowledge, skills and attitudes to confidently and efficiently manage those pulmonary conditions commonly encountered in inpatient, outpatient as well as critical care unit.
• Develop familiarity with the indications for, risks, benefits, and methods of performance of noninvasive and invasive diagnostic and therapeutic procedures essential to pulmonary medicine such as pulmonary function tests, intubations, thoracentesis, pleurodesis, lung biopsies, etc.
• Recognize the limits of one's abilities, know how to do a pulmonary consultation to become comfortable with the concept of co-management of critically ill patients.

Patient Care

Goal
Residents must be able to:
• Provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health.
• Examine assigned patients on a daily basis until their day of discharge to ensure continuity.
• Skillfully communicate with the patient, his/her family and significant others.
• Examine their assigned patients on a daily basis and finish their progress notes before rounding.
• At MCW, resident trainees are expected to round with the pulmonary attending and the MICU team members from 10 am-12 pm in the unit.
• At MCSA, resident trainees are expected to round with the pulmonary attending in the morning. Attending will notify resident rounding time in advance.

Competencies
Residents are expected to and be able to:
• Obtain and record a patient’s history in a logical, organized and thorough manner
• Perform and record a complete physical examination
• Identify pulmonary wheezes, rales, ronchi and perform pulmonary auscultation
• Obtain, understand, and interpret patient’s laboratory values and imaging reports and deliver the information to the patient, family members, and other healthcare professionals in the same management team.
Objectives

At the conclusion of the rotation, the residents will be able to:

Pulmonary

- Perform an adequate and clinically-relevant history taking, proper physical exam with pulmonary emphasis, interpretation of labs, x-ray and chest CT results.
- Understand how to distinguish normal from pathological pulmonary conditions.
- Recognize the signs and symptoms of common respiratory diseases.
- Formulate optimum assessment and treatment plans for common respiratory diseases.
- Understand the role of the health care team in acute and/or chronic respiratory diseases.
- Appreciate the role of pulmonary function testing and flexible bronchoscopy in the evaluation and management of respiratory diseases.
- Be competent in developing a differential diagnosis and management plan.
- Effectively counsel and answer questions from patient and families
- Effectively communicate with primary healthcare team, address any questions and give a concrete plan from a pulmonary standpoint.
- Develop proficiency in basic chest radiographic interpretation.
- Legibly and thoroughly document the findings, impression, and plan for each patient, using the problem-oriented patient care system.
- Accurately and concisely present the findings to the staff Attendings and consultants.
- Understand indications for and interpreting more advanced diagnostic tests including:
  a. Routine Radiography
  b. Computed Tomography (CT)
  c. Magnetic Resonance Imaging (MRI)
  d. Scintigraphic Imaging
  e. Positron Emission Tomographic (PET) Scanning
  f. Pulmonary Angiography
  g. Ultrasound
  h. Collection of Sputum
  i. Percutaneous Needle Aspiration
  j. Thoracentesis
  k. Bronchoscopy
  l. Video-Assisted Thoracic Surgery (VATS)
  m. Thoracotomy
  n. Mediastinoscopy and Mediastinotomy
  o. Pulmonary Function Testing and Spirometry
  p. Sleep Studies
Critical Care

- Differentiate those problems that require intensive care from those that can be managed safely on the ward and understand the evaluation of the ill outpatient who may require admission to the ICU.
- List those characteristics that warrant intensive care.
- Be competent in recognizing the common complications encountered in the ICU setting.
- Assume management for all assigned unit patients. Most patients at MCW are assigned to the MICU team. However, at MCSA, residents will be assigned unit patients.
- Manage critically ill patients with common ICU diagnoses such as all forms of pneumonia (CAP, HCAP, VAP), toxicology, respiratory failure, STEMI/NON-STEMI, DKA, alcohol toxicity, arrhythmias, etc.
- State the indications for and risks of transfusion of blood products.
- Perform an adequate history taking, physical exam, interpretation of lab and x-ray results, and a sufficiently extensive working differential diagnosis of critically ill patients.
- Apply principles of ICU pharmacology in the management of the critically ill patient. Residents are expected to communicate with pulmonary attending or hospital pharmacists if there are any questions or uncertainties.
- Develop familiarity with the indications for, risks, benefits, and methods of performance of noninvasive and invasive diagnostic and therapeutic procedures essential to intensive care medicine.
- When residents are rotating at Mount Carmel West MICU, they are not expected to perform any procedures. The procedures are assigned to the MICU resident team members with the exception of the attending.
- When residents are rotating at Mount Carmel St. Ann, if a procedure is clinically indicated for a patient, the resident performs the appropriate procedure only if the attending gives the permission and will only be done under the supervision of the attending.
- Residents are not expected to participate in cardiopulmonary resuscitation at MCW or MCSA but can actively participate if chose to do so.
- Understand the indications and parameters for mechanical ventilations; be able to initiate basic ventilator settings, maintenance settings, and weaning procedures after a comprehensive discussion of treatment plan with the pulmonary attending.
- Evaluate the critically ill patient in an organized manner, and develop a logical approach to the management of the patient with multisystem organ failure.
Medical Knowledge

Goal
Residents will have access information and evaluate the medical literature by using the Mount Carmel hospitals computer system. In addition, supplemental books may be provided by the attending physician. Residents must demonstrate habits consistent with life-long learning. Residents are required to attend any pulmonary conferences and lectures conducted by the pulmonary attending and actively participate in clinical discussion.

Objectives
At the conclusion of the rotation, residents will be able to demonstrate that they have developed the necessary knowledge and attitudes to confidently and efficiently manage those medical conditions commonly encountered in the intensive care unit, including:

Pulmonary
1. Access information and evaluate the medical literature
2. Demonstrate habits consistent with life-long learning.
3. Develop competence in the identification and management of the following common respiratory symptoms and clinical situations:
   a. Dyspnea
   b. Hemoptysis
   c. Evidence based preoperative pulmonary evaluation
   d. Acute respiratory failure
   e. Indications for bronchoscopy
   f. Indications for insertion of chest tubes.
   g. Obstructive lung diseases
      i. Asthma exacerbation
      ii. COPD exacerbation
      iii. Bronchiectasis
      1. Cystic fibrosis
      iv. Obliterative bronchiolitis
   h. Restrictive disorders
      i. Diffuse interstitial lung disease
      1. Idiopathic pulmonary fibrosis
      2. Pneumoconiosis
      3. Sarcoidosis
      4. Other
   i. Pulmonary vasculitis and pulmonary hemorrhage syndromes
   j. Pulmonary venous thromboembolic disease
   k. Occupational and environmental lung diseases
      i. Hypersensitivity Pneumonitis
   l. Pneumothorax and pleural effusions
   m. Pulmonary infections
      i. Community acquired pneumonia
ii. Healthcare associated pneumonia  
iii. Ventilation associated pneumonia  
iv. Pneumonia in the immunocompromised host  
v. Fungal infections  
vi. Opportunistic infections  
vii. Empyema  
viii. Tuberculosis  
ix. Atypical mycobacterial infections  
x. HIV associated infections  

n. Identification, diagnosis and staging of pulmonary malignancy  
i. Primary lung  
  ii. Metastatic disease to the lung  
o. Respiratory failure  
  i. Acute lung injury/Adult respiratory distress syndrome  
  ii. Neuromuscular respiratory failure  

Critical Care  
- Discuss the pathophysiology, presentation, initial evaluation, early stabilization,  
  management and appropriate disposition of patients who have the following  
  conditions:  
  o Acute Respiratory Disease  
    ▪ acute respiratory failure  
    ▪ acute exacerbation of COPD/emphysema  
    ▪ acute exacerbation of asthma  
    ▪ acute pulmonary edema  
    ▪ adult respiratory distress syndrome  
    ▪ pulmonary embolism  
    ▪ pneumothorax  
  o Acute Cardiovascular Disease  
    ▪ acute myocardial infarction  
    ▪ acute congestive heart failure  
    ▪ arterial thrombosis  
    ▪ cardiac arrest  
    ▪ cardiac dysrhythmias  
    ▪ dissecting aortic aneurysm  
    ▪ hypertensive urgency/emergency  
    ▪ hypotension/shock  
    ▪ pericarditis  
  o Acute Neurologic Disease  
    ▪ acute mental status changes  
    ▪ coma  
    ▪ cerebrovascular accident  
    ▪ seizures  
    ▪ subarachnoid hemorrhage  
  o Acute Gastrointestinal Disease  
    ▪ acute pancreatitis
- acute upper GI bleed
- acute lower GI bleed
- end-stage liver disease/hepatic failure
- ischemic bowel disease
- acute bowel obstruction
- Acute Endocrine and Metabolic Disease
  - acid-base disorder
  - adrenal crisis
  - diabetic ketoacidosis
  - hyperosmolar hyperglycemic nonketotic coma
  - hypoglycemia
  - electrolyte disorders
  - myxedema
  - thyroid storm
- Acute Hematologic Disease
  - acute leukemia (crisis)
  - coagulation disorders/DIC
  - bleeding disorders
  - severe sickle cell crisis
- Acute Infectious Disease
  - acute epiglottitis
  - encephalitis
  - meningitis
  - HIV infectious complications
  - pneumonia
  - sepsis
- Acute Renal Disease
  - acute renal failure
- Acute Psychiatric and Behavioral Disease
  - acute psychosis
  - acute drug overdose/withdrawal
  - delirium
  - depression and the suicidal patient
- Acute Miscellaneous Disease
  - anaphylactic reaction
  - cold weather injury, hypothermia
  - heat injury, hyperthermia
  - poisoning

**Practice-Based Learning and Improvement**

**Goal**
Residents must demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and lifelong learning.
Competencies
Residents are expected to develop skills and habits to be able to:

- Incorporate formative evaluation feedback into daily practice.
- Use information technology and textbooks to optimize learning.
- Improve patient care

Objectives
At the conclusion of this rotation, the PGY-2/3 residents will be able to:

- Utilize evidence-based medicine to determine appropriate strategies for respiratory diseases
- Understand the importance of patient education and demonstrate the ability to facilitate the learning of others.
- Analyze one’s own practice for needed improvement
- Exhibit evidence of self-evaluation
- Demonstrate consistent self-education and habits of self-learning
- Discuss performance and incorporate feedback from the pulmonary attending, co-workers, hospital staffs

Systems Based Practice
Goal
Residents must demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care.

Competencies
Residents are expected to:

- Work effectively in various health care delivery settings and systems relevant to their clinical specialty.
- Utilize evidence-based medicine guidelines to optimize patient care.
- Incorporate considerations of cost awareness and risk-benefit analysis in patient care.
- Advocate for quality patient care and optimal patient care systems
- Work in interprofessional teams to enhance patient safety and improve patient care quality.
- Participate in identifying systems errors and in implementing potential systems solutions.
- Understand and practice cost-effective health care that does not compromise quality of care.

Objectives
By the conclusion of this rotation, the resident trainee will be able to:

- Order in a cost-effective manner and accurately interpret appropriate lab and
• Demonstrate understanding of the interaction of medical intensive care within the health care system.
• Partner with health care managers to assess, coordinate and improve health care.
• Demonstrate an understanding of community systems and agencies that enter into pulmonary/critical care.
• Utilize community resources to assist in the management of patients.
• Identify the role of the pulmonary/critical care physician as a consultant, and appropriate times for consultation.

Professionalism

Goal
Residents must demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles.

Competencies
Residents are expected to demonstrate:
• Compassion, integrity, and respect for others
• Respect for patient privacy and autonomy
• Accountability to patients, society, and the profession
• Sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation.

Objectives
During this rotation the residents will demonstrate:
• Respect, compassion and integrity
• Sensitivity to patients’ culture, gender and disabilities.
• Acknowledgement of errors and limitations
• Respect for patient privacy, autonomy and awareness during conscious sedation
• Maintain a professional demeanor in speech and dress.

By the end of the rotation, the residents will be able to:
• Understand the importance of recognizing cultural diversity among the patient population
• Demonstrate ethical principles in providing or withholding care, confidentiality of patient information, and informed consent.
• Recognize families with high risk for interactions among family members.

Interpersonal and Communication Skills

Goal
Residents must demonstrate interpersonal and communication skills that result in the effective exchange of information and teaming with patients, their families, and
Competencies
Residents are expected to:

- Communicate effectively across a broad range of socioeconomic and cultural backgrounds
- Effective and respectful communication skills in interaction with healthcare professionals, patients and family members
- Maintain comprehensive, timely, and legible medical records using the electronic medical record.
- Achieve dependability in the appropriate follow through of test results and discuss the results with the pulmonary attending.
- Communicate effectively with patients and other medical professionals regarding critical care issues.

Objectives
By the conclusion of this rotation, the residents will demonstrate the ability:

- Work effectively with others as a member of a healthcare team.
- Create and sustain a therapeutic and ethically sound relationship with patients’ families.
- Accurately and concisely present findings to the staff attendings and consultants
- Work as part of a team with other physicians, nursing and ancillary staff to provide comprehensive care to the critical care patients.
- Legibly and thoroughly document the findings, impression, and plan for each patient.
- Act in a consultative role to other physicians and effectively communicate procedure results to the appropriate care-takers.

Teaching Methods
Pulmonary/critical care: consultative inpatient and ambulatory is an elective for PGY-2/3 resident. The prerequisite is to complete PGY1 residency year and have already completed a minimum of one month of MICU rotation. The rotation is administered and staffed by the Department of Family Medicine within the Mount Carmel Health System. The primary attendings responsible for teaching, oversight of patient care and resident evaluation are critical care pulmonologists. During this rotation, the family medicine resident will spend two weeks of inpatient and two weeks of outpatient. The location of the rotation is attending dependent. The other two to three and a half days during the week are spent in the resident’s personal office hours depending on his/her current residency year. Residents are still required to attending the family medicine didactic conferences held on Wednesday mornings. The resident will still be expected to take their calls and round on post-call days with the IPS team. Adherence to the residency training requirements involving appropriate resident work hours will be strictly enforced.

Assessment Method
1. The resident will do a written evaluation of the pulmonary/critical care attending
by the end of the 4 week rotation.

2. The pulmonary/critical care attending may do a mid-month evaluation if choose to do so. The attending will provide a written 4 week resident evaluation and will be strongly encouraged to provide feedback on the resident’s performance.

**Level of Supervision**

Supervision of residents is carried out by both direct and indirect observation by the pulmonary/critical care attending physician.

**Educational Resources**

Dubin, D. *Rapid Interpretation of EKG’s, 6th ed.*, Cover Publishing Company 2000
Ferri: *Ferri’s Clinical Advisor 2011, 1st ed.*, Mosby 2010
Goldman: *Goldman’s Cecil Medicine, 24th ed.*, Saunders 2011
Mason: *Murray and Nadel’s Textbook of Respiratory Medicine, 5th ed.*, Saunders 2010
Miller: *Miller’s Anesthesia, 7th ed.*, Churchill Livingstone 2009
MD Consult (electronic resource)
First Consult (electronic resource)
Up-To-Date (electronic resource)

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I, ________________________ hereby attest I have read the above goals and objectives of the Pulmonary/Critical Care Rotation and have reviewed them with ____________________________, who acts as my faculty advisor. I hereby attest that I understand these goals and objectives, how they relate to the 6 core competencies set forth by the ACGME, and agree to work diligently within their constructs.

________________________________________               _____________
resident signature                                                                                         date

________________________________________               _____________
faculty advisor signature                                                                                   date