

INTERNAL MEDICINE RESPIRATORY MEDICINE ROTATION OBJECTIVES

- A. The following goals/objectives cover the breadth of respirology for an internal medicine residency. While many objectives may be covered during general medicine rotations, other objectives require a respiratory medicine rotation(s).
- B. The standard IM respirology rotation is 4 weeks and many of the objectives will be covered during acute inpatient care. Depending on the site and the resident's availability during the rotation (3 or 4 weeks), ambulatory experience would address other topics not commonly seen in acute care. In addition, IM residents have the option of joining outpatient respirology clinics during their subspecialty ambulatory blocks to cover other objectives.
- C. While we would endeavor to cover as many topics as possible, it would be expected that the resident supplements their rotation experience with reading/studying the relevant articles and current literature in the topics outlined in this document. Above all, the resident who takes initiative to cover the objectives will get the most out of the rotation.
- D. During the IM respirology rotation, the resident is expected to:
 1. Observe at least one bronchoscopic procedure.
 2. If applicable (see section B), observe pulmonary function testing in the lab on one half day during the rotation (or even better, have PFTs done on themselves).

MEDICAL EXPERT

1. The resident will take a focused history relevant to the respiratory system. This includes:
 - a) Symptoms which indicate respiratory pathology.
 - b) History relevant to respiratory disorders.
 - c) Geographical details including risks for TB.
 - d) Exposure history – environmental, recreational, occupation, medications.
 - e) Systemic diseases with pulmonary manifestations including HIV, CTD.
 - f) A sleep history
2. The resident will accurately perform a physical exam in the assessment and diagnosis of respiratory disorders. They will understand the diagnostic value of these physical signs which include – stridor, wheeze, elevated JVP, dullness on percussion, decreased breath sounds on auscultation, accessory muscle use, abdominal paradox, signs of pulmonary hypertension.
3. The resident will understand basic respiratory physiology and apply to this to different disease states. This includes: Ventilation, Diffusion, Pulmonary Circulation, VQ relationships, Shunt and Hypoxemia, O2

and CO₂ transport, Respiratory Muscles and basic mechanics of breathing. They will be able to investigate a patient with hypoxemia and CO₂ retention, and understand the physiologic mechanisms.

4. The resident will understand the different O₂ delivery systems available to patients in the acute and outpatient environment. They will understand the indications for long term oxygen therapy.
5. The resident will order investigations appropriate to the management of the patient. They will understand the indications, utility and basic operating characteristics of the following diagnostic tests:

- Sputum gram stain + culture
- Sputum cytology
- Induced Sputum testing (AFB)
- Level 1 (Polysomnography) and Level 3 (Portable) Sleep Testing
- Ultrasound
- VQ scans

The resident will be proficient in basic CXR interpretation. They will have familiarity with CT chest imaging and the basic findings (emphysema, ILD, adenopathy, embolism, pleural processes).

The resident will understand the indications and utility of pulmonary function testing. They will have basic interpretation skills of spirometry, lung volumes, DLCO testing and will be able to distinguish the common patterns (airflow obstruction, restriction). They will be able to accurately interpret Arterial Blood Gases and apply this in clinical context to their patient.

6. The resident will order and justify initial management based on his/her comprehensive assessment. They will write the appropriate admission orders if applicable. The resident will modify the management based on the initial response to therapy.

7. The resident will be able to discuss the epidemiology, prevention, pathogenesis, clinical manifestations, differential diagnosis, laboratory testing, imaging findings, treatment (outpatient and inpatient), prognosis and complications of the Royal College Internal Medicine Objectives of Training - Pulmonary Disease/Conditions (numbered):

- 2.1.4.8. *Pneumonia
 - Community-acquired, Health care associated, and pneumonia in the Immunocompromised Host
 - Aspiration Pneumonitis and Pneumonia
- 2.1.4.9. *Chronic obstructive lung disease
- 2.1.4.10. *Bronchial asthma
- 2.1.4.11. *Interstitial lung disease (including environmental/occupational lung disease and pulmonary fibrosis)
- 2.1.4.12. *Pulmonary embolism
 - Acute and Chronic (CTEPH)
- 2.1.4.13. *Pneumothorax
- 2.1.4.14. *Pleural effusion (malignant and non-malignant – including pleural space infections)
- 2.1.4.15. Sarcoidosis
- 2.1.4.16. *Lung cancer: primary and metastatic including paraneoplastic syndromes, solitary pulmonary nodule, hilar lymphadenopathy

AND the following:

*Pulmonary Hypertension (primary and secondary)
Lung Abscess
Bronchiectasis
*Tuberculosis
(including LTBI, diagnostic investigations of active TB)
Pulmonary Hemorrhage Syndromes
Pulmonary manifestations of systemic disease (eg CTD)
Pulmonary manifestations of neuromuscular disease
Sleep Disordered Breathing, including OSA and OHS

* denotes those core topics necessary for successful completion of the rotation

Other topics would be expected to be mastered by the completion of IM residency

8. The resident will formulate a plan to diagnosis and manage the following common pulmonary problems (Royal College Core Topics):
- 2.1.4.1. Acute dyspnea
 - 2.1.4.2. Chronic dyspnea
 - 2.1.4.3. Cough (Acute and Chronic)
 - 2.1.4.4. Wheeze
 - 2.1.4.5. Hemoptysis
 - 2.1.4.6. Superior vena cava syndrome
9. The resident will be able to independently manage the following emergency situations. This includes the initial resuscitation including the treatment of hypercapnea and hypoxia with non-invasive mechanical ventilation (when appropriate). They will understand the indications and utility of CPAP and of NIPPV (BPAP) and the need for intubation/mechanical ventilation.
- status asthmaticus
 - acute respiratory failure (type 1 and 2)
 - acute upper airway obstruction
 - pneumothorax
10. The resident will understand the indications, utility, protocol, complications and yield of the following procedures. They will be able to explain the procedure to a patient and family and obtain informed consent. Depending on availability, the resident may have an opportunity to perform these procedures. The resident will interpret the results of the fluid obtained by the procedure.
- Ultrasound of the Chest
 - Thoracentesis
 - Chest tube insertion
 - Intra-pleural Thrombolytics
11. The resident will observe performance of the following diagnostic tests and understand the indications, utility, complications and yield . They will be able to explain the procedure to a patient and family and obtain informed consent.
- bronchoscopy
 - bronchoalveolar lavage

- transbronchial lung biopsy
- transbronchial needle aspiration
- Radiologic guided thoracic procedures (optional for observation)

12. For uncommon procedures, the resident will have basic understanding – indications and utility:

- Closed pleural biopsy
- Surgical pleural biopsy
- Open Lung biopsy
- Pleurodesis

COMMUNICATOR

Given a patient with pulmonary disease or symptoms the resident will be able to:

1. Provide a verbal and written summary evaluation of the patient's pulmonary and medical problems. The resident will be able to justify their suggestions as a consultant and keep accurate records of daily inpatient care as well as outpatient care.
2. Explain to the patient his/her pulmonary condition and the proposed plan for investigation and management
3. Explain pro-active strategies for chronic disease management including asthma action plans.
4. Outline the potential risks and benefits of any treatment.
5. Obtain informed consent for pulmonary procedures using the principles of disclosure, capacity and voluntariness.
6. When dealing with patients for whom treatment options are limited the resident will discuss end-of-life care and wishes, taking into account different cultural issues related to death and dying

COLLABORATOR

1. Be able to maintain collegial relationships with colleagues, RNs, RTs and other allied health care professionals (AHCPs).
2. The resident will function as a team member with RTs including when dealing with patients that require supplemental O2, nebulizers, or BIPAP.
3. The resident will work in collaboration with AHCPs to provide best care to patients.

HEALTH CARE ADVOCATE

1. Given a smoker the resident will be able to give staged matched advice and treatment for smoking cessation.
2. The resident will be aware that there are global, national and regional initiatives for a tobacco free world.
3. The resident will be aware that there are global initiatives for the elimination of TB.

LEADER

1. When asked to assess several new patients simultaneously the resident will be able to prioritize according to the level of acuity (i.e. triage of patients)
2. When multiple tasks require attention the resident will be able to divide these appropriately among colleagues (including clinical clerks) and provide supervision of their activity.
3. When multiple patients require use of limited resources (CT scan chest) the resident will be able to provide the laboratories with direction in terms of patient priority for each test.
4. The resident will consider socioeconomic (cost) issues in selecting medications for patients.

SCHOLAR

1. The resident will identify learning needs and make use of available learning resources and resource faculty.
2. The resident will incorporate evidence based medicine to their diagnostic and therapeutic plans. They will research the relevant literature and provide a rationale for clinical decisions.

3. The resident will provide clinical and didactic teaching to clinical clerks and (junior) residents.

PROFESSIONAL

The resident will display professional attitudes and behaviors, including:

- being punctual for rounds, family conferences, and educational events.
- following through on assigned tasks
- be respectful when dealing with patients, families, and other professionals.
- Will consider racial and cultural issues in selecting treatment regimens for patients.

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