

Pulmonary/CCMU

Goal

Pulmonary medicine is the diagnosis and management of disorders of the lungs, upper airways, thoracic cavity, and chest wall. The pulmonary specialist has expertise in neoplastic, inflammatory, and infectious disorders of the lung parenchyma, pleura, and airways; pulmonary vascular disease and its effect on the cardiovascular system; and detection and prevention of occupational and environmental causes of lung disease. Other specialized areas include respiratory failure and sleep-disordered breathing.

The general internist should be able to evaluate and manage cough, dyspnea, fever with infiltrates, mass or nodule on the chest radiograph, pleurisy, and pleural effusion. He or she should also be able to diagnose and manage patients with common respiratory infections; initiate the diagnostic evaluation of respiratory neoplasm; and manage the initial approach to patients with respiratory failure, including those in intensive care units.

The internist will usually be assisted by the pulmonary specialist for diagnostic procedures and complicated conditions such as advanced respiratory failure. If such expertise is not available, the internist, with additional training, may have to assume these roles.

Lead Faculty

Pulmonary Service
Pulmonary Elective
CCMU

Objectives

Patient Care and Medical Knowledge

Perform an adequate physical examination including:

- Knowing extrapulmonary signs and symptoms of lung diseases
- Abnormalities in the pattern of breathing: Kussmaul, Cheyne-Stokes, abdominal-thoracic asynchrony ("paradoxical respiration"), accessory muscle use
- Thoracic Cage Abnormalities
- Kyphosis, scoliosis, pectus excavatum and carniatum, straight back, barrel chest, ankylosis
- Lung Exam
 - Inspection
 - Percussion (dullness, hyperresonance),
 - Palpation (fremitus, diaphragmatic excursions, tracheal location, subcutaneous emphysema)
 - Auscultation (crackles, rhonchi, wheezing, bronchial breathing, stridor, friction rub, decreased breath sounds, abnormal expiratory phase)

- Cardiac Exam
- Extremity Exam (clubbing, cyanosis, edema)

Take an orderly, problem oriented history of complaints, including but not limited to:

- Dyspnea, nature and severity
- Cough
- Wheezing
- Stridor
- Hemoptysis
- Past history of pulmonary illness
- Past history of tuberculin testing or TB exposure
- Occupational history including exposures
- Previous surgical procedures including thoracic procedures
- Prior chest roentgenograms
- Family history of pulmonary disease

Distinguish among different causes of pleural effusion, including infectious (parapneumonic and emphysema), inflammatory, and malignant

Identify the differences in clinical presentations of typical vs atypical obstructive lung disease, including asthma, COPD, cystic fibrosis, bronchiectasis, bronchiolitis, and allergic bronchopulmonary aspergillosis

Know the microbiology of community acquired pneumonia

Know the pathophysiology of the following conditions:

- Community acquired pneumonia

Manage an inpatient with the following conditions:

- Community acquired pneumonia
- Obstructive lung disease
- Inflammatory lung disease
- Pleural disease
- Lung abscess
- Tuberculosis
- Alveolar hemorrhage syndromes
- Lung cancer
- Pulmonary vascular disease, including pulmonary embolic disease, pulmonary hypertension (primary and secondary), pulmonary vasculitis
- Mediastinal disease, including infectious, inflammatory, malignant, idiopathic
- Respiratory muscle disorders
- Thoracic cage disorders
- Sleep disorders
- Idiopathic disorders including alveolar proteinosis, pulmonary infiltrates with eosinophilia, lymphangioleiomyomatosis, eosinophilic granuloma, hemosiderosis
- HIV related lung disease
- Mycotic lung disease, including histoplasmosis, blastomycosis, cryptococcosis, coccidiomycosis, aspergillosis, phycoses
- Pulmonary disease in the immunocompromised

Understand the possible need for and role of special diagnostic studies including:

- Endotracheal intubation
- Noninvasive mechanical ventilation
- Negative pressure ventilation
- BiPAP
- Nasal positive pressure ventilation
- Bronchoscopy
- Bronchoalveolar lavage
- Needle biopsy (Wang)
- Transbronchial biopsies
- Endobronchial biopsies
- Protected brush biopsies
- Bronchogram
- Fluoroscopy
- Tomograms
- CT (including high resolution techniques)
- Pulmonary function studies
- Transdiaphragmatic pressures
- Phrenic nerve studies
- Exercise testing
- Lung scan
- Pulmonary arteriography
- Tube thoracostomy
- Pleural sclerosis
- Pleural biopsy
- Surgical biopsy
- Thoracoscopy
- Thoracotomy
- Mediastinoscopy
- Tracheotomy

Diagnose the following conditions:

- Community acquired pneumonia
- Obstructive lung disease, including asthma, COPD, cystic fibrosis, bronchiectasis, bronchiolitis, and allergic bronchopulmonary aspergillosis
- Inflammatory lung disease, including idiopathic pulmonary fibrosis, sarcoidosis, collagen vascular associated disease, Wegener's granulomatosis, occupational lung disease, hypersensitivity pneumonitis
- Pleural disease, including pleural effusion, pneumothorax, pleural masses, and subcutaneous emphysema
- Lung abscess
- Tuberculosis (sputum analysis)
- Alveolar Hemorrhage Syndrome
- Lung cancer
- Pulmonary vascular disease
- Mediastinal disease (Chest xray, CT, PET, MRI)

- Respiratory muscle disorders
- Thoracic cage disorders
- HIV related lung disease
- Mycotic lung disease
- Pulmonary disease in the immunocompromised

Interpret the following laboratory studies:

- Chest x-ray
- Chest CT
- Pulmonary function testing
- Spirometry (obstruction)
- Flow volume measurement (restriction, hyperinflation)
- Diffusion capacity
- Muscle pressures
- Arterial blood gases
- Pleural fluid analysis
- Cell count and differential
- Cytology
- Chemistries (pH, LDH, total protein, glucose, amylase, ANA)
- Gram stain
- Cultures
- Pleural biopsy
- Sputum analysis (bacterial, mycotic, mycobacterial, PCP)
- ACE
- Skin testing
- Sweat Chloride

Obtain studies appropriate for the diagnosis of:

- inflammatory lung disease (radiographic presentation and physiologic studies)
- pleural disease (chest xray and CT)
- lung abscess (chest roentgenography and CT)
- tuberculosis (sputum analysis)
- mediastinal disease (chest x-ray, CT, PET, and MRI)
- respiratory muscle disorders (physiologic assessment)

Practice Based Learning and Improvement

Develop a willingness and ability to learn from errors and use them to improve individual practice and the health care delivery system.

Maintain an attitude of healthy skepticism and curiosity, as evidenced by thoughtful questioning, independent study, and critical analysis of published materials.

Utilize information technology to enhance patient education.

Interpersonal and Communication Skills

Complete all dictations, letters, and consultation requests in a timely manner.

Conduct all interviews with patients and their families in a compassionate,

culturally-effective, and patient-centered manner.

Professionalism

Demonstrate a personal sense of altruism by consistently acting in one's patients' best interest.

Know how to inform patients and obtain voluntary consent for the general plan of medical care and specific diagnostic and therapeutic interventions.

Provide meaningful feedback to colleagues and students regarding performance and behavior.

Systems Based Practice

Apply evidence-based, cost-conscious strategies to prevention, diagnosis, and disease management

Interact with and utilize social workers, nurses, medical assistants, billing coordinators, and referral coordinators to provide effective, comprehensive patient care.

Teaching Methods

Teaching Rounds

Conferences

Patient Evaluations

Evaluation

Learning goals are established with each intern, resident, and fellow by the attending at the beginning of the month. Formative face-to-face feedback to interns, residents, and fellows by attendings occur at mid-month.

Each month, the attendings complete written evaluations of interns, residents, and fellows and these learners evaluate the attendings. Interns, residents, and fellows evaluate the rotation informally through advisor meetings and contact with CMRs.

Resources

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Schedule

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| | Monday | Tuesday | Wednesday | Thursday | Friday |
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| AM | 7:00 Work Rounds 8:00 Morning Report 9:00 Work Rounds | 7:00 Work Rounds 8:00 Morning Report 9:00 Work Rounds | 7:00 Work Rounds 8:00 Morning Report 9:00 Work Rounds | 7:00 Work Rounds 8:00 Morning Report 9:00 Work Rounds | 7:00 Work Rounds 8:00 Morning Report 9:00 Work Rounds |
| PM | 12:00 Noon Conference 2:00 Teaching Rounds | 12:30 Intern Report 2:00 Teaching Rounds | 12:00 Noon Conference 2:00 Teaching Rounds | 12:00 Noon Conference 2:00 Teaching Rounds | 12:00 Grand Rounds 2:00 Teaching Rounds |