

Pulmonary Medicine Elective Curriculum Temple University Internal Medicine Residency Program

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I. Educational Purpose and Goals

The purpose of the pulmonary medicine rotation is to expose the internal medicine resident in a meaningful way to a variety of common lung disease problems that are frequently seen in the inpatient setting, as well as to learn more about an expanded group of pulmonary diseases and problems that are frequently seen by pulmonary specialists.

II. Principle Teaching Methods

- A. Supervised Direct Patient Care Rounds: Residents will be involved in initial consultations and subsequent care of patients that have been admitted to Temple University Hospital. All residents are supervised and staffed by full-time faculty pulmonary specialists.
- B. Teaching Rounds: Rounds will occur after each patient encounter in the hospital after the resident has examined the patient, formulated an assessment and treatment plan, and presented the case to the attending teaching consultant. Both the resident and the attending will examine the patient and discuss the patient's care and the resident's assessment.
- C. Pulmonary Lectures: Lectures occur weekly as part of the core curriculum series at Temple University Hospital. Topics are derived from the Pulmonary Learning Goals and Objectives. Residents on the pulmonary rotation are required to attend these core curriculum lectures. In addition to the core curriculum conferences, the following teaching sessions are available: 1) special rotation lectures on pulmonary diseases are presented by the faculty two to three times per week, 2) teaching sessions in sleep disorders, critical care, and lung cancers are available weekly, 3) all residents are expected to read independently about patients seen in the hospital.

III. Educational Content

- A. Variety of diseases: The disease mix is quite broad and includes but is not limited to asthma, COPD, pulmonary hypertension, pulmonary embolism, sleep disorders, community-acquired and hospital-acquired pneumonia, a variety of restrictive lung diseases, and lung cancer.
- B. Patient Characteristics: Patients seen by the residents range from young adolescents to elderly patients with moderate to advanced lung diseases. Patients are of different racial and socioeconomic backgrounds.
- C. Type of clinical encounter:
 - 1. Most clinical encounters are hospital consultations.

2. Hospital consultations range from one- to two-per-resident per day.
 3. Residents will have no night call expectations while on the pulmonary rotation.
- D. Procedures and services: The residents are not required to perform procedures during the pulmonary rotation, but they are welcome to attend and even perform certain procedures as their time allows. They may perform thoracenteses, endotracheal intubation, and placement of arterial lines, and central venous lines on patients seen in the hospital. They will learn how to perform and interpret pulmonary function tests, arterial blood gases, cardiopulmonary exercise testing, and oximetry. Exposure to sleep study analysis is available.
- E. Structure of rotation: The resident's daily schedule includes daily morning work rounds, afternoon teaching rounds and lecture with attending, noon conference, and the resident's own continuity clinic. There is no rotation-specific night call during this rotation.

IV. Principle Ancillary Educational Materials

- A. At the beginning of the rotation, residents are shown the location of reading materials, including many pivotal articles concerning pulmonary medicine and a CD version of a book on pulmonary pathophysiology written by TUH faculty.
- B. Computerized medical search engines (Up-to-Date, MDConsult, etc.) are available to all residents on dedicated computers in the hospital.

V. Methods of Evaluation

- A. At the end of each rotation, the faculty completes a competency-based Resident Evaluation Form, which is completed and submitted electronically.
 1. All residents are required to take the In-Training Examination each year of residency. The result of this exam is used as formative feedback on the pulmonary rotation.
- B. Faculty and services. At the end of the pulmonary rotation, the Residents complete a Faculty and Service Evaluation. The evaluations are summarized by the Program Director and sent to each faculty member and the Division Chair for appropriate action.

VI. Strengths and Weaknesses

- A. A highly qualified pulmonary faculty is available to train residents. Some faculty may be more interested in or have more time for teaching than others, and time spent in didactics may vary from rotation to rotation.
- B. The available patient population will provide the resident with an excellent opportunity to learn about the commonly-seen pulmonary diseases, those

which account for the majority of the respiratory morbidity and mortality seen in the United States.

VII. Rotation Specific Competency Objectives

A. Patient Care

1. By the end of the rotation, residents of all years must be able to complete a comprehensive pulmonary consultation including proper patient identification, chief complaint, history of present illness, past history, review of systems, personal and social history, and complete physical examination with particular focus on the pulmonary examination. An assessment and diagnostic/treatment plan should be attempted. Upper year residents will do so with greater efficiency, without sacrificing accuracy or thoroughness.
2. By the end of the rotation, the resident must be able to interpret pulmonary function tests and arterial blood gases. All residents must be able to read chest x-rays and understand the general diagnostic features of ventilation/perfusion scans and chest CT. Residents should be able to understand and recognize various disorders of breathing that occur during sleep, as well as the indications for referral for a sleep study.
3. By the end of the rotation, residents must be able to evaluate and manage obstructive pulmonary disease, restrictive pulmonary disease, infectious lung diseases, and thromboembolic pulmonary disease.
4. The resident must be able to demonstrate skills of clinical documentation in the medical record.

B. Medical Knowledge

1. By the completion of the rotation, the resident must be able to describe the pathophysiologic features of obstructive and restrictive pulmonary disease.
2. Residents must understand the action and pharmacology of common pulmonary medications including inhaled medications, steroids, other anti-inflammatory agents, and ancillary pharmacological therapies.
3. By the completion of the rotation, residents will understand the use of invasive and noninvasive (including CPAP and NIPPV) ventilation.

C. Interpersonal and Communication Skills

1. The resident will develop skill at communicating with primary service teams as a consultant.
2. The resident will work with technicians who perform pulmonary testing as a team member and team leader.
3. The resident will develop skill communicating with patients who have severe and life threaten pulmonary conditions and communicate

effectively with the families of very ill patients. Upper year residents will demonstrate more polished skills.

D. Professionalism

1. The resident will do thorough and timely consultations that include prompt communication with other care team members.

E. Practice Based Learning and Improvement

1. The resident will develop facility in using library resources to search the medical literature, critically appraise articles, and apply evidence to the care of patients.
2. When other learners are on the pulmonary service, residents will facilitate their education. Upper year residents will facilitate the education of first year residents when appropriate.

F. Systems Based Practice

1. Residents will understand and use disease management protocols for the care of acute and chronic pulmonary conditions.
2. Residents will utilize ancillary services such as respiratory therapy to facilitate a multidisciplinary approach to the care of patient with pulmonary disease.