West Virginia University
SCHOOL OF MEDICINE

Department of Anesthesiology

Clinical Base Year
Pulmonary Consults Curriculum

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I. Educational Purpose and Goals

The purpose of the Pulmonary rotation is to expose the resident to common pulmonary problems that are frequently seen in the primary care and inpatient settings, as well as to learn more about pulmonary diseases that are more frequently seen by pulmonary specialists.

II. Principle Teaching Methods

A. Supervised Patient Care - Residents evaluate patients in the hospital and in the outpatient Pulmonary clinic, supervised by Board Certified Pulmonologists. Integrated management and teaching rounds occur after each patient encounter. Patients are seen and examined by the resident, who formulates a hypothesis and a treatment plan and presents it to the attending faculty. Both the resident and the attending then examine the patient and discuss the care. Emphasis is placed upon a pertinent history and physical with review of laboratory, microbiology, and radiographic 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.

B. Didactic Teaching Sessions

i. Radiology Conference – 1st Friday of month, 12 – 1 pm
ii. Pulmonary Case Conference – every Thursday, 4 – 5 pm
iii. Pulmonary Journal Club – every Monday, 12 – 1 pm
iv. Pulmonary Path Conference – 3rd Friday of month, 12- 1 pm
v. Every Tuesday, 11:30 – 1:00 p.m., rotating conferences of Basic Science, CCM journal club, CCM Grand Rounds, Pulmonary ID conference.
vi. CORE Conference – every Thursday, 12 – 1 pm and every 2nd and 4th Friday, 12 – 1 pm

C. Independent study –

i. A reading list compiled from current journal articles is provided at the beginning of each rotation.
ii. Residents/students are also referred to standard textbooks of Internal Medicine and Pulmonary diseases and are expected to independently research topics related to patients they encounter during the rotation.

III. Educational Content

A. Mix of diseases. The disease mix is quite broad and includes asthma, COPD, pulmonary hypertension, pulmonary embolism, sleep disorders, pneumonia, restrictive lung disease, and various pneumoconioses.

B. Patient characteristics. Patients seen by the residents range from adolescents with mild pulmonary problems to elderly patients with advanced diseases. Patients are of different racial and socioeconomic backgrounds.

C. Type of clinical encounters

1. Most encounters are hospital consultations, ranging from 1 - 2 new consults per resident per day, plus follow-ups on the prior consultations. Consultations occur at Ruby Memorial Hospital.
2. Residents also see patients in the Pulmonary Clinic one half day per week. Pulmonary Clinic patients range from 3 - 4 per patients per resident per clinic. The residents examine and evaluate the patient, develop a management plan, and present and discuss the patient with the faculty physician. In addition, the resident should attend one additional half-day of clinic per week rotating between Lung Cancer clinic Tuesday mornings, Sleep Disorders clinic Thursday mornings, and Adult Asthma and COPD clinic on Friday mornings.
3. Procedures – the resident is introduced to the interpretation of pulmonary function testing, and the technique of skin testing, bronchoscopy, bronchial brush washings, endobronchial biopsy techniques, thoracentesis, endotracheal intubation, pleural biopsy and arterial punctures.

D. Structure of rotation:

i. During the 4-week block rotation, residents see patients on the hospital consultative service. One half day per week, residents perform ambulatory Pulmonary evaluations in the Pulmonary Subspecialty clinic, and an additional half day as outlined above.

ii. Residents attend the didactic series listed above.

iii. Residents will generally work Mon – Friday 8 am – 5 pm. Residents will have off at least one day in 7 days. There is no overnight call requirement.

iv. Residents continue to attend their continuity clinic and mandatory IM Core Curriculum didactics from 12 – 1 pm daily.

IV. Principle Ancillary Educational Materials

a. At the beginning of each rotation the residents are referred to the SOLE website at http://sole.hsc.wvu.edu where the goals and objective for the rotation can be printed and reviewed.

b. Computerized bibliographic retrieval is available 24/7 on computers at the hospitals, the clinic and IM Residency Office.

c. All residents can access UptoDate Online throughout the HSC, the Hospital and outpatient setting.
d. A detailed collection of Pulmonary articles is available to the resident through the Section of Pulmonary Medicine.
e. The primary textbooks are *Pulmonary Diseases and Disorders,* Alfred P. Fishman, M.D. and *Textbook of Respiratory Medicine*, Editors – John F. Murray, M.D., Jay Nadel, M.D.

V. Methods of Evaluation

a. Resident Performance
   i. At the end of each rotation faculty complete a web based resident evaluation form using E*value. After review with the resident it is sent to the Housestaff Office where it is placed in the resident's evaluation file. The evaluation assesses the six core competencies. The evaluation is shared with the resident and it may be reviewed by the resident via E*value. The evaluation is incorporated as part of the semi-annual review for directed resident feedback.
b. Program and Faculty Performance
   i. Upon completion of the rotation, residents complete a rotation evaluation form via E*Value commenting on the faculty, facilities, service experience and duty hours. These evaluations are sent to the residency office for review and the attending faculty physician receives anonymous annual reports of aggregate evaluations. The Education Committee reviews results annually.
   ii. All residents are required to take the In-Training Examination each year of their residency. The result of this exam is shared with the Section Chief for review and is used as formative feedback for the Pulmonary rotation.

VI. Strengths and Weaknesses

A. Strengths:
   i. A highly qualified pulmonary faculty is available with a high level of technical expertise.
   ii. Active Fellowship program in Pulmonary/CCM. Fellows work with the residents on the MICU rotation as well as on the Pulmonary consult service.
   ii. The available patient population will give the resident an excellent opportunity to learn about the commonly-seen pulmonary disease and those which account for the majority of the morbidity and mortality seen in the United States.
   iii. Residents are encouraged to attend the evening Pulmonary Clinic at HealthRight one evening a month along with a pulmonary attending and fellow for community experience.
B. Weaknesses

i. WVU currently does not have a lung transplant program.

VII Rotation Specific Competency Objectives

a. Patient Care

i. By the end of the rotation, PGY 1 residents must be able to complete a comprehensive pulmonary consultation including identification, chief complaint, history of present illness, past history, occupational exposure history, review of systems, personal and social history and complete physical examination with particular focus on the pulmonary examination.
ii. By the end of the rotation, the PGY2 and PGY3 resident will perform the above skills, and will also evidence appropriate ability to independently generate an appropriate management plan.
iii. By the end of the rotation all levels of 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 relative diagnostic features of ventilation/perfusion scans and chest spiral CT. Residents will have the opportunity to participate in the performance and reading of sleep studies and will understand the presentation of sleep disorders as well as the indications for referral to sleep studies.
iv. By the end of the rotation, residents must be able to evaluate and manage obstructive pulmonary disease, restrictive pulmonary disease, and thromboembolic pulmonary disease.
iv. The resident will demonstrate skills in the clinical documentation in the medical record.

b. Medical Knowledge

i. Residents will consistently apply current concepts in the basic sciences to clinical problem solving. They will use information from the literature and other sources including electronic databases. Residents will demonstrate satisfactory knowledge of common pulmonary medical conditions, sufficient to manage urgent complaints with supervision. Residents must exhibit sufficient content knowledge of common conditions to provide care with minimal supervision by completion of the PGY1 year.
iv. By the completion of the rotation, the resident must be able to:

a. describe the physiologic features of obstructive and restrictive pulmonary diseases
b. understand aspects of lung cancer, its epidemiology, causes and pathology. Outline the diagnostic work-up and staging procedures.
c. understand pathogenesis, clinical and radiographic presentation, diagnosis, and therapy of various respiratory infections

d. understand interstitial lung diseases
e. understand and interpret PFT's, ABG's, and pleural effusion data (exudates vs. transudate)
f. understand the epidemiology, pathogenesis, and natural history of DVT and pulmonary embolism.
g. understand occupational lung diseases
h. understand the indications for preop PFT's, and managing post-op pulmonary complications.
i. understand the work-up of chronic cough
j. define "solitary pulmonary nodule"
k. define hemoptysis, the diagnostic approach and initial management
l. define dyspnea, its causes, discuss its pathophysiologic correlates and outline the evaluation of chronic dyspnea.
m. understand the use of invasive and non-invasive ventilation.
n. Residents must understand the action and pharmacology of common pulmonary medications including inhaled medications, steroids, other anti-inflammatory agents, and ancillary pharmacological therapies.

c. Interpersonal and Communication Skills
i. Residents will develop and refine their individual style when communicating with patients. They will strive to create ethically sounds relationships with patients, the physician team and supporting hospital personnel. They will create effective written communications through accurate, complete, and legible notes. They will exhibit listening skills appropriate to patient-centered interviewing and communication. Residents will recognize verbal and nonverbal cues from patients.
iv. The resident will develop skill at communicating with primary service teams as a consultant.
v. The resident will work with technicians who perform pulmonary testing as a team member and team leader.
vi. The resident will develop skill communicating with patients with severe and life threaten pulmonary conditions and communicate effectively with the families of very ill patients.

d. Professionalism
i. The resident will do thorough and timely consultations that include prompt communication with other care team members.
ii. The resident will demonstrate respect, compassion, and integrity. S/he will be committed to excellence and continuous professional development.
iii. The resident will demonstrate professional behaviors consistent with the WVU IM residency core competency curriculum.

e. Practice Based Learning and Improvement

i. When other learners are on the pulmonary service, residents will facilitate their education.
ii. Residents will use hospital and University library resources to critically appraise medical literature and apply evidence to patient care. They will use hand-held computers, desktop PC's and Internet electronic references to support patient care and self-education. They will model these behaviors to assist medical students in their own acquisition of knowledge through technology.

f. Systems Based Practice
i. Residents will be sensitive to health care costs while striving to provide quality care. They will begin to effectively coordinate care with other health care professionals as required for patient needs.
iv. Residents will understand and use disease management protocols for the care of acute and chronic pulmonary conditions.
v. Residents will utilize ancillary services such as respiratory therapy to facilitate a multidisciplinary approach to the care of patient with pulmonary disease.

Curriculum Timeline

Approved by Education Committee September 19, 2007