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. **Principal Teaching Methods**

1. **Supervised Direct Patient Care Activities:** Residents evaluate and manage Pulmonary patients at Medical Center Hospital (MCH) and Midland Memorial Hospital (MMH) attended by physicians on clinical faculty at both institutions, including patients admitted to these pulmonologists and patients referred to these physicians for pulmonary consultation. In addition, residents will participate in patient evaluation and care in the outpatient pulmonary clinics of supervising clinical faculty. In the inpatient setting, each patient evaluated by the internal medicine resident will be seen with the pulmonary attending during daily management rounds. All patients evaluated by the resident in the clinic will be subsequently evaluated with the pulmonary faculty. Thorough assessment will be performed and a management plan will be formulated by the resident and discussed with the pulmonary attending. In the hospital setting, the rounding team will consist of the attending and the rotating Texas Tech resident(s).

2. **Teaching rounds:** Teaching rounds will occur after patient encounters in the hospital and during clinic period. Patients will be seen and examined by the residents, who will formulate a hypothesis and a treatment plan and present it to the attending faculty. Both the resident and the attending will examine the patient and discuss the patient’s care and the resident’s assessment.

3. **Didactic Lectures:** Pulmonary lectures are part of the Core Curriculum series of the Department of Internal Medicine. Residents on the Pulmonary rotation are required to attend all of the Core Curriculum lectures.

4. **Self-study:** all residents are expected to read independently about patients seen in the hospitals and in clinics, on pulmonary topics assigned by faculty, and in preparation for core curriculum lectures.

5. **Structure of rotation:** All clinical work is at pulmonologists office and designated hospital. The resident’s daily schedule includes daily work rounds, teaching sessions, and lectures as well as patient clinics. Residents will continue to attend the mandatory residency conferences, and the resident’s own continuity clinics. This experience will be considered as a call. Residents may not work more than 30 hours straight and the final 6 hours of that time may be spent only for providing continuity care and not care for new patients.
III. **Principal Ancillary Education Materials**
   a. At the beginning of the rotation, each resident receives a copy of the Pulmonary curriculum’s Goals and Learning Objectives.
   b. Online access to standard pulmonary texts and journals through TTUHSC library.

IV. **Methods of Evaluation**
   1. **Resident Performance:** Pulmonary clinical faculty complete written resident evaluation forms provided by the Internal Medicine Residency coordinators. The evaluation is competency-based, and uses a detailed assessment of resident’s effort, progress and achievement on each core competency component. Faculty review the written evaluation in person with each resident and provide detailed feedback on resident’s performance. In addition, the following sources and methods of evaluation are included in assessing residents performance: a) mini-CEX and CEX. b) all other (verbal, written) evaluation comments provided to the Program Director/Associate Program Director by faculty and community physicians interacting with the resident during Pulmonary rotation are documented in writing. f) performance on the periodic Pulmonology exam administered as part of the monthly subspecialty exams. All evaluations are available for resident review (excluding direct review of evaluations completed by resident colleagues). All evaluations are part of the resident file and are incorporated into the semiannual performance review for directed resident feedback.
   2. **Procedures:** Residents submit documentation of any procedures performed during the rotation, on a hard-copy form, completed by supervising faculty. Procedure forms include supervisors’ evaluation of resident’s performance.
   3. **Program and Faculty Performance:** By end of the Pulmonary rotation, the residents are asked to complete a service evaluation form commenting on the faculty, facilities, and service experience. These evaluations are returned by the residents to the residency office and are reviewed by Program Director and department chair.

V. **Institutional Resources: Strengths and Limitations**
   [add or change for specifics in this category per Drs. Mayo-Olano/Hendrickson]
   1. **Strengths**
      I. The available patient population will give the resident an excellent opportunity to learn about commonly-seen pulmonary disease and those which account for the majority of the morbidity and mortality seen in the United States.
   2. **Limitations**
VI. Rotation Specific Competency Objectives

1. Patient Care

I. By the end of the rotation, residents of all years must be able to complete a comprehensive pulmonary consultation including identification, chief complaint, history of present illness, past history, review of systems, personal and social history and complete physical examination with particular focus on comprehensive chest and cardiac-oriented exam, including chest proper technique and clinical finding elicitation through chest inspection, palpation, percussion, and auscultation. The resident will demonstrate ability to clearly and accurately communicate findings verbally and in writing. These skills should include patients with common inpatient and outpatient pulmonary problems, including:
   a. Obstructive pulmonary disease
   b. Interstitial lung disease
   c. Infectious diseases
   d. Malignant disorders of lung and mediastinum
   e. Pneumothorax
   f. Pleural effusion
   g. Sleep disorders
   h. Occupational lung diseases
   i. Pulmonary embolism
   j. Pulmonary hypertension
   k. Connective tissue and granulomatous diseases
   l. Allergic disorders
   m. Common genetic lung disorders

II. By the end of the rotation residents of all years should demonstrate the ability to interpret pulmonary function tests, pleural fluid test results, and arterial blood gases. All residents must demonstrate ability to systematically assess and interpret chest x-rays and understand the relevant diagnostic features of ventilation/perfusion scans and chest 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. The resident should achieve ability to perform thoracentesis.

III. By the end of the rotation, residents must be able to evaluate and have core understanding of management principles of obstructive pulmonary disease, restrictive pulmonary disease, and thromboembolic pulmonary disease.

2. Medical Knowledge

I. By the completion of the rotation, the resident must demonstrate an understanding of the pathophysiology, clinical presentations, differential diagnosis and management of the above mentioned disorders, and be familiar with the approach to common respiratory presenting problems, including: dyspnea, hemoptysis, chest pain, cough, and wheezing.

II. The resident will recognize crackles, rhonchi, wheezing, bronchial breathing, stridor, friction rub, alterations in the intensity of breath sounds, and normal and abnormal diaphragmatic motion. In addition the resident should be able to identify disorders of neuromuscular respiratory control including: Kussmaul breathing, Cheyne-Stokes ventilation, use of accessory respiratory muscles of respiration, and paradoxical abdominal/thoracic muscle function.
III. Residents will demonstrate knowledge of the pharmacology, indications, contraindications, and use of the following: cough suppressants, bronchodilators, antibiotics, corticosteroids, oxygen therapy and other commonly used pulmonary medications.

IV. The resident will understand the use and indications for pulmonary rehabilitation, postural drainage, incentive spirometry and CPAP therapy. In addition, the resident will demonstrate understanding of the major modalities of oxygen supplementation and ventilation techniques, including: nasal canula, venturi, aerosol, and non-rebreathing masks, nasal and facial CPAP and other commonly used modes of non-invasive-positive pressure ventilation.

V. By the completion of the rotation, residents will understand the indications and contraindications for arterial puncture for blood gases, thoracentesis, and the proper utilization of high resolution CT, bronchoscopy, bronchial lavage, tranbronchial and transthoracic lung biopsy, tracheostomy and mediastinoscopy.

3. Practice Based Learning and Improvement
   I. Residents will demonstrate self-initiative in the use of information technology to access and retrieve materials for self-education regarding pulmonary cases and demonstrate skills of critically appraising medical literature, and apply evidence to the care of patients.
   II. Residents will be expected to show progressive learning throughout the rotation, with emphasis on learning from any cognitive or procedural errors. They are also expected to facilitate any quality improvement initiatives in place.

4. Interpersonal and Communication Skills
   I. Residents are expected to demonstrate professional communication skills throughout their interactions with pulmonary patients and their families, Pulmonary attending and other clinicians and non-clinical staff involved in patients’ care. Residents are expected to act as a constructive and proactive member of the pulmonary rounding team.
   II. The resident will develop and demonstrate skill communicating with patients who severe and life threatening pulmonary conditions and communicate effectively with the families of very ill patients.

5. Professionalism
   I. Throughout the rotation, residents are expected to exhibit reliability in their clinical duties, as well as integrity and respect in their interactions with patients, their family members, colleagues, and all other members of the healthcare team.
   II. Residents will be able to demonstrate appropriate consultative principles of communication and responsiveness to professional consultative requests.
6. **System Based Practice**

I. Residents are expected to interact with the MCH and MMH care systems, as well as gain insight and experience with systems of care of outpatient clinical setting, and appropriately access different facets of the health care system necessary for the care of their patients. This includes but not limited to PT/OT services and discharge planning services in the inpatient setting, and proper and effective engagement of system resources in the outpatient care environment.

II. Residents will understand and use disease management protocols for the care of acute and chronic pulmonary conditions.

III. Residents will utilize ancillary services such as respiratory therapy to facilitate a multidisciplinary approach to the care of patient with pulmonary disease.