

UNIVERSITY OF MINNESOTA CHILDREN'S HOSPITAL - FAIRVIEW PULMONARY CURRICULUM

DESCRIPTION OF ROTATION OR EDUCATIONAL EXPERIENCE

During this rotation the PICU fellow will manage pediatric inpatients with primarily pulmonary problems, provide a pulmonary consultation service for other pediatricians under the direction of the staff pulmonologist. After performing a complete history and physical exam, they will present the patient to the attending physician for discussion, interpretation of pertinent data, and formulation of differential diagnosis and management plans, which then will be communicated to the other members of the care team. Fellows will also assist with and perform bronchoscopies, and gain experience in the utilization and interpretation of pulmonary function tests

ROTATION GOALS

The overall goal of this rotation is to provide educational and clinical opportunities to acquire the knowledge, clinical skills and professional attitudes required to recognize and manage patients with pulmonary disorders.

PATIENT CARE

Goals

Residents must be able to provide patient care that is compassionate, appropriate, and effective for the treatment of pulmonary health problems and the promotion of pulmonary health.

Objectives

Residents will arrive at an appropriate hour, pre-round on previous consultations and begin intakes of new consultations. They will coordinate residents on the service to perform these chores and teach resident's patients' problems. They will perform initial assessments as appropriate with residents. Consultations may be requested from any inpatient hospital service and the emergency department.

1. Develop practical skills pertaining to patient care including:
 - Performing appropriately focused history and physical exam.
 - Synthesis of differential diagnoses and plans for patient management.
 - Ability to coordinate diagnoses and plans for patient management.
 - Understanding the role of consulting physician.
 - Treating the various conditions listed below in "Medical Knowledge."
2. Foster the involvement of sound clinical judgment and efficient clinical practical skills through:
 - Performing a complete history and physical examination on all pulmonary patients seen to further develop history and physical exam skills.
 - Faculty review of the resident's evaluation and management skill with appropriate guidance and instruction.
3. Develop diagnostic and therapeutic procedural skills that will be developed with one-on-one faculty supervision include:
 - Arterial Blood Gas Interpretation.
 - Pulmonary Function Test Interpretation.
 - Thorax and Chest Examination Interpretation.
 - Chest CT or MRI Scan Interpretation.
 - Radionuclide Scan Interpretation
 - Pulmonary Arteriogram/ Other Cardiopulmonary Catheterization Interpretation
 - Ventilatory support, weaning and respiratory care techniques
 - Hemodynamic Monitoring Techniques.
 - Thoracentesis Results Interpretation
 - Diagnostic Fiberoptic Bronchoscopy Performance and Results Interpretation

Competencies

1. Faculty Rotation Evaluation
2. Patient log
3. Procedure log
4. Staff 360 evaluation
5. Patient 360 Evaluation
6. Resident Review of Fellow

MEDICAL KNOWLEDGE

Goals

Residents must demonstrate knowledge of established and evolving biomedical, clinical, epidemiological, and social-behavioral sciences, as well as the application of this knowledge to patient care.

Objectives

Residents will demonstrate an investigatory and analytical thinking approach to clinical situations, know and apply the basic and clinically supportive sciences which are appropriate to Pulmonary Medicine as can be found in the literature resources cited below. Exposure to and discussions pertaining to individual patients should subsequently enable to fellows to:

- 1) To be able to make a diagnosis of Adult Respiratory Distress Syndrome (ARDS) and to understand techniques for providing adequate ventilation for these patients.
- 2) To be able to diagnose and manage congenital anatomic respiratory disorders: Pulmonary Hypoplasia, Congenital Diaphragmatic Hernia, Laryngeal and Vocal Cord Abnormalities, Including malacia, Webs, Stenoses, Paralyses, Bronchial Abnormalities, Including Bronchus suis, Malacia, External Obstruction, Congenital Malformations, Including Cystic and Lymphatic Abnormalities.
- 3) To be able to make a diagnosis of newborn Respiratory Distress Syndrome and to understand techniques for providing adequate acute respiratory support and subsequent chronic medical management of Chronic Lung Disease of Prematurity.
- 4) To be able to diagnose and treat acute and chronic respiratory failure in obstructive lung disease and neuromuscular disease.
- 5) To be able to diagnose and treat patients with airway diseases and respiratory compromise/failure, including:
 - Asthma/Status Asthmaticus
 - Bronchitis
 - Upper Airway Obstruction
 - Bronchiectasis
- 6) To be able to diagnose and treat patients with Aspiration Pneumonia.
- 7) To understand the differential diagnosis, apply appropriate diagnostic techniques, and manage patients with severe hemoptysis.
- 8) To understand the differential diagnosis, apply appropriate diagnostic techniques, and manage patients with alveolar hemorrhage.
- 9) To be able to diagnose and treat patients with massive pulmonary embolism.
- 10) To be able to diagnose and treat patients with respiratory failure secondary to cardiac disease.
- 11) To understand inheritance patterns, prognostic factors, diagnosis and treatment of congenital lung diseases including:
 - Cystic fibrosis
 - Common variable immunodeficiency
 - Alpha1-antitrypsin deficiency
 - Dysmotile cilia syndrome
- 12) To understand indications for performing and assist in managing patients selected to receive lung transplants.

- 13) To assist in identifying and evaluating potential lung donors.
- 14) To be able to determine which diagnostic techniques and treatment options are effective in the treatment of community-acquired pneumonia, hospital-acquired pneumonia, pneumonia in immunosuppressed patients; as well as empyema, lung abscess, pulmonary mycoses, tuberculosis, and typical mycobacteria.
- 15) To understand x-ray presentations of, diagnosis of, and treatment options for interstitial lung diseases including those associated with drugs, hypersensitivity reactions, idiopathic pulmonary fibrosis and collagen vascular disease.
- 16) To understand the differential diagnosis of pleural diseases, as well as the interpretation of diagnostic studies and management options, as related to pleural effusions and pneumothoraces.
- 17) To understand the significance of prevention in pulmonary disease including the avoidance of respiratory irritants, allergens and carcinogens, immunization, and smoking cessation.
- 18) To understand the concepts behind the diagnosis and management of sleep-disordered breathing.
- 19) To be able to diagnose and treat patients with pulmonary vascular disease including pulmonary hypertension, cor pulmonale, pulmonary thromboembolic disease, and pulmonary vasculitis.

Competencies

1. Faculty Rotation Evaluation.
2. Society of Critical Care Medicine's Multidisciplinary Critical Care Knowledge Assessment Program (MCKKAP) in-service examination.

PRACTICE-BASED LEARNING AND IMPROVEMENT

Goals

Residents must demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and life long learning. They will assist the attending physician in teaching and supervising residents.

Objectives

1. Attend the complications conferences/M & M and analyze their bronchoscopy experience and the experience of others in such a way as to foster improvement in patient care.
2. Maintain procedure log.
3. Attend formal conferences:
 - Pulmonary/Critical Care lecture series.
 - Weekly Pediatric Grand Rounds.
 - Weekly Internal Medicine Grand Rounds, if appropriate.
 - Weekly Pulmonary research conference.
 - Weekly Pediatric M & M.
4. Provide appropriate state-of-the-art articles on patient management germane to cases.

Competencies

1. Maintain procedure log, including annotations regarding technical insights, level of comfort performing procedure, complications.
2. Faculty Rotation Review.

SYSTEMS BASED PRACTICE

Goals

Residents must demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care.

Objectives

1. Access interdisciplinary resources available, including nurse case management, physical therapy, outpatient rehabilitation, and occupational therapy to effectively provide optimal care, including home ventilator and/or tracheostomy support.
2. Attend weekly Chronic Care PICU conference.
3. Attend any Ethics consultations.
4. Attend any family care conferences.

Competencies

1. Staff 360 evaluation.
2. Prepare one discharge plan summary.

PROFESSIONALISM

Goals

Residents must demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles and sensitivity to diverse populations.

Objectives

1. Demonstrate sensitivity and responsiveness to patients' culture, age, gender and disabilities.
2. Demonstrate respect, compassion and integrity for the skills and efforts of the technologists and nurses of the clinic, CF team and bronchoscopy team.
3. Demonstrate the qualities of a dedicated pulmonologist, including punctuality, thoroughness, clarity, and completeness of notes and dictations.
4. Coordinate team activities and provide timely updates as appropriate to attending faculty.
5. Surrogate leader for team in absence of pulmonary attending.

Competencies

1. Communicate effectively with patients and families across a broad range of socioeconomic and cultural backgrounds as evidenced by satisfactory family 360 evaluation.
2. Communicate effectively with physicians and other health professionals as evidenced by a satisfactory staff 360 evaluation.

INTERPERSONAL AND COMMUNICATION SKILLS

Goals

Residents must demonstrate interpersonal and communication skills that result in the effective exchange of information and teaming with patients, their families, and professional associates.

Objectives

1. Communicate relevant information and care plans to patient and families after rounds or clinic appointments. Particular emphasis will be placed on how to compassionately relay bad news and deal with end-of-life discussion/decision-making, including organ donation.
2. Communicate all significant procedure results by personal phone call to a member of the referring clinical team.
3. Communicate procedure results to the family accompanying the patient in all cases where a family member is available.
4. Work with the bronchoscopy team as an effective leader.
5. Document complete procedure note for all procedures.

Competencies

1. Communicate effectively with patients and families across a broad range of socioeconomic and cultural backgrounds as evidenced by satisfactory 360 evaluation.
2. Communicate effectively with physicians and other health professionals as evidenced by a satisfactory staff 360 evaluation.
3. Maintain comprehensive, timely, and legible medical records for all procedures.

TEACHING METHOD(S)

1. Patient presentation during rounds and clinic with opportunity for didactic correction/embellishment.
2. One-on-one instruction at the bedside and during procedures.
3. Faculty role model during bedside rounds, during teaching sessions, and during clinic encounters.
4. Radiology rounds.

ASSESSMENT METHOD - RESIDENT(S)

End-of-rotation evaluation by Pediatric Pulmonary staff and reviewed with fellow.

ASSESSMENT METHOD – ROTATION

The fellows provide an anonymous review of the rotation, including comment on patient volume, quality of supervision and overall value of rotation.

LEVEL OF SUPERVISION

The fellow is directly supervised by Pediatric Pulmonary faculty.

EDUCATIONAL RESOURCES

Critical Care Fellows' Office Library

Reading list of articles on the ATS website. (www.thoracic.org/fellows)

Recommended text books:

- Victor Chernick - *Kendig's Disorders of the Respiratory Tract in Children*
- Murray & Nadel – *Textbook of Respiratory Medicine*
- Fuhrman – *Critical Care Medicine*
- Kryger et al – *Principles & Practice of Sleep Medicine*
- West- *Respiratory Physiology: The Essentials*

Computer-assisted literature reviews