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## **PEDIATRIC PULMONOLOGY AND SLEEP MEDICINE ELECTIVE ROTATION**

### **Elective Rotation**

This rotation in Pediatric Pulmonology is a 4 week experience structured for 3<sup>rd</sup>/4<sup>th</sup> year students interested in the fields of Pediatrics, Family Medicine or Pulmonology.

#### **Purpose:**

Clinical experiences are intended to assist the students transition from didactic to integrated clinical evaluation. In addition to the subject specific objectives by the end of this rotation the student is expected to learn to obtain a concise, pertinent history for various presenting symptoms; perform thorough, relevant physical examinations; formulate differential diagnoses from the chief complaint; determine when further work-up is necessary and which test to order; and decide on the appropriate therapy for the diagnosis. The Pediatric Pulmonology rotation will provide the student with a broad exposure in several clinical settings and a diverse population of patients to complete these goals

### **Professional Conduct and Attitudes**

Students are to conduct themselves in a professional manner at all times. Students have a personal responsibility for their own education and for development of life long learning skills. They must interact with all staff, including their peers and their teachers in a manner that demonstrates respect for each individual and that promotes personal and group learning

All hospital and medical school guidelines regarding patient confidentiality shall be strictly adhered to without exception.

Students will wear short white coats identifying their medical school with appropriate name badges at all times.

### **Prerequisites**

**Well-developed data gathering skills, knowledge of ethical principles and a basic understanding of health law issues are essential foundations for the student. Each student should have successfully completed the core clerkship in Pediatrics prior to the start of this rotation.**

### **GOALS**

Upon completion of the clerkship, students are expected to possess and demonstrate the following knowledge, skills, attitudes, and behaviors

- A. Knowledge Integration and Decision-Making
  1. Demonstrate the ability to utilize the principles of scientific inquiry
  2. Think clearly, analytically, and critically

3. Solve problems and make decisions during daily practice
  4. Conduct practice-related research when appropriate
  5. Systematically find, analyze, evaluate and apply information
  6. Make informed, defensible decisions
- B. Communication: Demonstrate effective written, verbal, and non-verbal communication using a variety of modalities.
- C. Lifelong Learning: Demonstrate an understanding of and commitment to the concepts and principles of lifelong learning as a means of fulfilling and advancing one's practice and professional role in society.
- D. Ethics and Values: Demonstrate a sense of unity with colleagues and a professional identity and pride consistent with high values and ethical principles.

### **OBJECTIVES**

The emphasis of the pediatric pulmonology and sleep medicine rotation is to help students become familiar with the most common entities and their pathophysiology in these areas of medicine, with a focus on the following topics.

At the completion of this rotation the student should be able to:

#### **Pulmonary Exam:**

- A. Observe, measure, and interpret the rate, pattern, and effort of breathing.
- B. Identify normal variations of respiration and signs of respiratory distress e.g. grunting, flaring, and retraction.
- C. Identify normal breath sounds and findings consistent with respiratory pathology such as stridor, wheezing, crackles, and asymmetric breath sounds.
- D. Identify transmitted upper airway sounds

#### **Respiratory Physiology:**

- A. Outline the physiology of normal inhalation and exhalation and variations across different age groups
- B. Interpret blood gases and recognize acid-base imbalance to apply these concepts to ventilator management.
- C. Describe the physiology of coughing and identify conditions that may have impaired cough as a complication.

#### **Exercise Physiology:**

- A. Describe the mechanics and normal physiology of the pulmonary system, cardiovascular system, and musculoskeletal system.
- B. Differentiate between exercise-induced bronchospasm and asthma.

#### **Reading a Chest X ray:**

- A. Recognize the findings of a normal chest radiograph in children of different age groups
- B. List the indications for ordering a chest radiograph.
- C. Highlight the importance of both lateral view as well as AP view.
- D. Apply the information from chest radiographs to generate differential diagnosis.

**Interpreting Pulmonary Function Tests:**

- A. Identify obstructive airways disease and restrictive airway disease on pulmonary function testing
- B. List the various ways to recognize obstructive airway diseases
- C. Interpret the inspiratory loop and the flow-volume loop
- D. Extrapolate the patient's level of effort and ability during the test based on PFT results.

**Asthma:**

- A. Recognize the common clinical presentations of asthma.
- B. Be competent in the diagnostic criteria of asthma
- C. Be competent in the management of asthma including the most commonly prescribed pharmacologic agents
- D. Describe the roles of PFT's and peak flow meters.
- E. Differentiate asthma from other causes of cough or wheeze

**Bronchopulmonary dysplasia:**

- A. Define Bronchopulmonary Dysplasia
- B. Describe the application and limitation of apnea monitors.
- C. Describe the role of supplemental oxygen in the management in BPD.
- D. List the potential complications associated with BPD.
- E. Explain the importance of the use of Palivizumab in patients with BPD

**Hypoxemia:**

- A. List the 6 categories of hypoxemia.
- B. Describe the function of oxygen and its potential side effects
- C. Apply your knowledge of the different modalities of delivering oxygen such as nasal cannula, simple face mask and Venturi mask to the fit the needs of a patient with hypoxemia

**Central and Obstructive sleep apnea:**

- A. Compare and contrast Central sleep apnea and obstructive sleep apnea
- B. Differentiate between the treatment options for CSA and OSA
- C. List the various risk factors for CSA and OSA.
- D. Be familiar with the set-up and recording of overnight polysomnography.
- E. Relate basic sleep physiology and how it applies to CSA and OSA.

**COURSE POLICIES**

The course faculty in accordance with the policies and statements in the student handbook must approve any exceptions to the policies stated in this syllabus.

## TEXT OR REQUIRED READINGS

### Required Readings:

The Harriet Lane Handbook, 19<sup>th</sup> edition, 2012

### Suggested Readings:

Pediatric Pulmonology, American Academy of Pediatrics Section on Pulmonology, editor Michael J. Light, Pediatric Pulmonology American Academy of Pediatrics, 2011

### Assignment:

Students will informally present a journal article pertaining to a topic in pediatric pulmonology or pediatric sleep medicine. The article should be published in the past two years in a peer-reviewed medical journal. A copy of the article is to be submitted at the time of the presentation.

## GRADING

This Elective will be graded as a pass/fail. Grading will be based on the mastery of the skills and the presentation as stated above, and the student's professional conduct using the Des Moines University Student Evaluation tool (E-Value)