**ATS PEDS RBC 2025  
Learning Objectives  
May 16 and 17 2025, San Francisco  
Day 1: 5/16/2025**

**Physiology Didactics and Interactive Cases  
60 minutes  
Sankaran, Andrew, Meghan and Eric talks**

**Eric: Structure and Function of the Lung, 15 minutes**

1. Know the physiology of airways, blood vessels, and alveoli
2. Describe diffusion versus perfusion limited exchange
3. Describe the similarities and differences in O2 and CO2 transport

**Sankaran: Blood gas analysis, 15 minutes**

1. Recognize respiratory versus Metabolic Acidosis
2. Recognize respiratory versus Metabolic Alkalosis
3. Practice short cut to estimate chronic respiratory acidosis from BMP bicarb

**Andrew: Four causes of hypoxemia and O2 therapy, 15 minutes**

1. Causes of hypoxemia

**Meghan: Mechanics of breathing, 15 minutes**

1. Know significance of FRC
2. Review Starling Curves for chest wall recoil

**Neonatal Lung Disease  
35 minutes**

**Manisha Newaskar**

**Suggestion of Jon Levin**

1. Briefly, describe normal development of the neonatal lung.
2. Bronchopulmonary dysplasia
3. Definition of BPD
4. Briefly discuss management strategies for neonatal lung disease.
5. Approach to newborn with respiratory failure

**Pulmonary Vascular Physiology and Pulmonary Hypertension  
35 minutes  
Natalie Villafranco**

1. Review pulmonary vascular physiology
2. Basics of pulmonary hypertension classification
3. Basics of therapeutics/agents

**Chest Imaging  
35 minutes  
David Spielberg**

1. Basics of CXR and Chest CT interpretation
2. High yield imaging examples

**Chronic Respiratory Failure  
35 minutes  
Richard Kravitz**

1. Indications for chronic mechanical ventilation
2. Invasive versus noninvasive ventilation
3. Basic modes of ventilatory support

**Introduction to Bronchoscopy  
20 minutes  
Eleanor**

1. Indications and contraindication for flexible bronchoscopy including consent
2. Airway anatomy
3. Parts of a bronchoscope

**Mini Quiz Show**  
**20 minutes  
Eric and Erin**

1. **Kahoots quiz show**
2. Review Rules for Jeopardy
3. Leaderboard

**Hands on #1: Pediatric Flexible Bronchoscopy, Basic Anatomy and Driving  
2 hours, 6 stations 15 minutes each station  
½ of the total group = 16 learners, 2-3 per station**

1. Learn basic layout and controls of scope: Thumb lever control, scope control, work port, camera function
2. Learn basics of different scope and channel sizes and how to choose an appropriately-sized scope
3. Learn indications, contraindications, and potential complications of pediatric flexible bronchoscopy
4. Know your basic anatomy as you drive the scope
5. Self directed learning module on Ambu

**Hands on #2: Chronic Ventilator Management  
1 hour, 2 groups 4 each (if you have 2 vents)  
8 learners**

1. Become familiar with the most commonly used home ventilators
2. Learn the basics of ventilator settings and note differences in nomenclature of different ventilator companies (PC or IPAP/EPAP vs PIP/PEEP)
3. Become familiar with various noninvasive interfaces: nasal mask, full face mask, nasal pillows
4. Touch the ventilator! Set up initial ventilator settings for hypothetical patient – Target pressures and tidal volumes, PEEP, pressure support and rate

**Hands on #3: Tracheostomy/Airway Management  
30 minutes  
4 learners**

1. Become familiar with ETT placement
2. Learn indications, contraindications, and potential complications of pediatric tracheostomy
3. Become familiar with tracheostomy tube placement technique
4. Learn basic bedside management of a child with tracheostomy including dislodgement, suctioning, and bagging

**Hands on #4: Airway Clearance  
30 minutes  
4 learners**

1. Know the purpose of airway clearance and its indications as well as pros/cons for different devices
2. Play with
   1. Cough Assist
   2. Chest Vest
   3. Volara IPV
   4. Aerobika
   5. Acapella
   6. PEP

**Day 2: 5/17/2025**

**Rare Lung Diseases  
35 minutes  
Suggestion of Maureen Dunn**

1. Children’s Interstitial Lung Disease (chILD) (surfactant dysfunction disorders, NEHI, PIG…)
2. Primary ciliary dyskinesia

**Cystic Fibrosis and Highly Effective Modulator Therapies  
35 minutes  
Erin Khan**

1. Basics of CF Diagnosis
2. Highly Effective Modulator Therapies
3. Other organs impacted by CF if time allows

**“Asthma Nuts and Bolts” or Severe Asthma and Biologic Therapy  
35 minutes  
Christian Rosas Salazar**

1. How to determine asthma severity
2. What is severe asthma and how is it managed
3. NHLBI/GINA guidelines
4. Biologics

**Sleep Disorders and Polysomnography  
35 minutes  
Suggestion Caroline Okorie**

1. Obstructive Sleep Apnea
2. Central sleep apnea
3. Indications for, components of, and basic interpretation of sleep studies

**RBC Jeoparody  
1 hour  
Eric and Erin**

1. Jeopardy-style game with 5-6 categories
   1. CF/rare lung disease
   2. Asthma
   3. BPD/neonatal lung disease
   4. Respiratory failure
   5. PSG/PFT
2. Questions to ask at the Lunch ATS Assemblies Fair

**2 ½ hours total hands on, 5 groups of 6-7, 27 minutes per station  
Hands on #5: Advanced Pediatric Flexible Bronchoscopy  
3 Bronch Stations**

1. Indications, contraindications, and complications of bronchoscopy foreign body removal
2. Practice advanced bronchoscopic technique of foreign body extraction
3. Cryo
4. Basket and forceps
5. Practice fiberoptic nasal intubation
6. Test self-directed learning on Ambu

**15 Minute Break after 3 rotations!**

**Hands on #6: PFT Spirometry and Interpretation**

1. Identify the different components of pulmonary function testing.
2. Spirometry
3. Lung volumes (plethysmography versus nitrogen washout versus helium gas method)
4. Diffusion
5. Airways resistance
6. Pre and post bronchodilator

**Hands on #7: Spirometry and Inhalers**

1. Perform Your Spirometry! Coaching is a big deal!
2. ATS PFT Interpretation Guidelines and Reference Sheet
3. Learn inhaler/spacer technique for MDI versus Redihaler, Respiclick, Flexhalers, Diskus

**Hands on #8 BONUS PRDS Scholars Inhalers and Airway Clearance  
45 minutes, however many PRDS learners attend, 2-3 teachers depending on enrollment**

1. Know the purpose of airway clearance and its indications, pros/cons for different devices
2. Play with Cough Assist, Chest Vest, Volara IPV, Aerobika, Acapella, PEP
3. Learn inhaler/spacer technique for MDI versus Redihaler, Respiclick, Flexhalers, Diskus