Hypercapnic Respiratory Failure Learning Objectives

Definition and Overview
- Understand criteria for hypercapnic respiratory failure
- Distinguish types of hypercapnic respiratory failure: acute, chronic, and acute on chronic
- Identify clinical consequences of hypercapnia

Pathophysiology of Hypercapnia
- Recognize factors contributing to CO2 elimination
- Explain how different breathing patterns affect CO2 elimination
- Discuss the potential contribution of ventilation-perfusion mismatch to hypoxemia

Causes of Hypercapnic Respiratory Failure
- Categorize components of the respiratory system that contribute to hypercapnia
- List several disorders that cause hypercapnia through their effects on components of the respiratory system
- Explain why pulmonary embolism typically does not cause hypercapnia

Evaluation and Management of Hypercapnic Respiratory Failure
- Recognize when to suspect hypercapnic respiratory failure
- Define important components of the initial evaluation of hypercapnic respiratory failure
- Discuss indications for noninvasive vs. invasive ventilation in patients with hypercapnic respiratory failure

Hypoxemia in Hypercapnic Respiratory Failure
- Explain mechanisms by which hypoxemia accompanies hypercapnic respiratory failure
- Understand the mechanism(s) by which supplemental oxygen can increase PCO2 in patients with hypercapnic respiratory failure
- Identify goals for supplemental oxygen administration in hypercapnic respiratory failure

Acute Exacerbations of COPD: Management
- Recognize triggers for an acute exacerbation of COPD
- Describe pharmacologic and supportive therapies for patients with an acute exacerbation of COPD
- Discuss indications for noninvasive vs. invasive ventilatory support for patients with an acute exacerbation of COPD
- Explain intrinsic or auto-PEEP
Asthma Exacerbations: Management

- Identify pathophysiologic factors contributing to an asthma exacerbation
- List pharmacologic components of management of an asthma exacerbation
- Describe indications for ventilatory support in patients with an asthma exacerbation
- Discuss how auto-PEEP can complicate management of the patient with an asthma exacerbation