

## OBJECTIVES FOR COMMON CLINICAL PROBLEMS

### Respiratory Failure

#### A. KNOWLEDGE: Students should know the following:

1. Understand how respiration is regulated and the mechanisms of respiratory failure including the anatomical locations of disease that can result in respiratory failure e.g. airway disease, lung parenchymal disease, chest wall disease, neuromuscular disease, and central nervous system causes of respiratory failure
2. Define the process of oxygen transport from the lungs to the tissues, understanding such concepts as: oxygen content, oxygen delivery and oxygen uptake
3. The etiology, pathogenesis, evaluation, and management of hypoxemia and hypercapnia
4. Differentiate acute and chronic respiratory failure in clinical and laboratory terms
5. Understand the changes in the respiratory system that occur normally during sleep
6. Understand the epidemiology and mechanisms of obstructive sleep apnea and the associated significant morbidity (i.e. hypersomnolence, cor pulmonale, respiratory failure, etc.)
7. Understand the role of noninvasive and invasive ventilation in the management of respiratory failure and particularly the role of noninvasive ventilation for the management of respiratory failure in exacerbations of COPD

B. SKILLS: Students should be able to demonstrate the following skills:

1. History-taking and physical examination skills: Students should be able to obtain a comprehensive respiratory and general history and complete physical examination in order to determine the most likely etiology, differential diagnosis and severity of the disorder causing respiratory failure
2. Laboratory investigations: Order and interpret diagnostic and laboratory tests based on the differential diagnosis. These may include:
  - blood work and arterial blood gases (including calculation of the A-a difference and determination of acute or chronic respiratory acidosis)
  - chest radiograph
  - spirometry
3. Management Skills: Students should develop an appropriate evaluation and treatment plan guided by the most likely etiology (etiologies) of the respiratory failure and understand when to apply non invasive or invasive ventilation for the treatment of respiratory failure.