**Care of the Patient with a Respiratory Disorder**

---

**Overview of Anatomy and Physiology**

- **External respiration**
  - Exchange of oxygen and carbon dioxide between the lung and the environment
- **Internal respiration**
  - Exchange of oxygen and carbon dioxide at the cellular level

---

**External Respiration**
Overview of Anatomy and Physiology

- Upper respiratory tract
  - Nose
  - Pharynx
  - Larynx
  - Trachea
- Lower respiratory tract
  - Bronchial tree
    - Bronchioles, alveolar ducts, alveoli

Upper Respiratory track
Lower respiratory track

Overview of Anatomy and Physiology

- Mechanics of breathing
  - Thoracic cavity
    - Lungs
      - Visceral pleura and parietal pleura
      - Diaphragm
  - Regulation of respiration
    - Nervous control—medulla oblongata and pons of the brain; chemoreceptors—in the carotid and aorta
Assessment of the Respiratory System

- Shortness of breath, dyspnea, cough
- Labored breathing
- Respiratory distress
- Orthopnea
- Adventitious breath sounds
  - Wheezes
  - Crackles

Laboratory and Diagnostic Examinations

- Chest roentgenogram
- Computed tomography (CT)
- Pulmonary function testing
- Mediastinoscopy
- Laryngoscopy
- Bronchoscopy
- Sputum specimen
- Cytological studies
- Thoracentesis
- Arterial blood gases
- Pulse oximetry
Figure 49-7
Fiberoptic bronchoscope.

Figure 49-8
Thoracentesis.

Figure 49-9
Portable pulse oximeter with spring-tension digit probe displays oxygen saturation and pulse rate.
Disorders of the Upper Airway

- **Epistaxis**
  - Bleeding from the nose
  - Clinical manifestations/assessment
    - Bright red bleeding from one or both nostrils
    - Can lose as much as 1 liter per hour

Disorders of the Upper Airway (continued)

- **Epistaxis**
  - Medical management/nursing interventions
    - Sitting position, leaning forward
    - Direct pressure by pinching nose
    - Ice compresses to nose
    - Nasal packing
    - Cautery
    - Balloon tamponade

Disorders of the Upper Airway

- **Allergic rhinitis and allergic conjunctivitis**
  - Etiology/pathophysiology
    - Antigen/antibody reactions in the nasal membranes, nasopharynx, and conjunctiva due to allergens
Disorders of the Upper Airway

- Allergic rhinitis and allergic conjunctivitis

Medical management/nursing interventions

- Avoid allergen
- Antihistamines
- Decongestants
- Topical or nasal corticosteroids
- Analgesics
- Hot packs over facial sinuses

Respiratory Infections

- Acute rhinitis (common cold)

  - Etiology/pathophysiology
    - Inflammation of the mucous membranes of the nose and accessory sinuses
    - Virus(es)
  - Clinical manifestations/assessment
    - Thin, serous nasal exudate
    - Productive cough
    - Sore throat
    - Fever

Figure 49-3

Projections of paranasal sinuses and oral nasal cavities on the skull and face.

Respiratory Infections

• Laryngitis
  • Etiology/pathophysiology
    • Inflammation of the larynx due to virus or bacteria
    • May cause severe respiratory distress in children under 5 years old
  • Clinical manifestations/assessment
    • Hoarseness
    • Voice loss
    • Scratchy and irritated throat
    • Persistent cough

Disorders of the Lower Airway

• Acute bronchitis
  • Etiology/pathophysiology
  • Medical management/nursing interventions
    • Cough suppressants
    • Antitussives
    • Antipyretics
    • Bronchodilators
    • Antibiotics
    • Vaporizer
    • Encourage fluids
Disorders of the Lower Airway

- Tuberculosis
  - Etiology/pathophysiology
    - Inhalation of tubercle bacillus (Mycobacterium tuberculosis)
  - Presumptive diagnosis
    - Mantoux tuberculin skin test
    - Chest x-ray
    - Acid-fast bacilli smear x 3
  - Confirmed diagnosis
    - Sputum culture; positive for TB bacilli

Disorders of the Lower Airway (continued)

- Clinical manifestations/assessment
  - Fever
  - Weight loss; weakness
  - Productive cough; hemoptysis
  - Chills; night sweats
- Medical management/nursing interventions
  - Tuberculosis isolation (acid fast bacilli [AFB])
  - Multiple medications to which the organisms are susceptible

Treatment for TB

- Isoniazid and Rifampicin x 6 months
- Rifabutin and Cycloserine given in addition for first two months
- If drug combinations are not taken as directed resistant forms of TB are likely to emerge
Disorders of the Lower Airway

- Pneumonia
  - Etiology/pathophysiology
    - Inflammatory process of the bronchioles and the alveolar spaces due to infection
    - Bacteria, viruses, mycoplasma, fungi, and parasites
  - Clinical manifestations/assessment
    - Productive cough
    - Severe chills; elevated temperature
    - Increased heart rate and respiratory rate
    - Dyspnea

Disorders of the Lower Airway (continued)

- Pneumonia (continued)
  - Medical management/nursing interventions
    - Oxygen
    - Chest percussion and postural drainage
    - Encourage to cough and deep-breathe
    - Antibiotics
    - Analgesics
    - Expectorants
    - Bronchodilators
    - Humidifier or nebulizer
Disorders of the Lower Airway

- Lung cancer
  - Etiology/pathophysiology
    - Primary tumor or metastasis
    - Small-cell, non-small-cell, squamous cell, and large-cell carcinoma
  - Clinical manifestations/assessment
    - Hemoptysis
    - Dyspnea; wheezing
    - Fever; chills
    - Pleural effusion

Lung cancer (continued)

- Medical management/nursing interventions
  - Surgery
    - Most are not diagnosed early enough for curative surgical intervention
    - Segmental resection
    - Lobectomy
    - Pneumonectomy
  - Radiation
  - Chemotherapy
Disorders of the Lower Airway

- Pulmonary embolus
  - Etiology/pathophysiology
    - Foreign substance in the pulmonary artery
    - Blood clot, fat, air, or amniotic fluid
  - Clinical manifestations/assessment
    - Sudden, unexplained dyspnea, tachypnea
    - Hemoptysis
    - Chest pain
    - Elevated temperature
    - Increased WBCs

Disorders of the Lower Airway (continued)

- Medical management/nursing interventions
  - Oxygen
  - HOB up 30 degrees
  - Anticoagulants
  - Fibrinolytic agents
Chronic Obstructive Pulmonary Disease (COPD)

- Emphysema
  - Etiology/pathophysiology
    - The bronchi, bronchioles, and alveoli become inflamed as a result of chronic irritation
    - Air becomes trapped in the alveoli during expiration, causing alveolar distention, rupture, and scar tissue
  - Complication
    - Cor pulmonale
    - Right-sided congestive heart failure due to pulmonary hypertension
**Chronic Obstructive Pulmonary Disease (COPD)**

- Emphysema (continued)
  - Clinical manifestations/assessment
    - Dyspnea on exertion
    - Sputum
    - Barrel chest
    - Chronic weight loss
    - Emaciation
    - Clubbing of fingers

---

**Figure 49-17**

*Barrel chest. Note increase in AP diameter.*

---

**Chronic Obstructive Pulmonary Disease (COPD)**

- Emphysema (continued)
  - Medical management/nursing interventions
    - Oxygen (low-flow)
    - Chest physiotherapy
    - Bronchodilators; corticosteroids; antibiotics; diuretics
    - Humidifier
    - Pursed-lip breathing
    - High-protein, high-calorie diet
Chronic Bronchitis

- Etiology/pathophysiology
  - Hypertrophy of mucous glands causes hypersecretion and alters cilia function
  - Increased airway resistance causes bronchospasm
- Clinical manifestations/assessment
  - Productive cough
  - Dyspnea
  - Use of accessory muscles to breathe
  - Wheezing

Chronic bronchitis is caused most often by exposure to airborne pollutants such as cigarette smoke.
Chronic Obstructive Pulmonary Disease (COPD)

- Chronic bronchitis (continued)
  - Medical management/nursing interventions
    - Bronchodilators
    - Mucolytics
    - Antibiotics
    - Oxygen (low-flow)
    - Pursed-lip breathing

Chronic Obstructive Pulmonary Disease (COPD)

- Asthma
  - Etiology/pathophysiology
    - Narrowing of the airways due to various stimuli
    - Extrinsic or intrinsic factors
    - Influenced by secondary factors
    - Antigen-antibody reaction

Hair-like projections called cilia line the primary bronchus to remove microbes and debris from the interior of the lungs.
Asthma (continued)
- Clinical manifestations/assessment
  - Mild asthma
  - Dyspnea on exertion
  - Wheezing
  - Acute asthma attack
  - Tachypnea
  - Expiratory wheezing; productive cough
  - Use of accessory muscles; nasal flaring
  - Cyanosis

Chronic Obstructive Pulmonary Disease (COPD)

Asthma (continued)
- Medical management/nursing interventions
  - Maintenance therapy
    - Serevent inhalant, prophylactic
    - Corticosteroid inhalant
    - Avoid allergens
  - Acute or rescue therapy
    - Proventil inhalant; aminophylline IV
    - Corticosteroid and epinephrine oral or subcutaneous
    - Oxygen
Does your child's **asthma medicine** fit your child?

PULMOCORT RESPULES is created especially for kids. So you know it fits.

---

**Time for a smoke**

---