

NCLEX Notes Week 11: The Respiratory System

- **Primary functions of the respiratory system**
 - Provides oxygen for metabolism in the tissues
 - Removes carbon dioxide
- **Secondary functions of the respiratory**
 - Facilitates sense of smell
 - Produces speech
 - Maintains acid-base balance
 - Maintains body water levels
 - Maintains heat balance

Diagnostic Procedures

- **Sputum Specimen**
 - Specimen is obtained by expectoration or tracheal suctioning to assist in the identification of organisms or abnormal cells
 - Specimen is cultured and medications are provided based on the results
- **Laryngoscopy and Bronchoscopy**
 - Direct visual examination of the larynx, trachea, and bronchi with a fiberoptic bronchoscope
 - Important Notes
 - Patient to remain NPO
 - Patient is sedated so IV access needed to administer medication
 - Need to assess patient's gag reflex
 - Monitor for blood sputum
- **Thoracentesis**
 - Removal of fluid or air from the pleural space via transthoracic
 - Important Notes
 - Monitor respiratory status
 - Monitor patient for signs of pneumothorax

- **Lung Biopsy**
 - A transbronchial biopsy and transbronchial needle aspiration may be performed to obtain tissues for analysis by culture or cytological
- **Arterial Blood Gases**
 - Measurement of the dissolved oxygen and carbon dioxide in the arterial blood helps to indicate the acid-base state and how well oxygen is being carried to the body
- **Oxygen**
 - Nasal Cannula Percentage of oxygen delivered
 - 20-40% at 1-6L/min
 - Simple Face Mask Percentage of oxygen delivered
 - 24-55% at 4-10 L/min
 - Delivers exact desired concentrations
 - Venturi Mask Percentage of oxygen delivered
 - 24-55% at 4-10 L/min
 - Delivers exact desired concentrations
 - Partial and Non- Rebreather Mask Percentage of oxygen delivered
 - 50-100% at 8-15 L/min (non-rebreather 100%)
- **Chest Injuries**
 - **Rib Fractures**
 - Result from direct blunt chest trauma and causes potential for intrathoracic injuries such as pneumothorax or pulmonary contusion
 - Assessment
 - Pain and tenderness
 - Shallow respirations
 - Client splints chest
 - Fracture noted on chest x-ray
 - **Flail Chest**
 - Occurs from blunt chest trauma associated with accidents
 - Assessment
 - Paradoxical respirations
 - Severe pain in the chest
 - Dyspnea
 - Cyanosis
 - Tachycardia

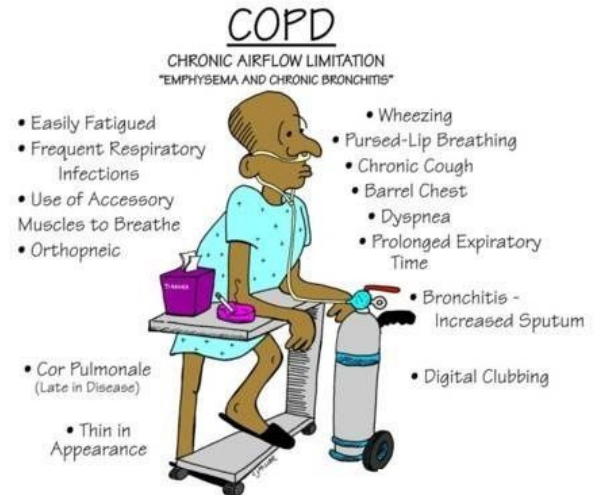
- **Pneumothorax**
 - Open
 - Occurs when an opening through the chest wall allows the entrance of positive atmospheric air pressure into the pleural space
 - Spontaneous
 - Occurs with the rupture of the pulmonary bleb
 - Tension
 - Occurs from a blunt chest injury or from mechanical ventilation with PEEP when a buildup of positive pressure occurs in the pleural space
- **Acute Respiratory Failure**
 - Occurs when insufficient oxygen is transported to the blood or inadequate carbon dioxide is removed from the lungs and the client's compensatory mechanisms fail
 - Assessment
 - Dyspnea
 - Headache
 - Restlessness
 - Confusion
 - Tachycardia
 - Hypertension
- **Chronic Obstructive Pulmonary Disease**
 - Disease characterized by airflow obstruction caused by emphysema or chronic inflammation
 - Assessment
 - Cough
 - Dyspnea
 - Sputum production
 - Weight loss
 - Barrel Chest
- **Severe Acute Respiratory Syndrome (SARS)**
 - Respiratory illness caused by a coronavirus called SARS-associated coronavirus
 - Assessment
 - Discomfort
 - Body aches

- Dry Cough
- **Pneumonia**
 - Infection of the pulmonary tissue, including the interstitial spaces, the alveoli, and the bronchioles
 - Assessment
 - Chills
 - Elevated temperature
 - Pleuritic pain
 - Tachypnea
 - Rhonchi and wheezes
 - Use of accessory muscles for breathing
 - Mental status changes
- **Influenza**
 - a highly contagious viral infection of the respiratory passages causing fever, severe aching, and catarrh, and often occurring in epidemics
 - Several types including A, B, and C
 - Assessment
 - Acute onset of fever and muscle aches
 - Headache
 - Fatigue, weakness, and anorexia
 - Sore throat
- **Pleural Effusion**
 - Collection of the fluid in the pleural space
 - Any condition that interferes with secretion or drainage of this fluid will lead to pleural effusion
 - Assessment
 - Pleuric pain
 - Progressive dyspnea
 - Tachycardia
 - Dry, nonproductive cough
 - Elevated Temperature
- **Pulmonary Embolism**
 - Occurs when a thrombus forms, detaches, travels to the right side of the heart, and then lodges in a branch of the pulmonary artery
 - Assessment
 - Chest pain
 - Cough

- Blood Tinged Sputum
- Cyanosis
- Hypotension

- **COPD**

- a chronic inflammatory lung disease that causes obstructed airflow from the lungs
 - **Causes**
 - Usually caused by tobacco smoking
 - **Symptoms**
 - Shortness of breath
 - Chronic Cough
 - Pursed Lip breathing
 - Barrel Chest



- Important things to note
 - When treating a patient with COPD, their pulse ox saturation is usually below 95%
 - Do not give them high flow oxygen because they forget to breath
- Treatment
 - **QUIT SMOKING**
 - Use bronchodilators like albuterol
 - Use inhaled steroids like fluticasone
 - Oxygen therapy

Respiratory Medications

- **Bronchodilators**

- Relax the smooth muscle of the bronchi and dilate the airways of the respiratory tree, making air exchange and respiration easier for the client
 - **Side Effects**
 - Palpitations
 - Tachycardia
 - Dysrhythmia
 - Restlessness
 - Anorexia
 - Headaches
 - Hyperglycemia

- **Anticholinergics**

- Improve lung function by blocking muscarinic receptors in the bronchi, which results in bronchodilations

- **Glucocorticoids**

- Act as antiinflammatory agents and reduce edema of the airways, they are used to treat asthma and other and other antinflammatory respiratory conditions

- **Antihistamines**

- Can reverse histamine-induced pulmonary edema and increased lung vascular permeability

- Side Effects

- Drowsiness
- Dizziness
- Urinary retention
- Wheezing
- Constipation
- Dry Mouth
- Hypotension

- **Nasal Decongestants**

- A drug that shrinks the swollen membranes in the nose, making it easier to breathe

- **Expectorants**

- a medicine which promotes the secretion of sputum by the air passages, used to treat coughs

- Side Effects

- Gastrointestinal irritation
- Rash
- Oropharyngeal irritation

- **Antitussives**

- used to prevent or relieve a cough