Respiratory System
Diseases and Disorders
Asthma

- Usually caused by sensitivity to an allergen such as dust, pollen, animals, medications, and foods
- Stress, overexertion, and infections can cause an asthma attack
- Symptoms: Occur when bronchospasms narrow openings of bronchioles, mucus production increases, and edema develops in the mucous lining
Asthma

- Symptoms:
  - Dypsnea and wheezing
  - Coughing and expectoration of sputum
  - Tightness in chest
- Treatment: Bronchodilators to enlarge bronchioles
  - Epinephrine and anti-inflammatory drugs
  - Oxygen therapy
  - Id the cause of attacks
Bronchitis

- Inflammation of the bronchi and bronchiole tubes
- Acute Bronchitis: Usually caused by infection
- Symptoms:
  - Productive cough
  - Dypsnea
  - Rales: bubbly or noisy breath sounds
  - Chest pain & fever
Bronchitis

- Treatment of Acute Bronchitis:
  - Antibiotics
  - Expectorants to remove excess mucus
  - Rest & fluids

- Chronic Bronchitis:
  Occurs after frequent attacks of acute bronchitis and long term exposure to pollutants or smoking
**Bronchitis**

- Characterized by: chronic inflammation, damaged cilia, and enlarged mucus glands
- Symptoms of chronic bronchitis:
  - Excessive mucus resulting in a productive cough
  - Wheezing and dypsnea
  - Chest pain
  - Prolonged expiration of air
- Treatment: No cure
- Antibiotics and bronchodilators
- Respiratory therapy
Chronic Obstructed Pulmonary Disease (COPD)

- Any chronic lung disease that results in obstruction of the airways
- Disorders such as chronic asthma, chronic bronchitis, emphysema, and tuberculosis leads to COPD
- Smoking is the primary cause, but allergies, and chronic respiratory diseases are also factors
COPD

Obstructive Chronic Bronchitis and/or Emphysema

Normal

Obstructive chronic bronchitis

Normal

Emphysema

Air exchange occurs in the alveoli

Inflammation and swelling further narrows airway

Thick, sticky mucous blocks up the airways rather than clears

Air becomes trapped

$\text{CO}_2$ = carbon dioxide

$\text{O}_2$ = oxygen
COPD

- Treatment methods include bronchodilators, mucolytics (loosen mucus secretions)
- Prognosis is poor because damage to the lungs causes a deterioration or pulmonary function leading to respiratory failure and death
Emphysema

- Noninfectious chronic respiratory condition
- Occurs when walls of the alveoli deteriorate and lose their elasticity
  - CO2 remains trapped in the alveoli
  - Poor exchange of gas
- Most common cause is heavy smoking and prolonged exposure to air pollutants
Emphysema

- Symptoms:
- Dypsnea and feeling of suffocation
- Pain and a barrel chest
- Chronic cough
- Cyanosis
- Rapid respirations with prolonged expiration
- Eventual respiratory failure and death
Emphysema

- Treatment: no cure
- Avoiding smoking
- Bronchodilators
- Breathing exercises
- Prompt treatment of respiratory infections
- Oxygen therapy and respiratory therapy
Epistaxis

- Occurs when capillaries in nose become congested and bleed

- Causes:
  - Injury or blow to the nose
  - Hypertension
  - Chronic Infections
  - Anticoagulants drugs
  - Blood decreases such as hemophilia or leukemia
Epistaxis

- Treatment:
  - Compress nostrils toward the septum, elevate the head and tilt it slightly forward, and apply cold compresses
  - Nose plugs
Influenza or flu

- Highly contagious viral infections of the upper respiratory system with a sudden onset

- Symptoms:
  - Chills, and fever
  - Cough, sore throat, and runny nose
  - Muscle pain and fatigue
Influenza

- Treatment:
- Bed rest and fluids
- Analgesics for pain and antipyretics for fever
- Antibiotics are not effective against viruses, but they are given at times to avoid secondary infections such as pneumonia
Influenza Vaccinations

- Recommended for the elderly, individuals with chronic diseases, pregnant women, and health care workers
- Many different viruses cause influenza, so vaccines and developed each year to immunize against the most common viruses identified
Laryngitis

- Inflammation of the larynx and vocal cords
- Frequently occurs with other respiratory infections
- Symptoms:
  - Hoarseness or loss of voice
  - Sore throat
  - Dysphagia, or difficulty swallowing
Laryngitis

- Treatment:
  - Rest and fluids
  - Limited use of the voice
  - Medications if an infection is present
Lung Cancer

- Leading cause of cancer death in men and women
- A preventable disease because the main cause is exposure to carcinogens in tobacco through smoking or through exposure to secondhand smoke
- Three common types:
  - Small cell
  - Squamous Cell
  - Adenocarcinoma
Lung Cancer
Lung Cancer

- Symptoms:
  - None in the early stages
  - Chronic cough
  - Hemoptysis: coughing up blood-tinged sputum
  - Dypsnea and chest pain
  - Fatigue and chest pain
  - Prognosis is poor since the disease is usually advanced before it is diagnosed
Lung Cancer

- Treatment:
  - Surgical removal of the cancerous sections of the lung, radiation, and or chemotherapy
Pleurisy

- Inflammation of pleura, or membranes of the lungs
- Usually occurs with pneumonia or other infections
- Symptoms:
  - Sharp stabbing pain while breathing
  - Crepitation, or grating sounds in the lungs
  - Dypsnea and fever
Pleurisy:
Treatment:
Rest
Medications to relieve pain and inflammation

If there is a fluid build up in the cavity: fluid should be drawn off of the lung to prevent pneumothorax
Pneumonia

- Inflammation or infection of the lungs with a buildup of fluid or exudate in the alveoli
- Usually caused by a bacteria, a virus, protozoa, or chemicals
PNEUMONIA

Symptoms

- High fever
- Chills
- Headaches
- Loss of appetite
- Mood swings
- Clamminess
- Blueness
- Low blood pressure
- High heart rate
- Nausea
- Vomiting
- Pain
- Fatigue
- Aches
Pneumonia

- Treatment:
  - Rest
  - Oxygen therapy
  - Fluids
  - Antibiotics if indicated
  - Respiratory therapy
  - Pain medication
Rhinitis

- Inflammation of the nasal mucous membrane resulting in a runny nose, watery eyes, sneezing, soreness, and congestion
- Common cause is infection or allergies
- Treatment: Fluids and medications to relieve congestion
Sinusitis

- Inflammation of mucous membrane lining the sinuses
- Usually caused by a bacteria or virus
- Symptoms: headache, pressure, and dizziness
- Thick nasal discharge and congestion
- Loss of resonance in voice
- Treatment:
  - Antibiotics if indicated, analgesics for pain, decongestants for mucus, moist inhalations, surgery for chronic sinusitis to open the cavities
Sleep Apnea

- Condition in which an individual stops breathing while asleep, causing a measurable decrease in blood oxygen levels

- 2 kinds:
  - Obstructive: caused by blocked air passages that occurs when the muscles that keep the airway open relax and allow the tongue and palate to block the airway
Sleep Apnea

- Central Sleep Apnea:
  - Happens in the brain’s respiratory control center
  - Common in men
- Factors: obesity, hypertension, smoking, alcohol ingestion, and or the use of sedatives
- Diagnosed when more than 5 periods of apnea lasting at least 10 seconds each occur during and hour of sleep
- Treatment involves losing weight, abstaining from smoking, and the use of alcohol and sedatives, sleeping on side or stomach
Sleep Apnea

- Treatment may also include a CPAP machine: provides continuous positive airway pressure which opens the airway during sleep
- Treatment of central sleep apnea requires medication to stimulate breathing
Tuberculosis: TB

- Infectious disease of the lungs caused by the bacterium Mycobacterium tuberculosis
- Occasionally WBC’s will wall off the TB organisms and create a nodule called a tubercle
- The organisms then remain dormant
- Can cause an active case later if immune system is suppressed
Tuberculosis: TB

- Symptoms of an active case:
  - Fatigue and chest pain
  - Fever and night sweats
  - Weight loss
  - Hemoptysis or coughing up blood tinged sputum

- Treatment:
  - Administration of drugs for one or more years to destroy the bacteria
  - Good nutrition and rest
Upper Respiratory Infection

- Inflammation of mucous membrane lining the upper respiratory tract
- Caused by viruses and is highly contagious
- Symptoms:
  - Fever, runny nose, watery eyes, congestion, sore throat, and hacking cough
- No cure and minimal treatment
- Analgesics and antipyretics
- Rest and fluids
- Antihistamines to relieve congestion