

Tuberculosis is an infection in the lungs caused by *Mycobacterium Tuberculosis*. It can affect other parts of the body such as the kidneys, bones, and the brain travelling through lymph nodes and through the bloodstream. It is highly contagious and spread through the air via airborne droplets through sneezing, coughing, and laughing. TB was once eradicated however there are new strands that are resistant to antibiotics. Signs and symptoms of TB are a productive cough for 3 weeks or more with green or yellow sputum, chest pain while breathing and coughing, poor appetite, fever and chills, weight loss, malaise, drenching sweat at night, fatigue, and nontender lymph nodes. To determine if TB is present a patient might have a chest x-ray, sputum culture, and/or a Tuberculin Skin Test (TST). A patient with TB should be on airborne isolation and in a negative pressure room. Also, the patient must wear a surgical mask outside of the room.

Chronic Obstructive Pulmonary Disease (COPD) mainly known as Emphysema in the hospital is the 4th leading cause of death in the United States. In Emphysema, the main damage takes place in the alveolar walls. Causes of COPD are inhaling pollutants, smoking, fumes, and chemicals found in work environments however smoking is the most common cause of COPD. There is a rare genetic condition that can cause the development of COPD which is known as Alpha-1 Antitrypsin Deficiency which means people who have this are deficient of this protein that is made in the liver. Signs and symptoms of COPD are a persistent cough for 3 or more months with thick mucus, dyspnea, frequent respiratory infections, tightness in the chest, weakness, fatigue, cyanosis, barrel chest, weight loss, and clubbing of the fingers or toes. Incentive spirometers are used to diagnose COPD. Obstructive Sleep Apnea (OSA) occurs when your airway is obstructed when you are asleep which leads to periods of apnea because of a blockage. Risk factors for developing sleep apnea are being a male, obesity, race, nasal obstruction, age, and genetic factors. Risk factors that can make sleep apnea worse are being supine and being in REM sleep. Sleep apnea is diagnosed by doing a sleep study or a polysomnography. The main treatment for a person with sleep apnea is to get a CPAP machine to use while you sleep.

Pneumonia is also a disease that occurs in the lungs. It is easy to overcome for a healthy individual however certain groups such as newborn babies and children under age two, elderly people over the age of 65, regular smokers, and people with weakened immune systems find it harder to overcome. There are many different kinds of pneumonia however some of the more common pneumonias are community acquired pneumonia (CAP) which is acquired from social settings, hospital acquired pneumonia (HAP) which is acquired after being admitted into the hospital for another reason, or aspiration pneumonia which is caused by inhaling liquids, foods, saliva, or vomiting. Pneumonia can be caused by different things such as viruses like Influenza or bacteria such as *Streptococcus Pneumoniae*. Signs and symptoms of pneumonia are coughing, sweating, fever and chills, SOB, pleuritic pain, muscle pain and weakness, and cyanosis.

Diagnostic tests that can determine if pneumonia is present are sputum and blood tests, a chest x-ray, a CT scan, or a bronchoscopy. Treatment includes antibiotics, oxygen therapy, NSAIDs, and fluid therapy. A chest tube is a tube that is inserted into the pleural space to remove air or fluid and to help lung re-expansion or it is inserted into the mediastinum space to drain fluid from around the heart after cardiac surgery. Reasons for a chest tube could be a pneumothorax, pleural effusion, a hemothorax, empyema, chylothorax, and post-op cardiac surgery. There are two types of chest tube drainage systems: a wet suction or a dry suction. In the water seal chamber, water will fluctuate as the patient breathes in and out. If the water in the chamber is not moving up and down, the lung may have re-expanded or there could be a possible leak. Important nursing interventions for caring for a patient with a chest tube is to monitor their respiratory status and monitor the drainage system frequently. Make sure the chest tube is below the patient's chest and

there are no kinks in the tubing. Also, never strip, milk, or clamp a chest tube without a physicians order.