

Tuberculosis, also known as TB, is a bacterial infection in the lungs that can spread to other parts of the body such as the bones, brain and kidneys if left untreated. TB is spread through the air by an infected person through sneezing or coughing. The bacterial infection can remain latent within the body for a prolonged time prior to becoming active secondary to another illness or disease such as cancer or diabetes. People with weakened immune systems, who are malnourished or who reside in the countries of China, India and Russia are at a greater risk for contracting TB. Symptoms of an active infection include productive cough, poor appetite, fever, chills, fatigue and nontender swollen lymph nodes. TB is diagnosed by a chest radiograph, sputum culture or TST. Chronic Obstructive Pulmonary disease, also known as COPD, is a disease that hinders the breathing by limiting the lung airflow which becomes severe with time. COPD is the 4th leading cause of death in the United States. COPD is a combination of Emphysema and Chronic Bronchitis; it is very common for the two to be found together. Chronic Bronchitis is when air passages become clogged with mucous due to chronic inflammation and swelling which affects the quality of breathing. Emphysema is damage in the alveolar wall which loosens the shape and reduces the surface area for gaseous exchange. COPD can be caused by smoking, being exposed to chemicals in a work environment or inhalation of pollutants. Though it is very rare Emphysema can be caused by a genetic condition known as Alpha-1 Antitrypsin deficiency that affects about 3% of the population. Symptoms of COPD include persistent cough with thick mucous or sputum, difficulty breathing, frequent respiratory infections, chest tightness, fatigue, wheezing and cyanosis. Spirometry is the most common test used to diagnosis COPD while other testing may include chest radiographs, Arterial Blood Gas measurements or CT scan. COPD patients should avoid smoking and materials that may irritate the lungs. Sleep apnea is a sleep disorder caused by obstruction that causes the patient to wake frequently and in some severe cases stop breathing multiple times throughout the night. Obesity is a major risk factor for sleep apnea along with primarily males being affected due to males storing fat in the neck or throat region more often than females. Other risk factors include sleep position and REM sleep. During the night, a COPD patient's tongue and throat muscles relax while in REM sleep obstructing oxygen from getting in and resistance pressure increases. At this point the brain senses there is a problem and sends a signal to the body to wake up and tighten loose muscles to allow oxygen in. Once that has been completed the cycle starts over as the patient falls back asleep and muscles loosen, and the obstruction presents again. Pneumonia is an inflammatory infection in the lungs caused by either a virus, bacteria, or fungi. There are multiple ways to acquire pneumonia such as Aspiration pneumonia, Community acquired pneumonia or Hospital acquired pneumonia. Symptoms of pneumonia include productive cough with colored sputum, fever, chills, shortness of breath, chest pains, vomiting and cyanosis. Diagnostic testing would include sputum testing to identify the organism causing the infection, chest radiograph, lung auscultation and a physical exam. A chest tube is placed to remove air or fluid from the pleural space of the lungs and to help the lungs re-expand. The indications of a chest tube being placed would include pneumothorax, pleural effusion or post cardiac surgery. There are two different types of suction devices: Wet suction and Dry suction. Wet suction is regulated by the height of water in the suction control chamber while dry suction does not have a water column to control suction, it is controlled by the suction monitor bellow that balances the wall suction. The water seal chamber in the wet suction helps drain air out of the pleural space while preventing outside air from entering.