

Gas Exchange

Pneumonia is when there is inflammation of the alveoli or pus that obstructs the alveoli and makes it difficult to breathe. Newborn babies, children, people over the age of 65, regular smokers and people with weakened immune systems are sensitive to pneumonia and have a harder time recovering from it. There are seven different types of pneumonia; bronchial pneumonia, lobar pneumonia, Hospital acquired pneumonia, community acquired pneumonia, ventilator pneumonia, opportunistic pneumonia and aspiration pneumonia. Pneumonia can be caused by viruses, bacteria, mycoplasma and fungus. Some signs and symptoms of pneumonia include coughing with sputum, sweating, fever and chills, shortness of breath, increased rate of breathing, chest pain, muscle pain, fatigue, diarrhea, vomiting and delirium or confusion. Treatment includes antibiotics, antiviral medication and vaccination early on as prevention.

Chronic obstructive pulmonary disease also known as COPD is a respiratory disease that affects the volume of inhaled and exhaled air to be reduced. These can include clogging of air passages due to mucus, inflammation or thickening of the walls of the air passages, damaged alveolar walls, alveoli and air passage losing their stretching ability. These damages can lead to emphysema and chronic bronchitis and when someone has both of these it's commonly referred to as COPD. Smoking is the most common cause of COPD and prolonged exposure to lung irritants can cause irritation and destroy air passages of the lungs. Common signs and symptoms of COPD can be a cough for three or more months with the production of thick mucus, dyspnea, frequent respiratory infections, tightness in the chest, wheezing and fatigue. Although the damage is irreversible a person can take medications like bronchodilators and steroids with a lifestyle change to slow down the progression of the disease.

TB is the infection of the lung caused by bacteria named mycobacterium Tuberculosis. It is a contagious bacterial that begins in the lungs and can rapidly pass to any organ of the body, the most common organs are the kidneys, bones and the brain. They reach these organs by traveling through the lymph nodes and the bloodstream. Unfortunately, TB is contagious and can pass from one person to another by airborne particles. Some risk factors include anyone that is exposed to the risk of TB in a working environment, while traveling or living in certain areas where TB is widespread. Countries where TB is more widespread would be China, Russia, India, Pakistan, and Sub Saharan Africa. Signs and symptoms of TB can either be in inactive/latent form of TB or active TB. In the case of inactive/latent the bacteria would cause no disease and no symptoms, and they would also not be contagious. In the case of active TB some signs and symptoms would be production of cough for two weeks or more with sputum, chest pain, coughing up blood, fever and chills, weight loss, fatigue and nontender swollen lymph nodes.

Chest tubes are tubes that are inserted in the pleural space to remove air or fluid and it helps the lungs re-expand. It can also be inserted in the mediastinum space to drain fluid. There are many reasons for a person to have a chest tube those include pneumothorax, pleural effusion, empyema, hemothorax, chylothorax and cardiac surgery. There are two types of systems with chest tubes, those of which are wet suction and dry suction and each one is used for a specific reason. Each system works on a 3-bottle drainage system and close monitoring is required.

Obstructive sleep apnea is when you stop breathing because of an obstruction. This obstruction is usually due to the tongue falling back into your throat and that causes an obstruction in your airway. The tongue does this because when a person is asleep their muscles are relaxed and that's when the tongue can fall back into the airway. The worst times that obstructive sleep apnea occurs is when someone is in a supine position and when they are in REM sleep. Some risk factors of that make obstructive sleep apnea more likely to happen include gender, obesity, race, nasal obstruction, genetic factors and age.