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### Response to respiratory/ gas exchange videos.

The first video was about tuberculosis (TB). This is a condition that begins in the lungs, but it can travel to other parts of the body. Some of the body parts that TB can affect besides the lungs are the kidneys, brain, spinal cord, and bones. TB is one of the oldest diseases in humans. There is a vaccine for TB called BCG. It is not always easy to vaccinate against TB because the infection is ever changing and is very progressive. This infection is airborne; traveling from the sub pleural spaces of the lungs and out throughout the body via sputum. A risk factor for TB are being exposed from places that are overpopulated, also confined places such as prisons. This makes healthcare workers especially vulnerable to being exposed. The next video was about COPD, which includes emphysema and chronic bronchitis. In emphysema there is a reduction in the surface area of the lungs. This inhibits the gas exchange process that naturally occurs in the lungs. This causes the volume of air to be decreased. In chronic bronchitis the lining of the air passages is clogged with phlegm or mucus. This also hinders the flow of air throughout the lungs. Emphysema and chronic bronchitis can often occur together which is why COPD is an umbrella term for both disease processes. Some of the causes of COPD can be from fumes, dirt or debris in the air, or pollution. But the number one cause of COPD is smoking and even secondhand smoking. Prolonged exposure to any of these causes can result in destruction of the lungs. Signs and symptoms of COPD are progressive. So, signs and symptoms of COPD in the early stages are rarely seen. As the disease progresses there will be the presence of a persistent cough for at least three months. The cough can have either absence of sputum or the presence of sputum. The patient will find it increasingly hard to talk and breath at the same time. They will be suffering from dyspnea especially during physical or strenuous activities. The way to diagnose COPD is by an exam called spirometry. This test will show the volume of air that is inhaled and exhaled by the person. Spirometry can also measure how fast the air is moving through the lungs. This is important because with COPD the air gets trapped in the bottom of the lungs. The next video was about sleep apnea. In the video there was a drawing of a person sleeping in the supine position. This position is bad to sleep in because when a person with sleep apnea will have more episodes during the night when they are in this position. The ideal position for sleeping is a little elevated to work against gravity. During sleep apnea the muscles and fatty tissue cause an obstruction in the back of the tongue. This causes a blockage of air flow to the lungs. During the REM cycle of sleep the muscles in the body are paralyzed to lessen movements while at rest. This is a normal mechanism for the body. But this relaxation in the muscles added to the fatty tissues in the throat area are a bad combination. This is what causes sleep apnea. The obstruction will decrease the oxygen saturation. The body's need for oxygenation will trigger the brain the wake from the REM cycle and the resistance increases in the affected area. This will open the airway so that air can flow again. The person will be able to continue to sleep well and their oxygen saturation will return to a normal level. But this process of airway blockage and the brain waking up will continue throughout the person's sleep. Therefore, people with sleep apnea have a hard time having a full night's rest. The next video was about the different types of pneumonia. Pneumonia is when the small air sacs in the lungs (alveoli) are inflamed with pus or fluid. The cause of pna is dependent of where it was acquired. There are different types of bacteria that cause pna. Community acquired is one that is caused from social surroundings. Hospital acquired is one that is cause by being exposed to the bacteria while in the hospital for a different reason altogether. Ventilator acquired is caused by bacteria that is on ventilator equipment. Therefore, sterile technique is very important when it comes to the care of someone on a ventilator

machine. Pneumonia is heard as crackles, wheezing, or diminished breathing sounds on a respiratory assessment. Treatment for pna differs by the type of bacteria that has caused the pna. Diagnosing pneumonia is through a sputum culture. The sputum culture is very important because it allows healthcare professionals to know which bacteria is causing the pna. By knowing the type of bacteria, it helps the physician to determine which antibiotic to treat the pneumonia with. Antibiotics should be started within six hours of diagnosing the patient with pna. The last video was about chest tubes. This is a tube that is placed into the pleural space of the lungs to remove air or fluid. A chest tube is needed when an x-ray shows that there is either air or fluid of any sort between the visceral and parietal space of the lungs. The chest tube always needs to be kept below the patient's lungs. The chest tube and hose should not be kinked. The nurse's job with maintenance of the chest tube is very important. The nurse should frequently assess the site of the chest tube placement and perform respiratory assessments often. The nurse should also keep very good documentation of output from the chest tube. The physician will be asking for chest tube output to determine how long the chest tube needs to stay in place.

Overall these videos were highly informative. The pictures and clear and simple explanations were extremely helpful in understanding the processes of these diseases.