Mycobacterium Tuberculosis is very contagious and is an airborne disease affecting 1/3 of the world's population. However, if the particles are large, they become imbedded in the proximal airways and do not cause infection unlike small particles which are able to cross the upper respiratory defense system reaching the lungs. People are at higher risk for getting TB if they live/work in higher populated areas such as nursing homes, homeless shelters, inner city neighborhoods, etc., or if they have less access to health care or are immunosuppressed. There is an inactive or latent form of TB that often lies dormant and is not contagious until the body is too weak to defend itself, such as when someone develops another disease or is under a lot of stress or any other excessive load on the immune system. TB signs and symptoms differ depending on the type and stage of the infection and there are two categories inactive and active. The diagnostic tests include chest x-ray, sputum culture, IGRA test, and TST test. Antibiotics are prescribed, usually two of them, for treatment that is taken for 6-9 months depending on the prescription.

Chronic Obstructive Pulmonary Disease (COPD) is a term used to categorize two different disease processes Emphysema, and Chronic Bronchitis, both of which hinder breathing by limiting lung airflow and becomes severe with time and are nonreversible. Emphysema damage mainly takes place in the alveolar walls so when damage occurs the alveoli loose shape causing them to expand and loose air sacs which reduces the surface area for gas exchange. Chronic Bronchitis damage is done by chronic inflammation which leads the airway passages to be lined with mucous and phlegm clogging them. COPD is often caused by inhaling pollutants, so smoking, dust and chemical fumes, and genetics can play a role in the development. Signs and symptoms are progressive with the disease and early ques are persistent cough for 3 or more months, dyspnea, frequent respiratory infections, tightness in the chest, wheezing, and fatigue. Late ques include cyanosis, barrel chest appearance, edema, weight loss, LOC changes, and clubbing. COPD diagnostic tests included spirometry, chest x-ray, and ABG. While this disease process is irreversible treatment options include oxygen therapy, lifestyle changes, and medications.

Pneumonia is when the sir sacs are filled with pus or fluid due to inflammation and can be quite easy to overcome as a healthy person however, smokers, elderly, newborns, and immunosuppressed have a harder time overcoming this disease. There are different types and classifications of pneumonia depending on the part of the lung effected and where the infection was acquired. The different types are Bronchial pneumonia and Lumbar pneumonia, and the different classifications are Hospiital Acquired Pneumonia, Community Acquired Pneumonia, Ventilator Associated Pneumonia, Opportunistic Pneumonia, Aspiration Pneumonia, and Medical Acquired Pneumonia. The most common bacteria that causes pneumonia to develop is Streptococcus Pneumoniae but there are several other types of bacteria, viruses, and fungus that cause the development. Common signs and symptoms include coughing which can be productive, sweating, fever, chills, SOB, CP, N/V/D, muscle pain, fatigue, cyanosis, and LOC changes. Diagonostic tests for pneumonia include auscultation, pulse ox reading, sputum test, blood test, chest x-ray, CT scan, and bronchoscopy. Pneumonia is treated by antibiotics, bronchodilators, antitussives, humidified O2, high calorie diet, increased fluid intake, and treatment progress is measured by pulse ox readings and repeat chest x-rays every 4-6 weeks.

Chest tubes are often placed when a Pneumothorax (air in the pleural space) or Hemothorax (blood in the pleural space) occurs. Important tips when taking care of a patient that has a chest tube placed is to keep the drainage system below the insertion site to prevent backflow, monitor I&O strictly throughout the shift as over 100ml of fluid in one hour can be cause for calling the HCP, as well as detailed documentation of the contents in the drainage system. The chest tube helps maintain negative pressure so if the tube were to come out of the patient the remediation is to place gauze on the site and tape it into place on only three sides so it can continue to ventilate and call the HCP so they can replace it. The HCP will decide when to discharge the chest tube based on a chest x-ray and if the lung can expand fully and the patient's oxygenation saturation level.