Be a Scientist

Case Study: Pneumonia

An elderly man reports to his nurse that he has had a bad cold for about ten days. He has been coughing and has had a high fever with shaking and chills. He tells the nurse that he does not understand why the cold will not go away. He has been coughing a lot, and the coughing produces sputum that is rust-colored. This morning when he woke up, he had a terrible shooting pain in the right side of his chest. He is also having difficulty breathing.

The nurse collects some of the sputum, gives the man oxygen through a tube in his nose, and admits him to the hospital. The man begins a treatment of antibiotics. The nurse sends the sputum to the laboratory to have it tested for bacteria. When all the data comes back from the lab, the doctor tells the nurse that the man has bacterial pneumonia. He probably caught it by breathing in the bacteria coughed into the air by someone else.

Learn about Pneumonia

pus: a white, or slightly yellow or green substance that your body develops in response to an infection; it is made up of dead skin, white blood cells (that fight infection), and some bacteria.

Pneumonia is a serious infection or inflammation of the lungs. Air sacs in the lungs fill with **pus** and other liquid so that oxygen has trouble getting into the blood. If there is too little oxygen in the blood, a person's body cells cannot work properly. Because of this, and because infection can spread throughout the body, pneumonia can cause death.

Until 1936, pneumonia was the number one cause of death in the United States. Since then, antibiotics are used so that fewer people die from pneumonia. There are 30 different causes of pneumonia. The most common causes are bacteria and viruses. Some of the similarities and differences are described in the following sections.

Bacterial Pneumonia

Pneumonia bacteria are present in some healthy throats. When body defenses are weakened in some way, the bacteria can multiply and cause serious damage. Body defenses are weakened when a person is very young or old, when the person is not in good health, when the person is in a weakened condition like just after having surgery, or when the person has impaired immunity. When a person's defenses are weakened (sometimes people say their resistance is lowered), bacteria work their way into the lungs and inflame the air sacs.