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SPECIAL REPORT HEALTH SERIES

What Is Pneumonia?

Pneumonia is the inflammation of one or both lungs. In people with pneumonia, air sacs in the lungs fill with fluid, preventing oxygen from reaching blood cells and nourishing the other cells of the body.

Sometimes the inflammation occurs in scattered patches in the tissue around the ends of the bronchioles, the smallest air tubes in the lungs. This is known as bronchopneumonia. In other cases the inflammation is widespread and involves an entire lobe of the lung. This condition is called lobar pneumonia.

In the United States about 5 million cases of pneumonia are reported each year and about 63,500 people die from the disease.

Causes of Pneumonia

Pneumonia has *more than 30 different causes*. Most cases of pneumonia result from infection with microorganisms, primarily viruses, bacteria, mycoplasmas (small, free-living particles with characteristics of both bacteria and viruses), and fungi.

Pneumonia may also result from certain kinds of allergic reactions, inhalation of fluids or some gases, and the inhalation of ingested foods.

Viral Pneumonia

About 50 percent of pneumonia cases are caused by viruses, particularly those viruses that cause upper respiratory infections, such as the viruses that cause influenza, adenoviruses, and rhinoviruses. Most cases of viral pneumonia are mild and resolve spontaneously without specific treatment.

One exception is severe acute respiratory syndrome (SARS), a type of viral pneumonia. SARS typically begins with a fever of 38.0°C (100.4°F) or more, chills, headache, and malaise. Two to seven days later some people develop a dry cough and difficulty breathing. For these people, SARS can cause death.

Bacterial Pneumonia

Infection with the *Streptococcus pneumoniae* bacterium, also called pneumococcus, is the most common cause of bacterial pneumonia. Pneumococcus usually causes lobar pneumonia, attacking an entire lobe or portion of a lobe of the lung; in double pneumonia, pneumococcus attacks both lungs. Pneumococcal lobar pneumonia often occurs in winter after an acute, viral upper respiratory infection. Usual symptoms include a shaking chill followed by a fever of about 40°C (104°F), pain in the chest while breathing, a cough, and blood-streaked sputum.

Other bacteria that cause pneumonia include *Klebsiella pneumoniae*, *Haemophilus influenzae*, *Legionella pneumophila* (the bacterium that causes Legionnaires' disease), and various staphylococci and streptococci bacteria. Infections with these organisms primarily cause bronchopneumonia. Onset of symptoms is generally slower than with lobar pneumonia, and the fever is lower.

Other Types of Pneumonia

One common type of pneumonia, formerly called primary atypical pneumonia, is caused by *Mycoplasma pneumoniae*, a mycoplasma. Epidemics of mycoplasma pneumonia occur in schools and in the military. The most prominent symptom of mycoplasma pneumonia is a violent dry cough. Some patients experience nausea or vomiting. *Pneumocystis carinii* pneumonia (PCP) is caused by a normally harmless fungus that may become deadly in people with impaired immune systems. PCP is the most common cause of death in people with acquired immunodeficiency syndrome (AIDS).

Diagnosis and Treatment Of Pneumonia

A physician can diagnose pneumonia by tapping the chest and listening with a stethoscope to the sound produced. Tapping the chest of a healthy person produces a resonant sound because of the air contained in the lungs. In a person with pneumonia, the air spaces of the lungs become filled with fluid, and tapping produces a dull, flat sound. The diagnosis of pneumonia is confirmed by taking an X-ray picture of the chest.

To determine the cause of pneumonia, a physician takes a sample of the patient's sputum. Analysis of the sputum in the laboratory may identify the particular kind of microorganism causing the infection. Identification of the cause of pneumonia is important in determining treatment.

Antibiotics can cure bacterial pneumonia and speed recovery from mycoplasma pneumonia and PCP. Antibiotics rarely have an effect on pneumonia caused by viruses. However, patients with viral pneumonia often receive antibiotics to prevent bacterial pneumonia from developing during the course of their illness. In addition to drug treatment, a patient with pneumonia should stay in bed, eat healthy meals, and drink large amounts of liquids.

Medication may be given to relieve chest pain and violent coughing, and oxygen may be administered if the patient has difficulty breathing.

A vaccine is available that confers immunity against pneumococcus. The vaccine is given to people most at risk for developing pneumonia—those over the age of 65 and those with chronic heart, lung, or liver disease.