Pneumonia: What You Should Know

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In the many parts of the World, pneumonia is one of the leading causes of death. Among children under five years old, it is the undisputed enemy number one. However, most parents take for granted their child's cough, thinking this just a simple cold when in fact it is already pneumonia. Pneumonia is an infection of the lungs that involves the small air sacs (called alveoli) and the tissues around them. Pneumonia isn't a single illness but many different ones, each caused by a different microscopic organism. As Donald and Diana Stroetzel explained in an article which appeared in Reader's Digest: "Pneumonia is a catchall name for a number of look-alike conditions, some requiring different medications."



Bacteria, viruses, and fungi are all possible causes of pneumonia, according to the Merck Manual of Medical Information. In adults, common causes are bacteria, such as *Streptococcus pneumoniae*, *Staphylococcus aureus*, *Legionella*, and *Hemophilus influenza* with *Streptococcus pneumoniae* being the most common cause of pneumonia. A person who has been infected with one of the 80 known types of pneumococcus develops partial immunity to the others. *Staphylococcus aureus* causes only two percent of pneumonia cases acquired outside the hospital, but it causes 10 to 15 percent of those acquired in hospital while people are being treated for another disorder. *Legionella* accounts for one to eight percent of all pneumonias and about four percent of fatal pneumonias in hospitals. Despite its name, *Hemophilus influenzae* is not the virus that causes flu. The *Hemophilus influenzae* type B strains are the most virulent strains and cause serious diseases including pneumonia.

Viruses that cause pneumonia are numerous. In infants and children, respiratory syncytial virus, adenovirus, parainfluenza virus, and influenza virus are the most common causes. The measles virus also may cause pneumonia, especially in malnourished children. In healthy adults, two types of influenza virus, called types A and B, cause pneumonia. The chickenpox virus can also cause pneumonia in adults. In elderly people, viral pneumonia is likely to be caused by influenza, parainfluenza, or respiratory syncytial virus.

There are three types of fungi that commonly cause pneumonia: *Histoplasma capsulatum*, which causes histoplasmosis; *Coccidioides immitis*, which causes coccidioidomycosis; and *Blastomyces dermatitis*, which causes blastomycosis. Most people who become infected have only minor symptoms and don't know that they are infected. Some become gravely ill.

There are so-called "atypical pneumonias," which are pneumonias caused by organisms other than the typical bacteria, viruses, or fungi. The most common causes are *Mycoplasma pneumoniae* and *Chlamydia pneumoniae*. Both bacteria-like organisms are the most common causes of atypical pneumonia in peoples ages five to 35. *Mycoplasma* epidemics reportedly occur in confined groups such as students, military personnel, and families.

Generally, pneumonia starts after organisms are inhaled into the lungs, but sometimes the infection is carried to the lungs by the bloodstream or it migrates to the lungs directly from another infection nearby. The infection typically follows a cold or flu but may begin as a primary infection in the lungs. Instead of recovering within a few days to a week, the symptoms quickly worsen. In viral pneumonia, the person may have a dry, hacking cough with headache, fever, muscle pain, and fatigue. Occasionally, a bacterial infection follows viral pneumonia. Telltale signs of bacterial pneumonia are high fever and a cough that produces thick, rusty-colored, greenish, or yellowish sputum. The person may also have shaking chills and stabbing chest pain when breathing.

"When a person appears to have pneumonia, a doctor listens to the chest with a stethoscope to evaluate the condition," the Merck manual states. "Pneumonia usually produces distinctive changes in the way sounds are transmitted, which can be heard with the stethoscope." In most cases, the diagnosis is confirmed with a chest x-ray, which often helps determine which organism is causing the disease. Sputum and blood specimens are also examined in an attempt to identify the organism causing pneumonia. However, "the precise organism can't be identified in up to half of people who have pneumonia," the Merck manual says.

Some people are more susceptible to pneumonia than others. Alcoholism, cigarette smoking, diabetes, heart failure, and chronic obstructive pulmonary disease all predispose people to pneumonia. The very young and very old are also at higher than average risk. So are people whose immune system is suppressed by certain drugs, such as those used to treat cancer and those used to prevent the rejection of an organ transplant. People who are debilitated, bedridden, paralyzed, or unconscious or who have a disease that impairs the immune system, such as Acquired Immune Deficiency Syndrome, are also at risk. Pneumonia may follow surgery, particularly abdominal surgery; or an injury, such as a chest injury; because of the resulting shallow breathing, impaired ability to cough, and retention of mucus.

Pneumonia: What You Should Know Name

Questions Date/Hour

1. What is pneumonia?
2. Why is pneumonia difficult to treat?
3. What are some common bacterial causes of pneumonia?
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1. Which one of these causes most nosocomial (hospital borne) cases of pneumonia?
2. What is the usual portal of entry for microorganisms that cause pneumonia?

1. Explain some of the symptoms of bacterial pneumonia that allow the bacteria to spread to new hosts.
2. Cite some conditions or lifestyle choices that predispose individuals to acquire pneumonia.