

CLASSIFICATIONS, TYPES, CAUSES, SIGNS AND SYMPTOMS,  
DIAGNOSIS, PREVENTION AND TREATMENT OF “PNEUMONIA”

A SEMINAR PRESENTED BY

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ON

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## SUMMARY

**PNEUMONIA** is a lung infection involving the lung alveoli (air sacs) in one or both lungs. The air sacs may fill with pus or fluid (purulent material), causing cough with phlegm or pus, fever, chills, and difficulty breathing. It can be caused by microbes, can occur in anyone, it occurs with increased frequency in individuals whose immune systems are deficient. Human immunodeficiency virus (HIV) infection, malnutrition, diabetes, renal failure, including bacteria, viruses, or fungi. Although pneumonia cancers, and treatment with immunosuppressive drugs are all risk factors for developing pneumonia. Infants and very young children are highly vulnerable, as are the elderly. At both extremes of age, this increased risk relates in part to impaired immunity. Patients who smoke or have underlying lung diseases, including chronic obstructive pulmonary disease (COPD), cystic fibrosis, congestive heart failure, and lung cancer, are also vulnerable, owing to abnormalities in lung structure and function. Patients with respiratory failure who are on mechanical ventilators are more prone to pneumonia. Pneumonia can be classified as bacterial, viral, fungal and hospital acquired. Patients with pneumonia may develop symptoms like cough, fever and chills, fatigue, headache, muscle aches, chest pain, nausea and vomiting. Some laboratory tests used in the diagnosis of pneumonia are full blood count, bacterial sputum culture and Gram staining, Mycoplasma testing, pleural fluid culture. Pneumonia infection can be treated with vaccines like pneumococcal conjugate vaccine or prevnar, pneumococcal polysaccharide vaccine or pneumovax E.T.C

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Patients who smoke or have underlying lung diseases, including chronic obstructive pulmonary disease (COPD), cystic fibrosis, congestive heart failure, and lung cancer, are also vulnerable, owing to abnormalities in lung structure and function. Finally, patients with respiratory failure who are on mechanical ventilators are more prone to pneumonia.

## TYPES OF PNEUMONIA

There are different types of pneumonia depending on their cause.

**Bacterial pneumonia:** The most common cause is the bacterium streptococcus pneumonia, but many different bacteria can cause pneumonia.

**Viral pneumonia:** This can result respiratory syncytial virus and influenza types A and B, known as the flu.

**Aspirational pneumonia:** This can happen when a person breathes food, liquids, or stomach contents into the lungs. This is contagious.

**Fungal pneumonia:** This can result from a condition such as valley fever, caused by the cocci diodes fungus.

**Hospital acquired pneumonia:** This can occur in patients being treated for other conditions, for example, those attached to a respirator, or breathing machine.

## CAUSES OF PNEUMONIA

Bacteria and viruses are the main causes of pneumonia. Pneumonia-causing germs can settle in the alveoli and multiply after a person breathes them in. Pneumonia can be contagious.

The bacteria and viruses that caused pneumonia are usually inhaled. They can be passed on through coughing and sneezing, or spread onto shared objects through touch. The body sends white blood cells to attack the infection. This is why the air sacs become inflamed.

The bacteria and viruses fill the lung sacs with fluid and pus, causing pneumonia.

Pneumonia can be transmitted when airborne microbes from an infected individual are inhaled by someone else. However, most instances of pneumonia are attributable to self-infection with one or more types of microbes that originate in the nose and mouth.

Individuals with a serious impairment of their immune system become susceptible to pneumonia caused by so-called “opportunistic” microbes, such as certain fungi, viruses, and bacteria related to tuberculosis (mycobacteria), that would not ordinarily cause disease in normal individuals.

# SIGNS AND SYMPTOMS OF PNEUMONIA

Pneumonia is generally diagnosed based on a history of typical symptoms, abnormal breath sounds that can be heard with a stethoscope. Very young infants may grunt and wheeze, breathe rapidly, and be irritable and lethargic. The elderly may experience confusion.

Some common sign or symptoms of pneumonia include:

- Cough.
- Fever and chills.
- Fatigue.
- Shortness of breath.
- Headache.
- Muscle aches.
- Chest pain.
- Nausea and vomiting.
- Feeling worst after a cold or the flu.

Symptoms can vary depending on other underlying condition and type of pneumonia

# TESTS TO DIAGNOSE PNEUMONIA

There are some laboratory and non- laboratory investigations that are used to confirm pneumonia.

## **Non laboratory Tests:**

**Chest x-ray[radiography]:** used to detect and help to evaluate the severity of a lung infection.

**Bronchoscopy:** a procedure used to look inside the lungs with a thin, flexible camera-tipped tube. The procedure may be done if treatment is not working well.

## **Laboratory Tests:**

Depending on the affected person's medical history and the signs and symptoms that are present at the time of the physical exam, a number of laboratory tests may be performed to help make a diagnosis which includes:

**FBC (Full blood count):** evaluates the number and type of white cells. The result may indicate an infection is present.

Bacterial sputum culture and Gram stain, susceptibility testing, AFB testing, blood culture (used to detect septicemia).

**Mycoplasma testing, viral testing and pleural fluid analysis.**

**Pleural fluid culture:** A fluid sample is taken by putting a needle between your ribs from the pleural area and analyzed to help determine the type of infection

## PREVENTION AND TREATMENT

Although pneumonia cannot be completely prevented, a variety of strategies can be employed to reduce its incidence. Adequate nutrition, dental hygiene, and not smoking are elements of a healthy lifestyle that reduce a person's risk of getting pneumonia.

Immunity to certain common microbes can also be enhanced by immunization of vulnerable populations with specific vaccines. Individuals can protect themselves against exposure to bacteria, viruses and fungi that cause pneumonia by following good

Hygiene practices include:

- Frequent and thorough hand washing.
- Respiratory etiquette of coughing or sneezing into a tissue, elbow or sleeve

- Using disinfectant to clean surfaces that are regularly touched by hands, such as door knobs, handles, keyboards, remotes, and other devices.
- Avoid touching one's face, mouth, nose, and mouth without washing hands.
- Avoiding close contact with people ill with respiratory infections.

Many viral causes of pneumonia lack effective drug treatments, but fortunately, most healthy patients will recover from either bacterial or viral pneumonia with no long-term consequences. In order to take the next leap forward to reduce the burden of pneumonia, the following issues must be tackled.

(1) New laboratory approaches must be developed that are capable of rapidly identifying the causative microbe so that physicians can more precisely select antimicrobial drugs for treatment of pneumonia.

(2) Effective antibiotics must be developed against microbes for which there are currently none available and

(3) existing vaccines need to be improved and new vaccines develop.

People with severe case of pneumonia may require hospitalization, treatment with oxygen or breathing assistance, and intravenous anti-microbial drugs such as

- Pneumococcal conjugate vaccine, or prevnar.
- Pneumococcal polysaccharide vaccine, or pneumovax.

Other treatments include:

**COUGH MEDICINE:** This medicine may be used to calm your cough so that you can rest.

Because coughing helps to loosen and move fluid from your lungs, it's a good idea not to eliminate your cough completely. In ad If you want to try a cough suppressant, use the lowest dose that help you to rest.

**FEVER REDUCERS/PAIN RELIEVERS:** You may take these as needed for fever and discomfort. These includes drugs such as aspirin, ibuprofen and acetaminophen.

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