X-Plain
Pneumonia
Reference Summary

Introduction

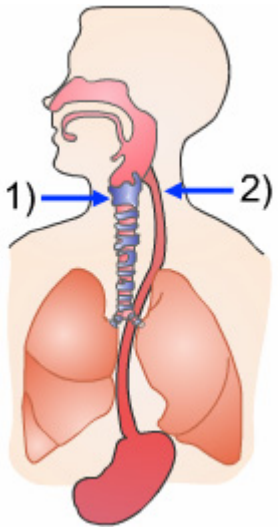
Pneumonia is an inflammation and infection of the lungs. Every year, more than 60,000 Americans die of pneumonia. It can affect anybody, but is more dangerous to older adults, babies and patients with chronic illnesses.

Preventing pneumonia is always better than treating it. If you do get pneumonia, your best chance for getting better is knowing the symptoms and getting treatment right away.

This patient education summary explains pneumonia. It covers the different types of pneumonia, its causes, diagnosis, and treatment options. The tutorial also reviews how to prevent pneumonia.

The Lungs

Pneumonia is an infection of the lung. This section reviews the anatomy of the respiratory system and the role of the immune system in preventing lung infections.



The lungs allow us to fill our blood with oxygen. The oxygen we breathe is absorbed into our blood through tissue in the lungs. When we breathe in, the air goes through our mouth and our nose. From there it goes to the throat, also known as pharynx.

The pharynx divides into two places near the top of the neck. It divides into:

1. The windpipe at the front which goes to the lungs. It is also known as larynx and trachea.
2. The tube at the back which goes to the stomach. It is known as the esophagus.

From the windpipe, air goes into a number of increasingly smaller tubes called bronchial tubes. These are located on each side of the lungs.

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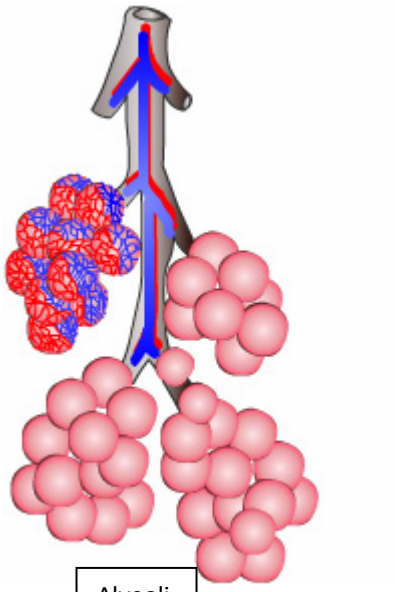
Small balloon-like sacs called alveoli are at the end of the bronchial tubes. The alveoli are very thin. Oxygen goes from the air into the blood through the alveoli. At the same time, carbon dioxide leaves the blood through the alveoli and goes into the lungs where it is breathed out.

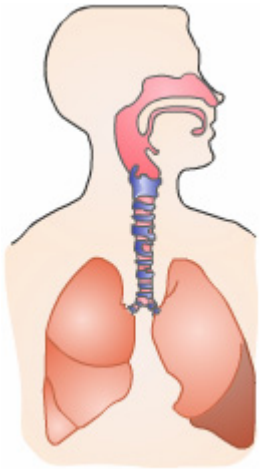

Alveoli

The inner lining of the bronchial tubes produce a special substance called mucus. Mucus helps trap dirt from the air. Mucus is constantly expelled from our lungs. Very small brushes called cilia protect the respiratory tract. The cilia constantly push the mucus out of the lungs. Most of the time the mucus is pushed automatically. If there is too much mucus, it can be coughed out.

When the air we breathe contains germs, our immune system protects the lungs from infection. In fact, the bacteria and viruses that can cause pneumonia are commonly found in the air we breathe, but our body normally keeps them from entering our lungs and causing a problem.

Sometimes germs can get past the defenses of the respiratory system causing pneumonia.

Pneumonia



Pneumonia is an inflammation of the lung. Inflammation is the immune system's normal response to injury or contaminants. Germs, bacteria, and viruses are contaminants and can cause inflammation.

When a person has pneumonia, lung tissue can fill with pus and other fluids. This makes it hard for oxygen to reach the bloodstream. With pneumonia, a person develops a cough and fever and it might be hard to breathe.

How serious a pneumonia is depends on several factors. The patient's overall health and the type and extent of the pneumonia are important factors. If you are young and healthy, your pneumonia can almost always be treated successfully.

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If you are older, have heart failure or lung disease, your pneumonia could be harder to treat. With these factors, you are also more likely to develop complications. Some complications can be fatal.

There are more than 50 kinds of pneumonia. Bacteria cause bacterial pneumonias. Viruses cause viral pneumonias. Fungi and other organisms can cause other types of infectious pneumonia.

Pneumonia can affect one or both lungs. When it affects both lungs, it is sometimes called double pneumonia.

Community-acquired pneumonia refers to pneumonia you get, or acquire, from your community, such as at school, work or the gym.

Hospital-acquired or nosocomial pneumonia is a serious pneumonia acquired at a hospital or a healthcare facility. It usually affects patients who are

- on a mechanical ventilator
- in the intensive care unit
- or have a weak immune system.

Aspiration pneumonia happens when anything other than air gets into the lungs. An example of this is when a person cannot stop vomit from going into the lungs. Patients with brain injury or other conditions that affect their ability to swallow are more likely to have vomit or food go down the trachea and into the lungs.

When vomit, food or liquid, other than clean fresh water, enter the lungs, it causes a chemical reaction that leads to inflammation of the lungs. Often this inflammation causes bacteria to multiply and make the pneumonia worse.

Walking pneumonia refers to a pneumonia that is mild enough so you may not even know you have it. You may be able to walk around with this type of pneumonia.

Babies and people 65 years of age and older have a higher risk of getting pneumonia. Other people at increased risk include people who:

- have immune deficiency diseases such as HIV/AIDS
- have chronic illness such as cardiovascular disease, emphysema or diabetes
- smoke or abuse alcohol or drugs
- are exposed to toxic fumes and pollutants

Symptoms

Signs and symptoms of pneumonia can be very different, depending on any other conditions you may have and what caused the infection.

There are many symptoms of pneumonia, and some of them, like a cough or a sore throat, are associated with other common infections. Often, people get pneumonia after they've had the flu or an upper respiratory tract infection like a cold. Most people experience a few, but not all, of the following symptoms of pneumonia:

- Fever
- Chills
- Cough
- Unusually fast breathing
- Wheezing
- Difficulty breathing

Less common symptoms of pneumonia include:

- Chest or abdominal pain
- Loss of appetite
- Exhaustion
- Vomiting

When bacteria cause pneumonia, the person gets sick right away, along with a high fever and difficulty breathing. When a virus causes pneumonia, symptoms usually appear more gradually and may be less severe.

When to See a Doctor

If you think you may have pneumonia, don't hesitate to get medical care. Severe pneumonia can be life threatening.

See your doctor right away if you have any of these symptoms and they don’t go away:

- Cough
- Shortness of breath
- Chest pain that changes as you breathe
- A fever — especially a fever of 102° F or higher for 2 or more days, along with chills and sweats
- If you suddenly feel worse after a cold or the flu

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Make sure to take your child to the pediatrician if you suspect he or she has pneumonia.

Seek medical care immediately if you have symptoms of pneumonia and are an older adult. It is also important to get immediate care if you're an alcoholic, have been injured, are taking chemotherapy or have a weak immune system.

Patients with diseases that impair the immune system, such as AIDS, are especially vulnerable to pneumonia. Just the same, patients with other chronic illnesses, such as asthma, or patients undergoing cancer therapy or organ transplant, are also very vulnerable to pneumonia.

Diagnosis

Your doctor may first think that you have pneumonia based on your medical history and a physical exam. During the exam, your doctor will listen to your lungs with a stethoscope to check for bubbling or crackling sounds and for rumblings, which means there's thick liquid in your lungs. Both these sounds could mean there is inflammation caused by an infection.

Your doctor might also give you chest x-rays. This will show whether or not you have pneumonia and if so, how severe the infection is and where it's located. If the x-rays aren't clear, you might need a CT scan, which takes a series of computer-directed x-rays.

You may have blood tests to check your white blood cell count or to look for viruses, bacteria, or other organisms. Your doctor may examine a sample of your phlegm or your blood to help identify the microorganism that's causing the pneumonia.

If the pneumonia is more advanced, the doctor may perform a bronchoscopy, which is a test where the doctor looks at the lungs with a special scope. During a bronchoscopy the doctor can clear out some of the pus and phlegm from the bronchiole tubes, which could not be coughed out. He or she may also be able to get a sample of pus to examine closer. This will help your doctor find the exact cause of the pneumonia.

Once the organism causing the pneumonia is identified, a treatment plan is developed that will target the specific organism.

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Treatment

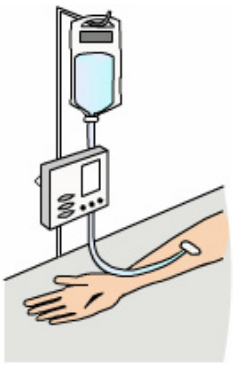
People who have bacterial or atypical pneumonia will probably be given antibiotics to take at home. If you have this type of pneumonia, you will also need to get lots of rest and drink plenty of fluids. Drinking fluids, especially water, keeps you from becoming dehydrated and also helps loosen mucus in your lungs.

There are also antiviral medications that can reduce the severity of certain viral infections if taken in the first 1 to 2 days after symptoms begin.

Take **all** of your prescribed medications. Stopping prescribed medication too soon could cause your pneumonia to come back and could cause you to develop antibiotic-resistant bacteria. Follow the instructions that came with your medicine and take all the prescribed doses on time.

With treatment, most types of pneumonia are cured in 1-2 weeks. For severe pneumonia, it may take longer to completely recover. Keep all of your follow-up appointments. Even if you feel better, your lungs may still be infected. It's important to have your doctor monitor your progress.

Some people with severe pneumonia may need to be hospitalized to get better. Usually this includes babies, young children, people over 65 and people with immune system problems.

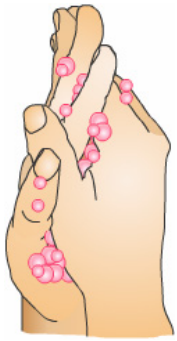


When pneumonia patients are hospitalized, treatment may include:

- IV antibiotics, which are intravenous antibiotics that are delivered through a needle inserted into a vein
- Respiratory therapy that helps the patient breathe

Prevention

The germs that cause many of the different types of pneumonia can be contagious and are spread through coughing and sneezing. You can prevent pneumonia by following good hygiene habits.



- Cough or sneeze into a tissue.
- Use separate drinking glasses and eating utensils.
- Wash your hands often with warm soapy water.
- Use alcohol based gel for handwashing when soap and water are not available.

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Do not visit sick patients with pneumonia. If you have pneumonia, do not visit older people, babies or sick people.

Some types of pneumonia develop when the immune system is weak. To prevent this type of pneumonia, follow these well-known measures to stay healthy and keep the immune system ready:

- Eat healthy
- Sleep well
- Avoid smoking
- Exercise
- Reduce stress
- Do not drink alcohol in excess
- Get routine child vaccines and flu shots. Flu vaccinations are recommended since pneumonia often occurs as a complication of the flu. Pneumonia vaccinations are recommended for adults 65 and older and for those who have long-term illnesses. Flu shots are recommended annually.

Conclusion

Pneumonia is an inflammation and infection of the lung. There are more than 50 types of pneumonia.

For people who are young and healthy, pneumonia can almost always be treated successfully. Those who are older, have heart failure or lung disease, pneumonia could be harder to treat. With these factors, developing complications is more likely. Some complications can be fatal.

See your doctor right away if you have any of these persistent symptoms:

- Cough
- Shortness of breath
- Chest pain that changes as you breathe
- An unexplained fever

Preventing pneumonia is always better than treating it. You can prevent pneumonia by following good hygiene habits.

- Cough or sneeze into a tissue.
- Use separate drinking glasses and eating utensils.
- Wash your hands often with warm soapy water.
- Use alcohol based gel for handwashing when soap and water are not available

Do not visit sick patients with pneumonia. If you have pneumonia, do not visit older people, babies or sick people.

Keep your immune system strong by following these healthy habits.

- Eat healthy
- Sleep well
- Avoid smoking
- Exercise
- Reduce stress
- Avoid drinking alcohol excessively

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