

# Community-Acquired Pneumonia in Adults



## What is community-acquired pneumonia?

Pneumonia is a type of lung infection. It can cause breathing problems and other symptoms. In community-acquired pneumonia (CAP), you get infected in a community setting. It doesn't happen in a hospital, nursing home, or other healthcare center.

Your lungs are part of your respiratory system. This system supplies fresh oxygen to your blood and removes carbon dioxide, a waste product. When you breathe in air through your nose and mouth, it reaches the tiny air sacs of the lung (alveoli) through a series of tubes. From here, oxygen flows into your blood. Carbon dioxide flows out from the blood into the alveoli. You then breathe it out.

Many germs can grow inside and on your body and cause disease. Certain germs can cause lung infection and pneumonia when they get into the lungs. This can cause your respiratory system to work poorly. For example, oxygen may not be able to get into your blood as easily. That can cause shortness of breath. Pneumonia may lead to death if your body can't get enough oxygen to survive.

Sometimes these germs can spread from person to person. When someone infected with one of these germs sneezes or coughs, you might breathe the germs into your lungs. The germs may grow and cause pneumonia if your immune system doesn't kill the germs first.

CAP can result from infection with many types of germs. These include bacteria, viruses, fungi, and parasites. Symptoms from pneumonia can range from mild to severe. Certain types of germs are more likely to lead to serious infection.

CAP is more common during the winter months. It's also more common in older adults. But it can affect people of any age. It can be very serious, especially in older adults, young children, and people with other health problems.

## What causes community-acquired pneumonia?

Many different types of germs can cause pneumonia. But certain types cause CAP more often. Worldwide, *Streptococcus pneumoniae* is a type of bacteria that is most often responsible for CAP in adults. Some other common bacteria that cause CAP are:

- *Haemophilus influenzae*
- *Mycoplasma pneumoniae*
- *Chlamydia pneumoniae*
- *Legionella*
- Gram-negative bacilli
- *Staphylococcus aureus*

The flu (influenza) virus is also a major viral cause of CAP. Having the flu also makes you more likely to get bacterial pneumonia. This type is often worse than viral pneumonia. Other types of viruses can also cause CAP. These include SARS-CoV-2 (the cause of COVID-19), parainfluenza virus, echovirus, adenovirus, and coxsackievirus. In fact, viruses are likely the cause of most episodes of CAP. Fungi and parasites may also cause CAP.

## Who is at risk for community-acquired pneumonia?

Certain things may raise your risk for CAP. Some of these are:

- Smoking

- Weak immune system, such as from medicines or a health problem such as diabetes, cancer, or HIV
- Other lung problems, such as COPD (chronic obstructive pulmonary disease)
- Other health problems, such as kidney failure
- Use of certain medicines, including proton-pump inhibitors
- Heavy alcohol use

You also have a higher risk if you come into contact with other people who have pneumonia.

## **What are the symptoms of community-acquired pneumonia?**

Symptoms of CAP often develop quickly. These symptoms may include:

- Shortness of breath
- Coughing
- Heavy sputum
- Fever and chills
- Chest pain that is worse when you breathe or cough
- Upper belly (abdomen) pain with nausea, vomiting, or diarrhea

Your healthcare provider might notice other signs. These are a fast heartbeat, fast breathing rate, or certain sounds on a lung exam.

## **How is community-acquired pneumonia diagnosed?**

Your healthcare provider will ask about your more recent symptoms and your past health problems. They will also do a physical exam, including a careful exam of your lungs.

Lab tests can be very helpful in diagnosing CAP. Some tests you might need are:

- Chest X-ray, which often confirms the diagnosis
- Blood tests to check for infection and oxygen status of your blood
- Blood culture tests to see if a germ is growing in your bloodstream
- Tests of your sputum to see if a germ is present there
- Urine tests for certain bacteria
- Swab of your nose or throat to test for viruses or bacteria

## **How is community-acquired pneumonia treated?**

Your treatment may vary based on your symptoms and the type of germ causing the pneumonia. If you have severe pneumonia, you will likely need to stay in the hospital for some time. If you only have mild symptoms, you can probably get treatment at home.

Antibiotics are a key treatment for bacterial CAP. Certain viral forms of CAP may also be treated with antiviral medicine. But for many viral causes there is no specific medicine. If needed, your healthcare provider will likely start you on an antibiotic or antiviral medicine even before finding out the type of bacteria or virus. The type of antibiotic can vary based on the germs known to be in your community, as well as your other health problems. Your healthcare provider will want to treat you with an antibiotic that is likely to kill whatever germ is causing your illness. Antibacterial antibiotics don't help in treating viral pneumonia. They can often cause more harm than good.

For treatment at home, you will probably take an antibiotic by mouth for 5 to 7 days. In most cases, you will start to feel better a few days after you start treatment.

If you need to stay in the hospital, you will also need antibiotics specific to your case. In some cases, you may need to take these by IV (intravenously). Your healthcare provider might first start you on a certain antibiotic. They might then switch you to another as your blood tests show what kind of germ is causing your infection. You may also need extra support. This includes:

- Extra oxygen
- Fluids, if you are dehydrated
- Breathing treatments
- Respiratory support, such as with a ventilator, for a severe case

Most people start getting better with treatment within a few days. A small portion of people who are treated in the hospital don't respond to treatment within this time. If your symptoms don't end, you may need a different antibiotic or treatment for complications from CAP.

## **What are possible complications of community-acquired pneumonia?**

Lung abscess and, rarely, empyema are possible complications of CAP. In empyema, a collection of pus builds in the space between the lung and the chest wall. You usually need antibiotics and drainage to treat it. A CT scan can often help diagnose these problems.

Respiratory failure and death are other possible complications. These are more likely to happen in older adults or those with other health problems.

## **What can I do to prevent community-acquired pneumonia?**

You can lower your chances of getting CAP by having a yearly flu shot. The pneumococcal vaccines protect against *S. pneumoniae* and may help in preventing CAP. Healthcare providers advise this shot for all people older than 65. You may need it before this time if you have:

- Chronic heart, lung, liver, or kidney disease
- Diabetes
- Alcoholism
- HIV
- Weak immune system

Smokers and people living in long-term care facilities should also get this shot before age 65. There are 2 vaccines against *S. pneumoniae*. Your healthcare provider may advise that you get both. You may need booster shots of the vaccine if you have your first pneumococcal vaccine before age 65 or if you have a weakened immune system.

Practicing good hygiene can also help you lower your risk for CAP. That includes frequent handwashing.

## **When should I call my healthcare provider?**

Get treatment right away if you have symptoms of pneumonia. If you are being treated for CAP as an outpatient, call your healthcare provider if your symptoms don't get better in a few days after starting treatment, or they get worse.

## **Key points about community-acquired pneumonia**

- Pneumonia is a type of lung infection. It can cause breathing problems and other symptoms. In CAP, infection occurs outside of a healthcare setting.

- CAP is a leading cause of death in older adults. Most healthy young adults recover from CAP without a problem.
- CAP can cause shortness of breath, fever, and cough.
- You might need to stay in the hospital to be treated for CAP.
- Most cases of CAP are caused by viruses and don't need treatment with antibiotics.
- Antibiotics are the key treatment for most types of CAP caused by bacteria. Antiviral medicine may be prescribed for certain viral causes of pneumonia.
- Getting your vaccines as advised can help lower your risk for CAP.

## Next steps

Tips to help you get the most from a visit to your healthcare provider:

- Know the reason for your visit and what you want to happen.
- Before your visit, write down questions you want answered.
- Bring someone with you to help you ask questions and remember what your provider tells you.
- At the visit, write down the name of a new diagnosis, and any new medicines, treatments, or tests. Also write down any new instructions your provider gives you.
- Know why a new medicine or treatment is prescribed, and how it will help you. Also know what the side effects are.
- Ask if your condition can be treated in other ways.
- Know why a test or procedure is recommended and what the results could mean.
- Know what to expect if you do not take the medicine or have the test or procedure.
- If you have a follow-up appointment, write down the date, time, and purpose for that visit.
- Know how you can contact your provider if you have questions.

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