

Chest infection

Introduction

Chest infections are very common, especially during autumn and winter, or after a cold or flu.

Although most are mild and get better on their own, some cases can be very serious, even life-threatening.

The main symptoms of a chest infection are:

a chesty cough

breathing difficulties

chest pain

It's also common to get headaches and have a high temperature.

Types of chest infection

There are two main types of chest infection

acute bronchitis

pneumonia

'Acute' means that the infection is a short-lived, one-off illness.

The symptoms of acute bronchitis and pneumonia are similar, but pneumonia symptoms can often be more severe and need medical attention.

When to see a doctor

Bronchitis usually gets better by itself, so there is no need to see a DOCTOR. You should see a DOCTOR if you suspect you have pneumonia.

It can be difficult to know if you have bronchitis or pneumonia as the symptoms are so similar. But it is more likely that you have pneumonia if your symptoms are severe.

There are a number of symptoms that mean you should see a DOCTOR.

They include:

a high temperature (this is usually a sign of a more serious type of infection)

confusion or disorientation
a sharp pain in your chest
coughing up blood-stained phlegm (thick mucus)
your symptoms last longer than three weeks

Treating chest infections

A bout of bronchitis usually gets better on its own within seven to 10 days without any medicines.

If you suspect that you have pneumonia, you should see a DOCTOR.

If you have a chest infection, you should:

get plenty of rest

drink lots of fluid to prevent dehydration and to thin the mucus in your lungs, making it easier to cough up

treat headaches, fever and aches and pains with paracetamol or ibuprofen

stop smoking straight away

Don't waste your money on cough medicines. There's little evidence they work, and in any case, coughing helps you clear the infection more quickly by getting rid of the phlegm from your lungs.

If your throat is sore from coughing, you can relieve the discomfort with a warm drink of honey and lemon.

As bronchitis is usually caused by a virus, your recovery will rarely be helped by taking antibiotics. Taking antibiotics unnecessarily for bronchitis can do more harm than good by causing antibiotic resistance.

Pneumonia, unlike bronchitis, is often caused by a bacteria and may need treatment with antibiotics. If you have mild pneumonia, you can take antibiotics as tablets at home. If the pneumonia is more serious, antibiotics are given in hospital intravenously, that is through a drip into a vein.

Preventing chest infections

There are measures you can take to help prevent chest infection, and to stop the spread of it to others.

Good hygiene

Although chest infections aren't as contagious as other common infections such as flu, you can pass them on to others through coughing and sneezing. So if you have a chest infection, it's important to cover your mouth when you cough or sneeze, and to wash your hands regularly. Throw away used tissues immediately.

Stop smoking

If you smoke, the best thing you can do to prevent a chest infection is to stop. Smoking damages your lungs and weakens your defences against infection.

Vaccinations

If you are in a high risk group for chest infection, for example you are over 65, your DOCTOR may recommend certain vaccinations. Learn more in prevention of chest infection.

Symptoms of adult chest infection

There are two main types of chest infection in adults. Acute bronchitis, and, less common, pneumonia.

Acute bronchitis

Acute bronchitis is usually a mild illness that resolves itself without the need for medical treatment.

Symptoms of acute bronchitis include:

a persistent chesty cough

coughing up yellow or green phlegm (thick mucus)

breathlessness on exertion (above the usual level)

wheeziness

dry mouth

high temperature (fever) of 38C (100.4F) or above (although in some people, such as the elderly, the temperature may fall)

headache

loss of appetite

The cough usually lasts seven to ten days, although it can persist for up to three weeks.

Acute bronchitis often causes headaches and a sense of feeling generally unwell. As well as being caused by the infection, these symptoms can also sometimes be caused by dehydration. It is therefore important to drink plenty of fluid.

Pneumonia

Common symptoms of pneumonia include:
difficulty breathing (breaths are rapid and shallow)
a cough that brings up phlegm (thick mucus)
rapid heartbeat (tachycardia)
high temperature (fever) of 38C (100.4F) or above
chest pain

Less common symptoms of pneumonia include:

coughing up blood

headaches

loss of appetite

fatigue

nausea

vomiting

joint and muscle pain

a blue tinge to the skin (cyanosis)

Sometimes, elderly people with pneumonia may become confused and disorientated.

When to seek medical advice

If you suspect that you have pneumonia, you should see a DOCTOR.

The symptoms of acute bronchitis and pneumonia can be similar, but pneumonia symptoms are usually more severe.

See your DOCTOR if:

you have a high temperature (this is usually a sign of a more serious type of infection)

you feel so unwell that you are unable to manage and cope with your normal daily activities

you feel confused and disorientated

you experience symptoms of breathlessness when you are at rest, or you become more breathless than you would expect during physical activity
you have a sharp pain in your chest

you cough up blood-stained phlegm (thick mucus)

your symptoms last longer than three weeks

you have a weakened immune system due to another condition, such as HIV, or as the result of treatment, such as chemotherapy

Also contact your DOCTOR if you have a chronic (long-term) health condition that could make you more vulnerable to the effects of a chest infection such as:

heart disease, where the blood supply to the heart is reduced

diabetes, where the body does not produce enough insulin or cannot make use of insulin in the right way

kidney disease, where the kidneys lose some of their ability to filter toxins out of the blood

asthma, where a number of substances, such as dust mites or pollen, can cause the lungs to become inflamed, leading to breathing difficulties

chronic obstructive pulmonary disease (COPD), a general term for a group of lung conditions that cause serious breathing problems

Causes of adult chest infection

A chest infection is an infection of the lungs or airways.

Most cases of acute bronchitis are caused by viruses. Most cases of pneumonia are caused by bacteria.

The lungs

To understand chest infection, it can help to understand more about how the lungs work.

Your lungs are like two large sponges that are filled with tubes. As you breathe in, you take in oxygen through your nose and mouth. It then goes through a tube in your neck, called the windpipe or trachea.

The trachea splits into two tubes, one for each lung. These are called the primary bronchi. The bronchi divide into smaller and smaller bronchi which have tiny air sacs (alveoli) at the end. The oxygen is passed into

your blood from the alveoli, before being pumped around your body by your heart.

As well as oxygen, bacteria and viruses in the air can also be passed down into your lungs. This usually does not cause problems because your immune system (the body's natural defence against infection) is able to kill the bacteria or viruses.

However, infection can occasionally take hold, particularly if your immune system has been weakened by other conditions, or your lungs have been irritated by cigarette smoke.

Acute bronchitis

Acute bronchitis is a temporary inflammation of the trachea and the major bronchi, caused by infection.

The inflammation, which can sometimes last for up to three weeks, causes swelling of the airways and a build-up of phlegm (thick mucus) that is cleared from the airways by coughing.

Most cases of acute bronchitis are caused by viruses, although sometimes they are caused by bacteria.

Pneumonia

Pneumonia is an infection of the tissues of the lung. Germs that cause infections, such as pneumonia, are often passed around in the community. In some people, the germs cause pneumonia to develop.

In adults, the most common cause of pneumonia is a type of bacterium called *Streptococcus pneumoniae*. This form of pneumonia is sometimes called pneumococcal pneumonia.

Less commonly, other types of bacteria can cause pneumonia, including:
mycoplasma

Haemophilus influenzae

Staphylococcus aureus

Viruses can also cause pneumonia, most commonly the respiratory syncytial virus (RSV). Other viral causes include:

varicella-zoster (the virus that causes chickenpox)

the flu (influenza) type A or B virus

Risk factors for pneumonia

Viral pneumonia tends to be more common in young children than in adults.

Some groups of people have a higher risk of developing pneumonia, such as:

babies and very young children

elderly people

people who smoke

people with other health conditions

people with a weakened immune system (the body's natural defence against infection)

Other health conditions that increase the risk of pneumonia developing can include:

another lung condition, such as asthma or cystic fibrosis

a heart condition

a kidney or liver condition

a lowered immune system

Your immune system can be lowered as a result of:

a recent illness, such as flu

treatment for cancer, such as chemotherapy

taking medicines that suppress the immune system after an organ transplant

a health condition, such as HIV or AIDS

Diagnosing adult chest infection

Your DOCTOR can usually diagnose acute bronchitis and pneumonia.

A medical diagnosis of acute bronchitis is not usually needed, unless your symptoms are particularly severe or last longer than three weeks.

Acute bronchitis

Acute bronchitis is usually a mild illness that goes away on its own, so there is usually no need to see a DOCTOR.

If you do see your DOCTOR, they will usually be able to make a diagnosis by asking about your symptoms and listening to your chest using a stethoscope (a piece of medical equipment that is used to listen to the heart and lungs).

Ruling out other conditions

In confirming a diagnosis of acute bronchitis, your DOCTOR may need to rule out other lung infections, such as pneumonia, which has similar symptoms to bronchitis.

If your DOCTOR thinks that you may have pneumonia, you will probably need to have a chest X-ray. They may also take a sample of mucus for testing.

If an undiagnosed underlying condition is suspected, such as asthma or emphysema (damage to the small airways in your lungs), your DOCTOR may suggest that you have a pulmonary function test.

If you have a pulmonary function test, your DOCTOR will ask you to take a deep breath before blowing into a device called a spirometer, which measures the volume of air in your lungs. A decreased lung capacity may indicate that you have an underlying health problem.

Pneumonia

If you suspect that you have pneumonia, you should see a DOCTOR.

To help make a diagnosis, your DOCTOR will ask you about your symptoms. For example, they may ask you:

whether you are breathing faster than usual (respiratory rate)

whether you feel breathless

how long you have had your cough

whether you are coughing up phlegm (thick mucus) and what colour it is

whether the pain in your chest is worse when you breathe in or out

Your DOCTOR will probably use a stethoscope to listen to the back and front of your chest to check for any crackling or rattling sounds. They may also tap your chest and listen to the sound that is produced. If your lungs are filled with fluid, they will produce a different sound compared with normal, healthy lungs.

Your blood pressure will also be checked because an unusually low blood pressure (hypotension) may be a sign that you have a more serious type of pneumonia.

Your DOCTOR may also carry out a test called a pulse oximetry test. This test is used to measure how much oxygen your lungs are able to breathe in. A sensor is put on your fingertip, ear or toe. The sensor sends

out light waves and a computer that is connected to the sensor measures how the light waves are being absorbed.

Oxygen can affect how the light waves are being absorbed. Therefore, by analysing the results, the computer can quickly determine how much oxygen is present in your blood. Unusually low levels of oxygen may be a sign that you have a more serious type of pneumonia.

Further testing

Further testing is usually only needed if your chest infection symptoms are severe. A chest X-ray can highlight the extent to which pneumonia has affected your lungs. Other tests that your DOCTOR may suggest include:

sputum test, where you cough up some phlegm (mucus) into a container so that it can be tested in a laboratory

blood tests

The samples that are taken during sputum and blood tests will be analysed in a laboratory to help identify the germ that is causing your infection.

So that treatment is not delayed until the test results are back, your DOCTOR will usually begin treatment with broad-spectrum antibiotics, which are known to be effective against a wide range of bacteria.

Once the germ that is causing your infection has been identified, your DOCTOR may adjust your treatment accordingly.

Screening for lung cancer

Although uncommon, pneumonia can sometimes be a symptom of underlying lung cancer in people who smoke and are 50 years of age or over.

If you smoke, have pneumonia and are 50 or over, your DOCTOR may refer you for a chest X-ray. Lung cancer usually shows up on X-rays as a 'white-grey' mass.

If the first X-ray does not detect cancer, a second, follow-up X-ray is recommended six weeks later. This is a way of 'double-checking' that all is well with your lungs.

Treating adult chest infection

Most cases of acute bronchitis are mild and get better on their own, so symptoms can be managed at home. If you have pneumonia, you may be treated at home or in hospital.

Acute bronchitis

In most cases of acute bronchitis, no medical treatment is needed. You can help to manage symptoms at home:

get plenty of rest

drink plenty of fluid to prevent dehydration and to thin the mucus in your lungs, making it easier to cough up

treat headaches, fever and aches and pains with paracetamol or ibuprofen (ibuprofen is not recommended if you have asthma)

stop smoking: it aggravates bronchitis and increases your risk of developing a more severe condition.

There is little evidence that cough medicines work, and coughing enables you to clear the excess phlegm (mucus) from your lungs. Therefore, suppressing your cough may make the infection last longer.

A warm drink of honey and lemon may help relieve the discomfort that is caused by coughing.

There are circumstances in which you should see a DOCTOR, including if your symptoms are so severe they stop you getting on with daily activities, or if they last longer than three weeks. Learn more about when to see a DOCTOR in symptoms of chest infection.

Antibiotics

Your DOCTOR will not routinely prescribe antibiotic treatment for acute bronchitis for a number of important reasons:

Most cases of acute bronchitis are caused by viral infections, which means that antibiotics will have no effect.

You are almost as likely to experience a side effect from taking antibiotics, such as vomiting and diarrhoea, as you are to receive any benefit from the treatment.

The more antibiotics are used to treat mild conditions, the greater the likelihood that the bacteria will develop resistance to antibiotics and go on to cause more serious infections.

Many experts believe that the reason there are so many dangerous strains of antibiotic-resistant bacteria, such as MRSA and multi-drug resistance tuberculosis (MDR-TB), is because antibiotics have been overused in the past to treat mild conditions.

The use of antibiotics is usually only recommended if it is thought that you have an increased risk of developing a secondary lung infection, such as pneumonia, due to factors such as:

being over 75 years of age and having a high temperature (fever) of 38C (100.4F) or above

having long-term problems with your lungs or heart, such as chronic obstructive pulmonary disease (COPD) or heart failure

having a weakened immune system (immunocompromised) as a result of a condition, such as diabetes or cancer, or due to certain types of medical treatment, such as chemotherapy

If you are prescribed antibiotics for bronchitis, it is likely to be a five-day course of amoxicillin, oxytetracycline or doxycycline. Possible side effects of these medicines include:

nausea

vomiting

diarrhoea

Pneumonia

If you have pneumonia, depending on how serious your condition is, you may be treated at home or at hospital. Your DOCTOR will make a detailed assessment based on how ill you are and the likelihood that you will become more seriously ill.

CRB-65 score

Most DOCTORS use a scoring system that is known as the CRB-65 score to assess the potential seriousness of pneumonia. CRB-65 stands for:

Confusion. Signs of mental confusion may mean that you have a more serious infection.

Respiratory rate. Your respiratory rate is how many breaths you take in a minute (more than 30 breaths a minute may be a sign that your lungs are not working properly).

Blood pressure. Low blood pressure can be a sign of a more serious infection.

65 refers to whether you are 65 years of age or over. Older people are more vulnerable to the effects of pneumonia

Each one of the above criteria has a score of one, which added together make up the total CRB-65 score.

A CRB-65 score of zero means that you have a low risk of developing complications and that you can usually be treated at home.

A CRB-65 score of between one and two means that you have a medium risk of developing complications and that you should have a same-day assessment by an expert in treating pneumonia. Depending on the results of the assessment, you may be able to be treated at home or you may need to be admitted to hospital.

A CRB-65 score of three or more means that you have a high risk of developing complications and you should be immediately admitted to hospital for treatment.

Treatment at home

If you are being treated at home, you will usually be prescribed a seven-day course of antibiotics, typically amoxicillin. If you are allergic to amoxicillin, alternative antibiotics, such as doxycycline, can be used.

The most common side effects of the antibiotics that are used to treat pneumonia are:

nausea

vomiting

diarrhoea

However, these side effects are usually mild.

Less commonly, doxycycline can make your skin more sensitive to the effects of sunlight. Therefore, minimise your exposure to direct sunlight and avoid using sun lamps and sunbeds if you are taking doxycycline.

If you are prescribed antibiotics, it is important to finish taking your course, even if you are feeling better. Stopping the course too soon could cause the pneumonia to return.

Self care

The steps listed below may help ease your pneumonia symptoms.

Painkillers, such as paracetamol or ibuprofen, will help relieve pain and reduce a high temperature.

As with acute bronchitis, cough medicines are not recommended for treating the symptoms of pneumonia. Coughing enables you to clear

phlegm (thick mucus) from your lungs, so trying to stop your cough could make the infection last longer. A warm drink of honey and lemon may help relieve the discomfort that is caused by coughing.

Drink plenty of fluids to avoid becoming dehydrated.

Get plenty of rest to help your body recover.

If you smoke, stop. Smoking damages your lungs, so this is a good opportunity to stop smoking altogether.

Treatment at hospital

If your symptoms are moderate, you can usually be treated with antibiotic tablets (oral antibiotics).

If your symptoms are severe, treatment usually involves giving you antibiotics directly into your vein through a drip in your arm (intravenous antibiotics). You may also be given additional fluids to stop you becoming dehydrated and oxygen to help you breathe.

Depending on how well you respond to treatment, it may be possible to switch from intravenous to oral antibiotics after a few days.

Most people who are treated in hospital required a 7-10 day course of antibiotics. How long it will take before you are well enough to return home will depend on your general state of health and whether you experienced any complications.

Follow-up

It is usually recommended that you attend a follow-up examination six weeks after the onset of your symptoms to check that the pneumonia has not caused any serious or permanent damage to your lungs.

The follow-up examination usually involves taking a chest X-ray so the state of your lungs can be assessed.

Complications of adult chest infection

Both acute bronchitis and pneumonia can cause a variety of complications.

Acute bronchitis

Acute bronchitis can cause a secondary infection in your lungs. The lungs can be weakened by the original infection and become more vulnerable to secondary infection by bacteria.

If you develop a secondary infection, it can be more serious than acute bronchitis. It can usually be treated with antibiotics. Occasionally, acute bronchitis can lead to pneumonia, particularly if you have other health conditions.

See your DOCTOR if:

you develop symptoms of a high temperature (fever) of 38C (100.4F) or above, or your existing high temperature suddenly worsens

you become drowsy, confused or disorientated

you develop chest pains

your breathing suddenly becomes more rapid

you become short of breath

your cough lasts more than three weeks

you have recurring bouts of acute bronchitis

Pneumonia

Pleural effusion

Pleural effusion is a common complication of pneumonia that affects around 1 in 2 people who are admitted to hospital for moderate to severe pneumonia.

A pleural effusion is where an excess amount of fluid gathers inside the double-layered membrane (covering) that surrounds the lungs, known as the pleura.

The fluid can place pressure on the lungs, making breathing difficult. Pleural effusion will usually resolve itself when pneumonia is treated.

In cases of pleural effusion, it is usually recommended that a fluid sample is taken and checked to determine whether the fluid has become infected (see below). If no infection is present, a 'watch and wait' strategy is usually recommended because most cases of pleural effusion will be resolved once the underlying pneumonia infection has passed.

Empyema

In around 10% of pneumonia cases that are treated in hospital, the fluids that make up a pleural effusion will become infected by bacteria. This is known as empyema. The bacteria can cause a build-up of pus, which can sometimes reach up to around a quarter of a pint (142.5mm)

Symptoms of empyema include:

chest pain, which is made worse when breathing in

dry cough

high temperature (fever) of 38C (100.4F) or above

chills

excessive sweating, particularly at night

shortness of breath

general sense of feeling unwell

Empyema is usually treated using a combination of antibiotics and a procedure that drains the pus out of the pleura. This is usually done by making a small incision (cut) in your chest (under a local anaesthetic), and then inserting a tube into the pleura to drain away the pus and fluid. The most serious cases of empyema may require surgery to remove the pus and repair any underlying damage to your pleura and lungs.

Lung abscess

A lung abscess is a rare complication of pneumonia and is mostly seen in people who have a serious, pre-existing illness or those with a history of severe alcohol misuse.

A lung abscess is a pus-filled cavity that develops inside the tissue of the lungs. The symptoms of a lung abscess are the same as those of severe pneumonia. In addition, you may begin to cough up unpleasant-smelling phlegm (thick mucus) and experience swelling in your fingers and toes.

Most cases of lung abscesses can be treated using antibiotics. This usually involves an initial course of intravenous antibiotics (directly into a vein through a drip) followed by oral antibiotics (tablets) for four to six weeks.

Most people who have a lung abscess will experience an improvement in their symptoms within three to four days. It is important to finish your recommended course of antibiotics, even if you feel perfectly healthy, to prevent re-infection of your lungs.

Around 10% of people will require surgical treatment because they fail to respond to the antibiotics. Surgery usually involves draining the pus out of the abscess or removing the affected section of the lung.

Metastatic infection

Another rare and serious complication of pneumonia is metastatic infection. Metastatic infection means that the infection has spread from the lungs to another part of the body.

The first place that an infection usually spreads to is the blood, which is known as septicaemia.

Symptoms of septicaemia include:

high temperature (fever) of 38C (100.4F) or above

fast heartbeat (tachycardia)

fast breathing

low blood pressure (hypotension) which will cause you to feel dizzy when you stand up

a change in mental behaviour, such as confusion or disorientation

diarrhoea

reduced urine flow

cold, clammy skin

pale skin

loss of consciousness

Once your blood has become infected, it is possible for the infection to spread to other organs in your body, such as:

the outer layers of your brain (meningitis)

the lining of your abdomen (peritonitis)

the inner layer of your heart (endocarditis)

your joints (septic arthritis)

These types of metastatic infections are usually very serious and require aggressive treatment with high-dose intravenous antibiotics.

Preventing adult chest infection

Good hygiene can help stop the spread of the viruses and bacteria that cause chest infection.

If you are at higher risk of chest infection, your DOCTOR may recommend certain vaccinations.

Hygiene

To reduce the risk of spreading the viruses and bacteria that cause chest infection:

cover your mouth and nose when you cough or sneeze

wash your hands with soap and warm water regularly

throw away used tissues immediately

Learn more in how to prevent germs spreading.

Vaccinations

If you are at higher risk of chest infection, your DOCTOR may recommend that you have vaccinations for influenza (flu) and pneumococcal infections (a bacteria that can cause pneumonia, meningitis and infection of the blood).

The vaccination should help prevent you getting chest infections in the future. Vaccinations are usually recommended for:

people over 65 years of age

people with either chronic respiratory, heart, renal or liver conditions

people with diabetes

people with sickle-cell anaemia (an inherited blood disorder)

people with conditions that affect the immune system, such as HIV

children under five years of age

Learn more in flu and the flu vaccine.

Quitting smoking

If you are a smoker, the best thing you can do to prevent developing a chest infection is to stop. Smoking damages your lungs and weakens their defences against infection.

Alcohol

Excessive and prolonged alcohol misuse is known to weaken your lung's natural defences against infections (their immune response), making you more vulnerable to pneumonia

One study found that 45% of people who were admitted to hospital for pneumonia had an alcohol misuse problem. Alcohol misuse is defined as regularly drinking over the recommended weekly limits (21 units of alcohol for men and 14 units of alcohol for women).

Alcohol also increases your risk of pneumonia being more serious. It is estimated that people who misuse alcohol are three to seven times more likely to die from pneumonia than the general population.

If you drink alcohol, do not exceed the recommended daily limits (three to four units a day for men and two to three units a day for women).

Contact your DOCTOR if you are finding it difficult to moderate your drinking. Counselling services and medication are available to help you reduce your alcohol intake. Learn more in alcohol misuse.

Diet

Eating a healthy diet is known to strengthen the immune system, making you less vulnerable to developing chest infections. A low-fat, high-fibre diet is recommended, including whole grains and plenty of fresh fruit and vegetables (at least five portions a day).