CONDITION

# Q fever

Q fever is a bacterial infection usually caught by breathing contaminated dust from infected farm animals.

**WHAT IT IS**
Bacterial infection caught mainly from infected farm animals

**BODY SYSTEM**
Whole body, especially lungs, liver, heart, and blood vessels

**MAIN SYMPTOMS**
Fever, severe headache, muscle aches, extreme tiredness

**WHAT CAUSES IT**
Infection with Coxiella burnetii bacteria

**HOW IT IS DIAGNOSED**
Antibody blood tests, sometimes blood PCR

**MAIN TREATMENT**
Antibiotics, with longer treatment for persistent infection

**CAN IT BE CURED?**
Yes - antibiotics usually clear the infection

**IS IT AN EMERGENCY?**
Sometimes - severe breathlessness, chest pain, confusion, or fainting

**LONG-TERM OUTLOOK**
Most recover; persistent infection or fatigue needs longer care

## Overview

Q fever is an infection caused by the bacterium Coxiella burnetii . It is a zoonotic infection, meaning it can pass from animals to people. Sheep, goats, and cattle are the main sources, although other animals can carry the bacteria.

The bacteria are found in especially high amounts in an infected animal's placenta and birth fluids. They can also be present in urine, feces, and milk. When contaminated material dries, tiny particles may become airborne. People usually become infected by breathing them in.

Many infections cause no symptoms. When symptoms do occur, Q fever often begins as a sudden flu-like illness. It can also cause pneumonia or inflammation of the liver.

Most people recover from acute Q fever, which is the initial illness. A small number develop a

persistent infection months or years later. This is sometimes called chronic Q fever. It most often affects heart valves or damaged blood vessels and needs prolonged specialist care.

## Symptoms

Symptoms usually begin about two to three weeks after exposure, although the timing can be shorter or longer.

Acute Q fever may cause:

Some people develop pneumonia, causing cough, breathlessness, or chest pain. Others develop hepatitis, meaning inflammation of the liver. Hepatitis may cause abdominal discomfort or abnormal liver blood tests. Yellow skin or eyes are less common.

Symptoms can range from mild to severe. Children often have a milder illness than adults, but they can still become unwell.

Persistent Q fever can develop without another obvious flu-like episode. Symptoms may include ongoing fever, night sweats, weight loss, unusual tiredness, breathlessness, or reduced stamina. The exact symptoms depend on where the infection is located.

Some people continue to have severe tiredness and other symptoms after the active infection has cleared. This is often called post-Q fever fatigue syndrome. It is different from persistent bacterial infection.

- Sudden fever or chills
- Severe headache
- Marked tiredness
- Muscle or joint aches
- Sweating
- Dry cough or chest discomfort
- Nausea, vomiting, diarrhea, or abdominal pain

## Causes and risk factors

You can develop Q fever after inhaling bacteria released by infected animals. Giving birth is a particularly important source because the placenta and birth fluids may contain large amounts of bacteria.

Contaminated dust can travel beyond a farm or animal facility. Direct contact with an animal is

therefore not always needed. Person-to-person spread is very rare.

People with greater exposure may include:

Drinking unpasteurized milk may create a risk, although breathing contaminated particles is the main route of infection. Eating properly cooked meat is not considered a usual source.

Anyone can develop acute Q fever. The risk of persistent infection is higher in people with a damaged or artificial heart valve, a blood-vessel aneurysm, or an artificial vascular graft. An aneurysm is a weakened, widened section of a blood vessel.

Pregnancy and a weakened immune system may also increase the risk of complications. Infection during pregnancy can affect both the pregnant person and the pregnancy, even when symptoms are mild.

- Farmers, farm workers, and livestock transport workers
- Veterinarians and veterinary staff
- Abattoir and meat-processing workers
- Laboratory workers handling the bacteria
- People helping sheep, goats, or cattle give birth
- People living or working near affected livestock facilities

## Diagnosis

Tell a healthcare professional if you have compatible symptoms and recent contact with livestock, animal births, abattoirs, or farm dust. Also mention whether you live near a livestock facility or have recently travelled.

Q fever is mainly confirmed with blood tests. The standard test looks for antibodies, which are proteins made by the immune system in response to the bacteria. Antibodies against different forms, called phase I and phase II, help distinguish a recent infection from a possible persistent infection.

An antibody test can be negative during the first days of illness because the immune system has not yet produced a measurable response. A second sample taken later may show a clear rise in antibodies.

A polymerase chain reaction, or PCR, test may detect bacterial genetic material in blood early in the illness. It is most useful before or soon after antibiotics like amoxicillin or doxycycline are started.

If persistent infection is suspected, further assessment may include repeated antibody tests,

an echocardiogram to examine the heart valves, and scans of blood vessels or other organs. Routine laboratories do not usually culture the bacteria because doing so requires specialist safety facilities.

## Treatment and management

Antibiotics are the main treatment. Doxycycline is commonly used for symptomatic acute Q fever in adults, but the right medicine depends on factors such as age, pregnancy, allergies, and other health conditions.

Treatment is most effective when started early. If Q fever is strongly suspected, a clinician may begin treatment before confirmatory antibody results are available. A positive blood test without symptoms does not always mean antibiotics are needed.

Rest, fluids, and a gradual return to activity can support recovery. A pharmacist or clinician can advise which medicines for fever or pain are suitable for you.

Persistent Q fever requires specialist treatment. It is usually managed with a combination of antibiotics for many months and sometimes longer. Regular blood tests help assess the response and check for medicine-related effects. Infection involving a damaged heart valve, aneurysm, or vascular graft may also require surgery.

Treatment during pregnancy needs specialist guidance because some commonly used antibiotics may not be suitable. Children may also need an antibiotic choice based on their age and clinical situation.

Do not use leftover antibiotics or stop a prescribed course early without medical advice. Persistent symptoms do not necessarily mean that the bacteria remain active, so further assessment may be needed before more antibiotics are considered.

## Complications

Most people with acute Q fever recover, but complications can occur.

Possible complications include:

Endocarditis is one of the most serious forms of persistent Q fever. It may develop months or years after the initial infection, particularly in someone with an existing heart-valve problem. Its symptoms can be gradual and easy to overlook.

Persistent blood-vessel infection may cause back, chest, or abdominal pain, depending on the vessel involved. Without treatment, heart-valve and vascular infections can cause

life-threatening complications. Planned follow-up is intended to find these problems before they become severe.

- Pneumonia
- Liver inflammation
- Inflammation around the heart or of the heart muscle
- Infection of a heart valve, called endocarditis
- Infection of an aneurysm or artificial vascular graft
- Pregnancy loss, premature birth, or other pregnancy complications
- Prolonged fatigue after the infection

## Prevention

Q fever cannot always be prevented. Infected animals may look healthy, and contaminated particles can travel in air or dust.

Risk can be reduced by:

Pregnant people should avoid helping livestock give birth or handling newborn animals, placentas, and contaminated bedding.

A Q fever vaccine is available in Australia for eligible people at occupational risk, but it is not widely available internationally. Screening is required before vaccination because people who have already been infected can have a strong reaction. Local public health or occupational health services can explain whether vaccination is available where you live.

- Avoiding unnecessary contact with animal placentas and birth fluids
- Using workplace protective clothing and respiratory protection when required
- Washing hands after handling animals or contaminated equipment
- Keeping animal-birthing areas clean using appropriate workplace procedures
- Safely containing and disposing of birth products
- Drinking pasteurized rather than unpasteurized milk
- Following occupational health rules in farms, abattoirs, laboratories, and veterinary settings

## Living with it and what to expect

Acute fever and pain often improve over days to a few weeks. Tiredness may take longer to settle, and returning to work or exercise too quickly can be difficult. A gradual increase in activity may be more manageable.

Some people experience fatigue, poor sleep, headaches, muscle pain, or difficulty concentrating for months. These symptoms can affect work, study, and family life even when tests show no ongoing bacterial infection. Care may focus on sleep, pacing activity, symptom relief, and support with daily tasks.

Your follow-up needs are shaped by your risk of persistent infection. People with heart-valve conditions, aneurysms, vascular grafts, pregnancy, or weakened immunity may need scheduled antibody tests and clinical reviews after the acute illness. Keep these routine appointments even if you feel well.

Persistent infection usually means prolonged treatment and repeated blood tests. Heart scans or blood-vessel imaging may also be needed. Antibody levels can remain detectable for a long time, so results are interpreted alongside symptoms, previous levels, and imaging.

Most people return to their usual lives after acute Q fever. Recovery can be slower for people who had severe illness, prolonged fatigue, or infection involving a heart valve or blood vessel.

## When to get medical help

Arrange prompt medical advice if you develop fever, severe headache, marked tiredness, cough, or muscle aches after possible exposure to livestock, animal births, or farm dust. Mention the exposure because the symptoms can resemble many other infections.

Seek prompt assessment if previous Q fever is followed by ongoing fever, night sweats, unexplained weight loss, worsening tiredness, or reduced exercise tolerance. These symptoms do not prove persistent infection, but they should be checked.

Contact your maternity care team promptly if you are pregnant and may have been exposed, even if you have no symptoms.

Call emergency services for:

Routine follow-up blood tests and scans are not emergencies. However, do not wait for a scheduled appointment if you develop rapidly worsening symptoms.

- Severe difficulty breathing
- New or severe chest pain
- Confusion, collapse, or fainting

- Coughing up blood
- Sudden severe abdominal, chest, or back pain

## Common questions

Is Q fever contagious between people?

Usually not. Person-to-person spread is very rare. Most infections come from breathing particles contaminated by infected animals, especially sheep, goats, or cattle.

Can I get Q fever without touching an animal?

Yes. Contaminated dust and tiny airborne particles can travel away from livestock or birthing areas. Some people have no clear direct contact with an infected animal.

How long does Q fever last?

The fever and flu-like illness often last days to a few weeks. Tiredness may continue for weeks or months. Persistent infection can last much longer and requires specialist treatment.

Can Q fever come back?

A new flu-like episode does not necessarily mean the infection has returned. In some people, bacteria persist in a heart valve, blood vessel, or another site and cause illness later. Follow-up helps identify this.

Does Q fever cause long-term fatigue?

It can. Some people have disabling fatigue and other symptoms after the active infection has cleared. This is not the same as persistent Q fever, and additional antibiotics do not automatically help.

Can pets carry Q fever?

Cats, dogs, and other mammals can become infected, particularly around giving birth. Livestock are the main source of human infection, but avoid unprotected contact with any animal's placenta or birth fluids.

## Sources

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