

Q Fever Fact Sheet

1. **What is Q fever?** - Q fever is a disease caused by a bacterium known as *Coxiella burnetii* (*C. burnetii*). It is a zoonotic disease, which means that the bacterium naturally exists in an animal host, called the natural reservoir. Cattle, sheep, and goats are the main natural reservoirs of *C. burnetii*, but the bacterium has been noted in a variety of other animals, including other species of livestock and domesticated pets. *C. burnetii* is found worldwide. It does not normally cause disease in its animal hosts, but it has been associated with miscarriage in some animals, especially livestock. Q fever does occur in people, but it is not easily recognized or diagnosed, making it difficult to reliably measure how many cases of Q fever have actually occurred worldwide. In the United States, Q fever outbreaks have resulted mainly from work-related exposure among veterinarians, meat processing plant workers, sheep and dairy workers, livestock farmers, and researchers at facilities that house sheep.

2. **How is the bacterium that causes Q fever spread?** - *C. burnetii* is excreted in milk, urine, and feces of infected animals. Extremely high numbers of the bacteria are shed during birthing (within the birth fluids and the placenta). *C. burnetii* forms unusual spore-like structures that are highly resistant to environmental conditions, including heat, drying, and many common disinfectants. These characteristics enable the bacterium to survive for long periods (up to 120 days) in the environment. *C. burnetii* is easily spread by aerosols; airborne particles can travel a half-mile or more. Humans most often become infected by breathing in the bacteria through airborne barnyard dust contaminated by dried birth fluids, placental material, or waste of infected herd animals. In rare instances, transmission has occurred by tick bite. Humans are very susceptible to the disease, and only a few bacteria may be required to cause infection. Fortunately, spread of the disease from person to person rarely, if ever, occurs.

3. **Is Q fever a potential bioterrorist threat?** - *C. burnetii* is highly infectious; a single bacterium may cause disease in a susceptible person. It can become airborne and inhaled by humans, making it a potential bioterrorist threat agent.

4. **What are the symptoms and health effects of Q fever?** - Exposure to *C. burnetii* does not always lead to illness. Only about half of all people infected with

C. burnetii become ill. In those who do, Q fever often begins with sudden onset of one or more of the following: high fever (up to 104-105° F), severe headache, fatigue, muscle pain, confusion, sore throat, chills, sweats, dry cough, nausea, vomiting, diarrhea, abdominal pain, and chest pain. Fever usually lasts for 1-2 weeks. Weight loss can occur and last for some time. A majority of Q fever patients also have abnormal results on liver function tests, and some will develop inflammation of the liver. Some patients also develop pneumonia. In general, most people with Q fever recover to good health within several months without any treatment. Up to two percent of people with Q fever die of the disease. Although uncommon, in some people infection lasts for more than six months, called chronic Q fever. Chronic Q fever is a much more serious disease, and complications may involve infection of the heart valves. Patients with pre-existing heart valve disorders, transplant recipients, patients with cancer, and those with chronic kidney disease are at greater risk of developing chronic Q fever. Patients who have had Q fever may develop the chronic form anywhere from 1-20 years after initial infection.

5. How soon after infection do symptoms appear? - The interval of time between infection by *C. burnetii* and the appearance of symptoms (incubation period) varies depending on the number of *C. burnetii* spores that initially infected a person. Greater numbers of bacteria result in shorter incubation periods. Most infected people show symptoms within 2-3 weeks after exposure.

6. Are there medical tests that can tell people whether they've been exposed to Q fever? - Yes. Laboratory tests done on blood samples from a person can determine whether the person has been infected by *C. burnetii*. These tests measure the body's immune response to the infection.

7. What is the treatment for Q fever? - Q fever is treated with antibiotic therapy (doxycycline is the antibiotic of choice). Treatment is most effective when started within the first three days of illness. Complications related to chronic Q fever (such as damaged heart valves) are much more difficult to treat effectively and often require the use of multiple antibiotic drugs. Surgery to replace damaged heart valves may be required in some cases.

8. How can Q fever be prevented? - In the United States, Q fever outbreaks have generally occurred among veterinarians, meat processing plant workers, sheep and dairy workers, livestock farmers, and researchers at facilities housing sheep, and in people who have consumed unpasteurized milk or milk products. Prevention and control efforts are directed mainly toward reducing workplace-

related risks. People at risk of work-related exposure are counseled on what measures to take, especially people with pre-existing heart valve disorders. Examples of preventive measures include quarantining imported animals; restricting access to barns and laboratories used in housing potentially infected animals; and using only pasteurized milk (milk heated to destroy germs that can cause disease or spoilage) and milk products.

9. Is there a vaccine? - A vaccine for Q fever has been developed and has successfully protected humans in work settings in Australia. However, this vaccine is not commercially available in the United States. Workers who are given the opportunity to be vaccinated should first have a skin test to determine a history of previous exposure. Those who have previously been exposed to *C. burnetii* should not receive the vaccine, because severe reactions at the injection site may occur. A vaccine for use in animals has been developed, but it is not yet available in the United States.

10. For more information about Q fever: <http://www.cdc.gov/qfever/>

This fact sheet provides general information. Please contact your physician and/or veterinarian for specific clinical information related to you or your animal.

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