

Occupational Health - Zoonotic Disease Fact Sheet

Q-FEVER

KEY FACTS:

- Q fever was first recognized as a human disease in Australia in 1935 and in the United States in the early 1940s.
- Q fever is a bacterial zoonosis caused by *Coxiella burnetii*.
- The term “Q fever” (for query fever) was proposed in 1937 by Edward Holbrook Derrick to describe febrile illnesses in abattoir workers in Brisbane, Queensland, Australia.

SPECIES: This bacteria naturally infects some animals, such as goats, sheep, and cattle. *C. burnetii* bacteria are found in the birth products (i.e. placenta, amniotic fluid), urine, feces, and milk of infected animals. Sheep are the main reservoir of infection for humans, but other animals (cattle and goats) are also possible.

CAUSATIVE AGENT: *Coxiella burnetii* is a gram negative obligate intracellular bacteria.

TRANSMISSION: *Coxiella burnetii* is primarily spread by aerosol exposure to birth products (placenta, amniotic fluid, etc.) of domestic ungulates (usually sheep, cattle, and goats) which may be asymptomatic. It is also able to be shed in urine, feces, milk, and less commonly through tick transmission. The organism is resistant to drying and can persist for months in the environment.

DISEASE IN ANIMALS: *Coxiella burnetii* infections may be asymptomatic in animals; however more extreme cases can result in abortions and myocarditis.

DISEASE IN HUMANS: *Coxiella burnetii* infections are asymptomatic in many cases; however more serious cases can include symptoms of febrile illness with severe frontal headache with retro-orbital pain, profuse sweating, myalgia, nausea, and weight loss. People who develop severe disease may develop pneumonia or hepatitis. Women who are infected during pregnancy may be at risk for miscarriage, stillbirth, pre-term delivery, or low infant birth weight. Most cases resolve in two weeks but may be protracted or relapsing in the elderly. Chronic Q fever can result in endocarditis, hepatitis, or a chronic fatigue syndrome.

DIAGNOSIS: The symptoms of Q fever are similar to many other diseases, often making diagnosis difficult. In addition to clinical symptoms being present, serological (ELISA, IFA) and molecular (PCR) testing may be used. *Please review current literature before prescribing diagnostic testing as recommendations may have changed.*

TREATMENT: Treatment with doxycycline can suppress symptoms and shorten the clinical course but does not always eradicate the infection. Treatment of infections that have progressed to endocarditis consists of protracted (often for years) antibiotic therapy. Chronic Q-fever infections can be treated with a combination of antibiotics including doxycycline and

hydroxychloroquine for several months. *Please consult your physician for treatment options as recommendations may have changed.*

PREVENTION/CONTROL: To prevent and control unintended infections, use uninfected animals for research, and isolate any animals used in clinical trials. Do not consume raw milk or raw milk products. Additionally, only conduct projects in laboratories with proper engineering controls and train staff members in the proper use of required personal protective equipment when they are in spaces containing live agent.

More information on Q-fever can be found on the Centers for Disease Control and Prevention website at: <https://www.cdc.gov/qfever/>