

Q Fever (*Coxiella burnetii*)

DISEASE IN ANIMALS

C. burnetii is highly contagious bacteria and can be carried by many species of mammals, birds, reptiles and insects. Sheep, goats and cattle are the most common domesticated animal reservoirs. Wild rodents may be important reservoirs in some areas, and cats have been suspected in some urban outbreaks.

Reporting: This is not a reportable animal disease in Ohio; however, voluntary reporting is encouraged to both the Ohio Department of Agriculture (ODA) at (614) 728-6220 or (800) 300-9755 and the [local health department](#) (LHD). Q-fever is a potential bioterrorism agent and animals may serve as early sentinels.

Transmission: Both symptomatic and asymptomatic animals shed *C. burnetii* in feces, milk, urine, and fluids associated with abortion and birth. Large quantities are shed at parturition. These organisms persist in the environment for long periods and can be spread long distances by the wind. Transmission occurs via aerosols, ingestion, sexual or direct contact. Ticks, fleas, lice and parasitic flies can also spread the infection.

Clinical signs: The majority of cases are asymptomatic but reproductive failures including, abortion, stillbirth, infertility and retained placenta. Animals can maintain the infection and shed the organism periodically during pregnancy, birthing and lactation.

Diagnostics:

- Cytology: special stains are required, unable to detect with Gram stains
- Immunohistochemistry and capture ELISA, or PCR: detect antigen or nucleic acid, respectively
- Serology (IFA, ELISA, or CF): some animals do not seroconvert so serology is best used as a screening tool for identifying infected herds. Cross-reactions can occur with Chlamydia in ELISA.
- Culture: rarely used for diagnosis due to danger to laboratory personnel

Case classification:

- Suspected: a clinical case with signs consistent with Q fever.
- Probable: a clinically suspect case with laboratory evidence from a screening or unvalidated test.
- Confirmed: a case that meets confirmatory testing criteria determined by a state or federal diagnostic laboratory.

DISEASE IN HUMANS

Reporting: Report by the end of the business day any suspected human illness or positive laboratory result to the LHD where the patient resides. If unknown report to the LHD of the health provider or laboratory.

Human illness: Acute cases present with fever, rigors, myalgia, malaise, and a severe retrobulbar headache. Fatigue, night-sweats, dyspnea, confusion, nausea, diarrhea, abdominal pain, vomiting, non-productive cough and chest pain have also been reported. Acute hepatitis, atypical pneumonia with abnormal radiograph, and meningoencephalitis has been reported. Pregnant women are at risk for fetal death and abortion. Asymptomatic infections may also occur. Chronic endocarditis (e.g., persistent infection for more than 6 months) may evolve months to years after acute infection, particularly in persons with underlying valvular disease. Infections of aneurysms and vascular prostheses have been reported. Immunocompromised individuals are particularly susceptible. Rare cases of chronic hepatitis without endocarditis, osteomyelitis, osteoarthritis and pneumonitis have also been described.

Personal protection: Gloves and protective clothing should be worn to prevent direct contact with birthing fluids. The placenta of sheep, goats and cattle should be properly disposed and birthing areas cleaned regularly.

Manure from contaminated farms should not be spread as fertilizer. Ruminants in their third trimester should not have contact with the public and immunosuppressed persons should be discouraged from having any contact. The bacteria should only be cultured in a BSL3 laboratory.

FOR MORE INFORMATION

Disease in Animals

[Ohio Animal Disease Diagnostic Laboratory](#)

[The American Veterinary Medical Association Zoonosis Updates](#)

[OIE Manual of Diagnostic Tests](#)

[Iowa State University Center for Food Security and Public Health Animal Disease Factsheets](#)

Disease in Humans

[ODH Infectious Disease Control Manual](#)

[CDC- Q Fever](#)