

Q Fever

Agent: *Coxiella burnetii* (bacteria)

Mode of Transmission: Inhalation of air contaminated with *Coxiella burnetii*. Most commonly, people are exposed to this organism via inhalation of infectious aerosols directly from birth fluids of infected animals or via inhalation of dust contaminated with dried birth fluids or tissues. Less common routes of transmission include ingestion of raw milk and dairy products or contact with contaminated clothing. Person-to-person transmission is rare.

Signs/Symptoms: While approximately 50% of infections are asymptomatic, symptomatic Q fever may be acute or chronic. Acute Q fever is characterized by high fever, severe headache, fatigue, chills and muscles aches. Serious illness can progress to pneumonia or inflammation of the heart and liver. Children with Q fever are less likely than adults to have symptoms, and might have a milder illness. When symptomatic, children are more likely to manifest gastrointestinal symptoms of illness and develop a skin rash. Chronic Q fever is a severe disease developing in less than 5% of acutely-infected patients, and is rarely reported in children. Endocarditis is the major form of chronic disease, comprising 60-70% of all reported cases. It may present within 6 weeks after an acute infection, or may manifest years later. Chronic disease can occur after symptomatic or asymptomatic infections. The three groups at highest risk for developing chronic Q fever are pregnant women, immunocompromised persons and patients with a pre-existing heart valve defect.

Prevention: Preventive measures include appropriate disposal of potentially infectious tissues and proper hygiene when handling animal birth material.

Other Important Information: Although infection has been confirmed in many species, cattle, sheep and goats are the main natural reservoirs for *C. burnetii*. The infectious form of these bacteria is highly resistant to heat, desiccation, and disinfectant substances, and can persist in the environment for long periods of time. Windborne particles containing infectious organisms can travel a half-mile or more, which may contribute to cases with no known animal contact. From 2000-2010, information associated with Q fever cases reported to the CDC indicated that 60% of patients reported no animal contact. This bacterium is classified by the CDC as a potential bioterrorism agent because it could easily be disseminated and result in a moderate amount of illness.

Four cases of Q fever, one chronic and three acute, were reported in Virginia in 2014. This is slightly higher than the five-year average of 1.8 cases per year. Of the four cases in 2014, two were in adult males and two were in adult females. Two cases occurred in the northern region, and one each in the northwest and central regions. One of the acute cases had a confirmed history of raw milk consumption and the other reported travel to Ecuador where raw dairy products may have been consumed. No specific risk factors were identified for the third acute case. The chronic case was associated with valvular heart disease.