

Q Fever

Agent: *Coxiella burnetii* (bacteria)

Mode of Transmission: Inhalation of air contaminated with *Coxiella burnetii*. Sources of this organism in the environment may include dried placental material, birth fluids, or excreta of infected animals. People may also come in contact with this organism via direct exposure to infected animals or tissues, or exposure to contaminated material, such as wool, straw, fertilizer, or laundry. 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 muscle 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.

Three cases of Q fever, one chronic and two acute, were reported in Virginia in 2013, which is similar to the five-year average of 2.4 cases per year. No cases of Q fever were reported in 2012 in Virginia. All three cases occurred in adult males, one each from the northwest, northern and southwest regions. The chronic case had a history of valvular heart disease. A specific risk factor could not be identified for either of the two remaining cases. However, one case-patient did have a history of travel to the Netherlands, which reported a large outbreak of Q fever from 2007-2010 involving over 4,000 human cases.