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be infected by exposure (ingestion or aersol) to contaminated excretions or birth products and shed the bacteria in milk and urine, serving as potential sources of human infection.

In susceptible people, a single *C. burnetii* bacterium may result in infection and induce disease; therefore, its use as a potential bioterrorism agent has been acknowledged. Currently, Q Fever is classified as a Category B agent. Due to the potential for transmission of infection from animals to people, the World Organization for Animal Health (OIE) has classified Q Fever as a notifiable animal disease.

The incubation period is variable, and is affected by the extent of exposure; the more bacteria infecting the patient, the shorter the incubation period. Most people who become infected develop clinical signs within 1 to 3 weeks of exposure.

Clinical Signs

*Cattle, sheep, and goats—C. burnetii* produces inapparent or mild illness in domestic animals, but it can induce abortion in sheep, goats, and cattle. Cattle may also exhibit dead or weak calves, retained placentas, metritis (uterine infection), and infertility. Abortion is more common in smaller ruminants (sheep and goats) than in cattle. Up to 50% of pregnant animals in a single flock of sheep or herd of goats may abort. Other signs of disease in small ruminants include premature births, dead or weak lambs or kids, uterine infection, and fertility. Sporadic abortions and necrotic placentitis in horses caused by *C. burnetii* have been reported in South Africa.

*Humans*—Clinical disease develops in approximately 50% of people infected. Fever (up to 105° F for 1 to 2 weeks), severe headache, myalgia (muscle pain), pharyngitis (sore throat), disorientation, chills, sweating, coughing, nausea, vomiting, diarrhea, abdominal pain, chest pain, and weight loss are typical of acute infections. Pneumonia develops in 30-50% of infected people, and some develop granulomatous hepatitis (inflammation of the liver).

Q Fever in its chronic form may persist for 6 or more months, and may develop 1 to 20 years after initial exposure and infection. Endocarditis (infection or inflammation of the heart valves) may develop in conjunction with chronic infection. The associated risk is higher in patients with valvular heart disease or vascular grafts, and the aortic valve is most commonly affected. Meningitis or encephalitis

endemic herds (herds in which infection is established) with tetracycline may minimize the shedding of the bacteria in the birth fluids.

Without treatment, most humans with acute Q Fever recover within several months; medical treatment appears to shorten the clinical course of the illness. Full recovery from Q Fever results in lifelong immunity against re-infection. Doxycycline is administered for a minimum of 15 days to those suffering from the acute form of the disease, and optimal results are obtained when treatment is initiated within the first 3 days of clinical illness. Treatment of endocarditis associated with the chronic form of Q Fever is challenging, and may include administration of a doxycycline/quinolone combination for a minimum of 4 years or a doxycycline/hydroxychloroquine combination for 1.5 to 3 years. Refractory cases may require surgical removal and replacement of affected heart valves.

Morbidity and Mortality

Animal deaths from *C. burnetii* infection are extremely rare. Without treatment, approximately 1 to 2% of people affected by Q Fever die of the acute form of the disease. The case-fatality rate (the number of people affected who die from the disease) is negligible in treated cases, except for individuals who develop endocarditis. The case fatality rate may approach 65% for chronic cases of Q Fever in people.

Prevention and Control

*C. burnetii* is resistant to heat, drying, osmotic shock, ultraviolet light, and many commonly used disinfectants. The bacteria are able to survive in the environment for long periods of time.

To reduce exposure, appropriate disposal methods