

Farmers' "Flu"

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Think you've had the flu? Maybe it wasn't the influenza virus at all, but instead was Q fever. South Australia has been dealing with its largest outbreak of Q fever in more than a decade. Health authorities confirmed that nine farmers contracted the disease and there are another six suspected cases. People with the disease feel like they've had the worst case of the flu that they've ever had. Some patients have been hospitalized.

Australian health authorities are still trying to work out why these people in were struck by the disease. The people who have Q Fever have all had contact with sheep, but the health department still does not know what the exact link is.

Q Fever in the United States

Q Fever is sporadic in the United States. According to the Centers for Disease Control and Prevention (CDC), there were 61 reported cases in 2002, 12 of which were from California. In 1986 and again in 2001, the CDC reported on cases of Q fever in lamb slaughter-house workers in California and in neighbors of a goat farm.

During May 1985, five cases of possible hepatitis were reported to a county health department among workers at a local meatpacking plant that processes sheep. People had fever, malaise, aches, severe headache, and abdominal pain. Symptoms lasted at least one week, then gradually resolved. Hepatitis was suspected but was ruled out by testing. Since all five patients were exposed to domestic animals in the course of their work, possible diagnoses included Q fever, brucellosis, and leptospirosis. Blood from four patients were positive for antibodies to Q fever.

In May 2001, a woman sought treatment from her doctor for fever (104° F) and signs of gall bladder or liver disease. The patient's husband also developed a nonspecific fever three days after his wife's illness. Both were diagnosed with Q fever. The couple did not own livestock but drove daily on an unpaved road past a neighbor's goat herd. Goat kids had been born at the farm during the spring and a number of tested goats had titers indicative of current or previous infection.

It's not just sheep and goats that can carry the disease. One patient, a cattle-worker in Georgia, also developed Q-fever. The patient owned several dairy cows, but there had been no recent animal births on the premises. Two beef cattle herds of approximately 35 animals each were pastured across the road from the patient's farm. Serum was drawn from 14 cattle from these herds; two animals tested positive. Another patient owned one goat and a herd of approximately 100 cattle. In February 2000, he had been present at the stillbirth of one calf and the premature delivery and death of a second calf. Serum samples from 24 cattle in his herd were collected in July and tested for antibodies to *C. burnetii*; one animal was positive.

What is Q Fever?

Q fever is a disease that can be transmitted from animals to people and is caused by the bacterium *Coxiella burnetii*. The most common reservoirs are cattle, sheep, and goats. Humans acquire Q fever typically by inhaling aerosols or contaminated dusts derived from infected animals or animal products.

Q fever's highly infectious nature and aerosol route of transmission make it a possible agent of bioterrorism. Although up to 60% of infected people never have clinical signs, some can develop a mild, self-limiting disease with fever but some individuals can develop a moderately-to-severe or severe disease characterized by hepatitis or pneumonia. Chronic Q fever occurs in less than 1% of infected patients, months or years after initial infection. In general, most people with Q fever recover to good health within several months without any treatment.

C. burnetii is excreted in milk, urine, and feces of infected animals. Extremely high numbers of bacteria are shed in the birth fluids and placenta of infected animals. *C. burnetii* forms unusual spore-like structures that are highly resistant to environmental conditions, including heat, drying, and many common disinfectants. These characteristics enable the bacterium to survive for long periods (up to 120 days) in the environment. *C. burnetii* is easily spread by aerosols, and airborne particles can travel a half-mile or more. However, high temperature pasteurization will destroy the organisms.

Humans most often become infected by breathing in the bacteria through airborne barnyard dust contaminated by dried birth fluids, placental material, or waste of infected herd animals. In rare instances, transmission has occurred by tick bite. Humans are often very susceptible to the disease, and only a few bacteria can cause infection. Fortunately, spread of the disease from person to person rarely, if ever, occurs.

The interval of time between infection by *C. burnetii* and the appearance of symptoms of Q fever (the incubation period) varies depending on the number of *C. burnetii* that initially infect a person. Greater numbers of bacteria result in shorter incubation periods. Most infected people show symptoms within 2-3 weeks after exposure. Blood tests can determine if a person was infected by *C. burnetii*. Q fever is treated with antibiotic therapy (doxycycline is the antibiotic of choice). Treatment is most effective when started within the first three days of illness.

Who is Affected and What can We do about it?

In the United States, Q fever outbreaks have generally occurred among veterinarians, meat processing plant workers, sheep and dairy workers, livestock farmers, and researchers at facilities housing sheep, and in people who have consumed unpasteurized milk or milk products.

One concern is that Q fever has characteristics of a bioterrorism agent. *C. burnetii* is highly infectious; a single bacterium may cause disease in a susceptible person. It can become airborne and be inhaled by humans.

What should you do if you suspect Q fever? If you, a family member or worker develop a high fever, seek medical attention. Make sure your physicians understand that you work around animals so that they can target their testing.

Inform employees about prevention through proper hygiene before, during, and after calving, lambing or kidding. Do not allow anyone to take milk from the bulk tank. Drink only pasteurized milk.

Because the disease does not cause substantial problems or production loss in livestock, there is little need to treat or prevent infection in animals. However if an outbreak occurs with significant infertility and abortion, antibiotics (such as tetracycline) are effective. Control measures that can decrease the prevalence of infection include: (1) Pasteurization or sterilization of milk; (2) Removal and destruction of placentae; (3) Removal and destruction of bedding, straw and other contaminated materials; and (4) Disinfection of vehicles used for animal transport.

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