



Brucellosis Information Sheet

NORAD-USNORTHCOM/SG

What is brucellosis?

Brucellosis is an infectious disease caused by the bacteria of the genus *Brucella*. These bacteria are primarily passed among animals, and they cause disease in many different vertebrates. Various *Brucella* species affect sheep, goats, cattle, deer, elk, pigs, dogs, and several other animals. Humans become infected by coming in contact with animals or animal products that are contaminated with these bacteria. In humans brucellosis can cause a range of symptoms that are similar to the flu and may include fever, sweats, headaches, back pains, and physical weakness. Severe infections of the central nervous systems or lining of the heart may occur. Brucellosis can also cause long-lasting or chronic symptoms that include recurrent fevers, joint pain, and fatigue.

Why are we concerned with brucellosis as a bio-weapon?

Considering the damage done by the infection in animals-decreased milk production, weight loss in animals, loss of young, infertility, and lameness, it is one of the most serious diseases of livestock. The rapidity with which it spreads and the fact that it is transmissible to humans makes it all the more serious. Intentional exposure by terrorists would most likely involve aerosolization but could involve contamination of foodstuffs.

Does this disease occur naturally?

Although brucellosis can be found worldwide, it is more common in countries that do not have good standardized and effective public health and domestic animal health programs. Areas currently listed as high risk are the Mediterranean Basin (Portugal, Spain, Southern France, Italy, Greece, Turkey, North Africa), South and Central America, Eastern Europe, Asia, Africa, the Caribbean, and the Middle East. Unpasteurized cheeses, sometimes called "village cheeses," from these areas may represent a particular risk for tourists. Brucellosis is not very common in the United States, where 100 to 200 cases occur each year.

Are there different forms of this disease?

Humans are generally infected in one of three ways: eating or drinking something that is contaminated with *Brucella*, breathing in the organism (inhalation), or having the bacteria enter the body through skin wounds. The most common way to be infected is by eating or drinking contaminated milk products.

Is the disease seasonal in its occurrence? No.

How does it spread?

The most common way to be infected is by eating or drinking contaminated milk products. When sheep, goats, cows, or camels are infected, their milk is contaminated with the bacteria. If the milk is not pasteurized, these bacteria can be transmitted to persons who drink the milk or eat cheeses made from it. Inhalation of *Brucella* organisms is not a common route of infection, but it can be a significant hazard for people in certain occupations, such as those working in laboratories where the organism is cultured. Inhalation is often responsible for a significant percentage of cases in abattoir employees. Contamination of skin wounds may be a problem for persons working in slaughterhouses or meat packing plants or for veterinarians. Hunters may be infected through skin wounds or by accidentally ingesting the bacteria after cleaning deer, elk, moose, or wild pigs that they have killed.

What is the risk of catching brucellosis?

Brucellosis is not very common in the United States, where 100 to 200 cases occur each year.

What are the symptoms of brucellosis?

Extremely variable. In the acute form (<8 weeks from illness onset), symptomatic, nonspecific and "flu-like," including fever, sweats, malaise, anorexia, headache, myalgia, and back pain. In the undulant form (<1 year from illness onset), symptoms include undulant fevers, arthritis, and orchiepididymitis (inflammation of the testis) in males. Neurologic symptoms may occur acutely in up to 5% of cases. In the chronic form (>1 year from onset), symptoms may include chronic fatigue syndrome-like, depressive episodes, and arthritis.

How soon after exposure do people get sick?

The incubation period of brucellosis is usually one to three weeks, but sometimes may be several months.

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How is brucellosis diagnosed?

Brucellosis is diagnosed in a laboratory by finding *Brucella* organisms in samples of blood or bone marrow. Also, blood tests can be done to detect antibodies against the bacteria. If this method is used, two blood samples should be collected 2 weeks apart.

Is a vaccine available to prevent brucellosis? No.

Can brucellosis be treated?

Yes, but treatment can be difficult. Doctors can prescribe effective antibiotics. Usually, doxycycline and rifampin are used in combination for 6 weeks to prevent reoccurring infection. Depending on the timing of treatment and severity of illness, recovery may take a few weeks to several months. Mortality is low (<2%), and is usually associated with endocarditis (inflammation of the inner heart lining).

Where will the medications/immunizations to treat infected individuals come from?

Local resources or national stockpiles as the situation directs.

Are there contraindications to antibiotic therapy or other treatments (ie. pregnancy, immunosuppression, etc)?

None found. The risk of contracting the disease must be weighed against the risk factor of the patient.

How long can brucellosis exist in the environment?

Indefinitely as long as there is an animal reservoir available. Countries with poor or non-existent public health programs perpetuate the reservoir.

Are there ways to test for brucellosis in the environment?

Yes. Brucellosis is found in the blood and/or bone marrow of carrier or infected animals.

What should someone do if they suspect they or others have been exposed to brucellosis?

See your health care provider immediately.

What can I do to reduce the risk of getting brucellosis or giving it to someone else?

Do not consume unpasteurized milk, cheese, or ice cream while traveling. If you are not sure that the dairy product is pasteurized, don't eat it. Hunters and animal herdsman should use rubber gloves when handling viscera of animals. Direct person-to-person spread of brucellosis is extremely rare. Mothers who are breast-feeding may transmit the infection to their infants. Sexual transmission has also been reported. For both sexual and breast-feeding transmission, if the infant or person at risk is treated for brucellosis, their risk of becoming infected will probably be eliminated within 3 days. Although uncommon, transmission may also occur via contaminated tissue transplantation.

References:

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