

BRUCELLOSIS

Information for Dog Owners

(Last updated 5 May 11)

What causes canine brucellosis?

Canine brucellosis is an infectious disease caused by the *Brucella* bacteria. The illness in dogs is caused by *Brucella canis* (*B. canis*). However, *Brucella* organisms commonly associated with other animal species, such as *Brucella suis* (pigs) and *Brucella abortus* (cattle and bison), can infect dogs depending upon their exposures to these species.

What are the signs of canine brucellosis in infected dogs?

In female dogs, brucellosis causes abortion and infertility. Females may fail to get pregnant or may lose their litters in late pregnancy (45-55 days). After abortion, females may have a prolonged vaginal discharge. In males, infertility can result from brucellosis affecting various reproductive organs including the prostate, testicles, and epididymis. A brucellosis infection may result in an inflamed prostate, swollen or shrunken testicles, and swollen epididymis.

Nonspecific signs that may affect both sexes include lethargy, unwillingness to breed, and inflammation of the lymph nodes. Dogs may not show any signs or symptoms of the disease. Animals may get an infection in the bones or joints and show signs of back pain or arthritis. Infections may also occur in the eye.

How do dogs get infected with *Brucella*?

B. canis is a sexually transmitted disease in dogs. Dogs become infected through exposure to secretions during mating or by contact with infected tissues during birth or following abortion. In addition, dogs may spread bacteria in urine, saliva, nasal and ocular secretions, and feces. Infection with *B. suis* can occur in dogs that have contact with feral hogs (e.g., hunting dogs) following exposure to blood, urine, saliva, or other tissues. Exposure to *B. abortus* may occur if dogs have contact with aborted tissues of infected cattle or bison. However, most domestic cattle herds in the U.S. (including those in Georgia) are now free of brucellosis making this route of exposure very unlikely. Brucellosis is still present in cattle in Texas, Wyoming, and Idaho.

Can my dog be cured of brucellosis?

It is very difficult to cure an infected dog. The bacteria can get into the bloodstream and infect other parts of the dog's body, such as joints and bones. For this reason, the Georgia Department of Agriculture (GDA) does not allow treatment of infected or exposed dogs that are maintained in licensed kennels. Depending upon the type of brucellosis, pet dogs may be spayed or neutered and treated with a long course of antibiotics at the discretion of the pet owner and treating veterinarian. However, relapses may occur resulting in shedding of bacteria. Consequently, treatment is not recommended in any case due to the contagious nature of brucellosis and the threat to human health.

How can I prevent canine brucellosis in my dog?

The good news is that canine brucellosis is easy to prevent. Before breeding your dog, both



the female and male dogs should be examined and tested by a veterinarian. The test involves a simple blood test. Licensed breeding facilities should have all new additions tested for brucellosis before bringing them onto the premises. These animals should also remain isolated until a second negative test is obtained at least 4-6 weeks later. Dogs should not be bred if they are infected with canine brucellosis. Dogs known to be exposed to feral hogs should be tested periodically to detect any early infection.

If my dog has brucellosis can I get sick too?

Yes, *Brucella* bacteria can infect humans. However, the *Brucella* organisms vary in their rate of infectivity. For example, *B. canis* rarely infects people and causes very mild illness in those persons who do get infected. Only people in contact with very high numbers of bacteria, such as dog breeders or those in research or diagnostic laboratories, are considered to be at risk for *B. canis* infection. However, people who are immune compromised due to illness or immunosuppressive therapy and children or pregnant women are vulnerable to brucellosis. *B. suis*, on the other hand, more commonly infects exposed people and causes more severe illness.

How does canine brucellosis spread to humans from dogs?

The risk of acquiring canine brucellosis from a dog is very low in most situations. Canine brucellosis can spread to humans by close contact with secretions from the reproductive tract, such as aborted puppies, urine, or vaginal secretions from infected dogs. Infection usually results when infected tissues or secretions come in contact with broken skin or are accidentally ingested.

What are the symptoms of canine brucellosis in humans?

Depending upon the *Brucella* species, symptoms are often mild and nonspecific. Most commonly a continued, intermittent, or irregular fever accompanied by headache, weakness, generalized aching, and lymph node enlargement characterizes human infection. In more severe infections, joints, bones, or heart valves may be affected. Individuals exhibiting any of these symptoms should seek medical attention.

How long after exposure would I become ill if I have become infected?

Signs of illness can occur within one week to several months after exposure. On average, signs will begin within 3-4 weeks following infection.

What is the treatment for brucellosis in humans?

Antibiotics are used to treat brucellosis in humans. Persons infected with *B. canis* typically respond well to therapy. Persons infected with other *Brucella* species may require antibiotic therapy for several weeks to months, with relapses being common.

How do I prevent myself from getting canine brucellosis if my dog is infected?

Protective measures should be taken to prevent contact with reproductive secretions, urine, and tissues (such as an aborted fetus). Make sure latex or rubber gloves are worn when handling high risk materials and cleaning affected surfaces. Face masks and eye protection should be worn to prevent any material from entering the mouth or eyes when disinfecting kennel areas, especially if the person is immune compromised. Any infected animal should be placed in quarantine or isolated facility until the testing is complete. Avoid exposure to stray or feral dogs.



If my dog or kennel is infected, can my other personal pets also get brucellosis?

The most common method of transmission of brucellosis between animals is during mating. However, there is a low risk of infection between infected dogs as a result of contact with wastes and secretions. Cats seem to be resistant to infection with most strains of *Brucella*. Transmission between animals (including cats) is more likely if the dog is infected with *Brucella suis*.

How do I eradicate brucellosis after my home or kennel has become contaminated?

Brucella organisms are not very hardy outside of a host animal and are sensitive to direct sunlight and desiccation. Contaminated wet areas should be dried and disinfected when possible. Disinfection is effective with any of the following: 1% sodium hypochlorite (bleach), 70% ethanol, iodine/alcohol solutions, glutaraldehyde, or formaldehyde.

How can I prevent canine brucellosis in my kennel?

Breeding dogs should be purchased from known brucellosis-free kennels. All newly acquired dogs should be isolated and tested twice at least 4-6 weeks apart before they are incorporated into the breeding group. All breeding dogs in a facility should be tested yearly at the same time. Dogs bred intensively outside the facility should be tested 2-4 times per year. Females should be tested at least 3 weeks prior to the onset of heat, to allow time for a confirmation test if the screening test is positive. Testing is more accurate near or during heat because there are more bacteria circulating in the bloodstream during these times.

How do I control and eradicate brucellosis after my kennel is infected?

Quarantine, testing, and euthanasia of infected dogs are the primary methods necessary to eliminate and prevent the spread of disease in a commercial breeding facility. Clinical diagnosis and laboratory confirmation of canine brucellosis in an animal should be reported to the Georgia Department of Agriculture (GDA) Office of the State Veterinarian. Reported cases in a licensed facility will likely result in quarantine of the facility to prevent the spread of disease and determine the possible source of infection. During the quarantine period, breeding dogs should be housed separately. The owner may opt to humanely euthanize *Brucella* suspects to minimize the time in which the facility is quarantined. For GDA to release a facility from quarantine, the following protocol must be followed.

- 1) **Identification of Infected Adult Dogs in Facility:** Two serum samples, at 4 week intervals, must be submitted to the Tifton Veterinary Diagnostic Laboratory for all dogs over 6 weeks of age. The serum samples undergo screening tests and all positives are further tested for confirmation. All confirmed positive dogs are to be euthanized.
- 2) **Identification of Infected Puppies:** All puppies born to infected dams or puppies less than 6 weeks of age at the time of initial screening must have 3 negative blood cultures at least 24 hours apart or be euthanized. Puppies with a positive blood culture should be euthanized.
- 3) **Identification of Acutely Infected Adult Dogs:** Four weeks following the identification and euthanasia of infected dogs in a facility, all remaining adult dogs must be tested again by serology.



- 4) **Confirmation of *Brucella*-Free Facility:** All adult dogs on the premises should be tested using serology or blood culture at 4 week intervals until all dogs on the premises have tested negative for brucellosis on two consecutive tests. The minimum period of quarantine therefore should be 8 weeks.

Preventing canine brucellosis is cost effective when compared to being quarantined in order to eradicate an infection. Owners of infected kennels in Georgia have reported as much as \$30,000 in lost revenue during quarantine with similar monetary losses from veterinary expenses, laboratory testing, and brucellosis eradication.

Links:

- Georgia Department of Agriculture - <http://agr.georgia.gov/AGR/Files/Canine%20Brucellosis%20Kennel%20&%20Owner%206-13-06.pdf>
- U.S. Centers for Disease Control and Prevention - http://www.cdc.gov/ncidod/dbmd/diseaseinfo/brucellosis_g.htm