

BRUCELLA CANIS – INFECTION EMERGING AS A REPRODUCTIVE DISEASE ACROSS THE U.S.

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HEALTH

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B*rucella canis* is a bacterium that causes subtle, yet harmful reproductive disorders in dogs. While many dogs may not exhibit clinical signs, characteristic indicators include abortions between 45 and 60 days of gestation in females, testicular inflammation in males, and infertility in both sexes. Because the disease often goes unnoticed and the bacteria are shed in bodily secretions, the disease can spread rapidly throughout a kennel. The bacterium was first identified in dogs in 1966, particularly associated with Beagles in research colonies, and has since been found worldwide in many dog breeds including Australian Shepherds, Boston Terriers, Chihuahuas, Dachshunds, Golden Retrievers, Lhasa Apsos, Miniature Pinschers, Pomeranians, Poodles, Shih Tzus, Yorkshire Terriers, and mix-breed dogs. Over the past forty years the number of *B. canis* cases has increased throughout the US. Prevalence in Oklahoma alone rose from 2% in 1994-95 to 13% in 2002-3, corresponding to increasing costs associated with reproduction losses due to canine brucellosis and euthanasia of infected dogs. Although some dog breeders have

attributed this rise in disease to husbandry practices or operations like “puppy-mills,” this disease is being seen in many reputable kennels as well.

Similar to the other five *Brucella* species (*abortus*, *melitensis*, *neotomae*, *ovis*, *suis*), this disease is zoonotic with the ability to infect humans, increasing the need for accurate diagnosis and control. While not as virulent as its sister species *Brucella abortus*, which causes undulant fever in humans, *B. canis* has the potential to chronically infect people and cause flu-like symptoms such as fever, chills, fatigue, weakness, enlarged lymph nodes, and weight loss. Source of infection is typically through contact with aborting bitches but can occur through any exposure to infected animals, tissues such as placenta or aborted feti, or secretions including vaginal discharge, semen, blood, milk, and urine. The current diagnostic gold standard is bacterial culture from blood or reproductive tissues. Unfortunately, *Brucella* is difficult to culture making false negative results common. Serological tests such as the ME-RSAT, TAT, and AGID adequately detect disease 8-12 weeks post-infection, but these tests cannot detect early disease, from time of infection until there are detectable levels of anti-*Brucella* antibody present.

Law in several states lists canine brucellosis a reportable disease subject to quarantine. Testing of all breeding animals and euthanasia of infected animals is required once a kennel becomes quarantined. Perpetuation of canine brucellosis is due largely to the perceived negative implications regarding testing. Reporting infection with *B. canis* presently has both negative financial and dog-community effects, potentially leading to ostracization of breeders in some circles if they report disease in their own kennel or breed. The severity and increasing prevalence of canine brucellosis must be recognized and testing supported and performed in order to prevent further spread of this silent and serious disease.

Research has been funded by the AKC CHF to develop a quantitative Polymerase Chain Reaction (qPCR) assay to rapidly detect infection with *Brucella* with more specificity and sensitivity than current testing methods. Early detection of contagious disease in puppies or newly exposed breeding animals could shorten the quarantine period and would add a measure of safety for buyers of puppies or breeding stock.

For further information regarding canine brucellosis please visit www.cfsph.iastate.edu/DiseaseInfo/ or www.cdc.gov/ 