CANINE LEPTOSPIROSIS

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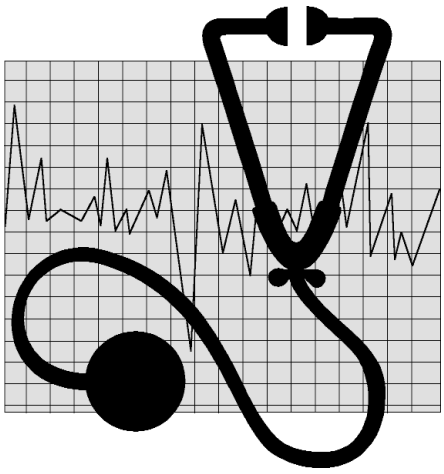
Leptospirosis continues to be diagnosed in dogs from around the country. Leptospirosis is endemic in many areas, but increased public awareness has led to the perception that there are new "outbreaks." Leptospirosis is caused by spirochete bacteria called Leptospira. Leptospira live in fluids from infected animals, including urine, blood and milk. The disease is transmitted by direct contact with the fluids, especially urine, or with an infected animal, as well as by indirect contact, including contamination of vegetation, water, soil and bedding materials. Environmental contamination is the key to leptospirosis transmission. Stagnant water or slowly flowing streams may carry Leptospira; worldwide, leptospirosis infection increases with flooding conditions. Leptospira may live in urine-soaked soil for six months, where conditions are ideal.

Leptospirosis is a zoonotic disease. People can contract the disease from contact with infected urine or contaminated water or soil. The disease may be carried for years in animals that serve as host reservoirs, without the animals showing clinical signs of the disease. There are over 200 pathogenic serovars (strains) recognized worldwide. Dogs are the maintenance host for L. canicola, and rats are the maintenance host for L. icterohaemorrhagiae, but dogs are often incidental hosts. Recently, the serovars L. grippotyphosa, L. pomona, and L. autumnalis, have been found in dogs with canine leptospirosis. Skunks, raccoons, deer and opossums are the maintenance hosts for these serovars. Dogs may also become infected with L .bratislava.

The signs of infection included flu-



like symptoms of vomiting, lethargy, depression, and sometimes, bloody urine. Liver and kidney damage are associated with infection. If left untreated the disease may cause death in dogs. Treatment during the acute stage is with the penicillin class of antibiotics in conjunction with good supportive care. Once the acute phase is over treatment switches to a lengthy course of tetracyclines to attempt to eliminate the organism from the kidney. Pathological examination on dogs that have died of kidney or liver disease should include fluorescent antibody stain, immunohistochemistry, or silver stain if leptospirosis is a possibility.

Diagnosis of leptospirosis must be done by a lab that tests for the various serovars, and that uses a well validated assay. Confirming the diagnosis requires paired serology showing a four-fold rise in antibody titer. However, where antibiotic treatment is started early a dog may not mount a significant antibody response.

The leptospirosis bacterins (vaccines) commonly used in dogs are made from canicola and icterohaemorrhagiae. A commercial manufacturer of veterinary vaccines has recently added two serovars to their vaccine regime, to provide protection against L. grippotyphosa and L. pomona. Leptospirosis bacterins are the vaccine components often associated with adverse reactions. The newer product is produced from the surface immunogens of Leptospira and is not a whole cell bacterin. It may be less apt to cause adverse reactions. However, where proper vaccination is done, there has been a decrease in clinical disease from the serovars L. icterohaemorrhagiae and L. canicola. The new vaccine may be similar in helping to reduce clinical disease. It is important to note that while vaccination may not prevent infection, it may lessen clinical disease. Vaccinated dogs may become infected without exhibiting disease. In unvaccinated populations of dogs the incidence of L. canicola may be as high as 50% to 75%.

The Animal Health Diagnostic Laboratory (AHDL) at Cornell University reminds dog owners, breeders, and veterinarians, that diagnostic testing for diseases should be performed by laboratories that have properly validated their tests, and that provide useful interpretation of the results to the veterinarian. Our laboratory can test for over 15 Leptospirosis serovars using properly validated tests.