

LEPTOSPIROSIS

In recent years, there has been an increased incidence of life-threatening infections caused by the *Leptospiral* bacterial family. Our facility alone has diagnosed and treated at least one serious infection every month over the past few years. Although the majority of patients survived with very intensive and often costly treatment, sadly a handful of pets died of the disease despite aggressive treatment. For this reason, the veterinarians at Westbridge Veterinary Hospital are now including *Leptospirosis* in their vaccination protocols for dogs. Additionally, our Doctors are initiating treatment immediately in patients showing clinical signs with *Leptospirosis* including high fever, jaundice, vomiting, and in severe cases fatal kidney and liver damage while awaiting results of Lepto titers.

The article below has been prepared to give our clients more detailed information about:

- *Leptospiral* bacteria family
- Westbridge Veterinary Hospital's current vaccination protocol
- Common sources of infection
- Prevent or decrease risk of exposure
- Brief clinical course of the disease
- Diagnostic methods
- Basic treatment information

About Leptospirosis

Leptospirosis is a spirochete bacteria that can cause serious disease in pets & humans if an infection develops. In general, pets infected with *Leptospirosis* manifest with signs of acute renal (kidney) failure and liver disease, but *Leptospirosis* may also cause ocular disease, abortions in pregnant animals, and weakness and debilitation in neonates born to infected mothers. It is imperative to identify and begin treatment for *Leptospirosis* almost immediately to maximize the chances of a successful outcome. It is also important to recognize and diagnose *Leptospirosis* due to the zoonotic potential to infect humans and cause serious clinical disease in people.

There are several types of **serovars** or strains of Lepto that are capable of disease. Traditional "*Lepto*" vaccines protected against 2 pathologic serovars, *Leptospirosis icterohemorrhagiae* & *L. canicola*. The incidence of a severe clinical infection caused by *Leptospirosis* used to be fairly rare-- in part due to successful vaccination program in the 70's & 80's. For this reason, during the 1990s, many veterinarians, including the veterinarians at Westbridge stopped routinely vaccinating for *Lepto* because of the low incidence of clinical disease at the time and that some dogs were experiencing hypersensitivity reactions after receiving the *Lepto* vaccine. However, in recent years, veterinarians have seen a resurgence of *Leptospirosis* in part being caused by serovars that were not previously associated with disease. Our clinicians now consider *Leptospirosis* to be a significant cause of acute kidney failure in dogs and are taking steps

to prevent more *Leptospiral* infections from developing through vaccination and client education.

Revised Vaccination Protocol

In 2001, the Westbridge Veterinary Hospital added *Leptospirosis* into their vaccination schedule. The vaccine covers four serovars including *L. grippityphosa*, *L. canicola*, *L. Pomona*, & *L. icterohaemorrhagiae*. The protocol calls for an initial dose of vaccine given with the annual “Distemper” vaccine, followed by a booster for *Lepto* only 3 weeks after the initial dose. After that, *Leptospirosis* should be given annually mixed with the Distemper vaccine (one injection) at the yearly physical exam visit.

Transmission Routes

Leptospirosis can be contracted directly or indirectly. Direct transmission occurs when the bacteria penetrate the skin, wounds, or mucous membranes (gums, inside the nose, etc.) after direct contact with an infected animal. Indirect transmission can occur when the dog has direct contact with soil or swims in small bodies of fresh water contaminated with *Leptospiral* bacteria- usually from the urine of infected wild animals such as raccoons, skunks, etc. It has been shown the *Leptospiral* bacteria can survive up to 180 days in soil (longer in wet areas) in temperatures between 45-95 degrees. Massachusetts is an idea reservoir for *Leptospirosis* with our native wildlife and the plethora of small ponds and wet lands in the state.

Minimizing Risk

To minimize risk of exposure, kennels, pens, and shared yards should be thoroughly cleaned and disinfected, and rodents controlled. Owners are also advised to limit their dog’s access to swamps, ponds, low lying areas and wooded land heavily inhabited with native wildlife.

Clinical Course of the Disease

Once contracted, the *Leptospiral* bacteria rapidly invade the blood stream and start to replicate in the kidney within 4 to 7 days. Initially, a fever develops followed by damage to the lining of the capillaries and larger blood vessels, liver damage, and kidney disease. The kidney suffers the most damage since this is where the *Leptospiral* bacteria localize and replicate. If the infection is severe enough, the animal will go into acute renal failure, and if left untreated will die of acute renal failure or multiple organ failure (DIC) due to overwhelming systemic bacterial infection (sepsis).

Diagnosis

A diagnosis of *Leptospirosis* is made by measuring *Lepto* titers in the blood. A titer measures the amount of antibodies the immune system has made against a specific serovar of *Lepto*. In vaccinated animals, titer levels will be detectable but low- typically less than 1:400. With clinical disease, initial titers in unvaccinated pets can be as low as 1:100- 1:200, but follow-up titers 2-3 weeks later will show a significant increase typically greater than 1:800 or 1:1600. Any positive titer detected to a *Lepto* strain for

which no vaccine has been developed or in an unvaccinated pet is diagnostic for exposure to *Leptospirosis* with the potential for infection.

Treatment

Treatment of *Leptospirosis* involves aggressive IV fluid therapy, IV antibiotics, and supportive care as needed to address kidney failure, liver disease, damage to the blood vessel linings, and consequences of a systemic bacterial infection. Many patients are very ill and require intensive care for several days to more than a week to fully recover. Any dog presenting with signs of acute renal failure should be treated with antibiotics effective against *Lepto* until it is proven otherwise.

References:

1. Birnbaum N. Leptospirosis. The Five Minute Veterinary Consult, Canine & Feline, 2nd edition. Philadelphia: Lippincott; 2000:780-781.
2. Greene CE, Miller MA, Brown CA. Infectious Diseases of the Dog & Cat, 2nd edition. Philadelphia: Saunders, 1998:273-281.