

LEPTOSPIROSIS

What is leptospirosis?

Leptospirosis is a bacterial disease of dogs and humans that can affect the blood, liver, or kidneys. It is caused by spiral shaped bacteria called spirochaetes.

How do dogs acquire the infection?

The bacteria are carried mainly by rats and other rodents, but many different wildlife as well as infected dogs can also act as a source of the infection. Ingestion of infected urine is the most important means of transmission, but some forms of the bacteria can penetrate damaged or very thin skin. The incubation period (from infection to onset of clinical signs) is usually 4-12 days.

How common is leptospirosis?

Although Leptospirosis is most commonly associated with tropical climates, cases are becoming more common in the United States. Many types of wildlife serve as secondary hosts, meaning they may be infected with the bacteria and shed it in their urine without becoming ill. Animals (and people) who spend a lot of time in the water or in wet environments are at highest risk.

What are the signs of leptospirosis?

Many infections go undetected, but many other cases can be life-threatening. There are three main forms of the disease:

- Hemorrhagic: Early high fever with lethargy and loss of appetite. Multiple small hemorrhages occur in the mouth and on the whites of the eyes. Bloody diarrhea and vomiting may occur. This form is often fatal.
- Hepatic: Causes liver failure. Begins much like the hemorrhagic form, and many of the signs are the same. It differs in the presence of a yellow color (jaundice or icterus) in the mouth and whites of the eyes. In severe cases in dogs with white hair, the skin will turn yellow.
- Renal: Causes kidney failure. These dogs are very lethargic, anorectic, and experience vomiting. Their mouth may have a very offensive odor, and the ulcers often develop on the tongue. This form may be fatal, but recovered dogs often have chronic kidney disease.

Although these forms are described individually, it is not uncommon to see a combination of these symptoms. Up to 90% of affected dogs experience the renal form, with 10-20% experiencing liver failure. The hemorrhagic form is often seen in combination with the other types.

What is the treatment?

Antibiotics are reasonably effective if they are begun promptly. Treatment progresses in two steps. First an antibiotic is given to stop the bacteria from reproducing and circulating in the blood, and then a second antibiotic is used to kill the bacteria in the kidneys.

Although both of these antibiotics are available for oral use, many of these dogs are initially so ill that hospitalization and intensive nursing care, including intravenous fluids, are necessary.

In some cases kidney damage is so severe that simple intravenous fluid therapy is not enough. Hemodialysis (commonly called dialysis) can be used to remove toxins from the blood and allow the kidneys time to heal. Although this procedure is not widely available and is both time consuming and expensive, it may be the only way to effectively treat the most severe cases.

Should my dog be vaccinated for Leptospirosis?

Because leptospirosis is a significant danger to both infected dogs and their owners, vaccination is recommended for almost all dogs. Even dogs living in urban environments without any contact with wildlife have been infected, presumably due to the rodent population.

The leptospira vaccine is typically given in combination with the DHPP (commonly called Distemper) vaccine. Due to the nature of the vaccine, it must be boosted yearly to maintain a lasting immunity.

Currently two types of vaccine, the two and four serovar forms, are available. Serovar is the term used to describe a specific type of *Leptospira interrogans*, the most common type of leptospira in the United States. Vaccines are available for *Leptospira interrogans* canicola, icterohaemorrhagiae, grippityphosa, and pomona.

Can the vaccine cause reactions?

Of all the components of a dog's annual vaccinations, the portion for leptospirosis is the most likely to cause a reaction. This usually results in lethargy for several days and possibly loss of appetite. However, these dogs recover and are then protected against the disease.

I have heard some dogs still get Leptospirosis even when vaccinated. Why?

There are two main reasons why a previously vaccinated dog would contract Leptospirosis

- Vaccination Failure: No vaccine is 100% effective for every animal. Variations in each dog's response to the vaccine as well as their overall health at the time of vaccination can lead to a decreased efficacy of the vaccine. In some very rare cases animals do not respond at all to vaccination.
- Non-Vaccine Serovars: There are over 200 serovars of *Leptospira* recognized worldwide. Although most are not found in the United States, *Leptospira interrogans* Bratislava has been reported. Dogs vaccinated with the 2 serovar vaccine are still susceptible to the grippityphosa and pomona serovars as well. Infection with a non vaccine serovar may also occur due to travel or contact with an infected animal that has traveled outside the US.