

RECOGNIZE AND REACT TO REDUCE

*Leptospirosis in
Your Practice*



SOP for Leptospirosis

Nobivac 

 **MERCK**
Animal Health

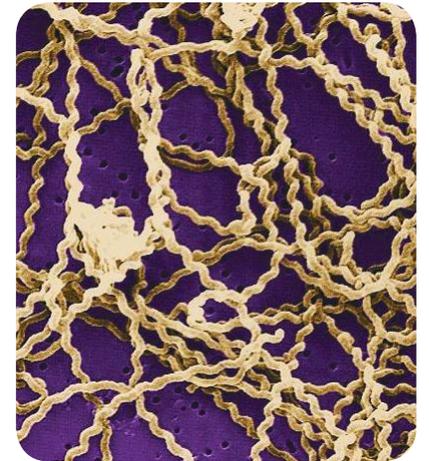


STANDARD OPERATING PROCEDURE IN CASE OF LEPTOSPIROSIS

Introduction

Leptospirosis is an infectious zoonotic disease found worldwide, and is now recognized as an emerging problem in pets in the United States.

While vaccination for Leptospirosis has been available for several decades, diagnosis, screening, safe handling, and treatment practices have not been universally standardized and accessible to small animal hospital teams.



This protocol was designed to help team members care for potential Leptospirosis-positive patients in the safest way possible by providing details on all aspects of the physical exam, including comprehensive screening questions to assess risk, diagnostics based on presentation, and safe handling of both suspected and diagnosed patients.



RECOGNIZE LEPTOSPIROSIS

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RECOGNIZE

Since there are environmental risks associated with a pet's lifestyle that could indicate a higher probability of leptospirosis in a patient, asking the right screening questions is paramount to recognizing potential leptospirosis cases.

Ask these history screening questions to the pet parent about their dog's environmental risks. Has their dog been:

1. Exposed to areas shared with wildlife?
2. Exposed to standing or slow-moving water? Does he/she drink from puddles or step in standing water sources and then lick his/her feet?
3. In any contact with infected urine from rodents (live by alleys, rodent population in neighborhood, etc.)?
4. Kept current with the 4-way serovar Leptospirosis vaccine?
5. Participating in hunting, herding or dog shows?

Although some cases of Leptospirosis are subclinical (no clinical signs observed), most do create some sort of illness in the patient, from subtle to life-threatening. Has your dog been:

1. Drinking more than it used to (polydipsia) and/or urinating more (polyuria)?
2. Vomiting or having diarrhea? Have you noticed decreased appetite (hyporexia) or lack of appetite (anorexia)?
3. Showing any weakness, lethargy, or change in behavior?
4. Showing any yellowing to the skin (jaundice) or other areas such as the eyes or gums?
5. Having any difficulty breathing?

Questions regarding any clinical signs the dog might present at home should be asked along with history screening.



RECOGNIZE *(continued)*

On physical exam, an affected patient may exhibit any of the following:

- Fever
- Abdominal pain
- Diarrhea on rectal exam
- Icterus
- Conjunctivitis and/or uveitis
- Abnormal bleeding or clotting delays
- Tachypnea (increased respiratory rate)

Once a patient has been identified as a suspect for Leptospirosis from a thorough history and physical exam, diagnostics will be indicated. However, before any further testing or treatment is done with this patient, SAFE handling protocols must be initiated. This includes having both the veterinarian and veterinary team dressing in gowns, gloves and protective eyewear and mask.

General diagnostics to consider with a suspect Leptospirosis patient:

a. CBC (complete blood count)

- This lab test may show a neutrophilia (elevated neutrophil count), lymphopenia (decreased lymphocyte count), thrombocytopenia (decreased platelet count) or non-regenerative anemia.

b. Chemistry panel

- This blood panel may show azotemia (elevated BUN and Creatinine found in > 80% of patients), elevated AlkPhos and/or ALT and hypokalemia (low potassium) if the patient is vomiting.

c. Urinalysis

- This test could show isosthenuria or hyposthenuria (varying dilute states of urine), glucosuria (glucose in the urine), proteinuria (protein in the urine) or bilirubinuria (bilirubin in the urine).

d. Diagnostic imaging

- Thoracic radiographs can show a pulmonary interstitial and/or alveolar pattern or pulmonary hemorrhage in the caudodorsal lung fields.
- Abdominal ultrasound may show renomegaly (enlarged kidney) or hepatomegaly (enlarged liver), perirenal fluid accumulation or a characteristic hyperechoic medullary band.

Once fundamental diagnostics have been established, specific Leptospirosis testing is performed. There are different options depending on the presentation of the patient and/or vaccine history. For all of these tests, 5-10 ml of urine and 1 ml of serum should be collected BEFORE any antibiotics are administered.

Lepto Real Time PCR (Polymerase Chain Reaction)

- This blood and urine test can detect the DNA and/or RNA of Leptospirosis but can NOT detect the specific serovar present.
- These results are NOT adversely affected by previous vaccination.
- Blood samples are typically positive within 48 hours.
- Urine samples are typically positive in the second week post exposure.
- The rapid patient side assay detects canine IgM against Leptospirosis. This ELISA test is a screening test and should be followed up with an outside lab PCR test for confirmation.

Microscopic Agglutination test (MAT)

- This blood test is used to detect the specific serovar of Leptospirosis affecting the patient, but cross-reactivity between serovars can occur.
- It cannot distinguish antibodies from vaccination with exposure.
- The first sample is typically NEGATIVE in acute disease. Therefore, it is best to draw TWO serum samples, 7-10 days apart, to evaluate for a titer increase.



REACT TO LEPTOSPIROSIS

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REACT

Since Leptospirosis is zoonotic, any dogs that have clinical signs and diagnostics that suggest Leptospirosis may pose a risk to other dogs as well as hospital staff. Recommended guidelines for safe handling and treatment for leptospirosis patients and hospital staff protection¹:

Patient setup:

- Every Leptospirosis suspect should be treated as such until proven otherwise.
- This ideally involves placement of a urinary catheter if signs of renal failure or urinary incontinence are present. If no urinary catheter is present, the patient should be walked frequently and preferably by routes that avoid common hospital hallways.
- Outside urination for the patient should be in restricted areas that can be easily and immediately decontaminated, such as hard, non-permeable surfaces free of organic matter.
- Minimize movement of suspect patients around the hospital.
- Warning labels should be placed on cages of dogs to help protect PREGNANT and/or IMMUNOCOMPROMISED humans.

- While isolation is very practical and helpful, it is not required. These patients can be placed on floor-level cages, housed away from high traffic areas.
- All team members that could have direct or indirect contact with the suspect patient, such as radiology or laboratory personnel, should be warned appropriately.

- When handling the patient, hand washing should be performed both before AND after each patient and after each glove removal.
- Any contaminated bedding should be placed in biohazard bags and handled appropriately.
- Waste products, such as urine collection materials, bandages, etc., should be double bagged and disposed of per protocol outlined in this document.

Once a safe handling and treatment protocol has been reviewed and established, then treatment can begin. First line of therapy for this disease is always antibiotics, but varying intensity of treatment may be necessary depending on the stability of the patient:



REACT *(continued)*



- For critical or vomiting patients, Ampicillin is administered by IV every 6 hours. This will terminate the bacteremia.
- Doxycycline is the gold standard for patients who can tolerate oral antibiotics. Administration is ONCE every 12 hours for 2 weeks. It clears the bacteria from the kidneys, and EVERY canine patient in a household with an infected dog should be treated with a course of antibiotics.
- For dehydrated patients, intravenous crystalloid fluid therapy is initiated, monitored carefully and discontinued once azotemia and clinical signs resolve.
- For patients with hyporexia/anorexia, vomiting and/or diarrhea, supportive care in the form of antiemetics can be started, including Maropitant, Ondansetron, Dolasetron or Metoclopramide.

- Additionally, H2 blockers such as Famotidine, Ranitidine or Cimetidine are available for patients with signs of gastroesophageal reflux and/or increased gastric acidity.
- For patients with elevated liver enzymes and/or icterus, liver support is started with SAMe and Ursodeoxycholic acid.

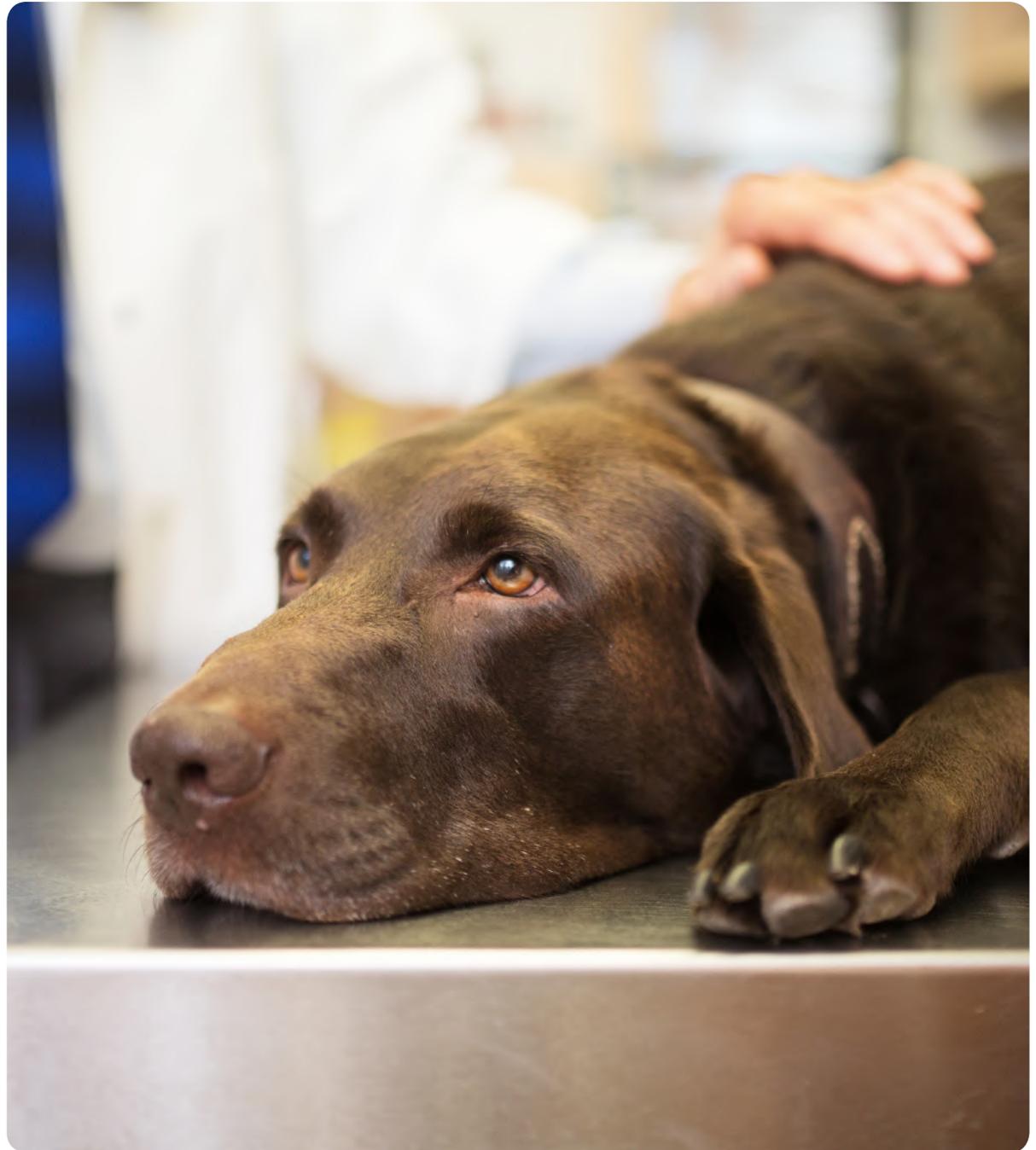
Prognosis for dogs canines with Leptospirosis is fair to good. With correct treatment 80% of patients survive this zoonotic disease. Prognosis is much poorer with the development of pulmonary complications and recovering patients still have risk of chronic renal insufficiency.

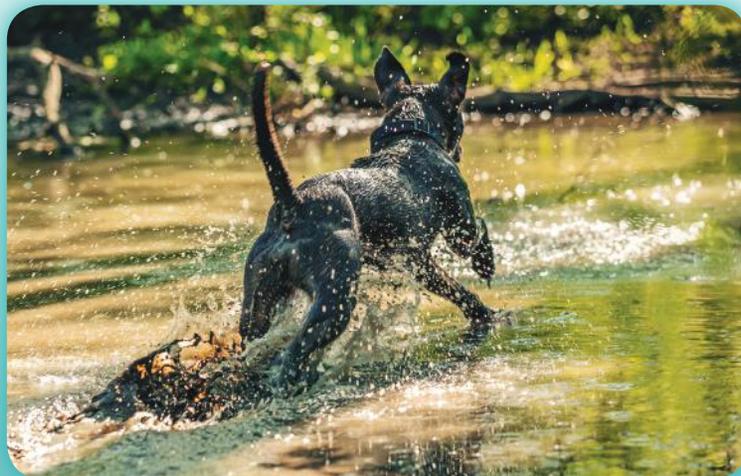
Before discharge, a serious and thorough discussion must take place with the pet parent, involving zoonotic concerns, disinfection guidelines and avoidance of public areas.

REACT *(continued)*

Educate your pet parents by reviewing the following:

1. Leptospire survive very poorly in the environment.
2. Disinfectants should be used in all areas of the home their dog used or where urinary accidents occurred. Effective products include a 1:1 dilution of 10% bleach, iodine-based disinfectants, accelerated hydrogen peroxide, and quaternary ammonium solutions.
3. Instruct all pet parents to wear gloves and a mask when cleaning any areas possibly infected, especially those where their dog may have urinated.
4. Designated outdoor areas should be treated with a 10% bleach solution.
5. Infected patients being treated for Leptospirosis should avoid public areas for 7-10 days post initiation of treatment to avoid any risk of shedding of bacteria in the urine to other dogs in the community.
6. Hand washing is essential after any handling of the patient.
7. Encourage pet parents to minimize wild animal contact with fencing and rodent control.
8. Vaccination recommendations should be discussed with all pet parents based on the AAHA Vaccination Guidelines Calculator.





REDUCE LEPTOSPIROSIS IN YOUR PRACTICE

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Team members should also utilize similar disinfection strategies in the hospital areas that were in contact with the infected patients. Ensure all team members understand and take these preventative measures:

- AVOID pressure washing any kennels or runs to prevent aerosolization of urine.
- Disinfectant should be injected into the collection bag before disposing of urine.
- All blood, urine and other tissues from suspect canines should be treated as medical waste.





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Vaccine Protocol Help Line

1-866-437-7955

(Monday-Friday, 8:00AM-5:00PM ET)

Reference: 1. Sykes JE, Hartmann K, Lunn KF, et al. 2010 ACVIM small animal consensus statement on leptospirosis: diagnosis, epidemiology, treatment, and prevention. *J Vet Internal Med.* 2011; Accessed June 22, 2018 at <https://onlinelibrary.wiley.com/doi/full/10.1111/j.1939-1676.2010.0654.x>