Standards of Care
CANINE LEPTOSPIROSIS

Adapted with permission from Dr. Kenneth Harkin, DVM, DACVIM (SAIM)

OVERVIEW OF DISEASE

- Endemic bacterial infection throughout most of the United States. Prevalence rates vary with flooding, drought, and vectors (e.g., rodents and raccoons).
- At least 17 named species in the genus Leptospira, with more than 300 serovars.
- Organisms may be shed in the urine for months, thus spreading infection.
- Route of infection is usually across mucous membranes or compromised skin integrity.
- Zoonotic and is known to infect both mammals and non-mammals.
  - Consult your state veterinarian or health agency to determine if leptospirosis is reportable in your state.
  - It is not currently reportable to the Centers for Disease Control (CDC).

CLINICAL SIGNS

Dog most commonly present with lethargy, hyporexia, and vomiting consistent with azotemia. Additional clinical signs may include but are not limited to:

- Polyuria and polydipsia
- Muscle pain/joint stiffness
- Diarrhea
- Soft and moist cough which may progress to dyspnea and tachypnea
- Jaundice

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### Diagnostic Testing Recommendations

A combination of tests must be used for diagnosis of infection.

<table>
<thead>
<tr>
<th>Test</th>
<th>Description</th>
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</table>
| **MAT** Microscopic agglutination test | ✤ Gold standard  
✤ Provides a quantitative antibody result  
✤ Evaluates blood serum  
✤ 4-fold rising titer to confirm diagnosis  
  • May occur in as little as 5 days but may take up to 4 weeks  
  • In some cases of leptospirosis dogs may not develop a titer |
| **ELISA SNAP** Bench side | ✤ Provides qualitative positive or negative antibody results  
✤ Evaluates blood serum  
✤ 68% sensitivity and 85% specificity |
| **PCR** Polymerase Chain Reaction | ✤ Can evaluate blood serum or urine  
✤ Detects the nucleic acid (DNA) of the pathogen  
✤ May show false negatives, especially if antibiotics were started prior to sample collection |

Confirm diagnosis with:

✤ A single reciprocal titer of ≥ 6400 (≥3200 in a known unvaccinated dog) with compatible clinical signs.

✤ A four-fold rise in titer over 2-4 weeks.

✤ A positive urine PCR with compatible clinical signs.
TREATMENT RECOMMENDATIONS

In addition to supportive therapy, antibiotic recommendations are as follows.

<table>
<thead>
<tr>
<th>MEDICATION</th>
<th>DOSE</th>
<th>SUPPLEMENTAL INFORMATION</th>
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</thead>
<tbody>
<tr>
<td>Ampicillin OR Ampicillin/sulbactam</td>
<td>22-25 mg/kg IV, q 8 hours</td>
<td>Parenteral for acutely ill dog until oral medications are tolerated</td>
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<tr>
<td>Doxycycline</td>
<td>5 mg/kg PO, q 12 hours</td>
<td>Oral medications to be continued for 3-4 weeks</td>
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<tr>
<td>Minocycline</td>
<td>5 mg/kg PO, q 12 hours</td>
<td></td>
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<tr>
<td>Ciprofloxacin, enrofloxacin,</td>
<td></td>
<td>As indicated based on susceptibility testing</td>
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<tr>
<td>clarithromycin, or ceftriaxone</td>
<td></td>
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VACCINATION INFORMATION

- Vaccines are commercially available for the serovars Canicola, Icterohemorrhagiae, Grippotyphosa, and Pomona.
  - Vaccinated dogs may still be infected by a different serovar, but the overall risk for disease is substantially lower than unvaccinated dogs.
  - A four-serovar vaccine should be used when the need for vaccination is identified.
- There are no aligned professional guidelines regarding vaccination strategy
  - An individualized risk:benefit analysis based on life style and risk of exposure should be performed for every patient
  - Urban dogs that do not venture from their own backyards also contract leptospirosis
HOME MANAGEMENT/CARE

+ Dog owner should ensure ready access to fresh water, day and night.
+ Dog owner should encourage frequent trips outdoors so pet does not urinate in the house.
+ Other pets in the household should be evaluated for illness/infection if exposure is considered likely. Empirical treatment or diagnostics should be performed based on the likelihood of exposure and health status of each pet.
+ No single change in behavior or activity will have a significant impact on the incidence of leptospirosis in the dog. Avoiding flooded areas and stagnant water after flooding, however, may minimize risk.

ZOONOTIC CONSIDERATIONS

• Handwashing is the single most important factor in reducing a pet owner’s risk of leptospirosis. Contact with mucous membranes should be minimized to decrease the risk of organism introduction.
• If the dog urinates in the house, the owner should carefully clean with protective gloves and dilute bleach solution.

RECOMMENDED READING