

Animal Health Alert: Update on Influenza and Leptospirosis in Dogs
8.13.2021

Dear Animal Health Colleagues,

This Animal Health Alert provides updates on 2 diseases currently causing outbreaks in dogs in some boarding kennels in LA County - canine influenza and leptospirosis.

- **Canine influenza outbreak.** Initial tests indicated this outbreak was possibly caused by an H1N1 subtype, however testing by the National Veterinary Services Laboratory yesterday confirmed it as being caused by **Canine Influenza Virus (CIV) H3N2**. Additional tests are pending, however the NVSL results are strongly supportive of this updated diagnosis.
 - Since July 31, 2021 a total of 10 confirmed cases, and 46 suspected cases of influenza in dogs have been reported in in LA County. Most of the cases have been associated with staying in boarding kennels or dog day care settings. Two cats with respiratory signs at one kennel tested negative for the virus.
 - CIV H3N2 is generally considered to be a non-zoonotic strain of influenza, because no human cases have been reported during various outbreaks of this virus in the United States.
 - Most outbreaks of CIV H3N2 in the United States have been linked to the importation of dogs from Asia, primarily through programs importing rescued dogs.¹
 - CIV H3N2 is spread through direct contact between dogs, or through droplet spread and aerosolization when infected dogs are housed indoors together, especially in poorly ventilated spaces. It can also be spread between dogs on the hands and feet of caretakers.
 - This is the largest outbreak of CIV H3N2 reported in Los Angeles County. The largest outbreak before now occurred in 2017 and involved 35 dogs:
<http://publichealth.lacounty.gov/vet/InfluenzaCanineH3N2.htm>.

- **Leptospirosis outbreak.** The **Leptospira serovar canicola** is the likely cause of the leptospirosis outbreak. Dogs are the primary reservoir for the canicola serovar, not wildlife or rats.² As a result, this outbreak is driven by dog-to-dog transmission of the bacteria in group settings such as boarding kennels, leading to a higher number of cases than seen in recent years.
 - The reasons this is most likely caused by the canicola serovar, for which dogs are the reservoir, are:
 - Reports indicate there are illness clusters associated with multiple locations and more cases than usual. In most years, approximately 10-12 cases are reported, with no outbreaks, and most cases are associated with exposure to wildlife. The nature of this outbreak is

more similar to outbreaks of leptospirosis in Arizona in recent years, some of which were linked to the canicola serovar.³

- In 18 cases, antibody levels were tested by microscopic agglutination testing (MAT). For 15 of the MAT tests, the highest titers were against the canicola serovar of leptospirosis.
 - Since April 16, 2021 a total of 51 confirmed cases, and 24 probable cases of leptospirosis in dogs have been reported in in LA County. Most of the cases have been associated with staying in boarding kennel or dog day care settings.
 - Vaccination status was reported for 42 of the cases, and 40 (95%) of them had **NOT** been vaccinated against leptospirosis before their illness.
 - Clinical signs reported include polyuria, polydipsia, lethargy, and anorexia, with a number of dogs requiring hospitalization and IV fluid treatment. Two dogs have died.
 - Transmission of leptospirosis occurs via the urine of infected animals. Dogs may be exposed through direct contact with another infected dog. Indirect transmission is likely more common, however.⁴ Leptospira bacteria can live a long time in water or in damp environments, especially in areas that are protected from UV light or heavily shaded. Dogs become infected when they lick water contaminated by the urine of infected animals, or when they lick their own contaminated paws or fur.
- **Prevention:**
 - **Vaccinate** dogs for both leptospirosis and canine influenza H3N2 before they enter boarding kennels, dog day care, dog parks, or engage in dog group activities. These vaccinations are also advisable for dogs that may occasionally encounter other dogs or wildlife. Keep kennels clean, dry, and disinfected.
 - **Isolation and Quarantine of affected dogs**
 - Leptospirosis – Isolate infected dogs at home, away from other pets and people, until they have recovered and finished treatment, usually for about 2 weeks. Quarantine is not required for exposed dogs, but they should be monitored for clinical signs for 1-2 weeks.
 - Canine Influenza H3N2 – Since prolonged shedding of the virus has been documented, isolate affected dogs away from other pets, for 28 days. Quarantine exposed dogs for 14 days.
 - **Kennel Management.** Require dogs to be vaccinated for CIV H3N2 and leptospirosis before entry. Prevent overcrowding. Check all pets daily for illness. Isolate sick dogs and have them examined and tested by a veterinarian. Keep kennels clean, dry, disinfected and well ventilated. When cleaning kennels, do not use forceful spray from a hose, as it may lead to droplets containing these germs to move through the air. Wash hands frequently. When cleaning a heavily contaminated environment, wear a mask, goggles, coveralls, and gloves that can be discarded or cleaned afterward.

- **Zoonotic Risk and Protecting People**
 - Canine H3N2 is not known to be zoonotic.
 - Leptospirosis is zoonotic. The bacteria can infect people when their eyes, nose or mouth or breaks in their skin are exposed to the urine of an infected animal, or to water or splashes of water contaminated with the urine of an infected animal. People should wear gloves when handling infected dogs and wash hands afterward. When cleaning a heavily contaminated environment, wear a mask, goggles, coveralls, and gloves. No human cases related to this outbreak and have been reported at this time.

- **Reporting.** Report all cases of leptospirosis or influenza in pets in Los Angeles County using these forms:
 - **Animal Influenza report Form:**
<http://publichealth.lacounty.gov/vet/docs/Forms/InfluenzaAnimalForm.pdf>.
 - **Canine Leptospirosis Report Form:**
<http://publichealth.lacounty.gov/vet/docs/Forms/LeptospirosisReportForm.pdf>.
 - Send completed form, and all related laboratory results to vet@ph.lacounty.gov or fax (213) 481-2375.

- **References**
 1. Voorhees IEH et al. Multiple Incursions and Recurrent Epidemic Fade-Out of H3N2 Canine Influenza A Virus in the United States. *J Virol* 2018; 92(16). Available at: <https://journals.asm.org/doi/full/10.1128/JVI.00323-18>
 2. Lunn KF. Overview of Leptospirosis. *The Merck Veterinary Manual*. Available at: <https://www.merckvetmanual.com/generalized-conditions/leptospirosis/overview-of-leptospirosis>
 3. Iverson SA et al. Clinical, diagnostic, and epidemiological features of a community-wide outbreak of canine leptospirosis in a low-prevalence region (Maricopa County, Arizona). *J Am Vet Med Assoc* 2021 258(6):616-629 available at: <https://avmajournals.avma.org/doi/abs/10.2460/javma.258.6.616>
 4. Green CE et al. Chapter 42- Leptospirosis. In *Infectious Disease of the Dog and Cat – Fourth Edition*, Green CE (Ed), 2012. pp431-447.

Please call (213-288-7060) or email (vet@ph.lacounty.gov) if you have questions regarding canine influenza, leptospirosis or any other questions.

Sincerely,

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