

Leptospirosis in Puppies from Puerto Rico in Vermont

To: Vermont Healthcare Providers, Hospitals and Clinics
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Ten puppies have been imported to our region from Puerto Rico. One has been confirmed and several others are suspected to have leptospirosis. This means there is risk of further transmission to animals and persons in contact with the puppies. This multistate investigation is ongoing.

Key Points and Recommendations

- Symptoms of leptospirosis in people and animals are variable from none to fatal. Classical symptoms are fever, flu-like illness, and gastrointestinal features in the early phase, with rare progression to multi-organ involvement including renal and liver failure.
- Report any suspect human or animal cases to the Vermont Department of Health, Infectious Disease Epidemiology at 802-863-7240.
- Although risk of transmission from dogs to humans is low, consider post exposure prophylaxis for people who had direct contact with urine from any of these 10 puppies.
- Questions about decisions for prophylaxis and treatment for exposed animals should be directed to the animal's veterinarian.

Background

On Thursday, November 9, 2017, 10 puppies arrived from Puerto Rico to a Vermont dog rescue center. These puppies were then adopted or placed in foster homes, and have had medical care at four veterinarian practices in New Hampshire and Vermont. On Sunday, November 12, the puppies were brought to the patio (outdoor) setting at Ramunto's Brick and Brew Pizzeria (9 South Street in Hanover, New Hampshire), where patrons could interact with them. Five puppies have become ill, and two were euthanized. All surviving puppies have been provided antibiotic prophylaxis or treatment for leptospirosis. On Wednesday, November 15, one puppy was confirmed to have had leptospirosis. The owner of that puppy has been provided post-exposure prophylaxis, and the Vermont Department of Health is collaborating with the New Hampshire Division of Public Health Services and the New Hampshire Department of Agriculture to investigate additional animal and human exposures.

Leptospirosis is considered the most widespread zoonotic disease in the world. An estimated 100 to 200 leptospirosis cases are reported annually in the U.S., with about half in Puerto Rico. Leptospire are long, thin, motile spirochete bacteria. They may be free-living in fresh water, soil and mud, but only in tropical areas. It is extremely unlikely that leptospire associated with this event can survive current outdoor conditions in our region. However, the bacteria can be associated with animal hosts, such as these puppies or secondarily infected animals, and the *Leptospira* bacterium can be excreted continuously or intermittently in untreated animal urine for several years, even if the animal is asymptomatic.

Leptospirosis in Humans

Humans may become infected through contact with the puppies' urine or blood, or contact with water, soil or food contaminated with the puppies' urine. The bacteria may enter a person's body through skin or mucous membranes, especially if the skin is broken from a cut or scratch. Person to person transmission is rare.

In humans, the incubation period is usually five to 14 days, with a range of two to 30 days. Leptospirosis may be asymptomatic or occur in two phases. In the first phase, illness usually begins abruptly with fever, headache, chills, muscle aches, vomiting and diarrhea. The patient may recover briefly, and then become ill again with a more severe illness (also called Weil's disease). Weil's disease is rare, but may be manifest by hemorrhage, hepatomegaly, pulmonary hemorrhage, ARDS, liver failure, kidney failure and aseptic meningitis. The case fatality rate of this severe form of leptospirosis ranges from five to 15 percent.

Evaluation and Testing

Evaluate any person reporting contact with these puppies and exhibiting symptoms of leptospirosis as soon as possible. There are multiple ways to diagnose leptospirosis, including culture, urine dark-field microscopy, microscopic agglutination test, serology, latex agglutination test, lateral flow serum test and real-time polymerase chain reaction (PCR). In the early/acute phase of illness, the *Leptospira* bacterium may be detectable by PCR in blood. IgM antibodies usually are detectable after about the fifth day of illness. Testing should be done through your usual diagnostic laboratory services.

Early Treatment or Post-Exposure Prophylaxis

Early treatment with antibiotics may help prevent more severe illness and decrease the length of illness. For treatment or post-exposure prophylaxis guidance, contact the Vermont Department of Health at 802-863-7240. We are aware that some people associated with these puppies are already seeking post-exposure prophylaxis. Contact the Health Department if you are seeing a patient who has had exposure to one of these puppies.

Evaluate the need for post-exposure prophylaxis on a case-by-case basis for:

- household members who adopted or fostered any of these 10 puppies
- anyone who had direct contact with urine from any of these 10 puppies.
- veterinarians/technicians who did not use appropriate personal protection while caring for or cleaning up after any of these 10 puppies

In general, prophylaxis is NOT recommended for people who:

- had non-touch exposure to these puppies' environment (e.g. only walked through an area with the puppies)
- were at the Hanover Ramunto's, but did not touch the puppies or their environment
- were at other Ramunto's locations
- only have contact with people who are taking prophylaxis
- are in households that adopted an animal from Puerto Rico that is not part of this cohort that arrived November 9
- cleaned the puppies' environment with appropriate personal protection.

Risk of transmission is higher for those without intact skin, or who did not clean their hands following direct contact with urine in the environment.

The only recommended post-exposure prophylaxis regimen to prevent disease is doxycycline 200 mg. once a week during periods of exposure. In the current situation where the affected puppies have been identified and treated, a single dose of oral doxycycline 200 mg. is all that is necessary for chemoprophylaxis for contacts. For those who qualify for prophylaxis but are allergic to doxycycline or pregnant, there are no alternative regimens recommended. For children younger than 8 years, a single 4 mg/kg dose of doxycycline may be given. The decision to use doxycycline for prophylaxis should be taken on a case-by-case basis, weighing risk and benefit.

Report suspected and confirmed cases of leptospirosis to the Vermont Department of Health, Infectious Disease Epidemiology at 802-863-7240.

Leptospirosis in Dogs

The clinical signs of leptospirosis in animals vary and are non-specific. Sometimes animals do not have any symptoms, but common clinical signs in dogs are fever, vomiting, loss of appetite, diarrhea, weakness and apparent muscle pain. Younger animals are generally more seriously affected than older animals. Questions about decisions for prophylaxis and treatment for exposed animals should be directed to the animal's veterinarian.

Prevention Messages

Normal daily activities with an infected pet will not put a person at high risk for acquiring leptospirosis infection. Advise anyone who is concerned that their pet has become infected to:

- Consult their veterinarian, alerting them ahead of the visit that the animal may have been exposed to leptospirosis.
- Always wash hands well after handling the animal or anything that might have the animal's excrement on it.
- Avoid direct or indirect contact with urine or blood of the animal. If they must have contact with animal urine, wear protective clothing such as gloves.
- For cleaning surfaces that may have been contaminated by the urine of any of these 10 puppies, use an antibacterial cleaning solution, or a solution of one part household bleach to nine parts water.

For any questions about this alert, contact the Vermont Department of Health, Infectious Disease Epidemiology at 802-863-7240.