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November 16, 2017, 1615 EDT (4:15 PM EDT)
NH-HAN



Leptospirosis in Puppies from Puerto Rico

Key Points and Recommendations:

1. Ten puppies have been imported to our region from Puerto Rico. One has been confirmed and several others are suspected to have leptospirosis so there is risk of further transmission to animals and persons in contact with the puppies. This multistate investigation is ongoing.
2. Symptoms of leptospirosis in people and animals are variable from none to fatal, but classically involve fever, flu-like illness, and gastrointestinal features in the early phase, with rare progression to multi-organ involvement including renal and liver failure.
3. Report any suspect human or animal cases to NH DPHS Bureau of Infectious Disease Control at 603-271-4496 (after hours 1-800-852-3345, x5300).
4. Although risk of transmission from dogs to humans is low, post exposure prophylaxis is indicated for household contacts or persons who had direct contact with the urine of any of these ten puppies, including through contact with their environment. Exposure may have occurred through puppy transport, contact with the puppies at a public event at Ramunto's Brick and Brew Pizzeria in Hanover, puppy adoption or foster care, or veterinary services for the newly arrived puppies.
5. Questions regarding decisions for prophylaxis and treatment for exposed animals should be directed to the State Veterinarian at the Department of Agriculture (603-271-2404)

Situation:

On Thursday November 9th, ten 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 12th, the puppies were brought to the patio (outdoor) setting at Ramunto's Brick and Brew Pizzeria (9 South Street, Hanover, NH) where patrons were able to 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 15th, one puppy was confirmed to have had leptospirosis. The owner of that puppy has been provided post exposure prophylaxis, and NH DHHS is collaborating with the Vermont Department of Health and the NH Department of Agriculture to investigate additional animal and human exposures.

Background:

Leptospirosis is considered to be the most widespread zoonotic disease in the world. It is estimated that 100-200 leptospirosis cases are reported annually in the United States, 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 NH/VT outdoor conditions. 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 for several years, even if the animal is asymptomatic.

Human Leptospirosis

Relevant to this event, 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 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 5-14 days, with a range of 2-30 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 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 is as high as 15%.

Anyone reporting contact with these puppies and exhibiting symptoms of leptospirosis should be evaluated 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. The NH Public Health Laboratories does not perform leptospirosis testing.

Early treatment with antibiotics may help prevent more severe illness and decrease the length of the illness. For mild disease, doxycycline 100 mg PO every 12 hours (twice a day), amoxicillin 500 mg PO every 6 hours, or ampicillin 500-750 mg PO every 6 hours is recommended. For more severe disease, intravenous antibiotics such as ceftriaxone, ampicillin, or penicillin may be required, and should be given with expert infectious diseases consultation. Treatment for leptospirosis disease should be given for a minimum duration of seven days. The Jarisch-Herxheimer reaction has been reported with treatment. Supportive care such as hemodialysis may also be required.

NH DPHS is aware that people associated with these puppies are already seeking post exposure prophylaxis. Please contact NH DPHS if you are seeing a patient who has had exposure to one of these puppies. Post exposure prophylaxis is recommended for:

- Household members who adopted or fostered any of these ten puppies; and
- Persons who had direct contact with the urine of any of these ten puppies either through direct contact with the puppies or with their environment (e.g., floor, pens, crates, etc.).

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

The only recommended post exposure prophylaxis regimen to prevent disease is doxycycline 200 mg PO 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, pregnant or children < 8 years old, there are no alternative regimens recommended. The decision to use doxycycline for prophylaxis should be taken on a case-by-case basis, weighing risk and benefit.

Dog Leptospirosis

The clinical signs of leptospirosis in animals vary and are nonspecific. Sometimes animals do not have any symptoms, but common clinical signs in dogs include fever, vomiting, loss of appetite, diarrhea, weakness, and apparent muscle pain. Generally younger animals are more seriously affected than older animals. Questions regarding decisions for prophylaxis and treatment for exposed animals should be directed to the State Veterinarian at the Department of Agriculture (603-271-2404).

Reporting:

Clinicians should report suspected and confirmed cases of leptospirosis to the NH DPHS Bureau of Infectious Disease Control at 603-271-4496 (after hours 1-800-852-3345, x5300).

Prevention Messages for Patients:

Normal daily activities with an infected pet will not put a person at high risk for acquiring leptospirosis infection. Advise any person 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 their hands after handling the animal or anything that might have the animal's excrement on it;
- Avoid direct or indirect contact with urine, blood, and tissues of the animal. If they must have contact with animal tissues or urine, they should wear protective clothing, such as gloves and boots;
- For cleaning surfaces that may have been contaminated by the urine of any of these ten puppies, use an antibacterial cleaning solution or a solution of 1 part household bleach in 9 parts of water.

For any questions regarding the contents of this message, please contact NH DHHS, DPHS, Bureau of Infectious Disease Control at 603-271-4496 (after hours 1-800-852-3345 ext.5300).

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