

Lyme Disease Questions and Answers: (Information from IDEXX Laboratories)

What is Lyme disease?

One of the most common tick-transmitted diseases in the United States and worldwide, Lyme disease, or borreliosis, is a multifaceted infectious disease syndrome that can cause serious problems for dogs. Although it's most frequently reported in people and dogs, Lyme disease has also been seen in cats, horses and cattle.

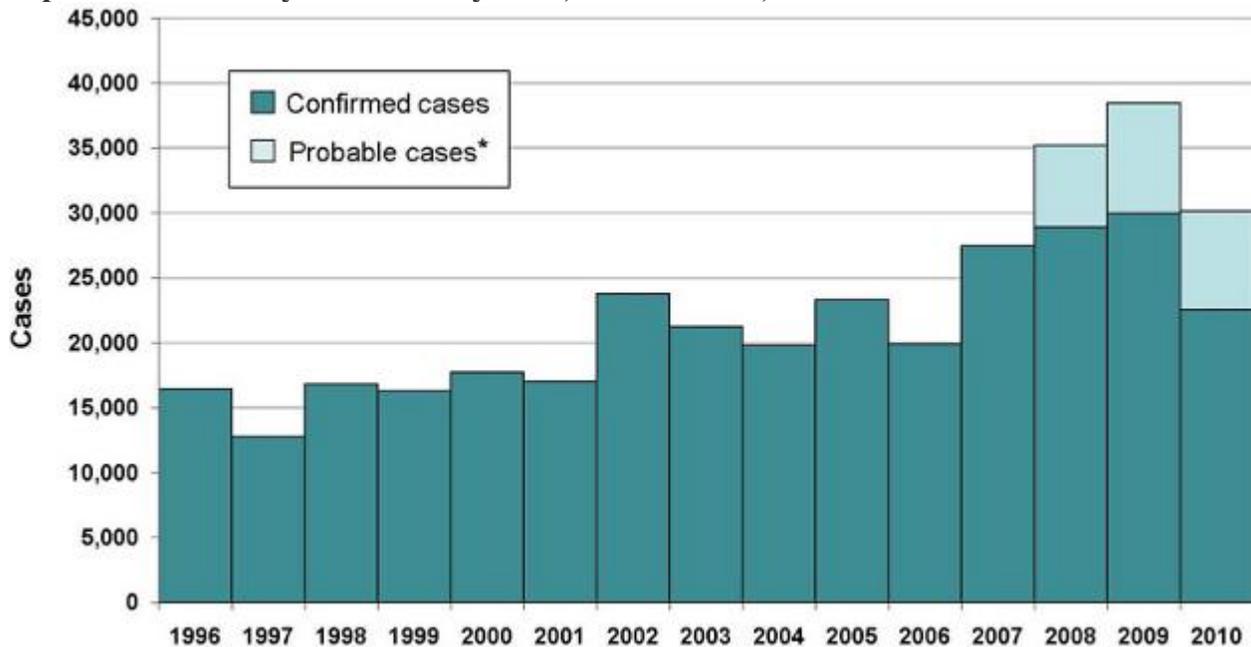
What causes Lyme disease?

Lyme disease is caused by the corkscrew-shaped bacterium, or spirochete, *Borrelia burgdorferi*. The bacterium lives in the gut of the black-legged tick (or deer tick, *Ixodes scapularis*) and the Western black-legged tick (*Ixodes pacificus*), and it can be transmitted when an infected tick feeds on a dog, person or other mammal. Black-legged ticks are extremely small, ranging from the size of a grain of sand to the size of a sesame seed.

How common is Lyme disease in the United States?

According to the Centers for Disease Control and Prevention (CDC), "Lyme disease was first recognized in the United States in 1975 after an unusual outbreak of arthritis near Lyme, Connecticut. Since then, reports of Lyme disease have increased dramatically, and the disease has become an important public health problem in some areas of the United States."¹

Reported Cases of Lyme Disease by Year, United States, 1996–2010



Source: Centers for Disease Control and Prevention. Reported Cases of Lyme Disease by Year, United States, 1996–2010.

www.cdc.gov/lyme/stats/chartstables/casesbyyear.html. Accessed March 1, 2012.

As reported by the CDC:

Lyme disease is the most commonly reported vector-borne illness in the U.S. In 2009, it was the 5th most common Nationally Notifiable disease.

In 2010, 94% of Lyme disease cases were reported from 12 states:

- Connecticut
- Delaware
- Maine
- Maryland
- Massachusetts
- Minnesota
- New Jersey
- New Hampshire
- New York
- Pennsylvania
- Virginia
- Wisconsin

*National Surveillance case definition revised in 2008 to include probable cases; details at

www.cdc.gov/osels/ph_surveillance/nndss/casedef/lyme_disease_2008.htm.

References

1. Centers for Disease Control and Prevention. Lyme disease: a public information guide.

www.cdc.gov/lyme/resources/brochure/508_LD_Brochure.pdf. Accessed: March 1, 2012.

2. Centers for Disease Control and Prevention. Lyme Disease Data: Fast Facts. www.cdc.gov/lyme/stats/index.html. Accessed: March 1, 2012.

How is Lyme disease transmitted?

The CDC brochure, *Lyme Disease: A Public Information Guide*, states:

The Lyme disease bacterium, *Borrelia burgdorferi*, is spread through the bite of infected ticks.

The black-legged tick (or deer tick, *Ixodes scapularis*) spreads the disease in the northeastern and north-central United States, and the western black-legged tick (*Ixodes pacificus*) spreads the disease on the Pacific coast. These ticks are usually found in wooded areas and have complex life cycles. In some regions, black-legged ticks can spread other diseases in addition to Lyme disease, including babesiosis and anaplasmosis.

In general, ticks need to be attached for 36–48 hours before they can transmit the Lyme disease bacterium.¹

Reference

1. Centers for Disease Control and Prevention. Lyme disease: a public information guide.

www.cdc.gov/lyme/resources/brochure/508_LD_Brochure.pdf. Accessed: March 1, 2012.

-

Are all dogs at risk for Lyme disease?

It is possible. Where and how your clients live may increase their risk of tick exposure—especially if they garden, hike, camp, hunt, work outdoors or spend time in wooded, brushy or

overgrown areas and their dogs accompany them. Black-legged or deer ticks prefer to hide in shady, moist ground litter. But they can be found above ground, clinging to tall grass, brush, shrubs and low tree branches. They also inhabit gardens and lawns, particularly at the edges of woodlands and around old stone walls, where deer and white-footed mice, the ticks' preferred hosts, thrive.

Are there seasons when dogs are at greater risk of becoming infected?

In most areas of the country, people and their pets are at a moderate to high risk of exposure from April to November. Ticks are most active during these months, and people and their pets are spending more time enjoying outdoor activities, but disease onset can occur at any time of the year. Lyme disease transmission is a high concern in both spring and fall. In spring, deer ticks must feed to progress from larvae to nymphs—and then again—to mature into adult ticks.

-

What are the signs of canine Lyme disease?

While a variety of signs may appear, the most common signs of Lyme disease are hidden. Other common signs are recurrent arthritis and lameness that last for only 3–4 days, sometimes with appetite loss and depression. Dog owners should be aware of these warning signs:

- Sudden occurrence of lameness
- Reluctance to move or a stiff, painful gait
- Warm, swollen joints
- Pain in the legs or throughout the body
- Fever
- Fatigue
- Loss of appetite
- Swollen lymph nodes

Dogs can also develop fatal kidney disease, although rare. Signs of Lyme disease may come and go, vary in intensity from mild to severe and can mimic many other conditions.

How is Lyme disease diagnosed in dogs?

Lyme disease is diagnosed by testing for *B. burgdorferi* antibodies, noting the presence of clinical signs, ruling out other causes of these signs and observing a response to antibiotic therapy. Experts agree that annual testing in endemic regions provides the best first line of defense against Lyme disease.

Why should all dogs be tested?

Lyme disease is challenging to diagnose. The signs can be very subtle and can be easily mistaken for other medical problems. But with the SNAP® 4Dx® Plus Test, veterinarians can tell if a dog

has been infected with *B. burgdorferi*. Then the veterinarian and pet owner can discuss further diagnostic/treatment options.

If a dog has been vaccinated against Lyme disease, should it be tested?

- Unfortunately, vaccines aren't 100% effective. If a dog were infected prior to vaccination, the vaccine would not stop disease from occurring. Having a dog tested adds the benefit of knowing whether or not it has been infected.
- Studies show the C₆ peptide used in the test do not cross react with commercially available Lyme vaccines.

References

1. Liang FT, Steere AC, Marques AR, Johnson BJB, Miller JN, Phillip MT. Sensitive and specific serodiagnosis of Lyme disease by enzyme-linked immunosorbent assay with a peptide based on an immunodominant conserved region of *Borrelia burgdorferi* VlsE. *J Clin Microbiol.* 1999;37(12):3990–3996.

Can a dog diagnosed with Lyme disease be treated?

Several broad-spectrum antibiotics can effectively treat Lyme disease, especially in its early stages. In early stages, response to antibiotics is usually seen within 3–5 days and is often dramatic.

Can I get Lyme disease from a dog?

No, Lyme disease is not spread by person-to-person contact or by contact with infected animals. Although the disease is not transmitted directly from dogs to humans, infected dogs serve as sentinels to indicate the presence of infected ticks in the area, which means that people sharing the same habitat as the pet may also be at risk.

Can Lyme disease be prevented?

Lyme disease may be prevented through vaccination and tick control. Since ticks carry other devastating diseases, such as Rocky Mountain spotted fever, anaplasmosis and ehrlichiosis, it's important to keep dogs tick-free.

Is the Lyme Test identifying exposure or infection?

The test identifies infection. The test's C₆ peptide is highly specific for *Borrelia burgdorferi* and is only present in the face of active infection. In addition, antibodies from currently available Lyme vaccines do not cross react with the C₆ peptide used in the test.