

TICK-BORNE DISEASES IN WISCONSIN



There are several diseases we see in Wisconsin that are carried by ticks. All dog owners should be acquainted with them because most dogs are at risk. So far, only Lyme disease can be prevented by a vaccine. **We test for four tick-borne diseases every year, along with your pet's annual heartworm test, to enable us to treat these illnesses at an early stage.**

WHAT IS LYME DISEASE?

You've probably heard of it, but what causes it? Lyme disease is an infection caused by a type of bacteria called a spirochete, for its spiral shape. Although originally discovered in Lyme, Connecticut, Lyme disease has now been reported in most states. The disease is more properly called Borreliosis, after the bacterial species that causes it - *Borrelia burgdorferi*.

Lyme disease is only one of several diseases carried by ticks in Wisconsin.

Lyme disease is a serious and life threatening infection. It can cause an array of symptoms, including kidney, heart, skin and neurological disease, abortion, and infertility. The most common signs in dogs are low grade fever (103-104° F), weight loss, and lameness or joint pain, which may shift from leg to leg. Symptoms in cats are similar, although cats are less susceptible than dogs.

Symptoms may occur as soon as 4 days after exposure to an infected tick, or as long as 1 year later. The average incubation period is 1 month.

HOW IS IT SPREAD?

The deer tick is the most common carrier of Lyme disease in Wisconsin, Minnesota and the eastern coastal states. Recently, other species of ticks such as the lone star tick, the wood tick and insects such as deer flies, horseflies and mosquitoes have been

found to carry the disease, though these insects are not felt to be important carriers of the disease.



DEER TICK
(actual size)

Wondering what kind of tick you just pulled off your dog or cat? This website has excellent pictures and also lists the diseases carried by each tick, the time it takes to transmit the disease after the tick bites and other helpful information.
http://tickencounter.org/tick_identification/tickid_nonflash

Deer are not the only animals that harbor deer ticks, so pets can pick up Lyme disease whether or not they are in deer-populated areas. The larval deer ticks prefer to feed on small rodents that live in grassy or brushy areas, often around the fringes of woods or fields.

The deer tick lives a rather complex life cycle. It develops from an egg to a larvae, larva to a nymph, and finally from nymph to an adult. Deer ticks are among the first ticks to become active in the

spring, and they remain active in various stages almost all year 'round. All three life cycle stages of ticks can transmit Lyme disease, and all three are very small and difficult to find.

CAN LYME DISEASE BE TREATED?

Yes. The bacterium that causes the disease is sensitive to several antibiotics. Doxycycline is the one most commonly used to treat the disease in animals but the *Borellia burgdorferi* bacteria are starting to develop resistance to it. Here at Best Friends, we sometimes use a newer antibiotic to treat Lyme disease.

The length of time needed to treat the disease varies, but two weeks is usually the minimum amount. Prolonged treatment may be necessary; relapses and reinfection are common. The earlier the diagnosis of the disease is made, the more successful treatment is likely to be. Even with prompt treatment there can be permanent damage, especially if the infection involved the brain, kidneys or heart.

Preventing the disease altogether is a much better alternative than waiting for your pet to pick up the disease.



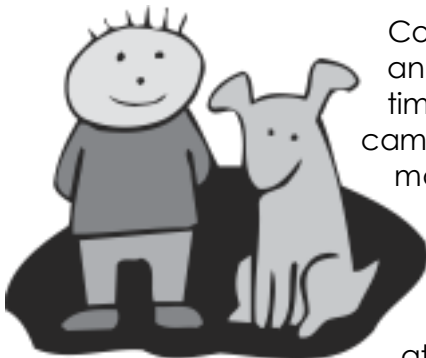
SHOULD I VACCINATE?

We recommend vaccination for Lyme disease, especially if you take your dog hunting, hiking, camping or running in fields or woods. We also recommend it if you can see deer from your house or yard. Remember, the larval deer ticks are parasites of smaller prey on the outskirts of the areas that deer inhabit.

If you live in a town, city or suburb with no woods or fields nearby, and you don't travel with your dog, vaccination is probably not necessary. That said, today's vaccines are very safe, as well as effective. We would rather you err on the side of vaccinating, rather than risk your dog becoming infected.

We also advise the use of tick control products on your pet if he or she has tick exposure. Even if you vaccinate your dog, ticks carry other diseases besides Lyme disease, and their bites can become irritated or infected as well. Prompt removal of any ticks you do find on your dog is recommended to help prevent exposure to disease.

LYME DISEASE AFFECTS PEOPLE TOO!



Conduct thorough tick checks on yourself, your children and your pets after spending time outdoors. This includes time in your own backyard or garden, as well as when camping or hiking in wooded areas. Avoid grassy and marshy woodland areas, and don't walk barefoot in grassy areas. Wear light colored clothing. This makes ticks easier to find. Tuck pants into boots or socks and wear long sleeved shirts, buttoned at the cuffs.

Ticks do not fly or jump onto their hosts. They wait atop grasses and other vegetation until an animal brushes

against them. Then they cling to skin, fur or clothing and will crawl for a time on their host before they embed and feed.

Ticks must be embedded and engorged (not flat) before they transmit the Lyme disease bacteria, but some of the other tick-borne illnesses can be transmitted much more quickly. Therefore it is important to look for and remove any ticks as soon as possible in order to prevent infection. Even the most effective tick prevention products take several hours to kill ticks.

Protect yourself and your pets with insect/tick repellents. Products containing 30% or more DEET are almost 100% effective in repelling deer ticks on people.

WHAT OTHER DISEASES ARE CARRIED BY TICKS?

Most pet owners have heard about Lyme disease but are not familiar with the other diseases ticks can carry. In addition to Lyme disease, ticks in Wisconsin carry Anaplasmosis and two strains of Ehrlichiosis. Another tick-borne disease, which we do not have an in-house test for, is Rocky Mountain spotted fever. Despite the name, RMSF occurs most often in the southeastern U.S. With global warming, RMSF cases will likely become more common here in the future.

Below is a short update on the other tick-borne infections we see most often here in Wisconsin.

Once a dog has acquired infection and tests positive, the test will continue to be positive for several years, until the immune system has completely eradicated the bacteria.

Anaplasmosis:

This disease, caused by *Anaplasma* bacteria, is spread by several species of ticks. While it is common in Wisconsin, it is the least likely of the tick-borne diseases to cause illness. Most dogs can handle the infection on their own, without needing antibiotics. If your dog tests positive for Anaplasmosis we will recommend a complete blood count (CBC) to look for a low platelet count, the most common symptom. (If your dog doesn't have enough platelets the blood won't clot properly and severe bleeding could result.) If the CBC is normal we don't usually need to treat for it.

If a dog acquires another tick-borne disease during this time, or the pet becomes immune-compromised, illness may result.

Ehrlichiosis: Becoming More Common

Ehrlichiosis (air-lick-ee-oh-sis) is the disease caused by *Ehrlichia* bacteria, which is spread to dogs via tick bites, but not usually by deer ticks. Lone Star ticks are the most frequent host ticks for the disease here in Wisconsin. Ehrlichiosis is the most deadly of the tick-borne diseases found here. It is becoming more common in our state because Lone Star ticks have been expanding their range. In the past, the few cases we saw were in dogs that had traveled to or from the Southeastern U.S. but that's often not the case anymore.

Many, many dogs in Wisconsin test positive for Lyme disease or Anaplasmosis without developing symptoms or needing treatment. However, Ehrlichiosis is always treated with antibiotics, even if no symptoms are present, because it is much more likely to cause serious illness and death.

Ehrlichia can cause fever, lameness in multiple joints, kidney disease, neurological disorders such as seizures and coma, and/or bone marrow damage. Lyme disease can cause these symptoms as well, but Lyme isn't usually as severe. For example, a dog with Lyme disease has a 43% increase in risk for kidney disease but a dog with Ehrlichiosis has a 300% increase in risk.

When we find *Ehrlichia* we always screen for kidney damage, anemia, low platelet count and other possible abnormalities, and we treat it with the antibiotic doxycycline. There is often a long lag period between acquiring the disease from the tick and the onset of symptoms. If we can treat an infected dog early on we can usually prevent symptoms altogether, so that's our goal.

Larval deer ticks are barely visible to the naked eye and the larval stage is the most likely stage to transmit Lyme disease to dogs.

Dogs who are infected with multiple tick-borne infections are usually the sickest. Ehrlichiosis plus Lyme disease is often a fatal combination, even with aggressive treatment. The immune system may be able to combat

one disease but if another is added serious illness is much more likely.

SUMMARY

The important thing is to be aware your dog probably will be exposed to ticks carrying these bacteria sooner or later, even if you never see a tick. In fact, most owners whose dogs test positive have never seen a tick on their dog. Fortunately, most of the dogs with positive blood tests never develop any symptoms of illness, especially if we can catch the disease early with our screening tests. It's scary to think your dog might have a dreadful disease but in most cases the outcome is good.

The frequent positive blood tests we see when we do our annual blood testing for heartworm, Lyme disease, Anaplasmosis and Ehrlichiosis are red flags that tell us we need to be very careful to protect our pets (and ourselves) from ticks.

We have effective vaccines to protect dogs from Lyme disease but we have none for Ehrlichiosis, Anaplasmosis or Rocky Mountain spotted fever. **To prevent these infections, use high quality tick prevention products all year 'round.**

We don't recommend over-the-counter tick control products in most cases, as many of these are neither as effective nor as safe as prescription products. We want the tick to die and fall off within a few hours of biting your dog, and of course we want every tick to die. The longer a tick is attached, the higher the chance that an infectious disease will make it into the pet.

Be cautious with over-the-counter tick preventive products. Pyrethrin products made for dogs can be fatal if applied to cats. Some are so toxic that cats can die from sleeping in the same place as a dog who has been treated with them!

No tick preventive, even high-quality prescription products, is 100% effective, which is why we vaccinate for Lyme disease as well as using preventive products.

It takes hours for a tick to die once it has acquired enough of the preventative drug or chemical. During that time, disease can be transmitted, even if the tick later dies and falls off the dog.

Many of our clients assume that if they are using a tick preventive product and are not seeing ticks on their dogs, they cannot have picked up one of these infections. Alas, we have a lot of patients who have been exposed to one or more tick-borne diseases despite these facts.

We recommend doing everything you can to prevent tick-borne diseases – vaccinate, use high quality preventive products and have your dog tested annually so we can catch infection early.

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