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| Deer Tick **LYME DISEASEand Other Tickborne Diseases****Important Public HealthConcerns in Hunterdon County****Hunterdon CountyDepartment of HealthFlemington, NJ** |
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**Lyme Disease: What Is It?**

Lyme Disease is an infection caused by a spirochete [spy'-ro-keet], which is a type of bacteria. The disease is carried primarily by “Black-Legged Ticks” (also commonly known as “deer ticks”), and can be transmitted to both animals and humans through tick bites. In New Jersey, this tick is primarily responsible for the spread of Lyme disease.

Hunterdon County continues to have one of the highest rates of Lyme disease in the country, most likely due to its heavily-wooded environment and high deer population. Although we particularly need to practice prevention during the spring, summer and fall months, Lyme disease cases are reported throughout the year because ticks are active when temperatures are above 40 degrees.

Because of these facts, it is important that county residents be particularly aware of the signs and symptoms of Lyme disease, and that we learn to follow a few simple precautions to help protect ourselves and our families.

**Where are Ticks Commonly Found?**

The deer tick is generally found in areas where deer, mice and other animals roam, such as wooded areas. In addition, longer grass or brush, low bushes and shrubs, and moist leaf litter are common habitats. Ticks crawl very slowly, and can travel distances only by attaching to a person, animal, or bird. This is how a tick can move out of the woods and into gardens and backyards.

**Tick Trivia:**

Ticks go through 3 active life stages -- larva, nymph and adult. In the larva and nymph stages, ticks must find hosts and take blood meals to molt to the next stages. Male adults attach but do not feed, while female adults need blood to produce eggs.

Female deer ticks are only about 3 mm in length (about the size of a sesame seed) and are black and brick red in color. Males are smaller and all black.

Ticks are not born with the spirochete responsible for Lyme disease. Instead, larvae pick it up from infected rodents, most often the white-footed mouse, and are then capable of transmitting the disease after molting and feeding as nymphs or adults.

Ticks are found in wooded areas, suburban backyards and tall grassy areas. Ticks don't fly, jump or spring from trees. They are found in leafy brush waiting for a person or animal to pass by.

Because they are so small and difficult to see, and because they are active in the late spring and summer when people spend more time outdoors, nymphal ticks cause the majority of Lyme disease cases. These ticks are only the size of poppy seeds. The disease is, however, contracted year-round, when ticks come out on warm winter days.

Ticks need time to attach and feed. In general, ticks must be attached at least 36-48 hours to transmit the spirochete that causes Lyme disease.

**Protect Yourself and Your Family.**

When in a tick-endemic area, remember to always apply these simple tips to make life more difficult for hungry ticks.

By tucking trousers into socks, and a long-sleeved shirt into your pants, you can create a barrier between the ticks and your skin. Wearing light colors and tightly woven fabrics helps you to spot ticks on your clothing more easily, and prevent them from getting through the fabric. Wear closed shoes rather than sandals when in a higher risk area. Check clothing often for climbing ticks and remove them when found.

Wear insect repellants containing at least 30% DEET when you are in areas where ticks may be found. Do not use DEET on children under the age of three and do not apply to hands and faces of children.

Teach your children to stay in the center of paths and, when possible, avoid tick-infested areas. Show them what a deer tick looks like and how to safely remove it. [(See proper removal techniques)](http://www.co.hunterdon.nj.us/health/lyme/tickborn.htm#removal)

Upon returning home be certain to do a thorough tick check, paying extra attention to areas such as underarms, behind the knees, groin area, under the hairline and behind the ears.

If you have frequent or prolonged exposure to tick-infested areas, consider receiving the [Lyme vaccine.](http://www.co.hunterdon.nj.us/health/lyme/tickborn.htm#vaccine)

Fit your pets with tick collars or treat them with one of the repellent products applied monthly to the skin. Speak to your Veterinarian about these options. Inspect pets often and try to keep pets off the furniture!

If you find an attached tick, follow the guidelines for [proper tick removal](http://www.co.hunterdon.nj.us/health/lyme/tickborn.htm#removal).

**Around Your Home.**

Studies have shown that the majority of Lyme disease cases in Hunterdon County are ‘caught’ around the home, while doing general yard work. This is most likely due to the fact that many homes in the county are surrounded by wooded areas. To help reduce the number of ticks on your property, keep your yard clear of leaf litter which is a common habitat for ticks. In addition, keep grass short, allowing more sunlight to reach the soil. ***Remember, the more sunlight the better, as ticks do not survive well in dry environments.***

Careful use of pesticides, when properly formulated, targeted and timed, can be very effective in controlling various stages of the deer tick. Granular insecticides containing carbaryl (such as Sevin) and labeled for tick control should be applied late May/early June, to provide control of immature ticks. Liquid insecticides, when applied in late October/ early November, have been shown to provide good control of adult deer ticks.**Users should be sure to read and follow all precautions and directions on the label.** Additional information is available through the county Cooperative Extension Service.

**How is Lyme Disease Diagnosed.**

Lyme disease is diagnosed by physicians based upon clinical signs and symptoms, along with a history of known or suspected tick exposure. Blood tests are sometimes used to confirm diagnosis.

**Recognize the Early Symptoms.**

Within one month of infection (though the average is 7-10 days), many patients will develop one or more of the following symptoms: flu-like symptoms, such as fever, fatigue, muscle and/or joint pain, headache, swollen lymph nodes or a characteristic skin rash.

This rash, called ‘erythema migrans’, occurs in at least 60% - 80% of patients at the site of the tick bite. It is an expanding red, generally circular patch, often with a clearing in the center, giving it a bull's eye appearance. In general, such rashes are more than 2 inches in diameter. In some cases there may be multiple rashes. Treatment at this stage is almost always curative.

**How is Lyme Disease Treated?**

Treatment can sometimes vary depending on when the diagnosis is made. When detected early, typical treatment includes 3-4 weeks of oral antibiotics, such as doxycycline or amoxicillin.

**SERIOUS COMPLICATION CAN ARISE IF LEFT UNTREATED**

If untreated, the early symptoms described above may disappear only to have more serious problems develop later. Untreated complications can include chronic arthritis, heart problems and nervous system disorders. Intravenous treatment is sometimes necessary in late Lyme disease cases. **Remember: early detection is always best.**

**Other Tickborne Illnesses.**

Two other tickborne diseases, potentially transmitted by the deer tick, have been identified in the United States. Both human granulocytic ehrlichiosis (HGE) and babesiosis have been diagnosed on the east coast.

While both infective agents have been found in Hunterdon County ticks, very few cases of either of these illnesses have been confirmed in the county.

**Human Granulocytic Ehrlichiosis (HGE)**

HGE is caused by a bacteria. The onset of symptoms generally occurs 1-3 weeks after infection, with the most common being high fever, muscle aches, weakness and severe headache. Patients may also experience confusion, nausea, vomiting and joint pain. Unlike Lyme disease, a rash does not occur with HGE.

Diagnosis for HGE is based on specific clinical symptoms and a history of exposure to ticks. However, tetracycline antibiotics are usually very effective. Because these antibiotics can cause dental staining in children, physicians may contact infectious disease specialists when treating children. Amoxicillin is not effective against HGE. Untreated, the disease can become very serious, even fatal.

**Babesiosis**

Babesiosis is a malaria-like illness, caused by a protozoan parasite called “B. microti”. Symptoms of this disease usually begin about one week after infection, and include a gradual onset of malaise, fatigue and loss of appetite, followed by fever, drenching sweats, muscle pain and headaches.

Specific laboratory tests are available to detect this infection. Recommended treatment for babesiosis includes quinine plus the antibiotic ‘clindamycin’ (oral or IV).

**Proper Removal of a Tick.**

Research has shown that a period of at least 36-48 hours of tick attachment is generally required for transmission of the bacteria. Therefore, frequent and thorough self-examination for ticks, and proper tick removal, can be an effective way to prevent infection.

**WHAT TO DO:**

Move to a well-lit area.

Grasp the tick close to the skin using fine point tweezers.

Pull it out in a steady motion (do not jerk or crush the tick).

Wash the area with soap and water and record on a calendar the site of the attachment and the date you removed the tick.

Watch for signs and symptoms such as an expanding rash, flu-like symptoms, and joint pain and swelling. The expanding rash can disappear quickly, so it is important to see your physician as soon as possible before the rash fades for early diagnosis and treatment. The rash is diagnostic, which means that Lyme Disease treatment can be initiated and late Lyme Disease symptoms can be avoided.

If no rash appears but headache, joint pain, fatigue, and fever appear about 30 days after tick bite, contact your physician and advise him/her of your symptoms and history of tick bite.

**WHAT NOT TO DO:**

**DO NOT** attempt to remove tick by twisting, squashing or burning it. Any of these actions can INCREASE your risk of developing Lyme.

**DO NOT** smother tick with petroleum jelly, alcohol or any other substance. These too may increase your risk or developing Lyme.

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**INFORMATION FROM THE SCHOOL NURSE:**

If a student reports they have a tick on them, brush it off if it is still crawling, but if it is attached, send to nurse's office for proper removal.

Serious complications of untreated Lyme's Disease can include chronic arthritis, heart problems and nervous system disorders. If we have a student with such a diagnosis, we will make accommodations to their school program as appropriate. I will let you know if any of your students receive this diagnosis during the school year.

Please ask me if you have any questions.