

What is Lyme disease?

Lyme disease is an illness caused by infection with the bacterium *Borrelia burgdorferi* (boar-ELL-ee-uh burg-dorf-ERR-eye). This bacterium is carried by ticks. This infection can cause a variety of symptoms and if left untreated can be severe.

How is Lyme disease spread?

Lyme disease is spread to people by the bite of an infected tick. In New Jersey, the most commonly infected tick is the deer tick (or black-legged tick, *Ixodes scapularis*). Immature ticks become infected by feeding on infected white-footed mice and other small mammals, such as deer and meadow voles. Deer ticks can also spread other tick-borne diseases. Humans can be infected with more than one tick-borne disease at the same time. Lyme disease is not spread from person to person. It is not necessary to avoid someone who is ill with Lyme disease.

Who gets Lyme disease?

Anyone who is bitten by a tick carrying the bacteria can become infected. People who spend a lot of time outdoors in tick-infested areas from April through October are at greatest risk of becoming infected. Proper removal of a tick from the skin within 48 hours of being bitten can reduce the risk of infection (For more information on tick removal, see "How can Lyme disease be prevented" below).

What are the symptoms of Lyme disease?

The early symptoms of Lyme disease may resemble those of various other infectious and non-infectious diseases. The most common symptoms may include:

- A rash that looks like a bull's-eye (occurs in 60 – 80% of people who become infected)
- Tiredness
- Fever
- Headache
- Stiff neck
- Muscle aches
- Joint pain

If untreated, weeks to months later some people may also have:

- Arthritis
- Nervous system problems
- Heart problems

The red bull's-eye rash usually appears seven to 14 days after the tick bite. Some people see their health care provider for the first time with advanced symptoms without having had early signs of the disease.

How is Lyme disease diagnosed?

A two-step process is the recommended method for making a diagnosis of Lyme disease. A Lyme disease diagnosis should be based on clinical findings, supported by a series of laboratory tests. An enzyme-linked immunosorbent assay (ELISA), or an indirect fluorescent antibody (IFA), test is usually performed first. If the result of this test is uncertain or positive, a more specific Western immunoblot (WB) test should be performed to confirm the results obtained with the first test. *Borrelia burgdorferi* can also be grown in culture from clinical specimens; however, this test is often difficult to perform. Polymerase chain reaction (PCR) tests have been used to amplify the DNA of *Borrelia burgdorferi* in skin, blood, and cerebrospinal and synovial fluids, but this type of testing has not been standardized for the routine diagnosis of Lyme disease.

What is the treatment for Lyme disease?

If treated early, antibiotic therapy for three to four weeks is generally effective. More advanced disease may require antibiotics to be given into the vein ("IV" or "intravenous") for four weeks or longer. Amoxicillin and doxycycline are two common antibiotics used for treatment. (NOTE – it is very important to finish your antibiotics, even if you begin to feel better, unless otherwise directed by your health care provider.)

How can Lyme disease be prevented?

You can reduce your risk by taking these actions to avoid tick bites, or to safely remove a tick if you are bitten:

- Avoid wooded areas with dense shrubs and leaf litter, where ticks like to hide.
- Make your yard less attractive to ticks by mowing lawns and trimming trees.
- Wear solid, light-colored clothing. This will make it easier to find a tick on your clothes.
- Tuck your pants into your socks and wear a long-sleeved shirt. This will help prevent a tick from attaching to your skin.
- Use insect repellents on yourself and your pets. There are two types of repellents effective for ticks. Repellents that contain DEET can be used on clothing and exposed skin. The other type of repellent contains permethrin and should **ONLY** be used on clothing. Always read and follow label directions carefully.

Check yourself for ticks frequently when you are in tick-infested areas. Check again after returning and again before going to bed. Don't overlook some of

ticks' favorite hiding places – on the scalp, behind the ears, under the arms, on the ankles, and in the groin.

What should I do if I find a tick?

- If you find a tick, remove it immediately before it attaches to the skin. Do not squeeze or crush it with bare hands.
- If a tick has already attached to the skin, use tweezers to grasp it by the head (not just the body) as close to the skin as possible. Pull steadily until the tick pulls out (expect some resistance).
- Never squeeze an attached tick, burn it, or cover it with Vaseline or any other substance. Doing so could force fluid from the tick into your skin.
- After removing a tick, disinfect the bite area and tweezers with alcohol, and wash your hands with soap and hot water.

How should I dispose of a tick?

Place the tick in a sealed container or small plastic bag and put it in the trash. Do not flush ticks down the toilet because they can easily survive in the water.

Where can I get more information?

- Your health care provider
- Your local health department
- NJ Department of Health and Senior Services <http://www.nj.gov/health>
- Centers for Disease Control and Prevention
<http://www.cdc.gov/ncidod/dvbid/lyme/index.htm>

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