

L y m e D i s e a s e

What is Lyme disease?

Lyme disease is a bacterial disease caused by *Borrelia burgdorferi* (boar-ELL-ee-uh burg-dorf-ERR-eye). The bacterium is transmitted to humans via a tick bite. Within 1 to 2 weeks after being infected, a "bull's-eye" rash can develop at the tick bite site accompanied by fever, headache, and muscle or joint pain. Some people may have Lyme disease and not have any early symptoms. However, others can have a fever and other "flu-like" symptoms without a rash.

Who gets Lyme disease?

Anyone who is bitten by a tick carrying the bacteria can get Lyme disease. Proper removal of a biting tick from the skin within 48 hours of being bitten can reduce the risk of disease transmission.

How is Lyme disease spread?

The spirochete which causes Lyme disease, *Borrelia burgdorferi*, is transmitted to humans by the bite of an infected tick, which is a "vector" for the disease. The principal vector of Lyme disease in New Jersey is the deer tick, also called the black-legged tick. 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 transmit the organisms that cause babesiosis and ehrlichiosis. Humans can get infected with more than one tick-borne disease at the same time.

What are the symptoms of Lyme disease?

Within days to weeks following a tick bite, 60-80% of persons becoming infected will have a red, slowly expanding "bull's-eye" rash (called erythema migrans), accompanied by general tiredness, fever, headache, stiff neck, muscle aches, and joint pain. If untreated, weeks to months later some people may develop arthritis,

including intermittent episodes of swelling and pain in the large joints; neurologic abnormalities, such as aseptic meningitis, facial palsy, motor and sensory nerve inflammation (radiculoneuritis) and inflammation of the brain (encephalitis); and, rarely, cardiac problems, such as atrioventricular block, acute inflammation of the tissues surrounding the heart (myopericarditis) or enlarged heart (cardiomegaly).

How soon do symptoms occur?

The red "bull's-eye" rash (erythema migrans) usually appears 7 to 14 days following the tick bite. Some patients present with later manifestations without having had early signs of 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 equivocal (uncertain) or positive, a more specific Western immunoblot (WB) test should be performed to confirm the results obtained with the first test. *B. burgdoferi* 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 *B. burgdoferi* 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?

Antibiotic therapy for 3-4 weeks is generally effective in early Lyme disease. Later disease manifestations may require intravenous antibiotic therapy for 4 or more weeks. Amoxicillin and doxycycline are two common antibiotics recommended for treatment.

How long is an infected person infectious to others?

Lyme disease is spread only by the bite of an infected tick. Infected individuals cannot spread the disease to other people.

How can Lyme disease be prevented?

You can reduce your risk by taking these precautions 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: mow lawns and prune trees.
- Wear solid, light colored clothing with pants tucked into socks. This will help prevent a tick from attaching to your skin and will also make sighting a tick on clothing easier.
- Use insect repellents on yourself and your pets. Two types of repellents that are effective for ticks are those containing DEET for use on clothes and exposed skin, and permethrin for use on clothes only. Read label directions carefully.
- Examine yourself frequently for ticks while in tick-infested areas.
- Perform a full-body exam on yourself, children, and pets after leaving tick habitat.
- Remove attached ticks promptly.
 - Use fine-pointed tweezers:
 - Grasp the tick's mouth parts close to the skin.
 - Apply steady outward pressure.
 - Do not use petroleum jelly, noxious chemicals, or hot objects to remove ticks. Improper removal can increase the chances of infection.