

# New York State Department of Health

## Lyme Disease (tick-borne borreliosis, Lyme arthritis)

Last Reviewed: November 2006

### What is Lyme disease?

Lyme disease is caused by bacteria transmitted by the deer tick (*Ixodes scapularis*). Lyme disease may cause symptoms affecting the skin, nervous system, heart and/or joints of an individual. Over 72,000 cases have been reported to the New York State Department of Health since Lyme disease became reportable in 1986.

### Who gets Lyme disease?

Lyme disease can affect people of any age. People who spend time in grassy and wooded environments are at an increased risk of exposure. The chances of being bitten by a deer tick are greater during times of the year when ticks are most active. Young deer ticks, called nymphs, are active from mid-May to mid-August and are about the size of poppy seeds. Adult ticks, which are approximately the size of sesame seeds, are most active from March to mid-May and from mid-August to November. Both nymphs and adults can transmit Lyme disease. Ticks can be active any time the temperature is above freezing. Infected deer ticks can be found throughout New York State.

### How is Lyme disease transmitted?

Not all deer ticks are infected with the bacteria that cause Lyme disease. Ticks can become infected if they feed on small animals that are infected. The disease can be spread when an infected tick bites a person and stays attached for a period of time. In most cases, the tick must be attached for 36 hours or more before the bacteria can be transmitted. Lyme disease does not spread from one person to another. Transfer of the bacteria from an infected pregnant woman to the fetus is extremely rare.

### What are the symptoms of Lyme disease?

In 60-80 percent of cases, a rash resembling a bull's eye or solid patch, about two inches in diameter, appears and expands around or near the site of the bite. Sometimes, multiple rash sites appear. The early stage of Lyme disease is usually marked by one or more of the following symptoms: chills and fever, headache, fatigue, stiff neck, muscle and/or joint pain, and swollen glands. If Lyme disease is unrecognized or untreated in the early stage more severe symptoms may occur. As the disease progresses, severe fatigue, a stiff aching neck, and tingling or numbness in the arms and legs, or facial paralysis can occur. The most severe symptoms of Lyme disease may not appear until weeks, months or years after the tick bite. These can include severe headaches, painful arthritis, swelling of the joints, and heart and central nervous system problems.

### When do symptoms appear?

Early symptoms usually appear within three to 30 days after the bite of an infected tick.

### Does past infection with Lyme disease make a person immune?

Lyme disease is a bacterial infection. Even if successfully treated, a person may become reinfected if bitten later by another infected tick.

## What is the treatment for Lyme disease?

Early treatment of Lyme disease involves antibiotics and almost always results in a full cure. However, the chances of a complete cure decrease if treatment is delayed.

## What can be done to prevent Lyme disease?

When in tick-infested habitat - wooded and grassy areas - take special precautions to prevent tick bites, such as wearing light-colored clothing (for easy tick discovery) and tucking pants into socks and shirt into pants. Check after every two to three hours of outdoor activity for ticks on clothing or skin. Brush off any ticks on clothing before skin attachment occurs. A thorough check of body surfaces for attached ticks should be done at the end of the day. If removal of attached ticks occurs within 36 hours, the risk of tick-borne infection is minimal.

Repellents can be effective at reducing bites from ticks that can transmit disease. But their use is not without risk of health effects, especially if repellents are applied in large amounts or improperly. Repellents commonly available to consumers contain the active ingredients DEET (N, N-diethyl-m-toluamide), permethrin, or botanical oils. DEET products have been widely used for many years, but have occasionally been associated with health effects. Skin reactions (particularly at DEET concentrations of 50 percent and above) and eye irritation are the most frequently reported health problems. Products containing permethrin are for use on clothing only, not on skin. Rather than acting as a repellent, permethrin kills ticks and insects that come in contact with treated clothes. Permethrin can cause eye irritation. Insect repellents containing botanical oils, such as oil of geranium, cedar, lemongrass, soy or citronella are also available, but there is limited information on their effectiveness and toxicity. **If you decide to use a repellent, use only what and how much you need for your situation. In addition:**

- Be sure to follow label directions.
- Use repellents only in small amounts, avoiding unnecessary repeat application. Try to reduce the use of repellents by dressing in long sleeves and pants tucked into socks or boots.
- Children may be at greater risk for reactions to repellents, in part, because their exposure may be greater. Do not apply repellents directly to children. Apply to your own hands and then put it on the child.
- Do not apply near eyes, nose or mouth and use sparingly around ears. Do not apply to the hands of small children.
- After returning indoors, wash treated skin with soap and water.

## How should a tick be removed?

Grasp the mouthparts with tweezers as close as possible to the attachment (skin) site. Be careful not to squeeze, crush or puncture the body of the tick, which may contain infectious fluids. After removing the tick, thoroughly disinfect the bite site and wash hands. See or call a doctor if there are concerns about incomplete tick removal. Do not attempt to remove ticks by using petroleum jelly, lit cigarettes or other home remedies because these may actually increase the chance of contracting a tick-borne disease.

## How do I obtain information on a tick?

Tick identification services are available through the New York State Department of Health and some local health departments. The New York State Department of Health [Tick Identification Service](#) will tell you the species of the tick, whether it is engorged with blood and, if so, how long it may have been feeding. The Tick Identification Service will also report whether the mouthparts are present (if not, they may have remained in the skin and need to be removed, as you would a splinter). The Tick Identification Service will not tell you whether the tick is infected with disease-causing organisms. There is no charge for this service.

If you wish to have a tick identified, place it in a small jar containing rubbing alcohol, seal the container to prevent leakage and complete the [Tick Identification Submittal Form](#). Mail the tick in the sealed container, along with the completed submittal form, to the New York State Health Department's Tick Identification Service, c/o HVCC Central Receiving, 80 Vandenberg Avenue, Troy, NY 12180. Once you send a tick to be identified it will not be returned.

Revised: November 2006