

## LYME DISEASE

### What is Lyme disease?

Lyme disease is an infectious disease caused by a bacterium known as a spirochete. People get Lyme disease when a tick infected with the Lyme disease bacterium attaches and feeds on them. Lyme disease was first recognized in the northeastern United States in the 1970s. Lyme disease has been reported from many areas of the country, including California.

### What are the symptoms of Lyme disease?

Lyme disease can affect many body systems. Lyme disease can start as a mild flu-like illness and, over time, develop into severe chronic health problems. The early stages of the disease can include a red, expanding skin rash (called erythema migrans or EM), chills and fever, headache, swollen lymph nodes, muscle and joint pain, weakness of some muscles in the face, and heart irregularities. The EM rash appears up to 30 days after the bite of an infected tick. One or more EM rashes can occur, not necessarily at the tick bite. The rash can precede, accompany, or follow flu-like symptoms. The rash may not be noticed in some instances due to skin tone or occurrence on the body in locations difficult to see. Occasionally, an allergic reaction to the tick bite can occur on the skin and may be mistaken for an EM. The allergic reaction is different from an EM rash because it happens within minutes to hours after the tick bite and does not spread.

If left untreated, arthritis or nervous system signs can develop in some Lyme disease patients. Arthritis is most likely to appear as bouts of pain and swelling, usually in one or more large joints, especially the knees. Nervous system abnormalities can include numbness, tingling, or pain in the arms and legs, or difficulties in memory and the ability to concentrate.

Lyme disease can be successfully treated with antibiotics, especially in the early stages. The potential for long-term complications increases if the disease progresses untreated.

### How does one get Lyme disease?

The western blacklegged tick, *Ixodes pacificus*, transmits the bacteria that cause Lyme disease to humans in California. The tick has three life stages: larva, nymph, and adult. The larvae and nymphs feed on the blood of small rodents, rabbits, lizards, birds, and occasionally large mammals. Adults feed on the blood of large mammals, principally deer.

Both nymphs and adults of the western blacklegged tick can transmit the infection to humans. Nymphs likely play a greater role in transmission of Lyme disease to humans because they are small (<1mm or about the size of a poppy seed) and thus difficult to see. Also, in some areas, a higher percentage of nymphal ticks carry the Lyme disease organism than adult ticks. An infected tick must be attached and feeding for at least a day before it can transmit the spirochetes.

**Where is the risk of getting Lyme disease greatest in California?**

The western black-legged tick has been found in 56 of the 58 counties in California. It is common in the humid coastal areas and on the western slope of the Sierra Nevada range. Ticks prefer cool, moist areas and can be found on wild grasses and low vegetation in both urban and rural areas. Adult ticks climb to the tip of vegetation along trails and wait for a host to brush against them. Nymphs are found in low, moist vegetation such as leaf litter and on logs. Adults are most active from fall through early spring and the nymphs are active primarily in the spring and early summer months.

**What can be done to keep from getting Lyme disease?**

- Avoid areas where ticks are known to occur.
- Stay in the middle of the trail; avoid grassy areas, contact with logs, tree trunks and fallen branches or tree limbs in forests.
- Tuck pants into boots or socks, and shirt into pants.
- Wear light-colored clothing and long-sleeved shirts so ticks can be more easily seen.
- Use a repellent registered for use against ticks. Repellents with DEET are effective and can be applied to the skin. Repellents with permethrin should be applied only to clothing. Always follow directions on the container and be especially careful when applying to children.
- Thoroughly check yourself and others for ticks during and up to three days after activities in tick-infested areas.
- Keep grass along trails, buildings, and camping areas mown.

**How should attached ticks be removed?**

- Using tweezers, grasp the tick's mouthparts as close to the skin as possible.
- Gently pull the tick straight out, using a firm steady motion.
- Wash your hands and the bite site with soap and water. Apply an antiseptic to the bite site.
- **Note: Prompt tick removal can prevent transmission of infection.**
- Consult with your physician if you develop any symptoms, especially a rash, within 30 days of the tick bite.

**Where can I get more information on Lyme disease?**

The Centers for Disease Control and Prevention has information available at their website [http://www.cdc.gov/ncidod/diseases/submenus/sub\\_lyme.htm](http://www.cdc.gov/ncidod/diseases/submenus/sub_lyme.htm).