

LYME DISEASE

Lyme disease is caused by bacteria transmitted by the bite of a deer tick. Deer ticks can be as small as a pinhead and difficult to see. If not disturbed, a tick will remain attached to a person's skin and feed there for 3 to 6 days. The longer a tick is attached, the greater the chance the bacteria will transfer from the tick to the person. For Lyme disease to be transmitted, the tick must be attached for at least 24 – 48 hours.

Symptoms Lyme disease has been divided into **three stages**. If treated with antibiotics, it does not progress from one stage to the next.

- **Early Localized Disease** within 1-32 days after the tick bite. A unique rash develops in 80-90% of children. The rash (called “erythema chronicum migrans”) looks like a red ring or bull’s-eye but does not have to be a circle. It starts where the person was bitten and expands in size to *at least* 5 centimeters (about two inches). The rash is usually not painful and lasts 2 weeks to 2 months. The rash will resolve even if the person is not treated with antibiotics. A flu-like illness including fever, chills, muscle aches, and headache may also develop.
- **Early Disseminated Disease** occurs 2 to 12 weeks after the tick bite. It develops in only 15% of the people who have not gotten treatment for the disease. The main symptoms are related to the nervous system, for example, stiff neck or weak facial muscles. Very rarely children develop some abnormalities of heart rhythm. Patients who have multiple bulls-eye spots have early disseminated disease.
- **Late Disease** occurs 6 weeks to 2 years after the tick bite. Often there were no earlier symptoms. The main symptom of this stage is painful, swollen joints (arthritis). It usually affects one joint at a time, most commonly a knee. The long-term prognosis of Lyme arthritis in children is excellent.

Diagnosing Lyme disease Lyme disease is diagnosed primarily by *symptoms*, particularly in the early stages. Laboratory testing confirms certain cases but is not always necessary. The blood test for Lyme disease measures the body's immune response to the bacteria instead of looking for the bacteria itself, and may therefore be negative early on during the infection. Effective treatment may interfere with future test results so follow-up testing is not recommended. We confirm positive Lyme results with a special highly accurate test called a Western Blot because there is a high false positive rate for the basic test, the *titer*. Lyme testing is NOT a screening test and should NOT be used in patients without typical symptoms of Lyme disease. The urine test has such a high false positive rate that it is not approved by the FDA or CDC and should never be used.

Treatment for Lyme disease is antibiotics. Most cases are cured with 2–4 weeks of oral medication. Advanced cases may need antibiotics through an intravenous route; antibiotics for more than six weeks are not necessary even for advanced cases.

If the symptoms don't respond to the simple treatment, the diagnosis was probably wrong. Sometimes the minimal symptoms, such as joint aches, may last longer than the course of the antibiotic; additional antibiotics are not needed in this case because the symptoms are a result of the body's reaction to the dead bacteria.

Prevention of Lyme disease is accomplished by avoiding tick bites. Remember that the deer tick must be attached for 24 – 48 hours to transmit the infection, so carefully inspecting your child (and yourself) for ticks every day from head to toe is critical. Inspect all areas of the body, including skin folds and scalp. Don't forget – deer ticks are tiny, especially early in the season.

Many experts recommend wearing long-sleeved shirts, pants tucked into socks, and avoiding woody or grassy areas, although some parents find these recommendations difficult to follow in hot weather. Insect repellents such as DEET are effective at repelling ticks. We suggest you use 10-30% DEET for activities with a high chance of tick exposure, like hiking or playing in the woods. Refer to our *Insect Repellent* handout for details about how to use DEET. Pets should also be inspected for ticks.

We do not recommend preventive (also called prophylactic) antibiotics for children with tick bites. At least two studies have shown that antibiotics given immediately after a tick bite (before symptoms develop) do not prevent Lyme disease and expose patients to unnecessary risk. (There was one ADULT study that showed a decreased rate of Lyme disease for adults treated with antibiotics after a tick bite.)

Tick Removal - Grasp the tick with tweezers as close to the skin as possible and apply gentle sustained traction until the tick “lets go.” Try to avoid crushing the tick. Once removed, cleanse the areas with soap and water. If the head of the tick is left in the skin, remove it as you would remove a splinter. If you cannot remove the last bits of the tick, simply cleanse the area and observe – the body's natural defenses will take care of the debris. A small red area often develops around the bite – usually less than the size of a quarter and resembling the redness seen after any insect bite. This usually fades in a day or so, does not enlarge to become a “bull's eye,” and is no cause for concern.

Do not use other methods of tick removal like nail polish, a burning match, petroleum jelly, etc. The only correct way to remove a tick is by gently pulling it off. Dispose of the tick once removed. While laboratories are capable of testing live ticks for the presence of Lyme bacteria, we do not recommend this for two reasons. First, the laboratory warns that a negative test does not assure the tick did not have Lyme bacteria, and second, a positive test does not mean the bacteria was transmitted to the child. If you are not sure if the tick is a deer tick, you may save it for identification.

A final word of caution regarding Lyme disease – DON'T PANIC! This illness has been the center of a tremendous amount of media attention and unfortunately there is plenty of misinformation to confuse you. Please always consider the source of information you have been given, and if you are not sure if what you are hearing or reading is true, ask us! Some so-called “experts” may not have your best interests at heart.