



Patient Information

Tickborne Diseases: Fight the Bite!

There are over 80 tick species in the United States, and while these creatures may be tiny—most no larger than a sesame seed—they can transmit very serious diseases. To survive, ticks must find a “host” animal from which to feed. This host can be a wild deer, your pet dog, or even you. To feed, the tick inserts its mouthparts into the animal’s skin and takes in blood and fluid. While the tick is attached, harmful parasites, viruses, or bacteria can pass from the tick into the host’s bloodstream and cause illness.

Worldwide, there are 30 different tickborne diseases, nine of which exist in the United States. Examples include Rocky Mountain spotted (RMS) fever, *ehrlichiosis* (er-lick-ee-oh-sus), and Lyme disease. While each has unique characteristics, they’re prevented in the same way—by steering clear of ticks.

How do I know if I’m at risk?

Different tick species populate different areas of the United States, so your risk of infection varies depending on where you live. RMS fever, despite its name, can be contracted in nearly all states—particularly those in the Southeast and Northwest. Ehrlichiosis is found predominantly along eastern and western coastal states. Lyme disease has been reported in nearly every state, though more than 98% of cases originate in the coastal Northeast, Mid Atlantic, and Northwest. Living near a

forest or grassy field, spending time outdoors, or having outdoor pets all increase your risk of a tick bite. Risk also depends on the time of year. Over 90% of RMS fever cases occur between April and September; ehrlichiosis occurs primarily between April and October; and Lyme disease is contracted mainly between May and August.

What are the warning signs?

After a tick bite, watch for fever, chills, fatigue, nausea and vomiting, head and muscle aches, or rash. Seek prompt treatment for any of these classic warning signs, because if a tickborne disease goes untreated, more severe symptoms can develop.

About three to 12 days after infection with RMS fever, your temperature usually rises above 102° F—and stays that high for two to three weeks. Two to five days after the onset of fever, a rash typically develops—small, flat spots on the wrists and ankles that spread to the palms of the hands, soles of the feet, and the trunk. If untreated, abdominal pain, joint pain, or diarrhea may occur. About 72% of those with RMS fever require hospitalization. Severe cases can cause death or such long-term effects as partial paralysis of the legs, hearing loss, and movement or language disorders.

Unlike other tickborne diseases, only about half of ehrlichiosis cases involve

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rash. Many people with ehrlichiosis develop only mild symptoms, and the infection often resolves without treatment. If symptoms do occur, they may resemble RMS fever symptoms and develop between one day and three weeks after infection. Untreated ehrlichiosis can lead to dangerously low white blood cell levels, kidney failure, or rarely, death (usually in people who already have health problems).

The most prominent symptom of Lyme disease is the “bull’s-eye” rash, known as *erythema migrans* (err-uh-**thee**-muh **my**-grunz). This rash develops in 65% to 90% of people with the disease. After three to 30 days, a small, red spot at the site of the tick bite appears, expanding over days into a circular, red ring as small as a dime or large enough to cover a person’s back. If untreated or treated late, Lyme disease can cause stiff neck, temporary paralysis of the facial muscles, numbness or weakness of limbs, difficulty concentrating, and painful, swollen joints. Even if such symptoms go away on their own, they may reappear months or years later.

What tests do I need?

Diagnosing tickborne diseases can be difficult, since people often fail to notice a tick bite. Also, many blood tests won’t detect the immune system’s reaction until days or even weeks after infection. But since delaying treatment can lead to more serious illness, your doctor may diagnose a tickborne disease based solely on your symptoms and history of tick bite or exposure to areas known to harbor ticks. That diagnosis then can be confirmed using various laboratory tests.

How can I avoid the problem?

Currently, no human vaccines for tickborne diseases are available in the United States, so the only reliable way to avoid these illnesses is to avoid tick bites. Keep grass low and clear away leaf litter. When in woods or fields, if the temperature’s above 40° F, use a tick repellent that contains the chemical DEET on your skin and clothing (following the manufacturer’s instructions). Products containing *permethrin* (per-**mee**-thrin) should be applied to clothing only. Wear shoes that fully cover your feet, a hat, and light-colored clothing. Tuck long-sleeved shirts into pants and long pants into socks. Check yourself throughout the day for ticks, and do a full body check each night. Pay attention to joints (behind knees and under armpits); behind ears; and near the groin, neck, and scalp.

Usually, a tick must be attached for six to 48 hours before infection can take place, so remove ticks promptly. Use a gloved hand or fine-tipped tweezers to grab the tick’s head—not its body—firmly and pull straight back. Don’t twist or crush the tick, and don’t apply heat, petroleum jelly, or other “folk” remedies, which may irritate the tick and increase your risk of infection. After removal, wash your hands and the site and apply disinfectant. Save the tick in a plastic bag or glass vial, noting the date of the bite, in case symptoms appear.

How is it treated?

Most tickborne diseases are treated with an oral antibiotic for a few weeks, but serious cases may require an intravenous antibiotic. Treatment usually works better when begun promptly after infection. ●

