

EVERYTHING YOU NEED TO KNOW ABOUT

# LYME

**This tick-borne infection is spreading all over the country. Find out how to keep your family safe, no matter which state you call home**

BY TULA KARRAS PHOTOGRAPHS BY VICTOR PRADO

**IN MAY 2013, JESSIE CROW MERMEL** of Roscoe, IL, was doing a routine tick check on her two kids and found one on the shoulder blade of her 9-year-old, Rowan. The family is outdoorsy—camping and hiking are a big part of their lives—so finding the blood-sucking insect wasn't a shocker.

She removed it right away, and, concerned about Lyme disease, a bacterial infection transmitted by deer ticks, she took Rowan to an urgent care clinic. The doctors gave Rowan the standard dose of antibiotics, which is supposed to prevent Lyme after exposure. Because Crow Mermel had a boss who'd contracted the disease, she knew to look out for the bull's-eye rash that often signals infection. "But there was never a rash, so I assumed Rowan didn't have Lyme."

Yet five months later, in October, Rowan's health took a turn for the worse. "He started getting stomachaches all the time," Crow Mermel recalls. Doctors ran tests for ulcers, parasites, and celiac disease, but everything came back negative. In mid-November, Rowan got even sicker, sleeping up to 23 hours a day. Crow Mermel took him to the urgent care clinic again, where he was tested for mono (negative) and for Lyme, at her urging. "I knew fatigue could be a symptom because my boss had it," she says.

Even though the test came back negative, Crow Mermel wasn't convinced. "I'd heard that standard Lyme tests can

miss cases that specialized labs can catch," she says. Finally, another doctor sent Rowan's blood work to a specialty lab in California. On December 21, she got a call from him. "He said, 'Guess who has Lyme disease?' Rowan was positive."

Rowan's case isn't that unusual. Lyme infections, along with other tick-borne illnesses, are up in many parts of the country, with around 300,000 new cases diagnosed each year, many of which are children, says Paul Mead, M.D., a medical officer at the Centers for Disease Control and Prevention (CDC). "We see a spike in kids ages 5 to 15 because they're playing in their yards more than adults," says Dr. Mead. And even though many people get infected in the summer, adult ticks are active in the fall and even early winter, turning Lyme into a year-round concern.

To make matters trickier, signs of the infection don't always announce themselves immediately. Symptoms can appear months after the bite (as they did with Rowan), can vary greatly from person to person, and can overlap with other conditions, making diagnosis—and treatment—difficult.

Still, there's no need to put the kibosh on outdoor fun, now or any season. Protecting your family can be as easy as getting up to speed on the crucial facts about Lyme with this guide. We'll show you how to prevent bites, do tick checks, and more. Turn the page and fight back!

## kids can get infected anywhere

While 95 percent of Lyme cases reported to the CDC come from the Northeast, the disease has spread to new areas, including the Midwest. Northern California is another well-known hotspot, and cases have cropped up in Oregon, according to Christine Green, M.D., a family physician in San Francisco who's been treating Lyme since 1989. "Ticks don't just stop at the border of one county or state," she says.

What accounts for the spread? Climate change and warmer, more humid summers. Young ticks, called nymphs, survive more easily in wetter weather, which means more adult ticks in the fall, says Thomas N. Mather, Ph.D., director of the University of Rhode Island's Tick Encounter Resource Center. Other reasons for the upswing: fewer foxes to kill white-footed mice, the biggest carriers of the spirochete bacteria that cause Lyme, and more deer, a favorite host for egg-laying adult ticks.

## Lyme can have many different symptoms, including...

**A rash** within the first four weeks. About 30 percent of Lyme rashes look like a classic bull's-eye, notes Brian Fallon, M.D., director of the Lyme and Tick-Borne Diseases Research Center at Columbia University Medical Center. The rest are solid red or reddish-blue and oval in shape. If your child gets a tick bite and develops a rash, she's probably infected, so get her treated with antibiotics right away, Dr. Fallon says. (Lyme is easily treated as soon as a rash appears, say experts.) But don't assume your child is Lyme-free if no rash appears: Up to 30 percent of people (Rowan included) don't get one.

**Flu-like symptoms** within the first four weeks, such as muscle and joint pain, headaches, and fever

**Extreme fatigue** to the point that kids may not be able to go to school

**Stomach pain** "Children can get stomachaches as well as diarrhea," says Dr. Green.

**Behavioral issues** "Many kids feel crappy in general, but they may not say 'My leg hurts' or 'My head hurts.'"

Instead, they can act cranky and distracted in school or at home," says Kimberly Lentz, M.D., a family physician in Zionsville, IN, and a Lyme specialist. This is particularly true of later-stage Lyme, when the bacteria has invaded the entire body, including the neurological system. Kids can react by not paying attention and not getting along with classmates, says Dr. Fallon. By then, it's easy to confuse Lyme with such conditions as depression and ADHD.

## your child may need more than one dose of antibiotics to prevent Lyme

Rowan was given 200 mg of doxycycline, the standard preventive dose, within the recommended time frame (72 hours) of the tick being removed. And yet he still developed Lyme disease. Some experts think a single dose isn't enough. "The study that this recommendation was based on is flawed," says Elizabeth Maloney, M.D., who writes educational material on Lyme for doctors and other health experts. "It may

## first line of defense

Play outdoors in peace with these tips:

### tick-proof the yard

Ticks love shady borders with piles of wet, dead leaves. Spray the perimeter of your yard with an eco-friendly insecticide (like bifenthrin) in mid-May, mid-June, and the fall.

### dress kids right

Opt for long sleeves, pants, and socks—and choose light colors that will help make bug-spotting easier.

### tap into permethrin

This insecticide kills ticks on contact, so putting it on your clothes and shoes is a good idea. You can buy clothes that are already treated and last 70 washes, or spray it on clothes yourself. Find both at outdoor stores like REI and Cabela's.

### don DEET

DEET is the only chemical repellent recommended by experts for ticks, but use a formula containing no more than 30 percent for kids. Apply it to exposed areas of skin.

### bathe promptly

People who showered right after coming inside were much less likely to contract Lyme compared to those who waited more than two hours to bathe, a study found. The reason: Bathing gets you out of your clothes—where ticks may still be crawling.

### pop clothes into the dryer

Heat, not hot water, kills ticks on clothing. Once you return indoors, put your clothes in, set on high, and dry for an hour. Then wash them normally.

Just don't spray it directly on your child's face. Apply it with your hands.

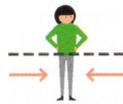
## tick-check know-how

If your child plays in the woods, in fields, or near the edges of trails, make checking a part of your routine



### Do it every day.

Ticks generally need to be attached for 24 hours in order to transmit the Lyme bacteria, says Dr. Mather, so spotting that sucker as soon as possible is important.



### Check below the belt.

Ticks tend to bite humans below the belt more often than above it, so look for poppy seed-sized spots behind the knees, in the pelvic area, and in the groin region.



### Look in hard-to-see places.

Adult ticks are hardwired to crawl upward, so some may end up in the ears, armpits, and scalp. Belly buttons and the buttocks are also fair game.

◀ **opposite:** Ticks hide out in bushes, woodpiles, and leaf buildup, waiting to hitch a ride on whatever mammal wanders by—a mouse, a deer, or your kiddo **previous:** An adult deer tick, magnified three times

### tick timeline

## FOUND A TICK? TAKE THESE STEPS!

Don't worry if the head tears—Lyme germs live in the tick's body and guts.

### Immediately

Remove the tick. First, disinfect the area with alcohol. Then, using pointed tweezers, grasp the tick's head as close to the skin as possible. Pull upward to pluck the tick out. Disinfect the area again. Save the tick in a sealed baggie or bottle.

### The next day

Send the tick to a lab to get tested for Lyme and other diseases. Not all ticks are infected, but knowing if the one you pulled off is positive can help your child's doctor give your kid the best care.

### Within 72 hours

If the tick was latched on, ask the doctor for a preventive course of antibiotics.

For a list of labs, go to [Tickencounter.org/prevention/tick\\_removal](http://Tickencounter.org/prevention/tick_removal) and click on "Consider Testing."

### Over the next four weeks

Be alert for early symptoms, like a rash or flu-like aches and pains. The minute you notice any, take your child to a doctor who specializes in Lyme.

### A month after the tick bite

Regardless of whether your child shows symptoms, ask your doctor to order the ELISA and Western Blot blood tests. It can take two to four weeks to get results.

be that a 10-day or 20-day course is more appropriate, but we need more research to determine what the right length of preventive treatment is," she says. If your child only gets a single dose, ask for a longer course of the medication and continue to watch for signs of Lyme.

### treatment depends on accurate blood tests

Blood tests can detect antibodies to the Lyme spirochete. But the bacteria can sometimes evade the immune system, especially if a person's had Lyme for a while, explains Dr. Maloney. If that happens, the body doesn't produce antibodies, and tests can appear to be negative. To increase the odds of accurate results:

### Wait four weeks after the bite

"If you're tested too early, antibodies may not have formed yet. That's why it's so important to rely on the rash itself if it's there," says Paul Auwaerter, M.D., clinical director for the division of infectious disease at Johns Hopkins University School of Medicine.

### Request two blood tests, not just one

Lyme can be detected by both the ELISA and the Western Blot tests, but doctors who follow the Infectious Diseases Society of America (IDSA) guidelines may only suggest an ELISA. This might not be sufficient. "The ELISA misses enough cases that it's a good idea to do both tests," says Daniel Cameron, M.D., president of the International Lyme and Associated Diseases Society (ILADS).

### Send blood work to a specialized lab if the first tests come back negative

While insurance may only cover a test done by a regular lab, it's still worth using a specialized lab. These labs will report on all the antibodies that your body can make in response to the Lyme bacteria, thus making their test more sensitive than those of standard labs. To find one, ask the pediatrician or check the organizations listed in "Lyme Aid," at right.

### some doctors treat Lyme differently

There are two schools of thought about treatment following a diagnosis. Doctors who follow ILADS prefer a more aggressive treatment, often recommending that kids take antibiotics for four to six weeks, depending on how the child is feeling. Medical practitioners who follow IDSA guidelines opt for shorter, two- to three-week periods.

No matter which type of physician you choose, the key to recovery is completing the full course of medication as prescribed by your child's M.D. One thing you can bank on: Kids respond very well to antibiotics, usually faster than adults, says Dr. Fallon.

Indeed, Rowan got much better once he went on antibiotics, though it took some time before his mom saw any improvement. Still, this past spring, he was able to rejoin his Little League team—and by the summer, he was rarely having a bad day. Crow Mermel says, "It's wonderful to see Rowan feeling so well. I am so thankful for every day that he's feeling energetic." ■

## LYME AID

*Finding a pediatrician or a lab that's Lyme-savvy can take some digging. These organizations can point you in the right direction or offer more information about tick-related diseases:*

**Tick-Borne Disease Alliance**  
[Tbdalliance.org](http://Tbdalliance.org)

**Lyme and Tick-Borne Diseases Research Center at Columbia University Medical Center**  
[Columbia-lyme.org](http://Columbia-lyme.org)

**Lymelightfoundation.org**  
(awards grants to children and adolescents fighting Lyme disease)

**University of Rhode Island Tick Encounter Resource Center**  
[Tickencounter.org](http://Tickencounter.org)

**Lyme Disease Association, Inc.**  
[Lymediseaseassociation.org](http://Lymediseaseassociation.org)

**Lymedisease.org**

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