**Lyme disease**

Lyme disease is caused by the bacterium *Borrelia burgdorferi* and transmitted primarily by deer ticks. In the United States, Lyme disease is most common in the Northeast, Northwest, and parts of the upper Midwest. So where you live (or travel) and what type of tick you find will help determine if your child is at risk of developing Lyme disease.

Not all deer ticks are infected with the bacteria that cause Lyme disease. And a tick that is infected has to be attached to a person's skin for at least 24-48 hours before it can transmit that bacteria. Since you do not know how long the tick was attached, watch for signs that your daughter might be developing the illness.

Many kids who have Lyme disease develop a red rash at the site of the tick bite, which sometimes has a characteristic "bull's-eye" appearance. In the week or two after the tick bite, look for an expanding ring of solid redness or a red bump surrounded by clear skin that is ringed by an expanding red rash. The rash may be accompanied by flu-like symptoms like fever, headache, fatigue, and muscle and joint aches.

If she has a bull's-eye rash or other symptoms that can happen in Lyme disease, call your doctor right away. Early diagnosis and treatment of Lyme disease can prevent serious illness and long-term complications. When diagnosed quickly and given a course of antibiotics, kids with Lyme disease almost always have a good outcome.

Parents can help prevent kids from being exposed to ticks by making sure they wear protective clothing and apply insect repellent containing DEET, especially when playing in grassy or wooded areas where ticks live. Check kids for ticks every day.

Most tick bites are harmless and do not need medical treatment. But some ticks (like the deer tick, wood tick, and others) can carry harmful germs that cause diseases like Rocky Mountain spotted fever and Lyme disease. The deer tick is tiny, no larger than a pencil point. Other ticks are larger and easier to find on the skin.

**How Do I Remove a Tick?**

It's important to remove a tick as soon as possible. Follow these steps:

1.Use tweezers to grasp the tick firmly at its head or mouth, next to the skin.

2.Pull firmly and steadily until the tick lets go of the skin. Do not twist the tick or rock it from side to side. If part of the tick stays in the skin, do not worry. It will eventually come out on its own.

3.Release the tick into a jar or zip-locked bag in case you want to have it identified later on.

4.Wash your hands and the site of the bite with soap and water.

5.Swab the bite site with alcohol.

**If you find a tick:**

•Use tweezers to grasp the tick firmly at its head or mouth, next to the skin.

•Pull firmly and steadily on the tick until it lets go of the skin. If part of the tick stays in the skin, do not worry. It will eventually come out — although you should call your doctor if you notice any irritation in the area or symptoms of Lyme disease.

•Swab the bite site with alcohol.

•Put the tick in a sealed container to preserve it. Then, call your doctor, who might want to see the tick to determine if it is the type that can carry Lyme disease.

Note: Don't use "folk remedies" like petroleum jelly or a lit match to kill and remove a tick. These won't get the tick off skin and might just cause it to burrow deeper and release more saliva (which increases the chances of disease transmission).

Never use petroleum jelly or a hot match to kill and remove a tick. These methods do not get the tick off the skin, and can cause it to burrow deeper and release more saliva (which increases the chances of disease transmission).

**What Are the Signs of Lyme Disease?**

Watch out for:

•a red bump ringed by an expanding red rash, which looks like a bull's-eye

•flu-like symptoms such as fever, headache, fatigue, vomiting, and muscle and joint aches

**When Should I Get Medical Care?**

Call your health care provider if:

•The tick might have been on the skin for more than 24 hours.

•Part of the tick remains in the skin after attempted removal.

•A rash of any kind develops (especially a red-ringed bull's-eye rash or red dots on wrists and ankles).

•The bite area looks infected (increasing warmth, swelling, pain, or oozing pus).

•Symptoms like fever, headache, tiredness, stiff neck or back, or muscle or joint aches develop.

**What Is Lyme Disease?**

Lyme disease is the leading tick-borne disease in the United States. It is caused by a type of bacteria found in small animals like mice and deer. Ixodes ticks (also called black-legged or deer ticks) that feed on these animals can then spread the bacteria to people through tick bites.

Ticks are small and can be hard to see. Immature ticks, or nymphs, are about the size of a poppy seed; adult ticks are about the size of a sesame seed.

It is important to know and watch for symptoms of Lyme disease because ticks are hard to find and it is easy to overlook a tick bite — in fact, many people who get Lyme disease don't remember being bitten. The good news is that most tick bites do not result in Lyme disease.

**What Are the Signs of Lyme Disease?**

Lyme disease can affect different body systems, such as the nervous system, joints, skin, and heart. Symptoms are often described as happening in three stages (although not everyone has all three):

1.A circular rash at the site of the tick bite, usually within 1-2 weeks of infection, often is the first sign of infection. Although a rash is considered typical of Lyme disease, many people never develop one.

The rash sometimes has a characteristic "bull's-eye" appearance, with a central red spot surrounded by clear skin that is ringed by an expanding red rash. It also can appear as an expanding ring of solid redness. It is usually flat and painless, but sometimes can be warm to the touch, itchy, scaly, burning or prickling. The rash may appear and feel very different from one person to the next, and it might be more difficult to see on people with darker skin tones, where it can look like a bruise. It expands over the course of days to weeks, and eventually disappears on its own. Along with the rash, a person may have flu-like symptoms such as fever, tiredness, headache, and muscle aches.

2.Left untreated, symptoms of the initial illness may go away on their own. But in some people, the infection can spread to other parts of the body. Symptoms of this stage of Lyme disease usually appear within several weeks after the tick bite, even in someone who did not have the initial rash. A person might feel very tired and unwell, or have more areas of rash that are not at the site of the bite.

 Lyme disease can affect the heart, leading to an irregular heart rhythm, which can cause dizziness or heart palpitations. It can also spread to the nervous system, causing facial paralysis (Bell's palsy) or meningitis.

3.The last stage of Lyme disease happens if the early stages were not found or treated. Symptoms of late Lyme disease can appear anytime from weeks to years after an infectious tick bite. In kids, this is almost always in the form of arthritis, with swelling and tenderness, particularly in the knee or other large joints.

 Having such a wide range of symptoms can make Lyme disease hard for doctors to diagnose, although blood tests can look for signs of the body's reaction to Lyme disease.

**When Should I Call the Doctor?**

If you think your child could be at risk for Lyme disease or has been bitten by a tick, call your doctor. This is especially true if your child develops a red-ringed rash, flu-like symptoms, joint pain or a swollen joint, or facial paralysis. That way your child can get further evaluation and treatment, if necessary, before the disease progresses too far.

**Can Lyme Disease Be Prevented?**

There is no sure way to avoid getting Lyme disease. But you can minimize your family's risk.

Be aware of ticks in high-risk areas like shady, moist ground cover or areas with tall grass, brush, shrubs, and low tree branches. Lawns and gardens may harbour ticks, too, especially at the edges of woods and forests and around old stone walls (areas where deer and mice, the primary hosts of the deer tick, thrive).

If you or your kids spend a lot of time outdoors, take precautions:

•Wear enclosed shoes or boots, long-sleeved shirts, and long pants. Tuck pant legs into shoes or boots to prevent ticks from crawling up legs.

•Use an insect repellent containing 10% to 30% DEET (N,N-diethyl-meta-toluamide).

•Wear light-coloured clothing to help you see ticks more easily.

•Keep long hair pulled back or tucked in a cap for protection.

•Don't sit on the ground outside.

•Check for ticks regularly — both indoors and outdoors. Wash clothes and hair after leaving tick-infested areas.

If you use an insect repellent containing DEET, always follow the recommendations on the product's label and don't overapply it. Place DEET on shirt collars and sleeves and pant cuffs, and only use it directly on exposed areas of skin. Be sure to wash it off when you go back indoors.

No vaccine for Lyme disease is currently on the market in the United States.

**How Can I Protect My Kids From Ticks?**

•After kids play outside, check their skin and hair — especially the scalp, behind the ears, around the neck, and under the arms.

•When playing in wooded areas, kids should wear long-sleeved shirts and pants and tuck pant legs into their socks.

•Use an insect repellent with at least 10% to 30% DEET for protection against bites and stings in kids older than 2 years, always carefully following the directions for application.

•Avoid tick-infested areas.

**How Is Lyme Disease Treated?**

Lyme disease is usually treated with a 2- to 4-week course of antibiotics. Cases that are diagnosed quickly and treated with antibiotics almost always have a good outcome. A person should be feeling back to normal within several weeks after beginning treatment.

**Is Lyme Disease Contagious?**

Lyme disease is not contagious, so it cannot spread from person to person. But people can get it more than once from ticks that live on deer, in the woods, or travel on pets. So continue to practice caution even if you or your child has already had Lyme disease.

**What If I Find a Tick?**

You should know how to remove a tick just in case one lands on you or your child. First, do not panic. The risk of developing Lyme disease after being bitten by a tick is very low. It also takes at least 24 to 48 hours for the tick to spread the bacteria that cause Lyme disease.

To be safe, though, you will want to remove the tick as soon as possible. This is why a daily tick check is a good idea for people who live in high-risk areas.

Tick bites do not generally hurt — and that can make it hard to find a bite early because pain usually helps call attention to problems. So be on the lookout for ticks and rashes, and call your doctor if you have concerns.

**What Are the Signs of Tick-Related Diseases?**

Watch out for:

•a red bump ringed by an expanding red rash, which looks like a bull's-eye (Lyme disease)

•red dots on the ankles and wrists (Rocky Mountain spotted fever)

•flu-like symptoms such as fever, headache, fatigue, vomiting, and muscle and joint aches