Stop Ticking Around...

Lyme Disease Information

Hamilton County Health Department
Health Education Division
www.hamiltoncounty.in.gov
Disclaimer..

• This presentation is intended for educational purposes only.

• If you think you have any symptoms that are in this presentation, you need to contact your health care provider as soon as possible.

• Follow the Hamilton County Health Department on Social Media.
The Reader Will Be Able To..

• Name two species of ticks that can transmit Lyme disease.

• Explain two ways people become infected with Lyme disease.

• Identify two symptoms of Lyme disease.

• Recall how Lyme disease affects the body.

• Discuss how to remove a tick.

• List three ways to prevent Lyme disease.
Lyme disease is caused by the bacterium *Borrelia burgdorferi* and is transmitted to humans through the bite of infected blacklegged tick or deer ticks.

It is the most common tickborne infectious disease in the United States.

Although people may think of Lyme as an East Coast disease, it is found throughout the United States, as well as in more than sixty other countries.

Lyme disease is called “The Great Imitator,” because its symptoms mimic many other diseases.
• *Borrelia burgdorferi* bacterium lives in mice, squirrels and other small animals.

• The bacterium is spread among these animals – and to humans – through the bites of some ticks that are infected.
The blacklegged tick (or deer tick, *Ixodes scapularis*) spreads the disease in the northeastern, mid-Atlantic, and north-central United States.

The western blacklegged tick (*Ixodes pacificus*) spreads the disease on the Pacific Coast.
Other Ticks...

- Ticks not known to transmit Lyme disease include:
  - Lone star tick
  - American dog tick
  - Rocky Mountain wood tick
  - Brown dog tick

Source: CDC
For Lyme Disease to Exist It Must Have...

• Three elements must be present in the natural environment:
  • 1) Animals that are infected with Lyme disease bacteria.
  • 2) Ticks that can transmit the bacteria.
  • 3) Animal hosts (such as mice and deer) that can provide food for the ticks in their various life stages.
• Ticks that transmit Lyme disease bacteria need constant, high relative humidity at ground level.
The Centers for Disease Control and Prevention estimate that 300,000 people are diagnosed with Lyme disease in the U.S. every year.

However, because diagnosing Lyme can be difficult, many people who actually have Lyme may be misdiagnosed with other conditions.

Many experts believe the true number of cases is much higher.

To see reported cases of Lyme Disease in Indiana, click on the question mark.
Reported Cases of Lyme Disease—United States, 2014

One dot is placed randomly within the county of residence for each confirmed case. Though Lyme disease cases have been reported in nearly every state, cases are reported based on the county of residence, not necessarily the county of infection.

Source: CDC
The greatest risk of being bitten exists in the spring, summer, and fall. However, adults may be out searching for a host any time winter temperatures are above freezing. Stages most likely to bite humans are nymphs and adult females.

Source: CDC
Nymphs often feed on lizards, as well as other small animals. As a result, rates of infection are usually low (~1%) in adults. Stages most likely to bite humans are nymphs and adult females.

Source: CDC
Life Cycle Of Blacklegged Ticks...

Source: CDC
Most people develop Lyme from the bite of the nymphs, or immature, form of the tick.

Nymphs are about the size of a poppy seed.

Because they are so tiny and their bite is painless, many people do not even realize they have been bitten.

Nymphs feed during the spring and summer months.
How Is Lyme Disease Transmitted?

• Adult ticks can also transmit Lyme disease bacteria, but they are much larger and are more likely to be discovered and removed before they have had time to transmit the bacteria.

• Adult *Ixodes* ticks are most active during the cooler months of the year.

• There is no evidence that Lyme disease is transmitted from person-to-person through touching, kissing, or having sex with a person who has Lyme disease.
How Lyme Disease Is Transmitted...

- Ticks can attach to any part of the human body but are often found in hard-to-see areas such as the groin, armpits, and scalp.

- In most cases, the tick must be attached for 36 to 48 hours or more before the Lyme disease bacterium can be transmitted.
Ticks find their hosts by detecting animals’ breath and body odors, or by sensing body heat, moisture, and vibrations.

Some species can even recognize a shadow.

In addition, ticks pick a place to wait by identifying well-used paths.
Ticks 101...

- Ticks can't fly or jump.

- Instead, they wait for a host, resting on the tips of grasses and shrubs in a position known as "questing".

- While questing, ticks hold onto leaves and grass by their lower legs.

- They hold their upper pair of legs outstretched, waiting to climb onto a passing host.

- When a host brushes the spot where a tick is waiting, it quickly climbs aboard. It then finds a suitable place to bite its host.
Depending on the tick species and its stage of life, preparing to feed can take from 10 minutes to 2 hours.

When the tick finds a feeding spot, it grasps the skin and cuts into the surface.

The tick then inserts its feeding tube.

Many species also secrete a cement-like substance that keeps them firmly attached during the meal.

The feeding tube can have barbs, which help keep the tick in place.
• A tick will suck the blood slowly for several days.

• If the host animal has a bloodborne infection, the tick will ingest the pathogens with the blood.

• Small amounts of saliva from the tick may also enter the skin of the host animal during the feeding process.

• If the tick contains a pathogen, the organism may be transmitted to the host animal in this way.
Ticks and Feeding...

- Ticks also can secrete small amounts of saliva with anesthetic properties so that the animal or person can't feel that the tick has attached itself.
- If the tick is in a sheltered spot, it can go unnoticed.
- After feeding, the blacklegged tick drops off and prepares for the next life stage.
- At its next feeding, it can then transmit the infection to the new host.
- Once infected, a tick can transmit infection throughout its life.
• If a tick is removed quickly (within 24 hours), it can greatly reduce the chances of developing Lyme disease.

• It takes some time for the Lyme disease-causing bacteria to move from the tick to the host.

• The longer the tick is attached, the greater the risk of acquiring disease from it.
What Age Group Does Lyme Disease Effect?

• Lyme disease is most common in children, older adults, and others who spend time in outdoor activities and have higher exposure to ticks.

• It is important that when the person goes inside after spending time outside, he/she should be checked for ticks.
What Does Lyme Disease Do To The Body?

• Can affect any organ of the body, including the brain and nervous system, muscles and joints, and the heart.

• Patients with Lyme disease are frequently misdiagnosed with chronic fatigue syndrome, fibromyalgia, multiple sclerosis, and various psychiatric illnesses, including depression.

• Misdiagnosis with these other diseases may delay the correct diagnosis and treatment as the underlying infection progresses unchecked.
• If pregnant women are infected, they sometimes pass Lyme disease to their unborn children and, while not common, stillbirth has occurred.

• Lyme disease acquired during pregnancy may lead to infection of the placenta and possible stillbirth; however, no negative effects on the fetus have been found when the mother receives appropriate antibiotic treatment.

• There are no reports of Lyme disease transmission from breast milk.
Early Signs and Symptoms (3 to 30 days after tick bite)

- Fever, chills, headache, fatigue, muscle and joint aches, and swollen lymph nodes

- Erythema migrans (EM) rash:
  - Occurs in approximately 70 to 80 percent of infected persons.
  - Begins at the site of a tick bite after a delay of 3 to 30 days (average is about 7 days).
  - Expands gradually over a period of days reaching up to 12 inches or more across.
  - May feel warm to the touch but is rarely itchy or painful.
  - Sometimes clears as it enlarges, resulting in a target or “bull's-eye” appearance.
  - May appear on any area of the body.
Later Signs and Symptoms (days to months after tick bite)

• Severe headaches and neck stiffness.
• Additional EM rashes on other areas of the body.
• Arthritis with severe joint pain and swelling, particularly the knees and other large joints.
• Facial or Bell's palsy (loss of muscle tone or droop on one or both sides of the face).
• Intermittent pain in tendons, muscles, joints, and bones.
• Heart palpitations or an irregular heart beat.
• Episodes of dizziness or shortness of breath.
• Inflammation of the brain and spinal cord.
• Nerve pain
• Shooting pains, numbness, or tingling in the hands or feet.
• Problems with short-term memory.
Testing For Lyme Disease...

- Signs and symptoms.
- History of exposure.
- Blood test.
• Patients treated with appropriate antibiotics in the early stages of Lyme disease usually recover rapidly and completely.

• Antibiotics commonly used for oral treatment include doxycycline, amoxicillin, or cefuroxime axetil.

• Patients with certain neurological or cardiac forms of illness may require intravenous treatment with drugs such as ceftriaxone or penicillin.

• In a small percentage of cases, these symptoms can last for more than 6 months. Although sometimes called "chronic Lyme disease," this condition is properly known as “Post-treatment Lyme Disease” (PTLDS).

• Most patients recover when treated within a few weeks of antibiotics taken by mouth.
Post-treatment Lyme Disease...

- Physicians sometimes describe patients who have non-specific symptoms (like fatigue, pain, and joint and muscle aches) after the treatment of Lyme disease as having post-treatment Lyme disease syndrome (PTLDS) or post Lyme disease syndrome (PLDS).

- It is not uncommon for patients treated for Lyme disease with a recommended 2 to 4 week course of antibiotics to have lingering symptoms of fatigue, pain, or joint and muscle aches at the time they finish treatment.

- In a small percentage of cases, these symptoms can last for more than 6 months.

- The exact cause of PTLDS is not yet known.

- Most medical experts believe that the lingering symptoms are the result of residual damage to tissues and the immune system that occurred during the infection.
How To Prevent Lyme Disease…

• Wear long pants, long sleeves and long socks to keep ticks off the skin. Tuck shirts into pants, and pant legs into socks or shoes, to keep ticks on the surface of your clothing.

• If outside for a long period of time, tape the area where pants and socks meet to prevent ticks from crawling under clothing.

• Wear light-colored clothing to make it easier to spot ticks.

• Spray clothing with the repellant permethrin, found in lawn and garden stores. Do not apply permethrin directly to the skin.

• Spray exposed clothing and skin with repellant containing 20 to 30 percent DEET to prevent tick bites. Carefully read and understand manufacturer instructions when using repellant, especially when using the products on infants and children.
How To Prevent Lyme Disease...

• Pregnant women in particular should avoid known Lyme Disease areas as infection by a tick bite may be transmitted to the fetus.

• Avoid wooded areas and nearby shady grasslands. Deer ticks are common in these areas, and particularly common where the two areas merge.

• Maintain a clear backyard by removing yard litter and excess brush that could attract deer and rodents.

• Once indoors after being outside, check for ticks, especially in the hairy areas of the body, and wash all clothing.

• Before letting pets indoors, check them for ticks. Ticks may fall off and then attach to humans. Pets can also develop Lyme disease.

• Avoid tick-infested areas. This is especially important in May, June, and July.
Keep Your Eyes Open For This Flyer…

TICKS
MAY BE FOUND IN THIS AREA

- Walk in the center of trails to avoid overhanging grass and brush.
- Wear light colored clothing & tuck pants into socks.
- Apply insect repellent containing DEET as directed.
- Examine clothing & skin frequently for ticks.
- Carefully remove attached ticks immediately.
- Examine pets for ticks, remove immediately if found.
- Shower as soon as possible after tick exposure.
- See your doctor if any unexplained rash, fever, or other illness develops after tick exposure.

Source: ISDH
Pets and Ticks...

• Although dogs and cats can get Lyme disease, there is no evidence that they spread the disease directly to their owners.

• However, pets can bring infected ticks into your home or yard.

• Consider protecting your pet, and possibly yourself, through the use of tick control products for animals.

• Talk to your vet about protecting your cats and dogs.
How To Remove A Tick...

- Use fine-tipped tweezers to grasp the tick as close to the skin's surface as possible.
- Pull upward with steady, even pressure.
- Don't twist or jerk the tick; this can cause the mouth-parts to break off and remain in the skin.
- If this happens, remove the mouth-parts with tweezers.
• If you develop a rash or fever within several weeks of removing a tick, see your health care provider.

• Be sure to tell the health care provider about your recent tick bite, when the bite occurred, and where you most likely acquired the tick.
Testing The Tick...

• In general, testing of individual ticks is not useful because:
  • If the test shows that the tick contained disease-causing organisms, that does not necessarily mean that you have been infected.
  • If you have been infected, you will probably develop symptoms before results of the tick test are available.
  • You should not wait for tick testing results before beginning appropriate treatment.
  • Negative results can lead to false assurance.
  • For example, you may have been unknowingly bitten by a different tick that was infected.

Source: CDC
How To Remove A Tick...

- If you are unable to remove the mouth easily with clean tweezers, leave it alone and let the skin heal.

- After removing the tick, thoroughly clean the bite area and your hands with rubbing alcohol, an iodine scrub, or soap and water.

- Dispose of a live tick by submersing it in alcohol, placing it in a sealed bag/container, wrapping it tightly in tape, or flushing it down the toilet.

- **Never crush a tick with your fingers.**

- Avoid folklore remedies such as "painting" the tick with nail polish or petroleum jelly, or using heat to make the tick detach from the skin. Your goal is to remove the tick as quickly as possible--not waiting for it to detach.
Source...

- Centers For Disease Control
- Indiana State Department Of Health
- Lyme Disease. Org
- Mayo Clinic
- National Institute of Allergy and Infectious Disease