



## LYME DISEASE

### WHAT CAUSES LYME DISEASE?

Lyme disease is caused by bacteria called *Borrelia burgdorferi* and is transmitted to humans through the bite of infected ticks. The blacklegged tick (otherwise known as the 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. **In general, ticks need to be attached for at least 36-48 hours before they can transmit Lyme disease bacteria.**

**NOTE:** Ixodes ticks are much smaller than the common dog and cattle ticks. In their early stages they are no bigger than a pinhead. Adult Ixodes ticks are about the size of a small apple seed. Ticks crawl onto animals and people as they brush against them; ticks cannot jump or fly.

### WHERE ARE YOU MOST LIKELY TO GET INFECTED WITH LYME DISEASE?

- Northeast and mid-Atlantic states – from Virginia to Maine
- North-central states, mostly in Wisconsin and Minnesota
- West Coast, particularly in northern California

### WHAT ARE THE SYMPTOMS OF LYME DISEASE?

**Early Lyme Disease:** The early stage of Lyme disease is usually marked by one or more of the following signs and symptoms:

- A characteristic skin rash, called erythema migrans (bull's eye rash), often appears at the site of the tick bite within 3 to 14 days of the tick bite, but can appear as late as 1 month after the tick bite. One can also develop multiple erythema migrans on their body.
- Fatigue
- Chills and/or fever
- Headache
- Muscle and/or joint pain
- Swollen lymph nodes

**Late Lyme disease:** Some signs and symptoms of Lyme disease may not occur until months after a tick bite. The following are signs and symptoms of late Lyme disease:

- Arthritis – This causes pain and swelling in one or more joints; the joint most frequently involved is the knee.
- Nerve paralysis, often of the facial muscles on one side. This is seen as a facial “droop”.
- Meningitis – This causes a severe headache and neck stiffness.
- Rarely, irregularities of the heart rhythm may occur.

**NOTE:** Symptoms of late Lyme disease generally only develop if Lyme disease was not treated in the early stage.

### HOW IS LYME DISEASE DIAGNOSED?

In the early stages of Lyme disease, it is generally a “clinical” diagnosis; patients are diagnosed based on their symptoms. At this stage blood tests for Lyme disease are generally not accurate. It can take 4 to 6 weeks after infection for the body to produce measurable levels of antibodies.

IF blood testing is needed, a two-stage process to measure the body's production of antibodies to Lyme disease bacteria is recommended:

An "EIA" (enzyme immunoassay) is done first; if this is positive or equivocal then a Western blot is done to confirm the diagnosis.

### **HOW IS LYME DISEASE TREATED?**

Lyme disease is treated by antibiotics - generally amoxicillin or doxycycline.

### **HOW CAN LYME DISEASE BE PREVENTED?**

- Avoid tick-infested areas, especially in May, June and July. If you are in a tick-infested area, walk in the center of trails to avoid contact with overgrown grass, brush and leaf litter at trail edges.
- Use insect repellent. Use Environmental Protection Agency (EPA) -registered insect repellents containing DEET, picaridin, IR3535, oil of lemon eucalyptus, para-menthane-diol or 2-undecanone on your body. You can also use permethrin on your clothes, but NOT directly on your body.
  - **NOTE:** The American Academy of Pediatrics has approved the use of 30% DEET or less for children over 2 months of age. The percentage of DEET in a product tells you how long it will last.
- Perform daily tick checks after being outdoors and remove any ticks that you find promptly.
- Bathe or shower as soon as possible (preferably within 2 hours) after coming in from outdoors to wash off any ticks that may be on your body before they attach themselves.
- Check your clothing for ticks. Tumble drying your clothing in a hot dryer for 10 minutes will kill any ticks that were attached to your clothing.

### **WHEN SHOULD YOU CALL YOUR MEDICAL PROVIDER?**

**Call the office immediately if:**

- Your child has a severe headache and/or neck stiffness.
- Your child has a facial "droop" - one side of the face will look different than the other side.
- Your child has a swollen joint that is NOT secondary to an injury.
- You are not able to remove the BODY of the tick.

**Call the office during regular business hours if:**

- Your child has a bull's eye rash.
- Your child has other symptoms of Lyme disease – fever, mild headache, joint or muscle pain, fatigue.

### **HOW TO REMOVE A TICK**

1. Grasp the tick firmly with a tweezer as close to the skin as possible. Try to avoid crushing the body of the tick.
2. With a steady motion, pull the tick's body directly up and away from the skin.
3. Do not be alarmed if the tick's mouthparts remain in the skin. Clean the area and your hands with rubbing alcohol, iodine scrub or soap and water.
4. DO NOT use petroleum jelly, a hot match, nail polish or other products to remove the tick.

**Written by Dr. Jennifer Burns**