

The Westward Spread of Lyme Disease in New York

by Cynthia B. Morrow, MD, MPH, Commissioner, Onondaga County Health Department

Editor's note: Knowledge protects, and this is especially true regarding Lyme disease. This summer, my mother contracted Lyme disease in Manlius, eastern Onondaga County. She required intravenous antibiotics, which were effective, for acute disseminated Lyme disease, a more advanced form of the early acute disease including facial palsy. Several fellow runners have also contracted Lyme disease at Green Lakes State Park in Fayetteville. I am grateful to Dr. Morrow for her efforts at educating the general public and physicians about imminent health concerns such as Lyme disease, and for her willingness to write this excellent article.

The accompanying pictures are reprinted courtesy of the CDC.

—Bob Michiel

As many people in Central New York have heard, Onondaga County witnessed a dramatic increase in the number of locally acquired cases of laboratory confirmed Lyme disease in 2008. According to the New York State Department of Health, Onondaga County is currently considered the western frontier for Lyme disease with nominal Lyme activity occurring west of Onondaga. It is critical that this change in the pattern of disease be understood by both people at risk of acquiring Lyme disease (particularly individuals who spend significant time outdoors) and the health care providers who care for them.

Background Information

Lyme disease is one of over sixty diseases that must be reported to local health departments in New York State. Prior to 2008, the Onondaga County Health Department received an average of 10 reports of Lyme disease every year but interviews conducted with the infected individuals revealed that only 1 or 2 of those cases were likely to be locally acquired. In the remainder of the cases, the individual had traveled to



an area known to have Lyme disease. In contrast, in 2008, almost 70 cases of Lyme disease were reported to OCHD through November, the vast majority of which were identified as being locally acquired.

Similarly, results of tick surveillance done by the New York State Department of Health (NYSDOH) provide further evidence of the changing epidemiology (pattern of disease development) of Lyme disease in Central New York. In late 2007, researchers from the NYSDOH collected and tested adult deer ticks at Green Lake State Park in Fayetteville, NY. Results indicated that approximately 30% of the adult ticks that were collected were infected with Lyme bacterium. A follow-up study conducted from April to June 2008 revealed that over 60% of the ticks were infected, demonstrating a significant increase in infectivity rates in less than one year.

Lyme Disease

Lyme disease is a complicated disease that results from infection of the bacterium *Borrelia burgdorferi*. *B. burgdorferi* is naturally found in small rodents such as mice and squirrels known as “reservoir hosts”. When a blacklegged (deer) tick feeds off such a host, it can become infected and then transmit the bacteria to deer, humans, dogs, or other mammals. Young ticks (nymphs), which are only

the size of a pencil point, become infected by blood meals in the spring and commonly transmit the bacterium in the spring. Adult ticks, which are easier to spot, are more likely to transmit disease in the late summer or in the fall.

Lyme disease in humans usually develops 3-30 days after infection. Often the first symptoms are vague flu-like signs and symptoms such as fatigue, fever, headache, and mild joint or muscle aches but the signature finding of Lyme disease is a “bull’s eye” rash, or erythema migrans (EM). EM arises in about 80% of cases of Lyme disease and is considered diagnostic.

Individuals who believe they may have Lyme disease should seek medical attention urgently. Early treatment with antibiotics can dramatically decrease the risk of the disease spreading to other parts of the body such as the heart or the nervous system. If left untreated, people with Lyme disease can develop serious long-term complications such as heart block, neurologic disease (such as peripheral neuropathy or facial palsy) or arthritis. Unfortunately, in rare cases, these consequences can have a devastating life-changing impact on the affected individual.

Prevention

The best news about Lyme disease is that it can be prevented. First and foremost, individuals can protect themselves by preventing ticks from attaching to them by applying insect repellent to exposed skin and to clothing and by wearing long sleeves and long pants tucked into socks. (Light colored clothing is recommended to make it easier to see ticks if ticks do get on the clothing.) Second, even if a tick bites a person, a complete body check, including the groin and scalp, with prompt tick removal, will eliminate the transmission of Lyme disease. Many people are

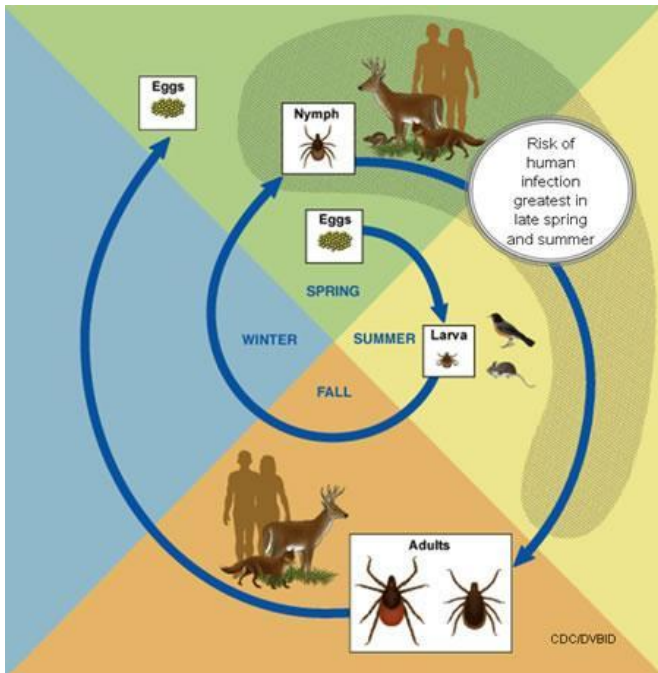
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Blacklegged (deer) tick, magnified



Above: Two presentations of “erythema migrans,” the rash associated with Lyme disease.



Life cycle of blacklegged ticks. The risk of human infection is greatest in late spring and summer.

Illustrations courtesy of the CDC.

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not aware that if they find and remove a tick within 36 hours, infection will probably not occur. Third, while this recommendation is challenging for hikers and trailblazers, avoiding wooded areas with a great deal of leaf litter and high grass will reduce the risk of tick bites. This is just one reason why well-maintained trails are so important! Finally, if a person discovers an embedded tick, and believes that the tick has been attached for more than 36 hours, he or she should contact their health care provider for advice. In areas where

there is a high tick infectivity rate, such as Onondaga County, antibiotics should be considered to prevent the onset of Lyme disease.

Homeowners can also reduce the risk of acquiring Lyme disease in their own yard by placing a barrier, such as gravel or wood chips, between wooded areas and their lawn. Mowing your lawn often and being vigilant about clearing brush and leaf litter in your yard will also reduce the tick population.

Lyme disease has been slowly moving westward for years. Because

of aggressive disease surveillance activities, we now know that Onondaga County is the new western frontier for Lyme disease. We should now consider the disease to be part of our ecology and we should take the necessary steps to prevent this potentially serious disease while still embracing the beauty and joy of our natural surroundings. □

Author’s Note: Much of the information provided above is available at the Centers for Disease Control and Prevention website. Please see refer to www.cdc.gov for more information about Lyme disease.