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May 8, 2009

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Large numbers of Minnesota ticks carry disease organisms *Tick bites can lead to Lyme disease and other serious diseases, warn health officials*

Approximately one-third of blacklegged ticks (also called deer ticks) tested during recent years in Minnesota were positive for disease-causing organisms, say state health officials. Blacklegged ticks carry Lyme disease, human anaplasmosis (HA), and babesiosis, three illnesses which can lead to serious complications.

Between 2005 and 2008, staff members at the Minnesota Department of Health (MDH) collected blacklegged ticks from regions of Minnesota where Lyme disease and other tick-borne diseases are commonly reported. The MDH Public Health Laboratory tested these ticks for the presence of disease-causing organisms. "While levels of infection in blacklegged ticks can vary by time or place, these levels were consistently high," said Melissa Kemperman, an epidemiologist specializing in tick-transmitted diseases at MDH. "Overall, about one out of every three adult blacklegged ticks was positive for the bacteria that cause Lyme disease. In many parts of Minnesota, this means that there is a good chance that any blacklegged tick you encounter is carrying the Lyme disease bacteria."

Nymphs, the immature stage of tick, were also tested. Just over 10 percent of nymphal blacklegged ticks were positive for the Lyme disease bacteria. Although fewer nymphs than adults were positive for the Lyme disease bacteria, their small size makes them more dangerous. "Nymphs are tiny—about the size of a poppy seed," Kemperman said. "Because of this, they are very difficult to notice, and many people don't notice that an attached nymph is feeding on them."

Lyme disease is not the only disease that can follow bites from infected ticks. Overall, nearly 10 percent of adult blacklegged ticks and about 5 percent of nymphs were positive for the organisms that cause HA or babesiosis.

Bites from blacklegged ticks have led to record numbers of tick-borne disease cases in Minnesota in recent years. Since 2004, an average of about 1,000 cases of Lyme disease has been reported to MDH each year, twice the average annual numbers from 1999 to 2003. Numbers of HA and babesiosis cases are smaller but also have risen dramatically, to about 300 HA and 25 babesiosis cases in each of the last two years.

Blacklegged ticks are most common in hardwood forests of east-central, north-central, and southeastern Minnesota. Over the past few years, they have appeared to expand their range into forested parts of west-central, northwest, and northeast Minnesota. The ticks also are common in wooded areas of Wisconsin and northeastern states. The ticks are typically active from April through October, but mid-May through mid-July represents the period of greatest activity for the nymph stage of the tick and therefore the highest risk time for disease transmission to people.

"People who live in or visit wooded or brushy areas need to take precautions against tick bites," warns Ruth Lynfield, Minnesota's State Epidemiologist. "The rising number of disease cases suggests that Minnesota forests may contain greater numbers of infected ticks than in the past. It also suggests that too few Minnesotans are taking simple precautions to protect themselves."

Precautions are most important during the late spring, early summer, and fall, when blacklegged ticks are active. When spending time in wooded or brushy areas, it is crucial to use tick repellents containing DEET or permethrin. Repellents containing up to 30 percent DEET can be used on the skin or clothing. Permethrin-based products, which

are only applied to clothing, are highly effective and can last through several washings. Since ticks climb up from the ground, focus repellent use below the knees.

Also, wear long pants and light-colored clothing and walk in the center of trails.

After returning from the woods, check your body carefully for ticks and promptly remove any that are found. Blacklegged ticks are smaller and darker in color than the common wood ticks that people also may encounter this time of year. They also lack the wood tick's characteristic white markings, and the back end of the female blacklegged tick is reddish-orange in appearance.

Signs and symptoms of Lyme disease can include an expanding rash, fever, headache, chills, muscle pain, joint pain, and fatigue. The rash, one of the earliest symptoms, typically appears between 3 and 30 days after an infectious tick bite. Not everyone with Lyme disease develops the rash. Untreated Lyme disease can develop into joint swelling, nervous system problems, or heart problems.

Symptoms of HA and babesiosis include a high fever, chills, headache, and muscle aches. These symptoms appear approximately one to three weeks after the tick bite for HA and one to six weeks or more after the tick bite for babesiosis. Although people of all ages can get HA and babesiosis, they are most severe in people who are elderly or immune compromised.

Blacklegged ticks need to be attached for 24 to 48 hours to transmit Lyme disease bacteria and 12 to 24 hours to transmit HA bacteria. People who develop signs or symptoms of a tick-related illness after spending time in blacklegged tick habitat should see a physician right away, even if they don't remember getting a tick bite. Lyme disease, HA, and babesiosis are treatable. Early diagnosis and treatment are important in preventing severe illness. Some people develop two or more of these diseases from the same tick bite.

More information about Minnesota's tick-borne diseases is available on the MDH Web site (<http://www.health.state.mn.us/divs/idepc/dtopics/tickborne/index.html>) or by calling MDH at 651-201-5414.

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