

Lyme Disease Update

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Lyme borreliosis (Lyme disease) was first described in the medical literature in 1909 (Lyme Disease: A Clinician's Guide, 1989, State of WI Dept. Health and Social Services). Until the most recent two decades, because of lack of knowledge of the cause and treatment it has been an elusive and controversial entity, and it remains difficult to understand. The name is derived from the town of Lyme, Connecticut where there was a cluster of cases in the early 1970's that helped clarify the nature of the problem.

Lyme disease is caused by a corkscrew-shaped (spirochete) bacterium (*Borrelia burgdorferi*) that is transmitted to humans by bites from Ixodes species ticks (deer ticks in Wisconsin) found primarily in the Midwest and in the Northeastern and the far Western states. However, Lyme disease has been reported in 49/50 states (90% of cases in 10 states including WI). The life cycle of the bacterium in Wisconsin is closely tied to the deer tick, the white-footed mouse and the white-tail deer, with incidental transmission to humans and dogs. Therefore, transmission occurs in areas where these animals live and move in large numbers.

Transmission also appears to be tied to geographic and climatic conditions. Transmission DOES NOT occur from person-to-person. The high-risk geographic areas in Wisconsin include the Mississippi River Valley and some of the Central to Northwestern counties, with relatively few cases being reported in Southeastern counties.

What are the Symptoms of Lyme Disease?

Symptoms in the first stage of disease include nonspecific cold and flu symptoms, headache, stiff neck, body aches, low-grade fever or chills, and joint aches. Many patients develop a typical shaped red rash that later migrates from the tick bite site and becomes more irregular (erythema migrans).



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Later stages of the infection can involve almost any organ or tissue of the body, the most serious of which are the large joints, the heart and the central nervous system. Second and third stages of the disease occur when the primary infection goes undiagnosed and untreated either because the patient does not seek care early or the symptoms are so nonspecific that the diagnosis is difficult to make.

Lyme disease is difficult to diagnose and treat because of its tendency to imitate other diseases. Patients often have atypical (out-of-the-ordinary) or nonspecific symptoms. Current blood tests used to diagnose Lyme disease can be misleading and confusing. Sometimes test results can be falsely positive (reading positive when there is no infection present) or falsely negative (reading negative when there is indeed infection present). The diagnosis of Lyme disease must be approached with caution, being careful not to over-diagnose the disease while at the same time not missing any cases.

How is Lyme Disease Treated?

Treatment in first stage of infection consists of oral antibiotics for as short as two weeks or as long as two months, depending on the extent of the infection. Treatment in the later stages of the disease requires intravenous antibiotics, again for varying times depending on the organ systems involved upon diagnosis. The infection can have late effects on the body even after adequate treatment. Re-infection can also occur, further complicating diagnosis and treatment.

Prevention is the Key.

Prevention is the key to population management of the disease.

Strict avoidance of endemic areas
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(those areas with a high incidence of infection) is the first step. Likewise, people at risk are only those who engage in outdoor activities in the endemic areas of the state and nation, particularly during the late spring and summer when most cases of Lyme are transmitted. Those people at risk include hikers, campers, hunters, on-foot fisherman, and possibly taxidermists or game farm owners. Those at far less risk include people from areas of low occurrence of infection such as towns and cities, and those who do not travel to endemic areas nor engage in outdoor activities as noted above.

Primary prevention measures commonly recommended include:

- 1) wearing long clothing and tucking cuffs into socks or boots,
- 2) spraying clothing with adequately concentrated insect and tick repellent (DEET is the most commonly recommended), and
- 3) nighttime tick checks and bathing at night instead of morning (ticks can take up to 24 hours to attach and can be found or washed off at night).

Although a vaccine was used for prevention in the past, because of efficacy problems (how effective the vaccine is in preventing the disease) it has been discontinued by the manufacturer as of Feb 25th, 2002. At this point we are not sure whether another vaccine will be manufactured in the near future.

Lyme disease is not common, but by no means can it be considered rare. It is a potentially severe condition with adverse effects on many body systems including the joints, heart and brain. Most cases of Lyme disease are preventable by the previously described means including protective clothing, sprays, and evening tick checks and bathing. There is a vaccine available that is new, but long-term effectiveness and possible side effects are unknown, and again, there is no substitute for common sense

prevention. Diagnosis is difficult and can be inexact. Treatment is usually simple and successful if instituted early in the course of infection. Public awareness of relative risk, prevention, symptoms regarding the diagnosis, limitations of medical diagnostic criteria and blood testing, and ongoing public health surveillance will minimize the impact that Lyme disease has on us.

For more information, call Advanced HealthLine at (262) 512-2880 or toll-free at 1-888-709-2080 outside the Milwaukee metro area, or log on at www.ah.com.

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