

# SAFETY NOTES

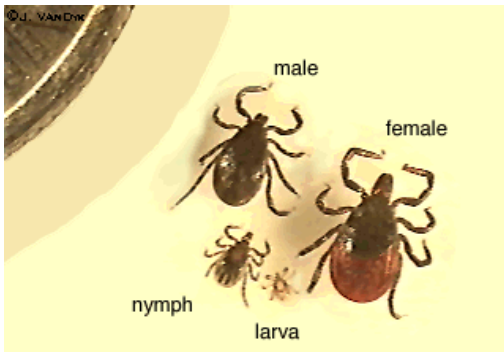
July, 2005



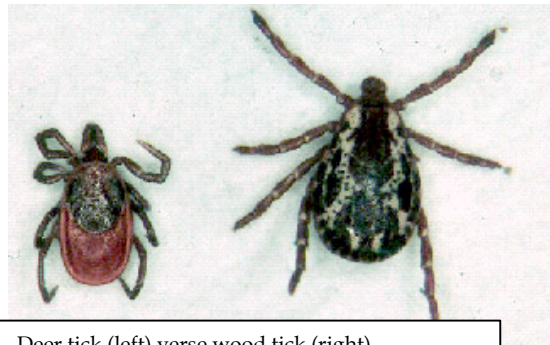
## Lyme Disease

The below information is for guidance and awareness on Lyme Disease. Many individuals (faculty, staff, students) on the UWSP campus or satellite locations will be in locations that have a higher risk for this disease (woods, tall grass, brush, etc). For those individuals/groups studying or working in areas with increase tick populations, please ensure proper precautions and training is conducted prior to the start of your project. For additional assistance on training, contact UWSP EHS at 2320.

Lyme disease is a serious illness caused by a bacteria, borrelia burgdorferi, that is transmitted by a tick named *ixodes scapularis* (commonly called the deer tick in WI – see below picture). Only *Ixodes* ticks are known to transmit the Lyme disease bacterium to humans. Lyme disease may cause symptoms affecting the skin, nervous system, heart and/or joints of an infected individual. Over 7,000 cases of the disease have been reported in Wisconsin since surveillance for Lyme disease began in 1980. Warning: Parts of central Wisconsin and areas throughout WI are rated as a high/moderate risk for Lyme disease transmission by the [Centers for Disease Control](#).



All four stages of *Ixodes scapularis*, the black-legged or deer tick with dime for size comparison.



Deer tick (left) verse wood tick (right).

There are two kinds of ticks in Wisconsin, the deer tick and the wood tick (see above). The deer tick (*ixodes scapularis* - above) can carry Lyme disease and these ticks can infect you with their bite. Wood ticks are not known to transmit Lyme disease.

### How is Lyme disease spread to humans?

The disease is acquired by a tick bite. The deer ticks which transmit the Lyme disease bacterium become infected when the immature stage of the tick feeds on infected field mice. When subsequent stages of that tick feed again, the infection can be transmitted to the tick's new host. The tick must actually be attached to a person's skin for approximately 24 hours before it can transmit the bacterium. The bite of the tick is usually painless, so individuals do not always realize they have been bitten.

### What are the signs and symptoms of Lyme disease?

- Within days to weeks following a tick bite, 80% of patients that have contracted the disease will have a red, slowly expanding circular "[bull's-eye rash](#)" (called erythema migrans – see below) around or near the site of the tick bite, accompanied by general tiredness, fatigue, fever, headache, stiff neck, muscle aches, malaise, and joint pain. The rash expands in size over a period of days or weeks. These symptoms may last for several weeks.



Large, red, slowly spreading rash characteristic of Lyme Disease called erythema migrans (EM) rash

## UWSP EHS Safety Notes – July 2005

- If untreated, weeks to months later some patients may develop arthritis, including intermittent episodes of swelling and pain in the large joints; neurological abnormalities, such as aseptic meningitis, facial palsy, motor and sensory nerve inflammation (radiculoneuritis) and inflammation of the brain (encephalitis); and, rarely, cardiac problems, such as atrioventricular block, acute inflammation of the tissues surrounding the heart (myopericarditis) or enlarged heart (cardiomegaly). Swelling and pain in the large joints may recur over several months or years in untreated Lyme disease. NOTE: Not all persons with the disease develop the initial skin rash.
- **What is the incubation period for Lyme disease?**  
For the red "bull's-eye" rash (erythema migrans), usually 7 to 14 days following tick exposure, but may be as soon as 3 days or a month or longer. Some patients present with later manifestations without having had early signs of disease.
- **How soon do symptoms occur?**  
The early symptoms usually begin within a month of exposure. The later arthritic, cardiac, and neurological problems can take weeks to months to appear. Some infected individuals have no recognized illness (asymptomatic infection determined by serological testing), or manifest only non-specific symptoms such as fever, headache, fatigue, and myalgia.

**How is Lyme disease treated? Early diagnosis and treatment:** The early diagnosis and proper antibiotic treatment of Lyme disease are important strategies to avoid the costs and complications of infection and late-stage illness. The disease is treated with oral or injectable antibiotics. In later disease, treatment failures may occur and retreatment may be necessary.

**PREVENTION MEASURES** can be effective in reducing your exposure to infected ticks, and most people can be successfully treated with antibiotic therapy when diagnosed in the early stages of Lyme disease.

- **Avoid tick habitats:** Whenever possible, avoid entering areas that are likely to be infested with ticks, particularly in spring and summer when nymphal ticks feed. Ticks favor a moist, shaded environment, especially areas with leaf litter and low-lying vegetation in wooded, brushy or overgrown grassy habitat. Both deer and rodent hosts must be abundant to maintain the enzootic cycle of *B. burgdorferi*.
- **Use personal protection measures:** If you are going to be in areas that are tick infested, wear light-colored clothing so that ticks can be spotted more easily and removed before becoming attached. Cover as much of body as possible. Wearing long-sleeved shirts and tucking pants into socks or boot tops may help keep ticks from reaching your skin. Ticks are usually located close to the ground, so wearing high rubber boots may provide additional protection. The risk of tick attachment can also be reduced by applying insect repellents containing DEET (n,n-diethyl-m toluamide) to clothes and exposed skin. DEET can be used safely but should be applied according to Environmental Protection Agency (EPA) guidelines to reduce the possibility of toxicity. Refer to instructions on label and MSDS. There are also other chemicals that may be available to repel or kill ticks.
- **Perform a tick check and remove attached ticks:** The transmission of *B. burgdorferi* (the bacteria that causes Lyme disease) from an infected tick is unlikely to occur before 36 hours of tick attachment. For this reason, daily checks for ticks and promptly removing any attached tick that you find will help prevent infection. Embedded ticks should be removed using fine-tipped tweezers. DO NOT use petroleum jelly, a hot match, nail polish, or other products. Do not crush the tick. Grasp the tick firmly and as closely to the skin as possible. With a steady motion, pull the tick's body away from the skin. The tick's mouthparts may remain in the skin, but do not be alarmed. The bacteria that cause Lyme disease are contained in the tick's midgut or salivary glands, so improper removal may increase risk. Cleanse the area with soap water and an antiseptic.
- **Taking preventive antibiotics after a tick bite:** The relative cost-effectiveness of post-exposure treatment of tick bites to avoid Lyme disease in endemic areas (areas where the disease is known to occur regularly) is dependent on the probability of *B. burgdorferi* infection after a tick bite. In most circumstances, treating persons who only have a tick bite is not recommended. Individuals who are bitten by a deer tick should remove the tick promptly, and may wish to consult with their health care provider. Persons should promptly seek medical attention if they develop any [signs and symptoms of early Lyme disease](#).
- **Strategies to reduce tick abundance:** The number of ticks in endemic residential areas may be reduced by removing leaf litter, brush- and wood-piles around houses and at the edges of yards, and by clearing trees and brush to admit more sunlight and reduce the amount of suitable habitat for deer, rodents, and ticks. Tick populations have also been effectively suppressed through the application of pesticides to residential properties. Community-based interventions to reduce deer populations or to kill ticks on deer and rodents have not been extensively implemented, but may be effective in reducing the community-wide risk of Lyme disease. New approaches such as deer feeding stations equipped with pesticide applicators to kill ticks on deer, and baited devices to kill ticks on rodents, are currently under evaluation.

Note: Many individuals diagnosis with Lyme disease do not recall a tick bite or even any rash. Therefore it is very important to stay aware of any potential tick bites and take appropriate actions.

**For more information, see the following sites:**

CDC <http://www.cdc.gov/ncidod/dybid/lyme/index.htm>

American Lyme Disease Foundation: <http://www.aldf.com/Lyme.asp>

Lyme Disease Foundation: <http://www.lyme.org/communityed.html>

Rhode Island site: <http://www.health.ri.gov/disease/communicable/lyme/index.php>