

## PREVENTION

- When in the woods, wear a repellent with DEET or permethrin to avoid picking up ticks. Follow directions on the label.
- Create a barrier to ticks by tucking pants into socks or boots.
- Wear light-colored clothes so ticks are visible.
- Check and recheck for ticks.
- These precautions are most important during May-June and the fall.

## TICK REMOVAL

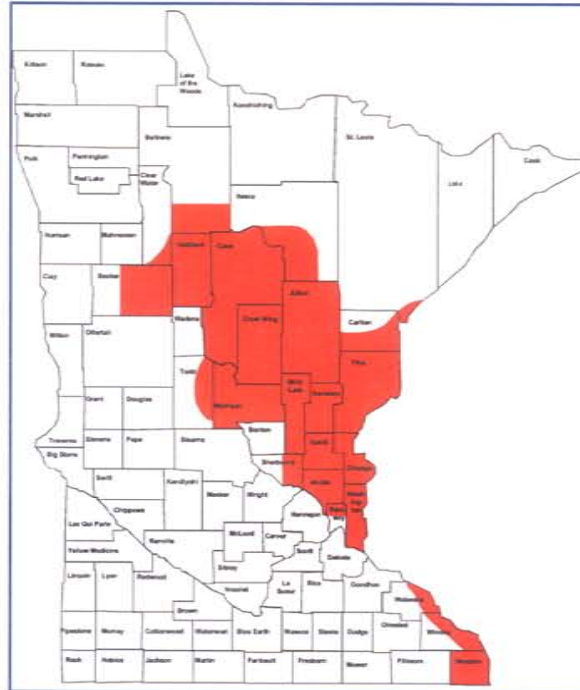
- Use tweezers to grasp the tick close to its mouth.
- Gently and S-L-O-W-L-Y pull the tick outward.
- Apply an antiseptic to the bite.
- Do not burn it off or use petroleum jelly.

Not all people bitten by a deer tick will get a disease. Not all deer ticks carry diseases. If a deer tick is infected, it must be attached for at least 24 hours before it can transmit Lyme disease.

Prompt removal of attached ticks prevents disease!



## HIGHEST RISK AREAS



The risk of exposure to tick-borne diseases in Minnesota is highest in the shaded areas.

### For more information contact:

The Minnesota Department of Health at:  
651-201-5414 or 1-877-676-5414

or

Visit our Lyme disease website at:  
[www.health.state.mn.us/lyme](http://www.health.state.mn.us/lyme)



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# LYME DISEASE

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## LYME DISEASE

Lyme disease is an illness that may affect the skin, joints, nervous system, heart, and other areas of the body. People of all ages can get Lyme disease, which is caused by the bacteria, *Borrelia burgdorferi*. The bacteria are transmitted to humans by the bite of an infected deer tick. The deer tick (*Ixodes scapularis*) is also called the black legged tick.

### SIGNS & SYMPTOMS

**Recognizing the early signs and symptoms of Lyme disease is important.**

If you have one or more of these signs and symptoms within 3 to 30 days after a deer tick bite or spending time in wooded areas where deer ticks are present, see your physician immediately.

- A characteristic skin rash, called erythema migrans, has a "bull's eye" appearance – a red ring with a central clearing.
  - Not everyone recognizes or gets the rash.
  - Not all rashes have central clearing.
- Fever and chills
- Fatigue
- Muscle and joint pain
- Headache



The rash begins as a small, raised red area that may expand to several inches in diameter. It may appear on one or more places on the body and is usually not painful or itchy.

If a person is not treated early in the disease, these late signs and symptoms may develop weeks, months, or years after the tick bite:

- Multiple rashes
- Facial paralysis on one side
- Weakness, numbness, or pain in arms and legs
- Irregular heartbeat
- Memory, concentration problems
- Chronic arthritis in one or more joints, usually the knees, which may be swollen and painful

### DIAGNOSIS & TREATMENT

The diagnosis of Lyme disease is based on signs and symptoms, presence of the characteristic rash, and a history of exposure to deer ticks. A blood test may be helpful in confirming the diagnosis.

Antibiotics are used to treat Lyme disease.

Lyme disease is easiest to treat when diagnosed during the early stages.

### OTHER TICK-BORNE DISEASES

**Two diseases which appear to be less common than Lyme disease – human anaplasmosis and babesiosis – can also be transmitted by the deer tick.**

The signs and symptoms of human anaplasmosis and babesiosis can be severe and include:

- High fever
- Muscle aches
- Chills and shaking
- Severe headache

Less frequent symptoms of anaplasmosis include nausea, vomiting, cough, and aching joints. Anaplasmosis and babesiosis can be treated with antibiotics and other medications by your physician.

## THE DEER TICK

**Deer ticks search for a host at ground level. Ticks acquire the disease agents from the white-footed mouse and other small mammals.**



Enlarged stages of the deer tick appear next to an enlarged dime.  
Top: Nymph  
Lower Left: Larva  
Right: Adult female

The images shown below represent the approximate sizes during different stages of a tick's life.

- **Larvae**  
A deer tick starts as a 6-legged larva, which does not transmit disease.
- **Nymph**  
Most cases of tick-borne disease are caused by the nymph, which looks like a freckle or speck of dirt. The nymph feeds from May through July.
- **Adult**  
The larger adult ticks feed in fall and early spring, and are easier to see and remove. After feeding on deer, the female lays her eggs, which hatch into larvae in May and June.  
  
Only the nymphs and adult female can transmit disease. The adult female has a reddish-orange back.
- **Engorged adult female deer tick**
- **Wood ticks (also called dog ticks)**  
Larger than deer ticks, wood ticks have white markings on their back and do not transmit Lyme disease, human anaplasmosis, or babesiosis.