

Educational Toolkit on Tick and Mosquito-borne Disease

Provided By:
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Health Department



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Public Health
Prevent. Promote. Protect.

PREFACE

The purpose of the Tick and Mosquito-borne Educational Toolkit is to provide local health departments, nongovernmental organizations, and local authorities working in the Ho-chunk nation and La Crosse, Monroe, Vernon, Crawford, Trempealeau, Pierce, Dunn, St. Croix, La Fayette, Jackson, Houston, and Winona County with up-to-date educational material and standards for preventing and controlling vector-borne diseases. The documents outline the burden of the diseases, transmission, symptoms, and treatments for the diseases, along with specific guidelines on the prevention and control of these diseases.

This toolkit aims to provide up-to-date information on the major tick and mosquito-borne threats faced by the population. The list of diseases has been selected on the basis of the burden of morbidity and mortality and includes Lyme disease, Anaplasmosis, Ehrlichiosis, Babesiosis, Rocky Mountain Spotted Fever, Powassan Virus, West Nile Virus, La Crosse Virus, Eastern Equine Virus, Western Equine Virus, and St. Louis Encephalitis.

The Educational Toolkit on Tick and Mosquito-borne Disease was created so that information could be used with multiple audiences in various settings within a community. Potential audiences could include:

- Hikers and or campers
- Boy and Girl Scouts
- Hunters
- Schools (elementary, middle and high school)
- Hospitals and health clinics
- General public

The control of tick and mosquito-borne diseases represents a major challenge to those providing health care services in the La Crosse area and neighboring countries. It is hoped that the Tick and Mosquito-borne Disease Educational Toolkit will facilitate the coordination of vector-borne disease control activities between all agencies working in this region.

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Ticks of Wisconsin

American dog tick

(Dermacentor variabilis)



Disease: RMSF

Blacklegged tick

(Ixodes scapularis)



Diseases: Lyme, Anaplasmosis, and Babesiosis

Lone star tick

(Amblyomma americanum)



Diseases: Ehrlichiosis, Tularemia, and STARI

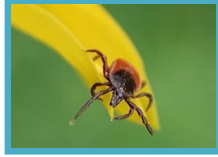
Brown dog tick

(Rhipicephalus sanguineus)



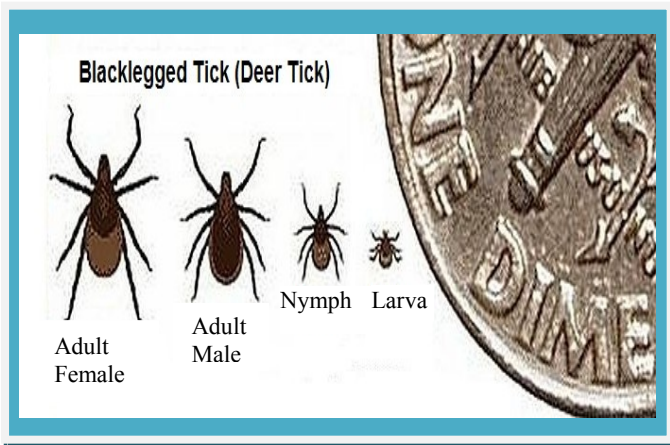
Diseases: RMSF

LYME DISEASE



What is Lyme disease?

Lyme disease is an infection caused by the bacterium, *Borrelia burgdorferi* and is transmitted through the bite of a black legged tick (deer tick).



How is it transmitted?

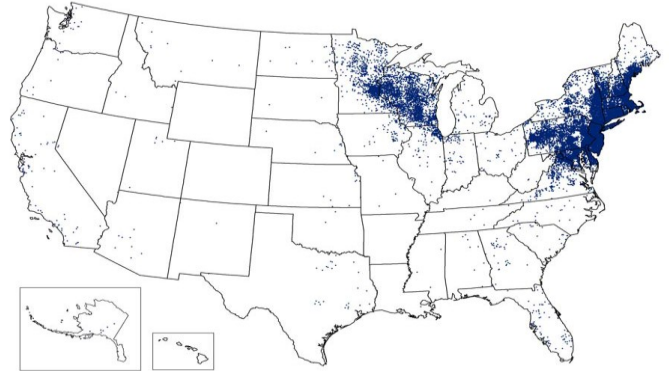
Lyme disease is transmitted when an infected tick attaches to the human body, usually at the armpit, groin, or scalp, and is attached for 36-48 hours or more. The majority of infections are caused from immature ticks, called nymphs. Nymphs are very small (less than 2mm), and feed during the spring and summer months. The larger, adult ticks can also transmit Lyme disease, typically during the cooler months of fall.

How Prevalent is Lyme disease?

In 2011, 96% of Lyme disease cases were reported from 13 states: Connecticut, Delaware, Maine, Maryland, Massachusetts, **Minnesota**, New Hampshire, New Jersey, New York, Pennsylvania, Vermont, Virginia, and **Wisconsin**.

Lyme disease is the most commonly reported vector-borne illness in the United States. In Wisconsin, the highest number of cases is seen in the western region, but in recent years, cases have increased in the central region and eastern region. It is the highest reported tick-borne disease in Wisconsin, with more than 25,000 cases reported between 1980 and 2011.

Reported Cases of Lyme disease – United States, 2011



What are the Symptoms?

Early Lyme -- 3-30 days post-tick bite

- “Flu-like symptoms”
- Bulls-eye rash (Erythema Migrans)
- Stiff neck
- Headache
- Fever
- Chills
- Swollen lymph nodes
- Fatigue
- Muscle aches
- Joint pain

Late Lyme -- months-years post-tick bite

- Arthritis
- Facial paralysis
- Meningitis
- Hearing loss
- Severe fatigue
- Numbness in arms/hands or legs/feet
- Short term memory loss

When early symptoms go undetected or ignored it is possible to develop late-stage symptoms. Refer to the resource section of this article for further information on the signs and symptoms of Lyme disease.

LYME DISEASE

What are the treatments?

Antibiotics

Oral antibiotics are the standard early treatment for Lyme disease. Individuals older than 8 years old typically receive doxycycline. Younger children, and breastfeeding or pregnant women usually receive amoxicillin, or cefuroxime. A 14 – 21 day antibiotic treatment is standard. In some situations intravenous antibiotics are recommended.

How do I prevent Lyme disease?

Prevention begins with you! Take steps to reduce your chances of being bitten by any tick. Ticks are most active during warm weather, generally late spring through fall. However, ticks can be out any time that temperatures are above freezing. Ticks cling to vegetation and are most numerous in brushy, wooded or grassy habitats. When you are outside in an area likely to have ticks (e.g. brushy, wooded or grassy places), follow these simple steps to protect yourself and your loved ones:

- Avoid areas where there is a high concentration of ticks- wooded and brushy areas with high grass.
- Stay on cleared, well-traveled trails.
- Use insect repellents containing at least 20% DEET.
- Wear clothing that has been treated with Permethrin.
- Scan clothes and any exposed skin frequently for ticks while outdoors.
- Wear enclosed shoes and light-colored clothing.
- Take a shower as soon as possible from after coming indoors
- Perform a final, full-body tick-check at the end of the day (also check children and pets).
- Put clothes in the dryer on high heat for 60 minutes to kill any remaining ticks.



How do I remove a tick?

- Using tweezers, grasp the tick's mouthpart as close to the skin as possible.
- Gently pull the tick straight out, using a firm steady motion.
- Wash your hands and the bite site with soap and water. Apply an antiseptic to the bite site.
- If you experience flu-like symptoms within 2-3 weeks after being bitten by a tick, or after having been in an area where ticks are present, see your doctor or health care provider.



Myths about Lyme

MYTH #1- The best way to remove a tick is with a lit match, fingernail polish, or petroleum jelly.

Fact: None of these methods cause the tick to “back out,” and all of them may actually result in the tick depositing more disease carrying saliva into the wound, increasing the risk of infection.

MYTH #2- Ticks live in trees, so as long as I don't live near or visit a wooded area, I don't have to worry about them.

Fact: Ticks live on the ground, regardless of where you are. Ticks often crawl up from grass blades onto humans, migrate upwards, which is why they're often found on the scalp.

For further information

Please refer to the following sources for more information on Lyme disease.

- **Wisconsin Department of Health Services**
<http://www.dhs.wisconsin.gov/communicable/Tickborne/Lyme/Index.htm>
- **Centers for Disease Control and Prevention**
<http://www.cdc.gov/lyme/>
- **International Lyme and Associated Disease Society**
http://www.ilads.org/lyme_disease/about_lyme.html

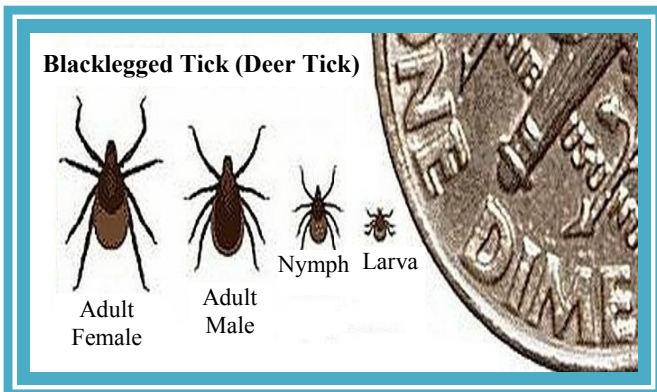
Anaplasmosis

What is Anaplasmosis?

Anaplasmosis is an infection caused by the bacteria, *Anaplasma phagocytophilum*. The bacterium infects certain types of white blood cells called granulocytes.

How is it transmitted?

In Wisconsin, Anaplasmosis is transmitted to humans through the bite of an infected blacklegged tick (deer tick), the same tick that causes other tick-borne diseases in Wisconsin, including Lyme disease. Ticks become infected with the bacterium when they bite an infected wild rodent. If that tick later bites a human, the tick may transmit the bacterium to the person. Dogs and horses can be infected with the bacteria, but they cannot transmit the infection to people.

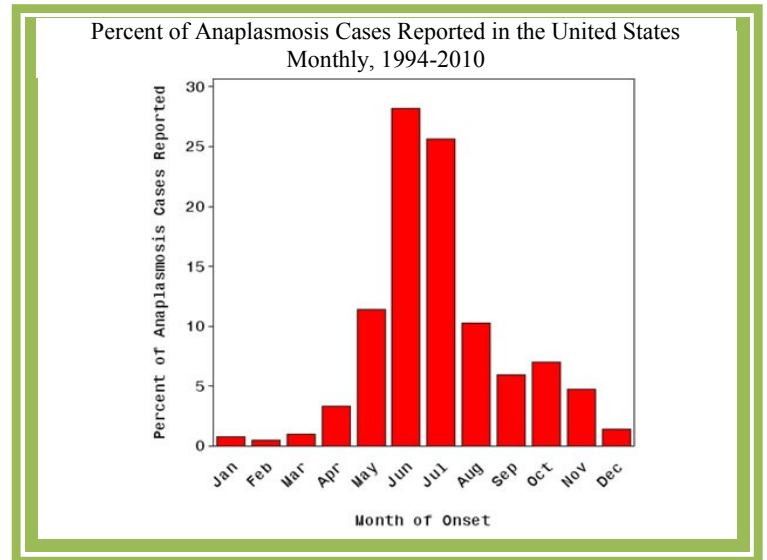


Where do cases of Anaplasmosis occur?

In the United States, Anaplasmosis is most commonly found in the Northeast, mid-Atlantic and upper Midwest. Six states (New York, Connecticut, New Jersey, Rhode Island, Minnesota, and Wisconsin) account for 90% of all Anaplasmosis cases. In Wisconsin, HGA is the second most reported tick-borne disease and can be found throughout the state.

When am I at risk?

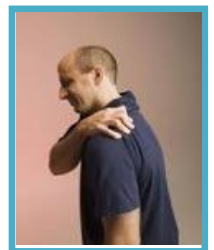
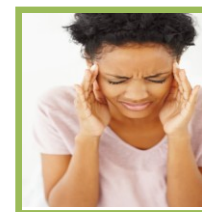
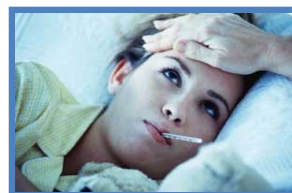
In Wisconsin, reports of Anaplasmosis illnesses are usually seen from spring through autumn when the ticks are active. The highest number of infections is reported between May and July. Illness occurs more frequently in adults than in children.



What are the symptoms?

Symptoms of Anaplasmosis generally include: fever, headache, chills, muscle aches, and fatigue. Less commonly, people may have abdominal pain, nausea, vomiting, diarrhea, cough, and joint aches. The symptoms of Anaplasmosis usually begin to appear 7 to 14 days after being bitten by an infected tick.

If not treated, Anaplasmosis can be serious illnesses, and occasionally can even be fatal. Signs of severe illness may include difficulty breathing, hemorrhage, renal failure, or neurological problems.



Anaplasmosis

What are the treatments?

Anaplasmosis can be successfully treated with antibiotics. Persons generally begin to feel better within one to two days of starting antibiotic treatment.

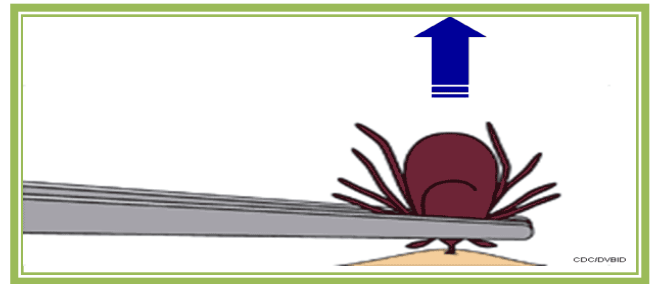
How can I prevent Anaplasmosis?

Prevention begins with you! Take steps to reduce your chances of being bitten by any tick. Ticks are most active during warm weather, generally late spring through fall. However, ticks can be out any time that temperatures are above freezing. Ticks cling to vegetation and are most numerous in brushy, wooded or grassy habitats. When you are outside in an area likely to have ticks (e.g. brushy, wooded or grassy places), follow these simple steps to protect yourself and your loved ones:

- Avoid areas where there is a high concentration of ticks- wooded and brushy areas with high grass.
- Stay on cleared, well-traveled trails.
- Use insect repellents containing at least 20% DEET.
- Wear clothing that has been treated with Permethrin.
- Scan clothes and any exposed skin frequently for ticks while outdoors.
- Wear enclosed shoes and light-colored clothing.
- Take a shower as soon as possible from after coming indoors
- Perform a final, full-body tick-check at the end of the day (also check children and pets).
- Put clothes in the dryer on high heat for 60 minutes to kill any remaining ticks.

How do I remove a tick?

- Using tweezers, grasp the tick's mouthpart as close to the skin as possible.
- Gently pull the tick straight out, using a firm steady motion.
- Wash your hands and the bite site with soap and water. Apply an antiseptic to the bite site.
- If you experience flu-like symptoms within 2-3 weeks after being bitten by a tick, or after having been in an area where ticks are present, see your doctor or health care provider.



For further information

Please refer to the following sources for more information on Anaplasmosis.

- **Wisconsin Department of Health Services**
<http://www.dhs.wisconsin.gov/communicable/TickBorne/AnaplasmosisEhrlichiosis.htm>
- **Centers for Disease Control and Prevention**
<http://www.cdc.gov/anaplasmosis/>
- **American Lyme Disease Foundation**
<http://www.aldf.com/Anaplasmosis.shtml>
- **Minnesota Department of Health Services**
<http://www.health.state.mn.us/divs/idepc/diseases/anaplasmosis/index.html>



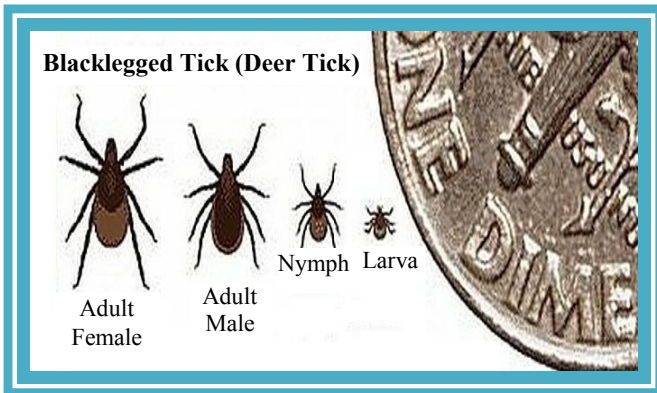
BABESIOSIS

What is Babesiosis?

Babesiosis is a rare, sometimes severe, and occasionally fatal tick-borne disease caused by a parasite that infects red blood cells.

How is it transmitted?

Babesiosis is caused by *Babesia microti*, a parasite transmitted by the bite of an infected deer tick (the same tick species that can carry the Lyme disease bacterium). The tick is carried by meadow voles, mice and deer. Less commonly, transmission can also occur via contaminated blood transfusions if the donor had Babesiosis.



Who gets Babesiosis?

Anyone can get babesiosis, but it occurs most frequently in the elderly or in persons whose immune system is impaired. Cases of this disease have been reported during spring, summer and fall in northwestern Wisconsin and in coastal areas in the northeastern United States.

What are the symptoms of Babesiosis?

Symptoms of Babesiosis usually begin to appear from 1 to 8 weeks after being bitten by an infected tick. Most people who are infected by the parasite will show mild signs of illness or no signs at all. If symptoms occur, they may include fever, chills, headache, achy joints and muscles, fatigue, nausea, vomiting, abdominal pain and dark urine.

What is the treatment for Babesiosis?

Standardized treatments for babesiosis have not been developed. However, antibiotics combined with certain drugs used in the treatment of malaria have been found to be effective in some patients with babesiosis.

How can I prevent Babesiosis?

- Avoid areas where there is a high concentration of ticks- wooded and brushy areas with high grass.
- Stay on cleared, well-traveled trails.
- Use insect repellents containing at least 20% DEET.
- Wear clothing that has been treated with Permethrin.
- Scan clothes and any exposed skin frequently for ticks while outdoors.
- Wear enclosed shoes and light-colored clothing.
- Take a shower as soon as possible from after coming indoors
- Perform a final, full-body tick-check at the end of the day (also check children and pets).
- Put clothes in the dryer on high heat for 60 minutes to kill any remaining ticks.

How do I remove a tick?

- Using tweezers, grasp tick near the mouth parts, as close to the skin as possible.
- Pull tick in a steady, upward motion away from skin.
- Disinfect site with soap and water, rubbing alcohol or hydrogen peroxide.



For further information

Please refer to the following sources for more information on Lyme disease.

- **Wisconsin Department of Health Services**
<http://www.dhs.wisconsin.gov/communicable/Tickborne/Babesiosis.htm>
- **Centers for Disease Control and Prevention**
<http://www.cdc.gov/parasites/babesiosis/>
- **American Lyme Disease Foundation**
<http://www.aldf.com/Babesiosis.shtml>

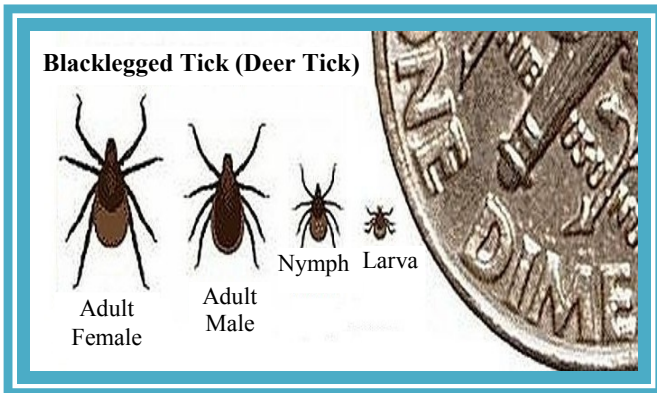
EHRlichiosis

What is Ehrlichiosis?

Ehrlichiosis is a rare, sometimes severe, and occasionally fatal tick-borne disease caused by a bacterium that infects white blood cells causing illness in humans and animals.

How is it transmitted?

Ehrlichiosis is caused by three different bacterium species: *Ehrlichia chaffeensis*, *Ehrlichia ewingii*, and *Ehrlichia muris*. The bacterium can be transmitted by the bite of an infected deer tick and lone star tick. The tick is carried by meadow voles, mice and deer.



Who gets Ehrlichiosis?

Everyone is susceptible to Ehrlichiosis, but individuals who spend time outdoors are at a greater risk of exposure. Historically, Ehrlichiosis is less common in Wisconsin but in the past 4 years, cases of Ehrlichiosis have increased.

What are the symptoms of Ehrlichiosis?

Symptoms of Ehrlichiosis usually begin to appear from 1 - 3 weeks after exposure to an infected tick. The initial signs and symptoms of Ehrlichiosis include rapid onset of fever, sweats, chills, headache, fatigue, and muscle aches. Other less common signs and symptoms may include vomiting, nausea, diarrhea, cough, confusion, rash, rigors, and joint pain.

What is the treatment for Ehrlichiosis?

Ehrlichiosis can be successfully treated with antibiotics. Persons with Ehrlichiosis generally begin to feel better within one to two days of starting antibiotic treatment.

How can I prevent Ehrlichiosis?

- Avoid areas where there is a high concentration of ticks- wooded and brushy areas with high grass.
- Stay on cleared, well-traveled trails.
- Use insect repellents containing at least 20% DEET.
- Wear clothing that has been treated with Permethrin.
- Scan clothes and any exposed skin frequently for ticks while outdoors.
- Wear enclosed shoes and light-colored clothing.
- Take a shower as soon as possible from after coming indoors
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How do I remove a tick?

- Using tweezers, grasp tick near the mouth parts, as close to the skin as possible.
- Pull tick in a steady, upward motion away from skin.
- Disinfect site with soap and water, rubbing alcohol or hydrogen peroxide.



For further information

Please refer to the following sources for more information on Lyme disease.

- **Wisconsin Department of Health Services**
<http://www.dhs.wisconsin.gov/communicable/Tickborne/Babesiosis.htm>
- **Centers for Disease Control and Prevention**
<http://www.cdc.gov/parasites/babesiosis/>
- **American Lyme Disease Foundation**
<http://www.aldf.com/Babesiosis.shtml>

ROCKY MOUNTAIN SPOTTED FEVER

What is Rocky Mountain Spotted Fever?

Rocky Mountain spotted fever (RMSF) is rare in Wisconsin, but isolated cases have been reported from various parts of the state. The illness is caused by bacteria called *Rickettsia rickettsii*, which is transmitted locally by the tick species *Dermacentor variabilis* (American dog tick, also called the wood tick). American dog ticks are found in grassy or wooded areas throughout Wisconsin. They are most active from spring through mid-summer.

Who gets RMSF?

RMSF is rare in Wisconsin. The majority of cases in the U.S. occur in the southeastern states. In spite of its name, RMSF is not common in the mountain states. Children and young adults are most frequently affected.

How is RMSF transmitted?

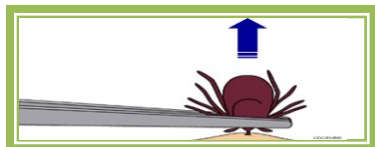
RMSF is spread by the bite of an infected tick (the American dog tick, the lone-star tick or the wood tick). Person to person and direct animal to human transmission of RMSF does not occur.

What are the symptoms of RMSF?

Symptoms usually appear between 3-14 days after the bite of an infected tick. RMSF is characterized by a sudden onset of moderate to high fever (which can last for two or three weeks), severe headache, fatigue, deep muscle pain, chills and rash. The rash usually begins on the legs or arms and may spread rapidly to the rest of the body.

How do I remove a tick?

- Using tweezers, grasp tick near the mouth part, as close to the skin as possible.
- Pull tick in a steady, upward motion away from skin.
- Disinfect site with soap and water, rubbing alcohol or hydrogen peroxide.



What is the treatment for RMSF?

Prompt antibiotic treatment for suspected cases of RMSF is important, because it can be fatal in 15-20% of untreated cases. Delays in diagnosis because of the absence of a rash or no knowledge of a tick bite could be dangerous for the patient.

How can I prevent RMSF?

Prevention begins with you! Take steps to reduce your chances of being bitten by any tick. Ticks are most active during warm weather, generally late spring through fall. However, ticks can be out any time that temperatures are above freezing. Ticks cling to vegetation and are most numerous in brushy, wooded or grassy habitats. When you are outside in an area likely to have ticks (e.g. brushy, wooded or grassy places), follow these simple steps to protect yourself and your loved ones:

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- Wear enclosed shoes and light-colored clothing.
- Take a shower as soon as possible from after coming indoors
- Perform a final, full-body tick-check at the end of the day (also check children and pets).
- Put clothes in the dryer on high heat for 60 minutes to kill any remaining ticks.

For further information

Please refer to the following sources for more information on Lyme disease.

- **Wisconsin Department of Health Services**
<http://www.dhs.wisconsin.gov/communicable/Tickborne/RockyMountainSpottedFever.htm>
- **Centers for Disease Control and Prevention**
<http://www.cdc.gov/rmsf/index.html>
- **American Lyme Disease Foundation**
<http://www.aldf.com/RMSF.shtml>

POWASSAN VIRUS

What is Powassan virus?

Powassan virus (POWV) infection is a rare tick-borne viral infection occurring in Wisconsin and other northern regions of North America. POWV infection is caused by an arbovirus (similar to the mosquito-borne West Nile virus) but it is transmitted to humans by the bite of an infected tick instead of a mosquito bite. Eleven reported cases of POWV infection have been detected among Wisconsin residents during 2003 to 2011. At least 50 cases have been detected in the United States and Canada since 1958.

Who gets POWV?

Everyone is susceptible to Powassan virus, but people who spend time outdoors in tick-infested environments are at an increased risk of exposure. Powassan virus infection occurs mostly in northeastern and upper Midwestern states. In the upper Midwest, the risk of tick exposure is highest from late spring through autumn.

How is POWV transmitted?

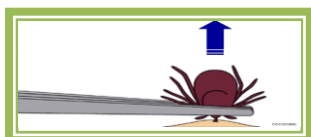
In Wisconsin, the blacklegged (deer) tick is capable of transmitting POWV.

What are the symptoms of POWV?

Symptoms usually begin 7-14 days after the bite of an infected tick. Symptoms of illness usually begin with acute onset of fever and may include: headache, muscle weakness, nausea, vomiting, stiff neck, fatigue, confusion, speech difficulties, and memory loss. POWV infects the central nervous system and can cause encephalitis and meningitis. About 10-15% of persons infected with POWV will experience severe illness and survivors may develop long-term neurological problems.

How do I remove a tick?

- Using tweezers, grasp tick near the mouth parts, as close to the skin as possible.
- Pull tick in a steady, upward motion away from skin.
- Disinfect site with soap and water, rubbing alcohol or hydrogen peroxide.



What is the treatment for POWV?

Currently, there are no medications available for the treatment of Powassan virus illness but supportive care can be used to manage and alleviate symptoms.

How can I prevent POWV?

Prevention begins with you! Take steps to reduce your chances of being bitten by any tick. Ticks are most active during warm weather, generally late spring through fall. However, ticks can be out any time that temperatures are above freezing. Ticks cling to vegetation and are most numerous in brushy, wooded or grassy habitats. When you are outside in an area likely to have ticks (e.g. brushy, wooded or grassy places), follow these simple steps to protect yourself and your loved ones:

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- Scan clothes and any exposed skin frequently for ticks while outdoors.
- Wear enclosed shoes and light-colored clothing.
- Take a shower as soon as possible from after coming indoors
- Perform a final, full-body tick-check at the end of the day (also check children and pets).
- Put clothes in the dryer on high heat for 60 minutes to kill any remaining ticks.

For further information

Please refer to the following sources for more information on POWV.

- **Wisconsin Department of Health Services**
<http://www.dhs.wisconsin.gov/communicable/tickborne/Powassan.htm>
- **Minnesota Department of Health Services**
<http://www.health.state.mn.us/divs/idepc/diseases/powassan/basics.html>

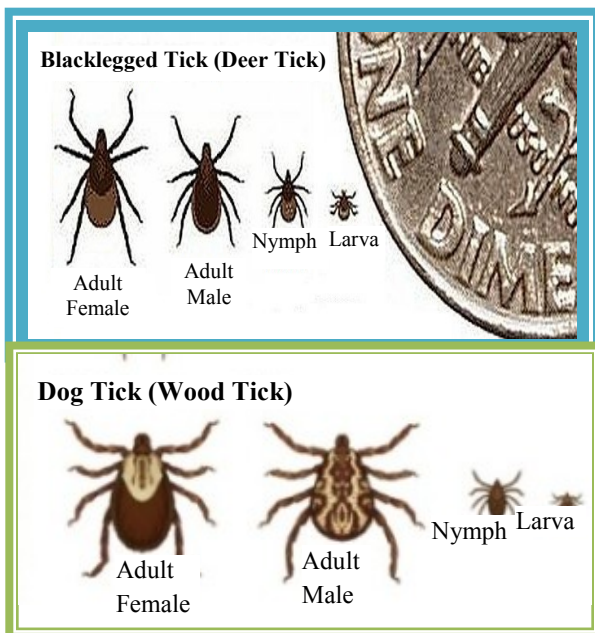
TICK BORNE DISEASES FACT SHEET

(Lyme disease, Anaplasmosis, Babesiosis, Ehrlichiosis, and Rocky Mountain Spotted Fever)

What is a tick?

Ticks are blood feeding parasites. They are found in wooded or grassy areas, especially along the edges of trails, roads, and yards. Once on a host (deer, raccoons, and other wildlife), ticks crawl until they find a suitable spot to feed. They then burrow their mouthparts into the skin for a blood meal. Ticks can feed anywhere from several minutes to several weeks depending on their life stage, type of host, and type of tick. It is during feeding that infected ticks can transmit disease to their hosts.

The two most common ticks found in Wisconsin include the blacklegged (deer) tick and the dog (wood) tick.



What diseases can ticks spread?

The most common tick-borne diseases in Wisconsin include Lyme disease, Anaplasmosis, and Babesiosis. These diseases are transmitted from the bite of a blacklegged (deer) tick.

Uncommon tick-borne diseases found in Wisconsin include, Ehrlichiosis, Powassan virus infection (a rare tick-borne arbovirus illness) and Rocky Mountain Spotted Fever (RMSF).

A tick has to be attached for at least 24 hours to spread disease.

What are the symptoms of tick borne diseases?

Early symptoms of many tick borne diseases are similar to the symptoms of the “flu”.

Lyme disease:

- Slowly expanding “bull’s eye” rash
- Fever
- Headache
- Stiff neck or neck pain
- Fatigue
- Joint pain

Babesiosis:

- Fever
- Chills
- Joint Pain
- Nausea
- Vomiting
- Abdominal pain

Powassan Virus:

- Sudden fever
- Headache
- Nausea
- Fatigue
- Confusion
- Speech difficulties

Anaplasmosis:

- Headache
- Fever
- Chills
- Muscle Aches
- Fatigue

Ehrlichiosis:

- Fever
- Headache
- Muscle Aches
- Diarrhea
- Nausea
- Cough
- Confusion

RMSEF:

- Sudden fever
- Chills
- Headache
- Muscle pain
- Reddish-to-purple rash

Tick borne diseases can be serious if not properly diagnosed and treated. If you are ill and have had recent exposure to ticks, it is important to talk with your medical provider immediately.

How are tick borne diseases treated?

Lyme disease, Anaplasmosis, Rocky Mountain Spotted Fever, and Ehrlichiosis are treatable with antibiotics. People and domestic animals treated in the early stages with short courses of antibiotics usually recover quickly and fully.

Standardized treatments for Babesiosis have not been developed. However, antibiotics combined with certain drugs used in the treatment of malaria have been found to be effective in some patients with babesiosis. There is no current treatment for Powassan virus.

TICK BORNE DISEASES FACT SHEET

(Lyme disease, Anaplasmosis, Babesiosis, Ehrlichiosis, and Rocky Mountain Spotted Fever)

When can I get Tick-borne diseases?

In Wisconsin, tick-borne illnesses are usually seen from spring through autumn when the ticks are active but can occur at any time throughout the year. The highest number of infections is reported between May and July.

How can I prevent HGA?

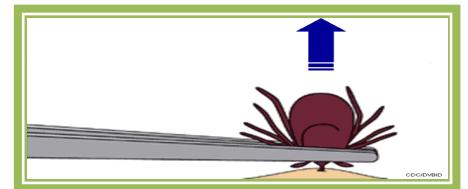
Prevention begins with you! Take steps to reduce your chances of being bitten by any tick. Ticks are most active during warm weather, generally late spring through fall. However, ticks can be out any time that temperatures are above freezing. Ticks cling to vegetation and are most numerous in brushy, wooded or grassy habitats. When you are outside in an area likely to have ticks (e.g. brushy, wooded or grassy places), follow these simple steps to protect yourself and your loved ones:

- Avoid areas where there is a high concentration of ticks- wooded and brushy areas with high grass.
- Stay on cleared, well-traveled trails.
- Use insect repellents containing at least 20% DEET.
- Wear clothing that has been treated with Permethrin.
- Scan clothes and any exposed skin frequently for ticks while outdoors.
- Wear enclosed shoes and light-colored clothing.
- Take a shower as soon as possible from after coming indoors
- Perform a final, full-body tick-check at the end of the day (also check children and pets).
- Put clothes in the dryer on high heat for 60 minutes to kill any remaining ticks.



How do I remove a tick?

- Using tweezers, grasp the tick's mouthpart as close to the skin as possible.
- Gently pull the tick straight out, using a firm steady motion.
- Wash your hands and the bite site with soap and water. Apply an antiseptic to the bite site.
- If you experience flu-like symptoms within 2-3 weeks after being bitten by a tick, or after having been in an area where ticks are present, see your doctor or health care provider.



Myths about Lyme

MYTH #1- The best way to remove a tick is with a lit match, fingernail polish, or petroleum jelly.

Fact: None of these methods cause the tick to “back out,” and all of them may actually result in the tick depositing more disease carrying saliva into the wound, increasing the risk of infection.

MYTH #2- Ticks live in trees, so as long as I don't live near or visit a wooded area, I don't have to worry about them.

Fact: Ticks live on the ground, regardless of where you are. Ticks often crawl up from grass blades onto humans, migrate upwards, which is why they're often found on the scalp.

For further information

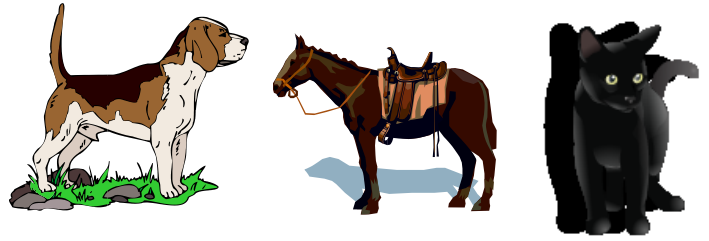
Please refer to the following sources for more information on Lyme disease.

- **Wisconsin Department of Health Services**
<http://www.dhs.wisconsin.gov/communicable/TickBorne/index.htm>
- **Centers for Disease Control and Prevention**
<http://www.cdc.gov/ticks/index.html>
- **American Lyme Disease Foundation**
<http://www.aldf.com/majorTick.shtml>

LYME DISEASE IN PETS

Q. Can dogs and cats get Lyme disease?

A. The companion animals that we live in closest contact with (dogs, cats and horses) can all get Lyme disease and the other tick-borne diseases (Anaplasmosis, Babesiosis, and Ehrlichiosis).



Q. What are the symptoms of Lyme disease in pets?

A. Dogs infected with Lyme disease may display symptoms which include: fever, loss of appetite, depression, lethargy, swelling and pain in one or more joints. More serious complications include kidney disease, heart disease and nervous system disorders. Most cats and horses do not show symptoms of Lyme disease but the signs of illness in cats are similar to those in dogs.

Q. Is there a test my veterinarian can do to diagnose Lyme disease in my pet?

A. For dogs, your veterinarian can perform a blood test that gives accurate results in 8 minutes. A confirming test, called the Western Blot test, is available through veterinary diagnostic laboratories. For cat and horses, blood tests are sent to a diagnostic laboratory for confirmation.

Q. What is the treatment for Lyme disease in my pet?

A. A course of antibiotics is usually effective in treating Lyme disease. The earlier treatment is started, the more successful the outcome. Long-standing disease may respond slowly and require longer periods of treatment.

Q. If my pets are restricted to my yard, can they still get Lyme disease?

A. Yes. Ticks are frequently found in suburban yards, brought in by deer or mice. Ticks can also be found in yards that border wooded areas and where the lawn is not kept short, if there is bushy vegetation, leaf litter and/or tall grasses.

Q. If my dog or cat brings deer ticks into my home; do those ticks present a threat to the rest of my family?

A. You are not at risk of getting Lyme disease directly from your pet. But if a tick is brushed off your pet before it is firmly attached, and a member of your family has direct contact with the tick, it may then attach itself to a human host. (For example, a tick is brushed off a dog or cat onto the family couch. A family member sits on the couch and the tick crawls onto that person's arm and searches for a warm moist spot to attach itself.) Ticks do not fly or jump from one host to another.

Q. Should I examine my pets for ticks each time they come in from outside?

A. Yes! Remove ticks before they have a chance to attach and transmit bacteria to your pet. If ticks are removed within 24-36 hours of attachments, the risk of disease transmission is minimal.

Q. Is there a way to reduce the chances of my pet being bitten by potentially harmful ticks?

A. Yes. Use products such as Frontline that kill ticks within 24-48 hours of application. Mow your lawns frequently and don't let pets get into the underbrush. Perform tick checks on your pets every time they come inside during the tick season. Beware of tick repellents that may have chemicals too toxic for your pet or family members. Always read and follow label directions!

Q. Where should I go for more information on Lyme disease in my pets?

A. Talk to your veterinarian or contact your local health department for further information.

Think Tick...Take Action!

How to prevent tick bites when hiking and camping

Prevention begins with you!

Take steps to reduce your chances of being bitten by any tick.

Ticks are most active during warm weather, generally late spring through fall. However, ticks can be out any time that temperatures are above freezing. Ticks cling to vegetation and are most numerous in brushy, wooded or grassy habitats. When you are outside in an area likely to have ticks (e.g. brushy, wooded or grassy places), follow these simple steps to protect yourself and your loved ones:

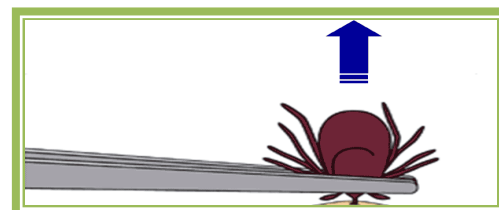
- Avoid areas where there is a high concentration of ticks- wooded and brushy areas with high grass.
- Stay on cleared, well-traveled trails.
- Use insect repellents containing at least 20% DEET.
- Wear clothing that has been treated with Permethrin.
- Scan clothes and any exposed skin frequently for ticks while outdoors.
- Wear enclosed shoes and light-colored clothing.
- Take a shower as soon as possible from after coming indoors
- Perform a final, full-body tick-check at the end of the day (also check children and pets).
- Put clothes in the dryer on high heat for 60 minutes to kill any remaining ticks.



How do I remove a tick?

- Using tweezers, grasp the tick's mouthpart as close to the skin as possible.
- Gently pull the tick straight out, using a firm steady motion. Don't twist or jerk the tick—this can cause the mouth parts to break off and stay in the skin. If this happens, remove the mouth parts with tweezers if you can. If not, leave them alone and let your skin heal.
- Wash your hands and the bite site with soap and water. Apply an antiseptic to the bite site.
- If you experience flu-like symptoms within 2-3 weeks after being bitten by a tick, or after having been in an area where ticks are present, see your doctor or health care provider.

Note: Do not put hot matches, nail polish, or petroleum jelly on the tick to try to make it pull away from your skin. This is not effective.



Think Tick...Take Action!

How to prevent tick bites when hiking and camping

When to see your doctor

See a doctor if you develop any of the following symptoms within 30 days of being bitten by a tick or after having been in an area where ticks are present. If you have these symptoms and spend a lot of time outdoors where Lyme disease is common, it is important to get treatment right away.

Early Lyme -- 3-30 days post-tick bite

- "Flu-like symptoms"
- Bulls-eye rash (Erythema Migrans)
- Stiff neck
- Headache
- Fever
- Chills
- Swollen lymph nodes
- Fatigue
- Muscle aches
- Joint pain

Late Lyme -- months-years post-tick bite

- Arthritis
- Facial paralysis
- Meningitis
- Hearing loss
- Severe fatigue
- Numbness in arms/hands or legs/feet
- Short term memory loss

When early symptoms go undetected or ignored it is possible to develop late-stage symptoms. Refer to the resource section of this article for further information on the signs and symptoms of Lyme disease.

What are the treatments?

Oral antibiotics are the standard early treatment for Lyme disease. Individuals older than 8 years old typically receive doxycycline. Younger children, and breastfeeding or pregnant women usually receive amoxicillin, or cefuroxime. A 14 – 21 day antibiotic treatment is standard. In some situations intravenous antibiotics are recommended.

Myths about Lyme

MYTH #1- The best way to remove a tick is with a lit match, fingernail polish, or petroleum jelly.

Fact: None of these methods cause the tick to "back out," and all of them may actually result in the tick depositing more disease carrying saliva into the wound, increasing the risk of infection.

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Fact: Ticks live on the ground, regardless of where you are. Ticks often crawl up from grass blades onto humans, migrate upwards, which is why they're often found on the scalp.



For further information

Wisconsin Department of Health Services

<http://www.dhs.wisconsin.gov/communicable/Tickborne/Lyme/index.htm>

Centers for Disease Control and Prevention

<http://www.cdc.gov/lyme>

International Lyme and Associated Disease Society

http://www.ilads.org/Lyme_disease/about_lyme.html

CREATING A TICK-FREE ZONE AROUND YOUR HOME

While deer ticks are most abundant in wooded areas, they are also commonly found in our lawns and shrubs. There are a number of measures Wisconsin residents can take to reduce the possibility of being bitten by a tick on their property.

Ticks and their primary hosts - mice, chipmunks and other small mammals - need moisture, a place away from direct sunlight and a place to hide. The cleaner you keep the area around the house, the less likely your chances of being bitten by a tick.

Although it may not be possible to create a totally tick-free zone, taking the following precautions will greatly reduce the tick population in your yard.

- Keep grass mowed.
- Remove leaf litter, brush and weeds at the edge of the lawn.
- Restrict the use of groundcover, such as pachysandra in areas frequented by family and roaming pets.
- Remove brush and leaves around stonewalls and wood piles.
- Discourage rodent activity. Clean up and seal stonewalls and small openings around the home.
- Move firewood piles and bird feeders away from the house.
- Manage pet activity; keep dogs and cats out of the woods to reduce ticks brought into the home.
- Use plantings that do not attract deer or exclude deer through various types of fencing.
- Move children's swing sets and sand boxes away from the woodland edge and place them on a wood chip or mulch type foundation.
- Trim tree branches and shrubs around the lawn edge to let in more sunlight.
- Widen woodland trails.
- Consider a pesticide application as a targeted barrier treatment. *Do not* use any pesticide near streams or any body of water as it may kill aquatic life or pollute the water itself. Always read and follow pesticide label directions and precautions.



It's Lyme Time!

Be Tick Aware!



1 Walk in the middle of trails; avoid sitting on logs and leaning on trees.

2 Wear a hat, tuck in hair, if possible.

3 Wear a long-sleeved shirt fitted at the wrist.

4 Wear shoes, no bare feet or sandals.

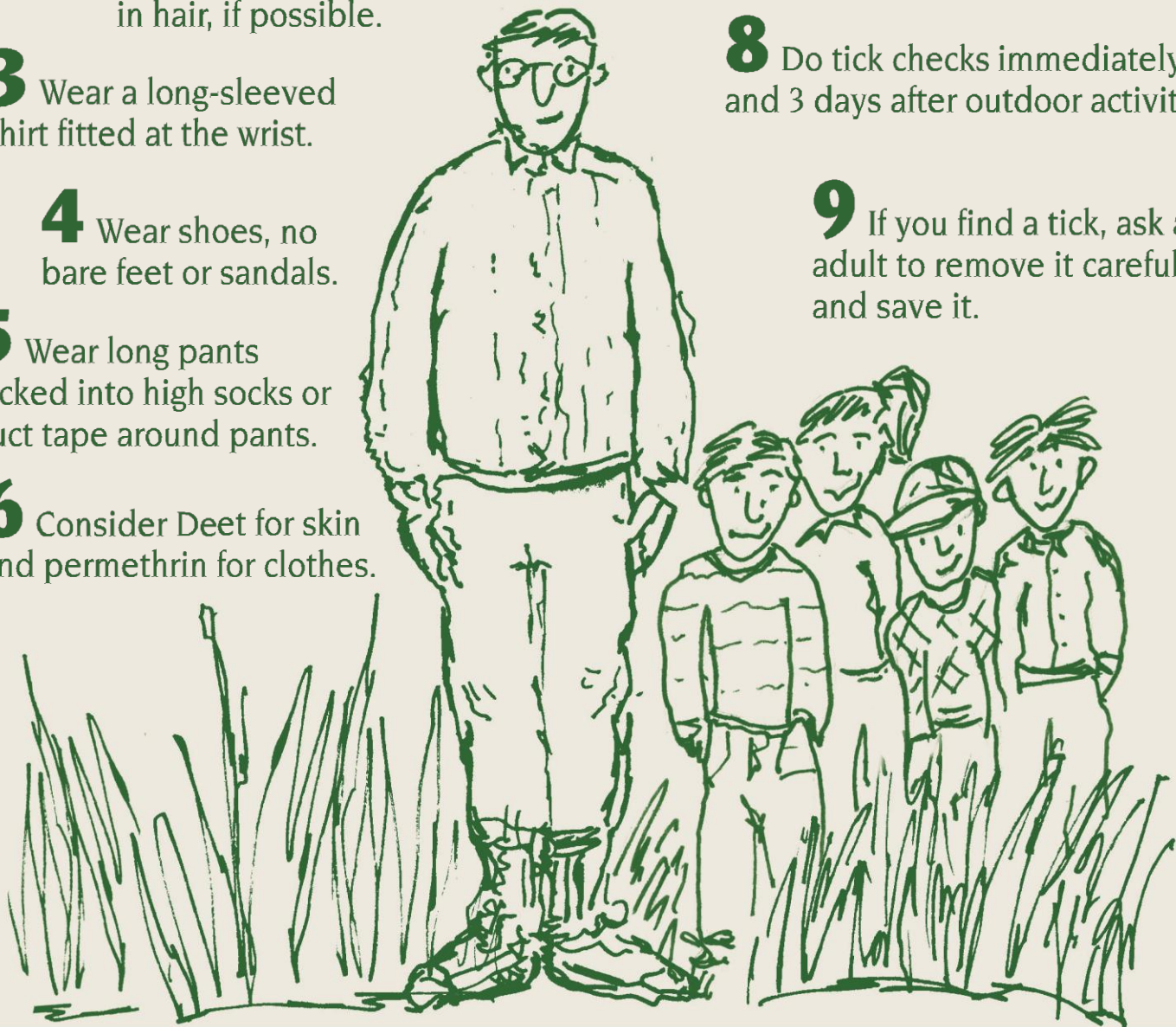
5 Wear long pants tucked into high socks or duct tape around pants.

6 Consider Deet for skin and permethrin for clothes.

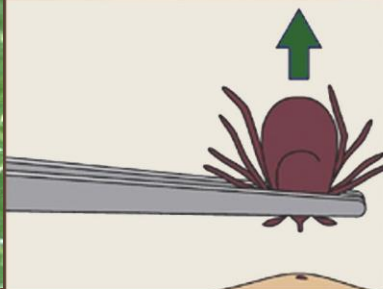
7 Wear white or light-colored clothing to make it easier to see ticks.

8 Do tick checks immediately and 3 days after outdoor activity.

9 If you find a tick, ask an adult to remove it carefully and save it.



Black-legged Tick (Deer Tick)



Remove tick with tweezers. Gently pull the tick straight out, using a firm steady motion

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La Crosse, WI 54601
(608) 785-9872



Health Department
County of La Crosse, Wisconsin

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La Crosse, Wisconsin 54601-3228
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Public Health
Prevent. Promote. Protect.

NEWS RELEASE

For Immediate Release: insert date

For More Information Contact: insert contact name, insert phone number

La Crosse County Health Department **urges public to be “tick aware” this season**

Lyme disease is the fastest growing infectious disease in North America. The United States reports over 30,000 cases annually, and estimates the disease can be underreported several fold. In Wisconsin, Lyme disease is the highest reported tick-borne disease, with more than 23,000 cases reported between 1980 and 2010. Disease carrying ticks are becoming more and more prevalent and are on the move.

The species of ticks that transmit Lyme disease to humans, the black-legged tick or commonly known as the deer tick are only about the size of a poppy seed when they are in the nymphal stage, and only about 3 mm in length in the adult phase. These ticks are capable of transmitting several different diseases to humans including Lyme disease, Anaplasmosis, and Babesiosis. These ticks are transported randomly by our friendly migratory birds, deer, mice, and other rodents that can also harbor Lyme disease and other diseases in their blood. Remember, no tick is a good tick.

Lyme disease can cause long-term health issues if not identified and treated early. It can affect the brain, eyesight, hearing, heart, nervous system, muscles, joints, digestive tract, and lymph nodes. Because Lyme disease is a multi-system disorder many systems of the body can be affected at once, therefore, it can often be misdiagnosed.

Ticks can be found in your lawn, on your pets, in tall grass or brush, on logs or woodpiles. If outside do not brush up against brush or tall grass, walk in the center area of trails, and wear a repellent containing DEET. Pets can carry ticks into your home. Talk to your veterinarian about protecting your pets.

Use fine tipped tweezers to remove an attached tick, being careful not to touch the body of the tick (get as close to the skin as possible then pull backwards). Apply antiseptic to the area immediately. Save the tick if possible and call us, or your local health department.

Prevention is the best medicine. Be tick aware, **NO TICK IS A GOOD TICK!**

For more information on prevention please visit: www.co.la-crosse.wi.us/health/

###

MAKING THE HEALTHY CHOICE TOGETHER

"To improve the quality of life and health of all people in La Crosse County."



Health Department
County of La Crosse, Wisconsin

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<http://www.lacrossecounty.org/Health/>



Public Health
Prevent Promote Protect
Public Health

PSA's

- **Prevent Lyme Disease/Spring and Summer PSA (:30)**
 - Spring and summer are prime time for ticks that can spread Lyme disease and other infections. The Centers for Disease Control and Prevention would like to remind you to wear bug repellent when outdoors, shower as soon as possible after coming indoors, and check your whole body for ticks--every day. If you've been bitten by a tick and develop fever, rash, or fatigue, seek medical care.
- **Recognize the Early Signs of Lyme Disease PSA (:30)**
 - A bull's-eye rash can be the first sign of Lyme disease, but not everyone will develop the rash. If you've been in areas where Lyme disease is common and develop fever, fatigue, facial paralysis, or joint and muscle pain, seek medical care. Reduce your chances of getting Lyme disease by wearing insect repellent, showering soon after coming indoors, and checking for ticks daily.
 - To learn more, visit www.cdc.gov/lyme.
 - A message from CDC.
- **Talking to Patients about Preventing Tick Bites**
 - *This program is presented by the Centers for Disease Control and Prevention.*
 - You know that ticks can spread serious diseases like Lyme disease, Rocky Mountain spotted fever, or babesiosis, but when was the last time you talked to a patient about tick bite prevention?
 - Welcome to CDC Audio Rounds. I'm Dr. Robert Gaynes with the Centers for Disease Control and Prevention.
 - Your patients, who spend time outdoors, especially in brushy areas or tall grass, are at risk for getting tick bites. Hikers, campers, outdoor workers, gardeners, golfers, and children are at particular risk. Ticks can be active any time the ground temperature is 50 degrees Fahrenheit or higher. In some regions, ticks can be active year-round. Here's how your patients can prevent tick bites:

MAKING THE HEALTHY CHOICE TOGETHER



Health Department

County of La Crosse, Wisconsin

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Public Health
Prevent Promote Protect
Public Health

- First, tell them to wear repellent that contains at least 20 percent DEET. Parents should apply repellent to children, avoiding the hands, eyes, and mouth. People who spend a lot of time outdoors should consider wearing permethrin-treated clothing, including boots, pants, and socks. Permethrin-treated items can be purchased online or at sporting goods stores and can remain protective through repeated washings.
 - Second, tell your patients to check themselves and their children for ticks every day. Places that ticks frequently hide are in the ears, on the back of the neck, and in the groin area.
 - Third, advise them to remove clothing where ticks might be hiding, and take a shower to wash off any unseen ticks. Research has shown that showering within two hours of coming indoors can protect against Lyme disease.
 - Finally, tell your patients who spend time in tick habitats or find an attached tick to watch for fever and rash, and to see you if they have any symptoms or concerns.
- To order or download Lyme disease informational materials for your patients, go to the Lyme disease prevention toolkit at www.cdc.gov/Lyme.
 - *For the most accurate health information, visit www.cdc.gov or call 1-800-CDC-INFO.*

MAKING THE HEALTHY CHOICE TOGETHER

"Protect, promote and improve the health of all people in the county."

WEST NILE VIRUS

La Crosse County Health Department

What is the West Nile Virus?

West Nile virus (WNV) is a potentially serious illness which is spread to people by the bite of a mosquito infected with the virus. Viruses that are spread by mosquitoes are called arboviruses.

Experts believe WNV is established as a seasonal epidemic in North America, infections generally occur during warm weather months when mosquitoes are active.



What Are The Symptoms of WNV?

About 80% of people infected with WNV do not show any symptoms or become ill.

Most of the remaining 20% of infected people may experience a **mild illness** that can present:

- Fever
- Headache
- Eye pain
- Muscle aches
- Joint Pain
- Swollen Lymph Nodes
- Nausea
- Vomiting

****Note:** People typically develop symptoms between **3 and 14 days** after they are bitten by an infected mosquito.



Less than 1% of people infected with WNV will become severely ill. Symptoms of **severe illness** include:

- Inflammation of the brain (encephalitis)
- Extreme muscle weakness
- High Fever
- Neck Stiffness
- Disorientation
- Tremors
- Vision Loss
- Headache
- Paralysis
- Coma
- Convulsions
- Numbness

In rare cases the infection may be fatal, particularly in the elderly and people with other medical conditions.

People over 50 at higher risk. People over the age of 50 are more likely to develop serious symptoms of WNV if they do get sick, special care should be taken to avoid mosquito bites.

How is WNV Treated?

There is no specific treatment for WNV. A physician may provide treatment to relieve the symptoms of the illness. In severe cases hospitalization may be required.

HOW DOES WEST NILE VIRUS SPREAD?

Infected Mosquitoes

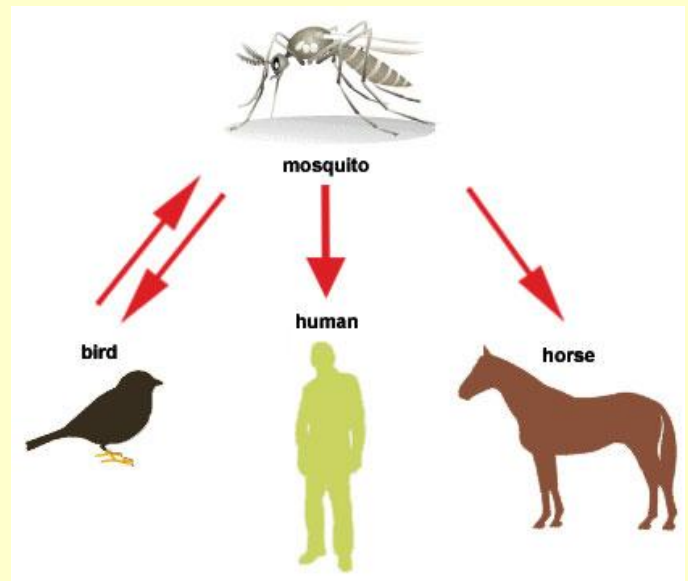
Most often, WNV is spread by the bite of an infected mosquito. Mosquitoes become infected when they feed on infected birds. Infected mosquitoes can then spread WNV to humans and other animals when they bite.

Transfusions, Transplants, and Mother-to-Child

In a very small number of cases, WNV also has been spread through blood transfusions, organ transplants, breastfeeding and even during pregnancy from mother to baby.

Not through touching

WNV is not spread through casual contact such as touching or kissing a person with the virus.



Mosquitos are the vector, birds are the reservoir host of WNV. Humans/mammals are incidental hosts.

How Can I Protect Myself?

Personal Measures:

- Limit time spent outdoors at dawn and dusk during mosquito season (June to Sept.), or other times mosquitoes are active
- Wear shoes, socks, long sleeve shirts and long pants when outdoors
- Apply insect repellents containing an EPA-registered ingredient (such as DEET) to exposed skin when outdoors
- Spray clothing with insect repellents since mosquitoes may bite through thin clothing
- Make sure your window and door screens are in good repair to prevent mosquito entry to your home

Environmental Measures:

- Dispose of tin cans, plastic containers, ceramic pots and other water-holding containers
- Remove all discarded tires
- Drill holes in the bottoms of recycling containers that are kept outdoors
- Make sure roof gutters drain properly and clean clogged gutters
- Change water in birdbaths regularly.
- Turn over wheelbarrows, children's pools, and boats when not in use
- Clean and chlorinate swimming pools, outdoor saunas and hot tubs
- Drain water from pool covers
- Use landscaping to eliminate standing water that collects on your property.

For Additional Information

Wisconsin Department of Health Services

<http://www.dhs.wisconsin.gov/communicable/ArboviralDiseases/WestNileVirus/Index.htm>

Centers for Disease Control and Prevention

<http://www.cdc.gov/ncidod/dvbid/westnile/index.htm>

American Mosquito Association

<http://www.mosquito.org/>



Image courtesy of WI DHS

LA CROSSE VIRUS

La Crosse County Health Department

What is LACV?

La Crosse viral encephalitis (LACV) is an illness that is transmitted to people through the bite of an infected mosquito.

Most cases of encephalitis, meaning inflammation of the brain, can produce fever, headache, drowsiness, vomiting, and other mild flu-like symptoms. The illness may progress to disorientation, seizures, and even coma. Most of these severe cases occur primarily in children.

Approximately 1-3% of these encephalitis cases are fatal, and another 15% of patients have long-term nervous system problems. There is no treatment for the illness other than supportive care until the illness is over.

****Note:** If your child develops symptoms of fever, severe headache, vomiting, drowsiness or convulsions, seek immediate medical attention.

LACV is carried and spread by the *Ochlerotatus triseriatus* mosquito. This mosquito breeds in any object that holds water over a prolonged period of time.

It feeds during the day, unlike many of our pest mosquitoes that feed mostly at dusk and dawn. The highest risk of LACV is typically from mid-July through early September.

For additional information please visit:

CDC: <http://www.cdc.gov/LAC/index.html>

[WI Department of Health Services](#)



How can I protect myself?

- 1.) The best way to prevent LACV is to remove water-holding containers from your property.
 - Empty cans, buckets, bottles, & other containers that can collect water
 - It is easier to do this in the spring before growing vegetation can hide the containers.
- 2.) Fill in tree holes temporarily with sand or other coarse soil.
- 3.) Store old tires where water can't collect inside of them.
 - Do not use tires to hold down tarps or other covers.
- 4.) Bird baths should have their water changed every week to prevent mosquito breeding, and gutters should be checked to make sure they are not plugged
- 5.) If children play in or near wooded areas during the day, they should:
 - Wear long-sleeved shirts and long pants (light-colored clothing works best)
 - Use repellents containing DEET (less than 30% DEET is sufficient for adults, and less than 10% DEET is adequate for children) according to label directions

EASTERN EQUINE ENCEPHALITIS

La Crosse County Health Department

What is an EEE virus infection?

The Eastern equine encephalitis (EEE) virus is transmitted to humans by the bite of an infected mosquito. Viruses that are spread to people by mosquitoes are called arboviruses. EEE virus infections generally occur during warm weather months when mosquitoes are active.

EEE is a rare illness in humans, and only a few cases (about 5) are reported in the United States each year. The disease also affects horses, and is found primarily in the Atlantic and Gulf Coast states

Symptoms & Treatment

Most people infected with EEE virus do not become ill. When symptoms do occur they can range from mild fever and headache to coma. Other symptoms include high fever, fatigue, muscle aches, neck stiffness, tremors, or confusion. Severe cases, although rare, include inflammation of the brain (encephalitis) which can lead to coma, convulsions, and death.

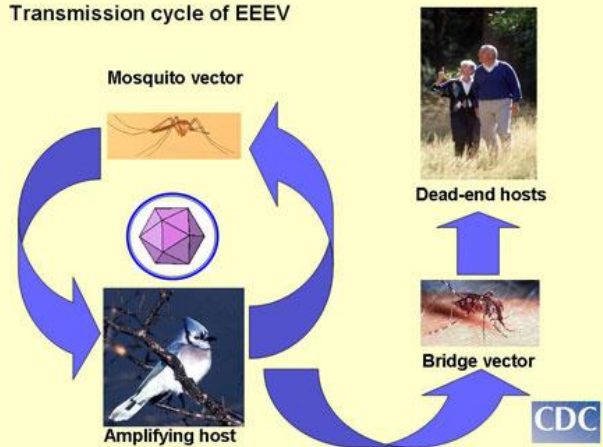
**Symptoms usually occur 5 to 15 days after a bite from a mosquito infected with the EEE virus.

How Can I prevent an EEE infection?

There is no vaccine or preventive drug for EEE. Prevent mosquito bites by:

- Apply insect repellents containing an EPA-registered ingredient (such as DEET) to exposed skin when outdoors
- Spray clothing with insect repellents since mosquitoes may bite through thin clothing
- Wear shoes, socks, long sleeve shirts and long pants when outdoors
- Have secure screens on windows and doors to keep mosquitoes out
- Limit time spent outdoors at dusk and dawn

Transmission cycle of EEEV



The virus is spread by the bite of a mosquito infected with the EEE virus. Mosquitoes get infected with EEE virus by feeding on infected birds. The virus is not spread between horses or from horses to people or between people.

Treatment

There is no specific treatment for EEE virus infection. A physician may prescribe medications to relieve the symptoms of the illness. In severe cases hospitalization may be required.

You can also take measures in your own yard to eliminate standing water where mosquitoes breed.

- Sources include: old tires, barrels, buckets, ceramic pots, clogged rain gutters, wading pools, pool covers, or birdbaths
- Drill holes in tire swings and recycling containers stored outdoors so water drains out
- Keep children's wading pools empty and on their sides when they aren't being used
- Keep rain gutters clean and change water in bird baths weekly

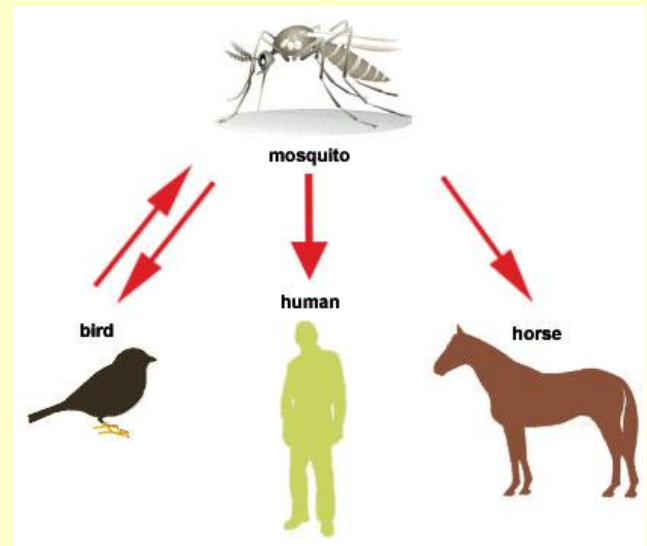
WESTERN EQUINE ENCEPHALITIS

La Crosse County Health Department

What is a WEE virus infection?

Western equine encephalitis (WEE) is a viral illness transmitted to people and horses through the bite of an infected mosquito.

WEE is normally maintained between *Culex tarsalis* mosquitoes and birds. People and horses are usually bitten during the late summer months (mid-July through early September) in wet years when this mosquito is produced in abundance.



Symptoms & Treatment

Most people infected with WEE will have either no symptoms or a very mild illness.

There is no treatment for WEE other than supportive care until the acute phase of the illness is over.

A small percentage of people, especially infants and the elderly may develop encephalitis (inflammation of the brain).

Approximately 5-15% of these cases are fatal, and about 50% of surviving infants will suffer permanent brain damage.

Most of the severe human cases begin with a sudden onset of:

- Fever
- Headache
- Stiff Neck
- Vomiting
- Lethargy.

Within two to four days, the illness may progress into disorientation, irritability, seizures, and coma.

In Horses

Approximately 20-50% of symptomatic horses are put down or die from WEE infections.

Preventing a WEE infection?

People can reduce their risk of WEE significantly by:

- Avoiding outdoor activities at dusk and dawn, the primary feeding period of mosquitoes
- Wear shoes, socks, long sleeve shirts and long pants when engaging in outdoor activities around dusk or dawn
- Use mosquito repellents containing DEET (less than 30% DEET is sufficient for adults, and no more than 10% for children) according to label instructions
- A WEE vaccine is available for horses. Please contact your veterinarian for vaccine recommendations.

You can also take measures in your own yard to eliminate standing water where mosquitoes breed.

- Sources include: old tires, barrels, buckets, ceramic pots, clogged rain gutters, wading pools, pool covers, or birdbaths
- Drill holes in tire swings and recycling containers stored outdoors so water drains out
- Keep rain gutters clean and change water in bird baths weekly

ST. LOUIS ENCEPHALITIS

La Crosse County Health Department

What is St. Louis Encephalitis?

St. Louis encephalitis (SLE) virus is a rare disease transmitted by the bite of an infected mosquito; it cannot be transmitted directly from person to person. The SLE virus is one of a group of mosquito-transmitted viruses that can cause inflammation of the brain (encephalitis).

Periodic outbreaks primarily occur along the Gulf Coast and in the Mississippi Valley. In most areas of the US, SLE cases occur primarily in the late summer or early fall. In southern states, cases can occur year round.

Symptoms & Treatment

Most people infected with SLE have no symptoms or only mild non-specific flu-like illness. However, in some individuals, especially the elderly, SLE can cause serious illness that affects the central nervous system. Symptoms often include:

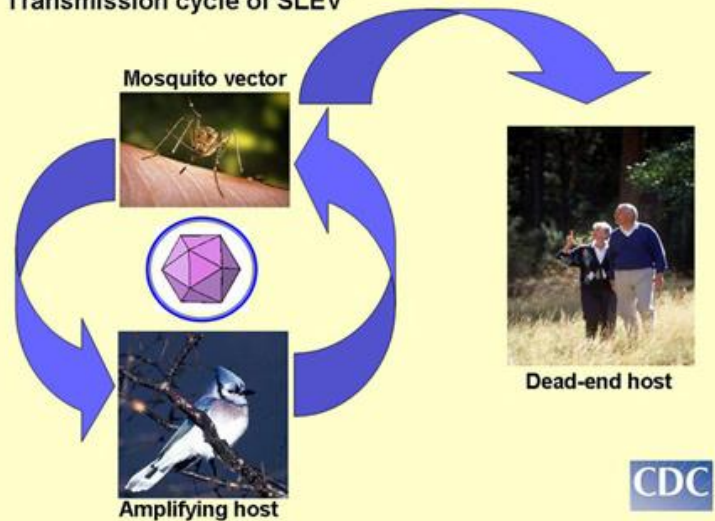
- Fever
- Headache
- Stiff Neck
- Disorientation
- Altered level of consciousness
- Coma, Convulsions & Paralysis may occur.

How Can I prevent an EEE infection?

There is no vaccine or preventive drug for SLE. Prevent mosquito bites by:

- Apply insect repellents containing an EPA-registered ingredient (such as DEET) to exposed skin when outdoors
- Spray clothing with insect repellents since mosquitoes may bite through thin clothing
- Wear shoes, socks, long sleeve shirts and long pants when outdoors
- Have secure screens on windows and doors to keep mosquitoes out
- Limit time spent outdoors at dusk and dawn

Transmission cycle of SLEV



Onset

It takes 5 to 15 days after a bite from an infected mosquito to develop symptoms of the SLE virus.

Treatment

There is no specific treatment for SLE. Severe illnesses are treated by supportive therapy; including hospitalization, respiratory support, IV fluids, and prevention of other infections. Antibiotics are not effective against the virus.

You can also take measures in your own yard to eliminate standing water where mosquitoes breed.

- Sources include: old tires, barrels, buckets, ceramic pots, clogged rain gutters, wading pools, pool covers, or birdbaths
- Drill holes in tire swings and recycling containers stored outdoors so water drains out
- Keep children's wading pools empty and on their sides when they aren't being used
- Keep rain gutters clean and change water in bird baths weekly

OUTDOOR PROTECTION

La Crosse County Health Department

How can I protect myself?

COVER UP

Wear long sleeve shirts, long pants, and socks when outdoors. Since mosquitoes may bite through clothes, spraying clothes with a repellent will provide extra protection.

USE REPELLANT

Apply insect repellent when you go outdoors. The U.S. Environmental Protection Agency (EPA) has registered several active ingredients for use in repellents that can be applied to skin and/or clothing, including:

- DEET (N,N-diethyl-m-toluamide)
- Picaridin (KBR 3023)
- Oil of lemon eucalyptus (p-menthan 3,8-diol)
- Permethrin (DO NOT APPLY DIRECTLY TO SKIN; only for use on clothes, camping gear, etc.)

ALWAYS FOLLOW LABEL INSTRUCTIONS

Repellents have different age restrictions, shelf lives, and application limitations. Do not put repellent on children's hands because it may get into their mouth. Do not spray repellent containing DEET on the skin underneath clothing.

AVOID MOSQUITOES

The mosquitoes that carry West Nile virus bite between dusk and dawn so if possible limit your time outdoors during these hours.

MOSQUITO-PROOF YOUR HOME

Keep mosquitoes outside by fixing or installing window and door screens.



Around The House

CLEAN OUT MOSQUITO BREEDING SITES

A small amount of standing water can be enough for a mosquito to lay her eggs. Look around for possible mosquito breeding places.

DRAIN OR REMOVE STANDING WATER

Be sure to empty water from buckets, cans, pool covers, flower pots, wheelbarrows, boats, trash cans, and other items that may hold water.

MAINTAIN WATER BOWLS AND BIRDBATHS

Clean pet water bowls weekly. Change water in water bowls and birdbaths regularly.

UNCLOG RAIN GUTTERS

Ensure that your rain gutters remain unclogged and drain properly.

DISCARD OR STORE USED TIRES

Throw away or cover up stored tires that aren't being used.

For additional information please visit:

CDC: <http://www.cdc.gov/LAC/index.html>

LCHD: <http://www.co.la-crosse.wi.us/Health/>



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Protect Yourself from Mosquitoes with the 4 D's!

- 1. Dusk/Dawn** – Stay indoors at dusk and dawn. This is the time of day that mosquitoes are most active.
- 2. DEET** – Use insect repellents that contain DEET when going outside, especially at times closer to dawn or dusk when mosquitoes are most active. Always follow label instructions.
- 3. Dress** – In loose light colored long-sleeved shirts and long pants when going outside.
- 4. Drain** – Remove all areas of standing water. Examples are tires, buckets, water dishes, birdbaths, flower pots, wheelbarrows, and wading pools. Remove all piles of dead leaf material from under trees and shrubs, and be sure to keep rain gutters clean. Mosquitoes will breed in this debris since it is normally damp under the debris.



Health Department
County of La Crosse, Wisconsin

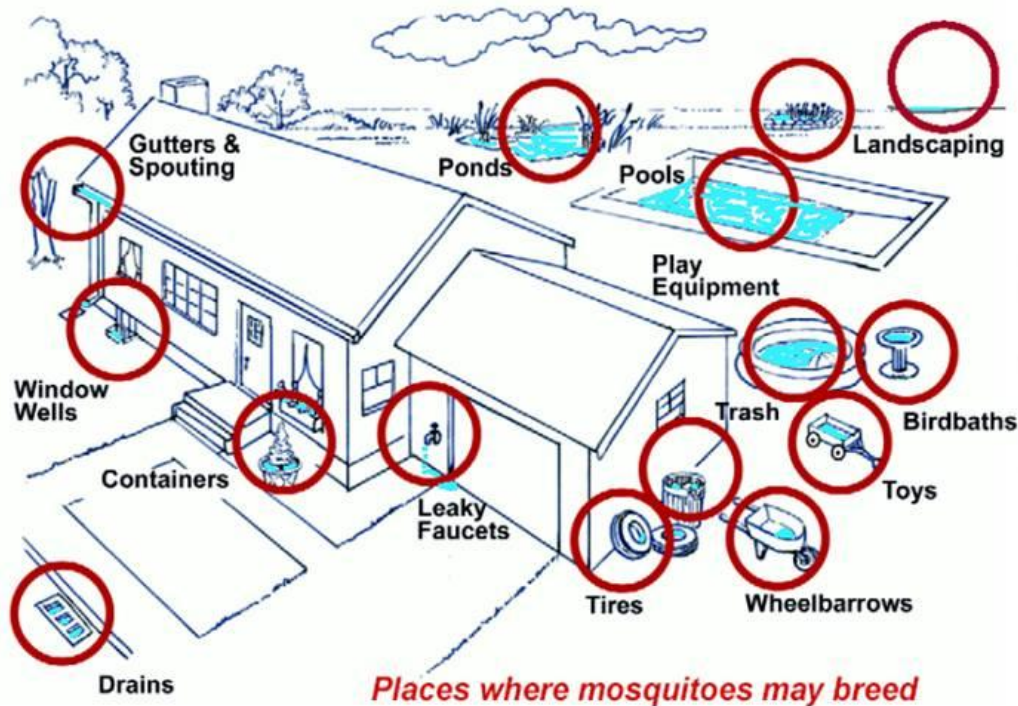
300 4th Street North • 2nd Floor
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HOME CARE

La Crosse County Health Department



How to minimize mosquito habitat around your home

- Dispose of tin cans, plastic containers, ceramic pots or similar water-holding containers that have collected on your property.
- Pay special attention to discarded tires. Stagnant water in tires are where most mosquitoes breed.
- Drill holes in the bottom of recycling containers left outdoors.
- Have clogged roof gutters cleaned regularly (spring & fall), particularly if the leaves from surrounding trees have a tendency to plug up the drains.
- Turn over plastic wading pools when not in use. Stagnant water in a wading pool becomes a place for mosquitoes to breed.
- Turn over wheelbarrows and don't let water stagnate in birdbaths. Both provide breeding habitats for domestic mosquitoes.
- Aerate ornamental pools or stock them with fish. Water gardens can become major mosquito producers if they are allowed to stagnate. Clean and chlorinate swimming pools not in use. A swimming pool left untended by a family on vacation for a month can produce enough mosquitoes to result in neighborhood-wide complaints. Mosquitoes may even breed in the water that collects on pool covers.
- Use landscaping to eliminate standing water that collects on your property. Mosquitoes may breed in any puddle that lasts for more than four days.



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HOME CHECKLIST

Water reservoirs other than ponds and wetlands where mosquitoes may breed	Check if present:	Date problem was remedied:
Birdbaths		
Boats that have not been drained or covered		
Cans, jars, other open containers		
Clogged house roof gutter		
Culverts with stagnant water		
Ditches that hold stagnant water		
Drain outlets from air-conditioners		
Dripping outdoor faucets		
Flower pots		
Leaf-filled drains		
Livestock water tanks		
Manure treatment lagoons		
Ornamental ponds		
Over-irrigated lawns and fields		
Saucers under potted plants		
Sewage treatment ponds		
Standing water in tire ruts and horse or livestock lots		
Storm water drain systems		
Street gutters, catch basins at road concerns		
Stumps and tree holes		
Swimming pool covers		
Tires (abandoned)		
Unsealed barrels		
Wading pools or kiddie pools		
Water cans, buckets, troughs, pet bowls		
Wheel barrows or tilt-up carts		

ELIMINATING MOSQUITO BREEDING SITES

- Dispose of old tires, tin cans, plastic buckets, ceramic pots, or other artificial water containers.
- Keep rain gutters unclogged and flat roofs clean and dry.
- Eliminate water collecting in pool or boat covers.
- Drill holes in the bottom of recycling containers left outdoors to prevent them from collecting rainwater.
- Turn over plastic wading pools and wheelbarrows when not in use.
- Drain stagnant pools, puddles, ditches, or swampy areas around the home and property. Fill low areas to prevent pooling.
- Remove old tree stumps that may hold water.
- Change or freshen water in flower pots and planters two or three times per week.
- Change or freshen animal water bowls and dishes regularly.
- Check mulch around shrubs and bushes for signs of mosquito activity. Change mulch to prevent wet and moldy conditions where mosquitoes can live.

REDUCING MOSQUITO ANNOYANCE

- Stay indoors at dawn, dusk and in the early evening if possible.
- Wear light colors that refract heat and are generally less attractive to mosquitoes.
- Wear long sleeved shirts and pants when you are outdoors during peak mosquito activity periods.
- Apply insect repellent sparingly to exposed skin, 10% DEET repellent will typically last 90 minutes, 30% product will last 5-6 hours. Avoid applying high concentrations (more than 50% DEET) to the skin.
- American Academy of Pediatrics states that it is safe to use up to 30% DEET-based repellents on anyone over the age of two months.
- Keep weeds cut back and mow the lawn regularly to reduce mosquito-friendly habitats.
- Avoid the use of “bug zappers” as they have been shown to be mostly ineffective, and they harm beneficial insect populations.
- Use candles, torches and coils containing citronella oil outdoors and in windless conditions, allowing the odor to remain in the immediate vicinity.



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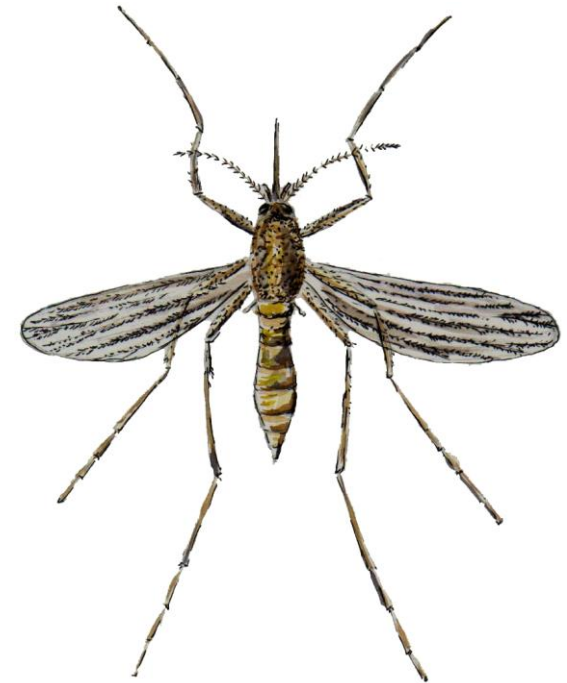
For More Information:

<http://www.co.la-crosse.wi.us/Health/>

Vector Control

La Crosse County Health Department

Mosquito Control and Mosquito-Borne Diseases



300 4th Street North
La Crosse, Wisconsin 54601
Office: (608)-785-9872
Fax: (608)-785-9846

MOSQUITO LIFE CYCLE

There are over 3,000 species of mosquitoes worldwide, with 150 known to exist in North America. In their immature stages, the mosquitoes require water to survive. Ideal breeding areas for mosquitoes include old tires, clogged rain gutters, bird baths, wading pools and stagnant water.

Mosquitoes go through 4 stages in their life cycle: egg, larva, pupa and adult. The eggs are laid in or near water and hatch into larvae within a few days. The larvae feed on microscopic plant life, molt several times as they grow and become pupae that turn into adult mosquitoes. The entire process can take place in as little as seven days in mid-summer. The life span of adult mosquitoes varies from two weeks to several months, and depending on the species, will feed in the early morning, early evening or even during daytime hours.

Mosquitoes require a blood meal to develop fertile eggs. Males, because they do not lay eggs, do not bite. Throughout a season, females can lay several batches of eggs, requiring a blood meal for each batch. Each batch can contain as many as 200 eggs. Other than for reproduction, mosquitoes normally feed on nectar from plants or flowers.

MOSQUITO-BORNE DISEASE

Mosquitoes cause more human suffering than any other organism with over one million people dying from mosquito-borne diseases every year.

Mosquito vectored diseases include malaria, yellow fever, dengue, and encephalitis to humans and animals. Yellow fever, dengue and malaria were once prevalent in the United States, but now are rare.



In the summer of 1999, West Nile Virus was first reported in the United States. As of September 1, 2010 there have been 29,858 West Nile Virus infections and 1,166 deaths reported in the US. While the number of people affected by West Nile Virus changes each season, it appears that West Nile Virus will remain a threat to the US in the future.

SYMPTOMS OF MOSQUITO-BORNE VIRUSES

- Most people infected with mosquito-borne viruses show no symptoms.
- Some people infected with a mosquito-borne virus have a mild fever, headache and muscle aches that will last up to a week
- A small number of infected people will develop severe illness requiring hospitalization. These people may have body aches, fever, confusion, weakness, stiff neck, tremors, convulsions and may die.
- People over 50 years old who become infected with West Nile Virus or St. Louis encephalitis are more likely to develop severe illness and may die from the disease.
- Children under the age of 16 who contract La Crosse encephalitis or Eastern Equine encephalitis are more likely than adults to develop severe illness.
- People with existing health problems who become infected with a mosquito-borne disease are at increased risk for severe illness.



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Wisconsin Schools

The La Crosse County Health Department urges all people to avoid mosquito bites whenever possible. The risk of a healthy person acquiring a mosquito-borne virus (West Nile virus, La Crosse Virus) from a bite is “very low,” however all people should take the appropriate measures to protect themselves.

Everyone should know. . .

- Mosquito-borne virus' can be transmitted *primarily* through the bite of an infected mosquito; although, there have been isolated cases occurring in blood transfusions and organ donation recipients, from mother to baby during pregnancy and through breast milk. People cannot become infected through ordinary contact with an infected bird, horse, or human.
- No vaccine exists to protect humans against West Nile virus or La Crosse Encephalitis. Individuals must personally

A Message for Parents & Students:

- Avoid mosquitoes whenever possible.
- Stay indoors or take personal protective measures, especially between dusk and dawn.
- Use mosquito repellent with DEET (up to 30 percent for adults and 10 percent or less for children, two years - 12 years of age as recommended by the American Academy of Pediatrics). Follow the label directions. For more information visit:
www.dhs.wisconsin.gov or **www.co.la-crosse.wi.us/health/Vector**
- When outdoors, wear long-sleeved shirts and pants along with socks and shoes.

A Message for Classroom Teachers:

- The Internet provides instant access to volumes of information about West Nile virus.
- You can find the latest Wisconsin facts about West Nile Virus, La Crosse Virus, and other mosquito-borne virus' at: **www.co.la-crosse.wi.us/health/Vector** or **www.dhs.wisconsin.gov**
- The Centers for Disease Control and Prevention website also offers information: **www.cdc.gov**.
- Allowing students outdoors for recess poses no greater risk to mosquito-borne virus than if they were outside at home – just be wary of mosquitoes.

A Message for Activities & Athletic Directors & Staff:

- Early morning, near dusk, and after dark events pose a potential risk for you, your students, and other people attending or participating. These are the times when mosquitoes are most likely to be out feeding.
- You can help protect students and spectators from mosquito-borne virus.
- Work with your school's administration and the safety officer to eliminate standing, stagnant water, which is a prime breeding area for mosquitoes.
- Talk to local mosquito control officials about pre-event surveillance and control of both larvae and adult mosquitoes.
- Remind students and spectators of the importance of using DEET repellent products according to the directions on the label. Encourage them to wear long sleeves and long pants if possible.
- Encourage children to participate in clean-up campaigns at school.
- At events, remind the crowd to protect themselves and their communities by helping eliminate mosquito breeding areas.

A Message for Administrators:

- Reduce the mosquito breeding sources – the most effective and economical method toward long-term mosquito control.
- Check for and rid your campus of easily recognized mosquito breeding areas: containers of stagnant water, especially cans near cafeteria exteriors; used tires; gutters; grassy ditches and pools of standing, stagnant water, especially with organic debris; and construction sites or vocational-technical arenas that might harbor standing water.
- Call your local health department to report all species of dead birds. Find ***Health Info*** and county info at: **www.co.la-crosse.wi.us/health** or **www.dhs.wisconsin.gov**
- Communicate to your faculty, staff, and students – make sure they know how to protect themselves and what you're doing to assure a safe campus.
- Contact your local mosquito control officials or city public works department for information about mosquito control in your area.
- Consider scheduling outside events during daylight hours rather than in the evening.

**WHEN USING REPELLENTS, ALWAYS FOLLOW THE LABEL DIRECTIONS AND KEEP
OUT OF THE REACH OF SMALL CHILDREN (MAY BE TOXIC IF INGESTED).
POISON CONTROL: 1-800-222-1222**

MAKING THE HEALTHY CHOICE TOGETHER

"Protect, promote and improve the health of all people in the county."

An Equal Opportunity Employer

COMMUNITY ACTION

La Crosse County Health Department

Simple Steps Communities Can Take

By taking active steps to educate and promote awareness of vector-borne illness, individual communities can make a significant impact in the health and well being of their residents as well as guests. Promotion of educational programs through schools, clubs, community organizations, common interest groups (hunters, agriculture), and continued involvement with university extension are just a few simple ways.

Mosquito-Borne Disease

1. Have signage or educational posters in public buildings concerning steps individuals can take to decrease habitat for mosquito-borne diseases.
 - a. Promote reporting of sites that offer habitat.
 - b. Promote personal protection like repellent (making sure to read label), making sure screens are in good repair, cutting down weeds or other high vegetation which can offer daytime harborage for mosquitoes.
 - c. When outside at dusk or dawn (high mosquito feeding periods) take precautions such as repellents.
2. Promote waste tire disposal by having cost efficient, easily accessible tire recycling sites.
3. Educate governmental staff to recognize mosquito-borne disease habitat, such as untrimmed tires, uncovered boats, buckets and other containers and report the sites to public health for inspection.
4. Try to engineer ditches and culverts to promote water flow and prevent long-standing water pools.

Tick-Borne Disease

1. Signage for prevention as for mosquitoes.
2. Signs in parks explaining tick disease prevention.
3. Widen paths, limit high grass and weeds where ticks thrive.
 - a. Thin out trees and cut low vegetation around parks or public areas that offer habitat for small mammals (the reservoir for tick-borne diseases) and for tick vectors for disease.
4. Educate pet owner to the threat of pets bringing ticks into their home by allowing pets to walk through high vegetation or to run at large without supervision.
5. Remind the public that even small areas of high vegetation can offer good tick habitat.

Additional Steps Communities Can Take

1. Promote mosquito disease prevention through electronic media and local media. Repetition of the same messages is always important but try to add new information with these messages.
2. Communities can work with their state department of environmental protection to have a date and site where citizens can dispose of tires free of charge.
3. Government officials have legal authority to manage an area if it poses a public health risk. Local communities can develop ordinances dealing specifically with vector control including definitions of violations, control measures, and penalties.
4. Have mosquito habitat clean-up efforts in areas with a high prevalence of disease. Additional resources to prevent tick-borne disease through landscape management is found at http://www.cdc.gov/lyme/prev/in_the_yard.html
5. Actively look at local, regional, and national incidence of mosquito-borne disease in CDC ArboNET. If the mosquito data shows disease infection above a threshold, increase the message of mosquito-borne disease prevention and increase efforts at local mosquito control. High mosquito infection rates are a precursor to future high human disease incidence.
6. Local health departments and communities should finish case reviews promptly and accurately. Prompt environmental assessments (and following community intervention) allow us to prevent future disease incidence.
7. Ask state health departments for assistance with vector-borne disease issues.
8. Local health departments and communities can offer internships for public health students interested in vector-borne disease. Students want to learn new skills and public health interns are positive about vector-borne disease projects. Vector-borne disease projects offer many different experiences in public health, from outdoor fieldwork to community intervention to laboratory work to data analysis.
9. Assist with state mosquito and tick surveillance programs. State government has resources (or has connections) to test mosquitoes and ticks for human pathogens.
10. Share mosquito-control resources with neighboring communities.

Taking Action to Prevent Vector-Borne Disease Significantly Contributes to the Overall Health of a Community

REMEMBER:

Even Small Communities Can Make a Big Difference



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