



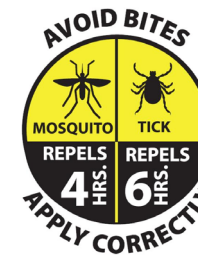
A *Culex tarsalis* mosquito as it is about to begin feeding

Are mosquito-borne diseases treatable?

There are no medications to treat viruses that are spread by mosquitoes. Instead, the symptoms are treated with supportive care. People with mild illness typically recover on their own. Those with severe nervous system illness may need to be hospitalized and nerve damage and death may occur.

How can I protect myself from a mosquito-borne disease?

- Know that July through September is the highest risk of mosquito-borne disease in Minnesota
 - West Nile virus disease – dawn and dusk for *Culex tarsalis* mosquitoes
 - La Crosse encephalitis – daytime for *Aedes triseriatus* mosquitoes
- Use repellents
 - Use DEET-based repellents (up to 30%) on skin or clothing



Look for this label on your repellent to know how long it will work.

- Pre-treat clothing and gear with permethrin-based repellents
- Can also use repellents with other ingredients: picaridin, IR3535, and oil of lemon eucalyptus
- Only use products that are registered by the Environmental Protection Agency (EPA)
- Wear loose fitting, long sleeved shirts and pants

What is a mosquito-borne disease?

People can get a mosquito-borne disease when they are bitten by a mosquito that is infected with a disease agent. In Minnesota, there are about fifty different types of mosquitoes. Only a few species are capable of spreading disease to humans. For example, *Culex tarsalis* is the main mosquito that spreads West Nile virus to Minnesotans. La Crosse virus is spread to humans by the tree hole mosquito, *Aedes triseriatus*.

What diseases can I get from mosquitoes in Minnesota?

- West Nile virus disease
- La Crosse encephalitis
- Jamestown Canyon virus disease
- Western equine encephalitis
- Eastern equine encephalitis

What symptoms should I watch for?

Most people who become infected with a mosquito-borne disease won't have any symptoms at all or just a mild illness. Symptoms usually show up suddenly within 1-2 weeks of being bitten by an infected mosquito. A small percentage of people will develop serious nervous system illness such as encephalitis or meningitis (inflammation of the brain or surrounding tissues). Watch for symptoms like:

- Fever
- Headache
- Stiff neck
- Rash
- Disorientation or seizures

How are mosquito-borne diseases diagnosed?

If you think that you could have a mosquito-borne disease, you should contact your doctor immediately. The doctor can determine if you have a mosquito-borne disease based on your history, symptoms, and tests using blood or spinal fluid.

How can I protect my environment from mosquitoes?

- Empty standing water from around your home at least once a week to prevent mosquitoes from using containers as breeding sites
 - Tires, buckets, flower pots/saucers, pet bowls, bird baths, and kiddie pools
 - Check gutters and remove leaves frequently
 - Tighten up loose tarps
 - Tightly cover water storage containers (e.g., rain barrels)
 - Fill water-holding tree holes with dirt or sand
- Keep mosquitoes out of your home
 - Install and/or repair screens on windows and doors

How can I protect myself from mosquito-borne diseases when traveling?

Minnesota residents who travel to southern states or other countries may be at risk for mosquito-borne diseases like malaria, dengue, yellow fever, chikungunya virus, and Zika virus. Before you travel, consult with your doctor or visit a travel health clinic and check for any travel advisories that may affect you. Medications used to prevent infection are available for malaria and a vaccine is available for yellow fever. Protect yourself from mosquito bites while traveling by using mosquito repellent, staying in screened or air conditioned rooms, and sleeping under a bed net if the bedroom is directly exposed to the outdoors.

Fun facts about mosquitoes!



Culex tarsalis

This mosquito is widespread throughout much of Minnesota and can spread West Nile virus and Western equine encephalitis. It is typically found near wetlands, drainage ditches, and other areas of standing water in the western agricultural areas of the state.



Culex eggs

All mosquitoes need water to complete their development. Some species lay single eggs at the edge of a water surface while other species lay “rafts” of dozens of eggs on top of the water.



Culex larvae

After hatching from an egg, the mosquito goes through larval and pupal stages before developing into a flying mosquito. You may see these stages as they wriggle in the water and come to the surface to breathe.



Aedes triseriatus

This species is a concern in Minnesota because it can spread La Crosse virus, a disease that mainly affects children. It is widespread in southern Minnesota but only found in or near wooded areas.



Aedes vexans

This mosquito species is Minnesota’s most common pest but does not commonly spread disease. It is a vicious biter and most annoying at dusk in early summer. Like other mosquito species, only adult female mosquitoes take a bite.

*images not to scale

Mosquito-borne Diseases of Minnesota

MDH Minnesota Department of Health

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www.health.state.mn.us