

West Nile Virus Disease

What is West Nile virus disease?

West Nile virus disease is a viral illness that is transmitted most commonly to people through the bite of an infected mosquito. The virus is a flavivirus, closely related to dengue virus and yellow fever virus. It was first detected in North America in 1999 and has been present in Minnesota since 2002.

How serious is West Nile virus disease?

Most people infected with this virus will have either no symptoms or a mild flu-like illness. Symptoms usually show up suddenly within 1-2 weeks of being bitten by an infected mosquito. Mild illness due to West Nile virus may include fever, headache, muscle or joint aches, and rash.

Less than 1% of people who are infected may develop encephalitis or meningitis (inflammation of the brain or surrounding tissues). People with severe neurologic illness may develop high fever, headache, stiff neck, and vomiting. The illness may then progress quickly to confusion, altered reflexes, seizures, coma, and paralysis.

Recovery from severe neurologic disease may take months and some of the effects may be permanent. About 10% of those with severe nervous system illness will die. There is no treatment for the illness other than supportive care. Hospitalization may be necessary for severe cases.

Who is at risk for West Nile virus disease?

Illness can occur in any age group. However, elderly patients and those with weakened immune systems are at greatest risk for severe disease.

In Minnesota, cases of West Nile virus disease have been found throughout the state. The highest risk areas for West Nile virus include the agricultural regions of western and central Minnesota. People who work outside or participate in outdoor activities are at greater risk because of exposure to mosquitoes.

What kind of mosquito spreads West Nile virus?

In Minnesota, we have approximately 50 species of mosquitoes but not all mosquitoes feed on people. The primary vector of West Nile virus in our state is *Culex tarsalis*. This mosquito is commonly found in open areas such as farmland and prairie where it can lay its eggs in standing water like drainage ditches and wetlands. The mosquito is a strong flyer and can fly several miles from the area where it developed. It feeds primarily at dusk and dawn.

West Nile virus is maintained in a cycle involving mosquitoes and birds. The weather, number of birds that maintain the virus, number of mosquitoes that spread the virus, and human behavior are factors that may influence when and where cases occur. The highest risk of West Nile virus disease in Minnesota is typically from mid-July through mid-September, especially in

years with warmer than average temperatures.

What can people do to prevent West Nile virus disease?

The best way to prevent West Nile virus disease is to protect yourself and your family from mosquito bites:

- Avoid outdoor activities at dusk and dawn, the peak feeding time for many mosquitoes, particularly from July through September.
- Use repellents containing DEET according to label directions – up to 30% DEET is safe and effective for adults and children over two months of age. Other effective repellents include picaridin, IR3535, and oil of lemon eucalyptus. Only use products that are registered by the Environmental Protection Agency.
- Pre-treat clothing and gear with permethrin-based products.
- Wear loose-fitting, long sleeved shirts and pants.
- Keep mosquitoes out of your home by maintaining screens on windows and doors.

To protect yourself and your family from other mosquito-borne illnesses in Minnesota:

- Empty standing water from around your home at least once a week to prevent mosquitoes from using containers as breeding sites.
 - Buckets, flower pots/saucers, pet bowls, birdbaths, kiddie pools, etc.

- Check gutters and remove leaves frequently to ensure proper drainage.
- Tighten up loose tarps/covers so water does not pool.
- Tightly cover or screen water storage containers (e.g., rain barrels).
- Fill water-holding tree holes with dirt or sand.
- Recycle old tires or store them where they cannot collect rainwater.

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3/9/2018

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