

TREATMENT

- It is usually not necessary to seek medical attention if bitten by a mosquito, unless symptoms develop. In areas where mosquitoes carry WNV, less than 1% are infected, and of those mosquitoes that are infected, less than 1% of people bitten will become severely ill.
- There is a case-fatality rate of about 3% - 15% for those who do develop severe illness due to WNV. These rates are highest among the elderly.
- If symptoms such as fever, headache, muscle weakness, stiff neck, confusion, or sensitivity to light develop, seek medical attention immediately.
- Physicians will usually take a medical history to assess the risk for contracting WNV. It is usually based on location, areas of travel, and age.
- If it is determined that you are at high risk for WNV and you have symptoms of West Nile encephalitis, a blood sample will generally be tested for confirmation.
- Individuals with mild symptoms should recover completely and do not usually require medication or laboratory testing.
- Although there is no specific treatment for West Nile encephalitis, hospitalization with intensive supportive therapy is usually required for more severe cases.
- Most cases of meningitis will recover completely and doctors will often recommend bed rest, plenty of fluids, and medication for fever and headache.
- Contraction of WNV produces natural immunity to future infection of WNV. This immunity is thought to be life-long, although it may lessen in later years.



RESOURCES

State of New Hampshire - Bureau of Communicable Disease Control

Department of Health and Human Services
6 Hazen Drive, Room 209
Concord NH, 03301
800.852.3345 ext. 4496 (Toll Free)

West Nile Virus Info Hot Line: 866.273.6453

<http://www.dhhs.state.nh.us>

The Centers for Disease Control and Prevention

1600 Clifton Rd. Atlanta, GA 30333
800.311.3435 (Public Inquiries)
404.639.3311 (Telephone)

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

American College of Physicians-American Society of Internal Medicine

“Mosquitoes and Mosquito Repellents: A Clinician's Guide” (Mark S. Fradin, MD. *Annals of Internal Medicine*. June 1998. 128:931-940).

<http://www.acponline.org/journals/annals/01jun98/mosquito.htm>

United States Environmental Protection Agency

US EPA Headquarters
Ariel Rios Building
1200 Pennsylvania Ave., N.W.
Washington, DC 20460
New England Region: 888.372.7341 (Telephone)

<http://www.epa.gov/opp00001/citizens/deet.htm>

New Hampshire Department of Agriculture

PO Box 2042
Concord, NH 03302
603.271.3551 (Telephone)
603.271.1109 (Fax)

<http://www.state.nh.us/agric/aghome.html>



UNIVERSITY of NEW HAMPSHIRE

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West Nile Virus Safety Pamphlet

The University of New Hampshire's Office of Environmental Health and Safety has produced this pamphlet as a result of the increasing number of West Nile virus cases in the United States. This document is a guide and should not replace the expertise of your health care provider.

BACKGROUND

- The West Nile Virus (WNV), a flavivirus, was first isolated in Africa in the 1930s. Several outbreaks occurred in parts of Africa, western Asia, the Middle East, and Europe during the 1950s-1960s.
- WNV was first seen in the United States in New York City in 1999. It is believed that the virus was imported to the western hemisphere by an infected bird or human.
- Between 1999 and 2001 WNV had been documented in the eastern half of the United States, including New Hampshire, Maine, and Massachusetts.
- By 2002 WNV had spread to the Midwest and western half of the United States. WNV is now present in all but six of the United States.
- There have not been reported cases of human infection in Maine or New Hampshire, although birds and mosquitoes have tested positive.
- As of September 26, 2002 the CDC reports a total of 2,206 human cases of WNV illness in the United States, of which 108 have been fatalities.



TRANSMISSION

- WNV usually lives in birds, primarily crows and blue jays, and is passed among birds via infected mosquitoes.
- Infected mosquitoes can pass WNV to humans and many other wild and domestic animals after feeding on infected birds.
- The virus lives in the mosquito's salivary glands which can be injected into humans or animals, and multiply. As the virus multiplies in the bloodstream, it crosses the blood-brain barrier and infects the brain. The virus interferes with normal central nervous system functioning causing inflammation of brain tissue
- Dead birds should be reported to your local animal control officer, health officer, or the NH Department of Agriculture at (603) 271-2404.
- If you must handle a dead bird, gloves should be worn. The bird should be placed in a double lined, plastic leak-proof bag, and held for pick-up by a state official.
- Recent investigation has confirmed WNV transmission via organ transplantation. Current investigation is underway to determine if WNV has also been transmitted via blood transfusions.
- There has been no information suggesting that ticks or other insects transmit WNV to humans.
- WNV cannot be spread by human-to-human contact; therefore you cannot contract WNV from direct contact with an infected person.
- There has been one case of transmission from a pregnant woman to her fetus and one mother-to-child transmission through breast milk.



PREVENTION

- To minimize exposure to WNV, people should stay indoors during dusk, dawn, and in the early evening from June to October, when mosquitoes are most active.
- Whenever outdoors, insect repellent containing permethrin or 30% N,N-diethyl-meta-toluamide (DEET) for adults and 10% DEET for children should be applied to exposed skin and to clothing.
- **DEET should only be used according to manufacturer's directions.** More information regarding insect repellent and its proper use, or pesticide sprays, can be found at:
<http://www.acponline.org/journals/annals/01jun98/mosquito.htm>
<http://www.epa.gov/opp00001/citizens/deet.htm>
- Long-sleeved shirts, long pants, and socks are recommended when spending time outdoors, especially during the times listed in the first bullet.
- Doors and windows to homes should remain closed and have tight-fitting screens.
- Mosquitoes breed in standing water and used tires. Remove all discarded tires from property and empty all vesicles containing standing water. Keep swimming pools and hot tubs clean, chlorinated, and covered when not in use.
- Create drainage holes in recycling bins, and make sure rain gutters are clean and draining properly.
- Avoid direct contact with dead birds or other dead animals.
- Currently, there is no vaccine available for WNV, although development is underway.



SYMPTOMS

- Most people infected with WNV do not develop any symptoms. An estimated 20% of those infected may develop mild symptoms which may include:
 - Headache
 - Fever
 - Body aches
 - Skin rash on trunk of body
 - Swollen lymph glands.
- These symptoms usually last a few days and full recovery is expected.
- It is estimated that 1 in 150 persons infected with WNV will develop a more severe form of the disease, with those over the age of 50 being at highest risk.
 - Severe symptoms of WNV include encephalitis (inflammation of the brain), and meningitis (inflammation of the lining of the brain and spinal cord). Symptoms of severe illness generally last a few weeks, although neurological effects may be permanent.
 - Symptoms of encephalitis may include severe headache, high fever, stiff neck, disorientation, muscle weakness, tremors, convulsions, paralysis, and coma. Death may result.
 - The incubation period for West Nile encephalitis is usually 3 to 14 days.
 - Symptoms of viral meningitis include fever, severe headache, stiff neck, sensitivity to lights, drowsiness, confusion, nausea, and vomiting. Viral meningitis is rarely fatal in those with a healthy immune system.
 - There is no evidence suggesting that pregnant women or their fetus are at increased risk due to infection with WNV.

