



West Nile Virus

What is it? West Nile is a flavivirus. It was first discovered in 1937 in the West Nile district in Uganda and has since migrated through the Middle East to North America. West Nile first arrived in North America in 1999 with a report originating from the New York area. North America recorded the largest outbreak of West Nile in 2002 with 4000 infected people. Canada reported their first human West Nile case in 2002.

How is it transmitted? Most of the evidence suggests the virus is transmitted by the bite of mosquitoes that have fed on infected birds. Although the risk remains low, recent research suggests the virus can also be transmitted via blood transfusions organ/tissue transplants, mother-fetus during pregnancy, mother-child through human milk, or open wounds (i.e. punctures, cuts or shared needles). Chances of contracting and becoming ill from the virus are very small since it is estimated that less than 1 % of mosquitoes can carry the infection. Most infections are asymptomatic. Of persons who are bitten by an infected mosquito less than 1 % will become seriously ill. Those at risk of developing serious symptoms if infected include immunocompromised persons, those with co-morbid conditions (ex. cancer, diabetes, alcoholism or heart disease) and people over 40 years of age. Case-fatality rates for severe illness range from 3 to 15 %.

What are the symptoms and course of the disease? The incubation period in humans is 2 - 15 days. Symptoms of infection are usually mild - fever, headache and body aches that last only a few days. Refer patients who present with severe headache, high fever, stiff neck, vomiting, drowsiness, confusion and/or muscle weakness. These symptoms are indicative of serious neurological infection and require immediate medical attention. Symptoms can last for several weeks and neurological effects may be permanent.

How is it treated? Mild disease is self-limiting and usually doesn't require medical care. There is no specific treatment for more severe cases. Hospitalization, intravenous fluids, ventilator support and other medical treatments may be necessary.

How can the risk of infection be reduced? There is not currently a vaccine to prevent infection with West Nile virus so the best protection is to reduce the risk of mosquito bites.

- Prevent mosquitoes from breeding by routinely emptying any standing water in yards (e.g., saucers under flower pots, wading pools, pet bowls, bird baths, pool covers), cleaning eaves troughs regularly and covering rain barrels with mosquito netting.
- Wear long sleeved shirts and long pants when outside. Stay indoors at dusk and dawn when mosquitoes are most likely to bite.
- Keep screens in windows and doors in good repair.
- Apply mosquito repellent to exposed skin when outdoors especially at high-risk times of day and when in wooded or grassy areas. DEET is the only product that gives long-lasting protection after a single application.
- Use a shovel or double plastic bags on your hands to handle dead birds or animals.

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Health Canada recommendations for DEET use:

- *Infants less than 6 months of age:* Do not use DEET
- *Children 6 months to 2 years:* One application of least concentrated product (10 % of DEET or less) per day if considered necessary. Apply sparingly and not to the face and hands.
- *Children between 2 and 12 years:* Apply product containing 10 % or less of DEET sparingly no more than 3 times daily. Do not apply to the face or hands.
- *Adults:* Lower concentrations of DEET are as effective as higher concentrations but remain active for shorter periods of time, e.g. 30 % → 6.5 hours protection, 15 % → 5 hours protection, 10 % → 3 hours protection and 5 % → 2 hours protection. Choose the product with lowest concentration needed for the time you plan to be outdoors. Repeat application only if a longer protection period is needed. (Products containing concentrations of DEET greater than 30 % will be phased out by December 31, 2004)
- *Pregnancy and Lactation:* No indications at this time that DEET is harmful to unborn babies or nursing children but in some animal studies DEET was associated with teratogenic effects. There are no human studies and case reports on which to base recommendations. Consider using the nonchemical methods suggested above to prevent mosquito bites.

NOTE: Canadian travel clinics also recommend the use of permethrin spray to be applied to clothing, camping gear and tents not to skin. Permethrin is both a repellent and insecticide. The 1% permethrin lotion can be diluted with equal parts of water and applied using a pump spray bottle. DEET is still the insect repellent of choice however the permethrin spray can be used on the clothing while DEET is used on the skin.

For more information check the following websites:

Government of Saskatchewan at <http://www.labour.gov.sk.ca/whatsnew/westnilevirus.htm>

Health Canada at <http://www.hc-sc.gc.ca/pphb-dgspsp/publicat/info/index.html>

CDC West Nile Virus homepage at <http://www.cdc.gov/ncidod/dvbid/westnile/index.htm>

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