

West Nile Virus in BC Questions and Answers - 2004 Season

April 14, 2004

West Nile Virus and Transmission

What is West Nile Fever?

West Nile Fever is caused by infection with West Nile Virus (WNV), a type of flavivirus. Other viruses in this family include dengue virus, yellow fever virus, and the viruses responsible for St. Louis encephalitis and Japanese encephalitis. Most people infected with WNV will experience no symptoms at all. About 20% of those infected with WNV will develop mild flu-like symptoms lasting a week or less. Symptoms typically include fever, headache, and body aches; a rash on the trunk of the body and swollen lymph glands may also be present. In less than one percent of cases, WNV can cause meningitis (inflammation of the lining of the brain and spinal cord) or encephalitis (inflammation of the brain). For unknown reasons, people over 50 years of age are most at risk for severe illness.

Where is West Nile Virus found?

West Nile Virus is widespread in parts of Africa, Western Asia and the northern Mediterranean area. Outbreaks have been reported in Egypt, Israel, India, France, Romania and the Czech Republic. In September of 1999, New York City (NYC) reported the first outbreak of West Nile Fever ever confirmed in North America. In the summer of 2000, a second outbreak occurred in NYC and surrounding counties, northern New Jersey and Connecticut. WNV has since been detected in dead birds, mosquitoes, horses and other animals in most US states. In Canada during 2003, WNV activity was reported in Nova Scotia, New Brunswick, Québec, Ontario, Manitoba, Saskatchewan and Alberta.

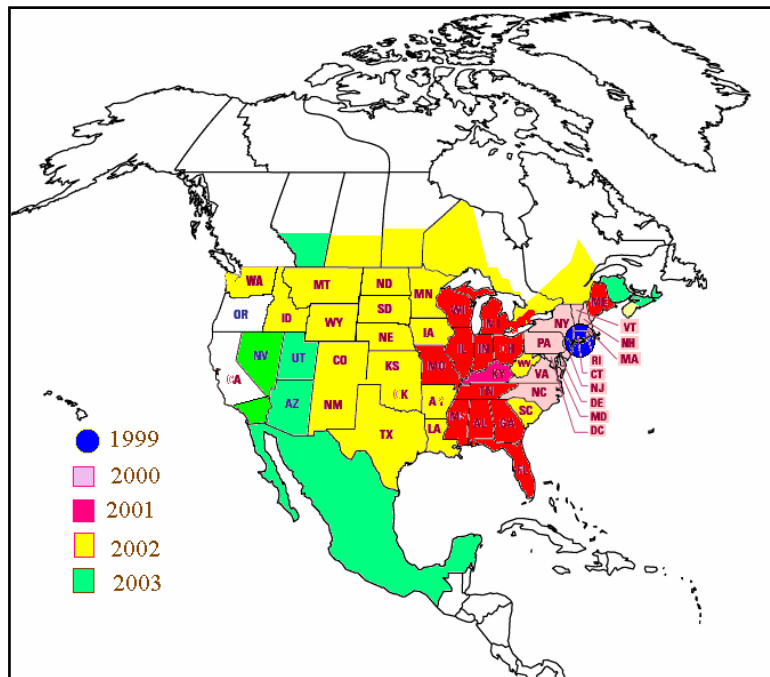


Figure 1 WNV Distribution in North America 1999-2003

WNV do exist in BC. It is expected that WNV will be identified during the summer of 2004 as the virus continues its westward spread across North America. In 2002, the virus was identified in a crow in Washington State near the

How do people become infected with West Nile Virus?

West Nile virus is a mosquito-borne virus. In nature it is normally passed between mosquitoes and birds. The usual way for humans to get WNV is through the bite of an infected mosquito. However, a very small proportion of cases may become infected with WNV in other ways. These include infection through blood transfusion or organ donation and infection of laboratory staff working with the virus. One case of transmission through the placenta from mother to child occurred during 2002. In another case, transmission through breast milk was suspected. Further information from the U.S. on the likelihood of transmission from mother to fetus is should be available soon.

Risk of Infection

What is the risk of WNV in BC?

Species of mosquito capable of transmitting

BC border. To date, WNV has been reported from seven provinces in Canada (Nova Scotia, New Brunswick, Quebec, Ontario, Manitoba, Saskatchewan and Alberta) and all continental US states except Oregon (Figure 1).

When is the risk greatest?

In North America, WNV transmission is most likely to occur during mosquito season, usually from mid-May until hard frost (late September-October).

How likely am I to get sick from one mosquito bite?

Even in areas where mosquitoes do carry the virus, very few mosquitoes are infected. If the mosquito is infected, less than 1% of people who get bitten and become infected will get severely ill. The chance you will become severely ill from any one mosquito bite is extremely small.

Surveillance for WNV in BC

What action is being taken in BC concerning WNV?

The British Columbia Centre for Disease Control (BCCDC) and regional health authorities are working with local governments, the BC Animal Health Centre, wildlife officials, entomologists, and other agencies to monitor for WNV in BC. Key actions include:

- Notification of health care providers to watch for symptoms of WNV and order diagnostic tests on probable cases.
- Monitoring and testing program for dead crows. Regional health authorities will arrange for collection and testing of crows. As particular programs will vary, please refer to your regional health authority for specific program activities (see links at end of document).
- Monitoring and testing program for adult mosquitoes to determine species distribution and test for presence of the virus.
- Providing up to date information about WNV to the public through press releases and online at www.bccdc.org
- Encouraging local governments to carry out preparatory work that would allow them to initiate mosquito control measures. Regional health authorities are working with local governments to plan the most appropriate measures to control mosquitoes that carry WNV.

How can birds help to identify WNV in an area?

Several species of mosquito and many species of birds can become infected with WNV during the cycle of transmission; members of the crow family (crows, ravens, magpies, nutcrackers and blue jays) are particularly sensitive to the virus and have high death rates if infected. Evidence from the United States suggests that crow die-offs precede an increased risk for human illness by 2-6 weeks. Monitoring of dead crows can provide an early warning signal that WNV is moving into an area.

Should I report dead birds this year?

Dead bird sightings are important indicators of risk to human health; if you spot a dead corvid (raven, crow, jay, nutcracker or magpie) you may report this to public health using the online form found at <http://www.bccdc.org>. Public reporting of dead birds is useful and encouraged, however does not mean that a reported bird will be collected or tested. In BC, separate collection and testing programs are in place, which operate independently of public reports. For information on how to safely dispose of dead birds once you have reported them, please click [here](#).

How will the public know if WNV has been found in BC?

The BC Centre for Disease control and regional health authorities will notify the public if WNV is detected in BC. Graphs and tables that summarize West Nile surveillance results are available on the BCCDC website: <http://www.bccdc.org>. In addition, a press conference will be held in the event a bird, mosquito or human tests positive for the virus.

Treatment and Protection from WNV

What is the treatment for WNV?

Although there is no specific treatment, medication or cure, many of the symptoms and complications of the disease can be treated. Most people who are infected with WNV recover. There is no vaccine for WNV at this time.

How can I protect myself against WNV?

There are many simple things that you can do protect yourself from WNV:

- *Destroy potential mosquito breeding sites around your home.* It doesn't take much time, or water, for mosquitoes to develop from eggs into adults. Therefore, anything that can hold water is a potential development site. Try to identify and eliminate development sites on your property, including emptying saucers under flower pots, changing water in bird baths regularly (at least once a week), unclogging rain gutters, and removing used tires and other debris where rainwater may collect.
- *Install mosquito screens on windows.* If in a mosquito infested area, remain in well-screened or completely enclosed, air-conditioned areas when possible. Consider staying indoors at dawn, dusk, and in the early evening, which are peak mosquito biting times.
- *Wear protective clothing.* Avoid dark-coloured clothing as it tends to attract mosquitoes. When in mosquito infested areas, wear full-length pant legs and long sleeves to act as barriers against mosquito biting.
- *Use mosquito repellent.* WNV has been found in both daytime and dusk-to-dawn biting mosquitoes. For this reason, application of mosquito repellent containing DEET to areas of exposed skin is recommended. The percentage of DEET in repellents should not exceed 30% for adults or 10% for children. DEET should not be used on children under 6 months of age. Some common repellents that have been proven NOT to work include bug zappers, audible mosquito repellents (emit sound waves to deter mosquitoes) and Citrosa plants.

If a person contracts West Nile virus, does that person develop a natural immunity to future infection by the virus?

It is assumed that immunity will be lifelong; however, it may wane in later years.

West Nile Virus and Pregnancy

Should I continue to breast-feed my child if WNV is detected in BC?

Because of the known benefits of breast feeding and the rarity of transmission via this route, it is recommended that mothers continue breast feeding even if the virus is circulating in BC. There is no need to be tested for WNV just because you are breast-feeding.

If I am breast-feeding, should I use insect repellent containing DEET?

Yes. Insect repellents help people reduce their exposure to mosquito bites that may carry potentially serious viruses such as West Nile virus, and allow them to continue to play and work outdoors. There are no reported adverse events following use of repellents containing DEET in pregnant or breast-feeding women.

If I am pregnant, should I be tested for WNV?

A WNV test is not routinely ordered in pregnant women. A test could be ordered by a woman's physician if she had symptoms that suggested WNV infection.

WNV and the Blood Supply

Can WNV be transmitted through blood transfusion?

Yes. During 2002 there were 23 cases in the U.S. and 4 cases in Canada of probable or confirmed WNV transmitted through blood or blood products. The risk of transmission of WNV through blood products has decreased since universal donor WNV testing was started in the U.S. and Canada in July 2003.

What measures does Canadian Blood Services (CBS) have in place to prevent WNV from entering the blood supply?

During winter and early spring, prior to mosquito season, CBS will stockpile frozen plasma that can be distributed to regions experiencing high WNV activity during the summer. Donors must be feeling healthy and well on collection day. At the time of donation, each donor has their temperature checked and donors with a fever cannot donate blood on that day. Donors are asked specifically if they have had a fever *and* headache in the previous 7 days and are deferred from donating if they answer yes. Every donation is also tested for the presence of WNV. Donors who have been diagnosed with WNV are deferred from donating for 56 days after onset of symptoms,

How well did the WNV test perform in Canada during 2003?

Across Canada during 2003, 14 WNV-positive donors were detected through CBS testing (Canadian Blood Services: unpublished data, 2003). Assuming 3 blood components (platelets, plasma and red blood cells) are manufactured and transfused for each donation and that transmission could have occurred at any level of detectable viremia, WNV testing may have averted up to 42 cases of possible transfusion transmitted WNV in Canada during 2003.

What is the risk of transfusion-transmitted WNV from blood that is screened for the virus?

The WNV test used to screen blood donors cannot reduce the risk of transmitting the virus through transfusions completely. It is, however, estimated that the test is 90% sensitive at identifying WNV infections in donors when the test is used on a pool of 6 donors' blood. For example, if 1 in 500 donors were positive for WNV at the time of donation (a possibility during several weeks in the summer when WNV occurrence peaks), the risk of transfusion-transmitted WNV would be about 1 in 5000 from receipt of blood.

In 2003, the 2 confirmed and 4 probable cases of WNV infection were reported in the U.S. in recipients of blood which had undergone WNV testing. In Canada during 2003 there were no cases identified.

Should I receive a blood transfusion during mosquito season?

In emergency or lifesaving situations, the benefits of transfusion far outweigh the risk of WNV infection. In elective situations patients can discuss the options available with their physician, which may include temporary deferral of the surgery or for certain procedures, using autologous blood (i.e. self-donation, using your own blood that is collected before the procedure).

Can I get WNV by donating blood?

No. There is no risk of acquiring WNV by donating blood. Blood donors are not only encouraged to continue donating but also to donate more frequently during the non-summer months, so that plasma can be stockpiled for use during the late summer mosquito season, when the risk of WNV is higher.

For more information about WNV and the Canadian blood supply, please visit the Canadian Blood Services' website:

<http://www.bloodservices.ca>

WNV, Animals and Mosquitoes

Does WNV infect only humans?

No. West Nile Virus has been known to infect horses, birds, cats, domestic rabbits, chipmunks, gray squirrels, striped skunks, and bats. There have been no documented cases of one animal infecting another animal, or of an animal infecting a human.

Can mosquitoes in Canada be infected with viruses other than WNV?

The vast majority of mosquitoes in Canada are not infected with viruses. Eleven different mosquito-transmitted viruses have been isolated from mosquitoes in Canada at one time or another. Not all of these viruses cause disease in humans, but a few can cause symptoms similar to WNV.

For more information on WNV please visit the following sites:

BC Centre for Disease Control: <http://www.bccdc.org>

Health Canada: <http://www.hc-sc.gc.ca/pphb-dgspssp/wnv-vwn/index.html>

US Centres for Disease Control and Prevention: <http://www.cdc.gov/ncidod/dvbid/westnile/index.htm>

Canadian Blood Services: <http://www.bloodservices.ca>

For inquiries related to bird health please contact:

BC Ministry of Water, Land and Air Protection: <http://www.gov.bc.ca/wlap/>

Canadian Wildlife Service: http://www.cws-scf.ec.gc.ca/index_e.cfm

To report a suspected or confirmed human infection with WNV:

Contact your Regional Health Authority. To locate public health services in your area, please visit:

<http://www.healthservices.gov.bc.ca/bchealthcare/healthauthorities.html>

To report a dead corvid (crow, raven, jay, nutcracker, or magpie) use the on-line form found at:

<http://www.bccdc.org>. Dead corvids reported on this form may not be picked up for testing, but will help in monitoring corvid mortality rates. To find out about dead corvid collection and testing protocols for your area, contact your regional health authority, or visit their website:

<http://www.healthservices.gov.bc.ca/bchealthcare/healthauthorities.html>

Information on DEET can be found at:

<http://www.hc-sc.gc.ca/pmra-arla/english/pdf/rrd/rrd2002-01-e.pdf>