West Nile Virus

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West Nile Virus (WNV) was first found in 1937 in the West Nile region of Uganda, Africa. It belongs to a family of viruses called Flaviviridae which also includes St. Louis encephalitis virus, yellow fever virus and dengue fever virus. WNV is normally transmitted between birds and mosquitoes. Mosquitoes pick up WNV when they feed on the blood of infected birds and then can transmit WNV when they bite another bird. Humans and animals (mostly horses) become infected if bitten by an infected mosquito.

WNV was first found in North America in 1999 when there was an outbreak of encephalitis, an inflammation of the brain, in New York City, and WNV was found to be the cause. In 2002, over 4100 people in the United States were infected with WNV and 284 people died. This was the largest outbreak of WNV infection ever recorded. In Canada, WNV was first detected in August 2001 in a dead crow in Windsor, Ontario. The first human cases of WNV in Canada occurred in 2002 and there were almost 400 cases in Ontario (38 in Windsor) and 8 cases in Quebec. So far this year, human infection with WNV has been found in Saskatchewan, Alberta, Manitoba, Nova Scotia and Ontario. People are only at risk for WNV infection in areas and at times during the year when the virus is circulating in nature, i.e. during mosquito season. Last year in Ontario, late summer and early fall were the times when most WNV infections occurred.

Although most people are infected with WNV after being bitten by an infected mosquito, there are other ways in which WNV can be transmitted. Blood transfusions have accounted for 21 infections in the United States, and at least 3 infections in Canada. Four patients have became infected after receiving an organ transplant, a pregnant woman passed the virus on to her unborn baby, and one mother passed the virus on to her baby by breast-feeding. Laboratory workers who handle infected specimens can be infected through needle punctures or cuts.

About 80% of infected people have no symptoms and do not get sick, and about 20% get a mild flu-like illness that lasts 3-6 days with symptoms such as fever, headache, muscle aches, decreased appetite, rash, diarrhea or sore throat. If you do get sick, symptoms usually appear within 2-15 days after infection. About 1 in 150 people will have more severe disease such as meningitis (inflammation of the lining of the brain and spinal cord) or encephalitis (inflammation of the brain). Symptoms of severe disease include severe headache, high fever, stiff neck, vomiting, drowsiness, confusion, loss of consciousness, lack of coordination, muscle weakness and paralysis. Anyone who has these symptoms should seek medical attention immediately. The risk of severe infection is greater for people over 50 years of age. WNV infection can be fatal and the mortality rate is about 4-14%. The risk of death is increased in those over 70 years of age, or if symptoms such as loss of consciousness or severe muscle weakness are present. People who have a weakened immune system or who have other medical problems such as diabetes, alcoholism or heart disease have an increased risk of severe infection and death from WNV. However people of all ages and previously healthy people can become seriously ill. The long-term effects of WNV are not fully understood yet, but follow-up studies of

people who had severe WNV infection have found that it can take a long time to get better. Some people recover completely, while others may have persistent fatigue, memory problems, concentration problems, muscle weakness, difficulty walking, or depression.

To diagnose WNV infection, blood or cerebrospinal fluid is tested for antibody to WNV. Special tests such as growing WNV in the laboratory can be done in selected situations. People who have recently been vaccinated against or recently infected with related viruses such as yellow fever, Japanese encephalitis, St. Louis encephalitis, or dengue virus, may have a positive test for WNV because there is some similarity between these viruses.

There is no specific treatment or cure for WNV. Symptoms such as fever, headache and nausea can be treated to make people more comfortable. Some people may require hospitalization. Hopefully in the future, a vaccine will be available.

The best way to protect yourself against WNV infection is to reduce the risk of getting mosquito bites. Dawn, dusk and early evening are the times of day that mosquitoes are feeding, so you can avoid going out at those times, or use insect repellent. The most effective repellents contain DEET (N,N-diethyl-m-toluamide). Make sure you read the recommendations on the product label when using DEET. Don't use DEET on babies under 6 months and avoid applying it to the face and hands of children. For children 2-12 years of age, a low concentration of DEET, 10% or less, should be used. For adults, up to 30% DEET can be used. The higher the concentration of DEET, the longer it is effective for. Wear protective light-coloured clothing such as long sleeves, long pants, and socks while outdoors. Avoid areas where mosquitoes are plentiful. Drain all standing water as mosquitoes like to lay their eggs there.

It's important to remember that the risk of being bitten by an infected mosquito is low and that most people who are infected with WNV have no symptoms or have mild symptoms and recover fully. The most important thing you can do to prevent infection is to protect yourself as much as possible against mosquito bites. Further information on WNV can be obtained on the Health Canada website www.hc-sc.gc.ca.