

Appendix A: Disease-Specific Chapters

Chapter: West Nile Virus Illness

West Nile Virus Illness

- Communicable
 Virulent

**Health Protection and Promotion Act:
Ontario Regulation 558/91 – Specification of Communicable Diseases**

**Health Protection and Promotion Act:
Ontario Regulation 559/91 – Specification of Reportable Diseases**

1) Aetiologic Agent:	West Nile Virus (WNV) is a mosquito-borne virus of the genus Flavivirus; it is an RNA Flavivirus, which is related antigenically to St. Louis Encephalitis and the Japanese Encephalitis viruses (2).
2) Case Definition:	
Surveillance Case Definition	See Appendix B
Outbreak Case Definition	Not applicable
3) Identification:	
Clinical Presentation:	<p>There are three clinical manifestations of WNV; asymptomatic, non-neurological and neurological. The majority of WNV cases are asymptomatic. About 20% of infected persons develop the usually less severe symptom complex known as WNV non-neurological syndrome. This presents with a mild flu-like illness with fever, headache and body aches, occasionally with a skin rash and swollen lymph nodes or other non-specific symptoms that last several days. Other symptoms may include nausea, vomiting, eye pain or photophobia (1).</p> <p>WNV neurological symptoms can present as an encephalitis illness as well as conditions similar to acute flaccid paralysis, and parkinsons disease.</p>
Diagnosis	<p>See Appendix B</p> <p>Note: Diagnosis is based on clinical presentation and serological test results.</p> <p>For further information on diagnostic testing for West Nile Virus refer to the Central Public Health Laboratory Lababstracts on WNV found in the current West Nile Virus Preparedness and Prevention Plan - Ontario Ministry of Health and Long-Term Care.</p>

4) Epidemiology:

Occurrence	<p>The virus was first isolated in 1937 in the West Nile district of Uganda. The first recorded outbreak in North America happened in New York City in 1999.</p> <p>In Canada the virus was first confirmed in birds in 2001 and the first human case was confirmed in Ontario in September 2002. Locally acquired WNV occurs in the summer months, with the majority of cases occurring in August and September.</p>
Reservoir	Birds are the main reservoir of WNV in North America.
Modes of Transmission	<p>Mosquitoes are the main vectors of WNV with the <i>Culex</i> genus being the primary vector. In Ontario the main vectors of concern are <i>Culex pipiens</i> and <i>Culex restuans</i>.</p> <p>Indirect human transmission can occur through blood and organ donations. Most infants born to women who have contracted WNV during pregnancy have no infection or clinical abnormalities. There is only one reported case of confirmed congenital WNV infection. There is one report of WNV infection transmitted from human milk, but the infant remained asymptomatic.</p>
Incubation Period	Usually 2-15 days (3)
Period of Communicability	No direct person-to-person transmission. Infected mosquitoes probably transmit virus throughout life (1).
Susceptibility and Resistance	Susceptibility appears to be general and throughout life in both sexes at all ages (1). Persons over 50 years of age have the highest risk of severe disease.

5) Reporting Requirements:

To Local Board of Health	Confirmed and suspected cases shall be reported to the medical officer of health by persons required to do so under the <i>Health Protection and Promotion Act</i> , R.S.O. 1990.
To Public Health Division	<p>Report only case classifications specified in the case definition to PHD.</p> <p>Cases shall be reported using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within one (1) business day of receipt of initial notification as per <i>iPHIS Bulletin</i> Number 17: Timely Entry of Cases (4).</p> <p>The minimum data elements to be reported for each case is specified in the following:</p> <ul style="list-style-type: none">• Ontario Regulation 569 (Reports) under the <i>Health Protection and Promotion Act</i> (HPPA);• The disease-specific User Guides published by the Ministry, and• Bulletins and directives issued by the Ministry.

6) Prevention and Control Measures:

Personal Prevention Measures	<p>Provide public education regarding:</p> <ul style="list-style-type: none">• The use of insect repellent when outdoors. Consider using federally registered personal insect repellents on exposed skin, such as those containing DEET. A light coating will do. The concentration of DEET should be no greater than 30% for adults and no greater than 10% for children.• Wearing long sleeve shirts and long pants and light coloured clothes.• Cleaning up mosquito-friendly areas around your home regularly such as standing water. <p>For more information on prevention measures refer to the current West Nile Virus Preparedness and Prevention Plan - Ontario Ministry of Health and Long-Term Care</p>
Infection Prevention and Control Strategies	<p>The board of health shall develop and utilize a local vector-borne management strategy in order to mitigate risk. This strategy shall include measures such as:</p> <ul style="list-style-type: none">• Local risk assessments;• Public education, and• Source reduction when and where applicable. <p>For more information on vector-borne management strategies refer to the most current provincial WNV plan posted at: West Nile Virus Preparedness and Prevention Plan - Ontario Ministry of Health and Long-Term Care</p>
Management of Cases	<p>Investigate the case to determine source of infection. Refer to Ontario Regulation 569 for relevant data to collect and determine the most likely location of exposure.</p> <p>As per this Protocol, notify the Canadian Blood Services (CBS) and Trillium Gift-of-Life of any positive human results with blood/organ histories of a vector-borne disease.</p>
Management of Contacts	Not applicable
Management of Outbreaks	<p>For outbreak management refer to this protocol as well as the West Nile Virus Preparedness and Prevention Plan - Ontario Ministry of Health and Long-Term Care.</p>

7) References

	<p>(1) Heymann D, editor. Control of communicable diseases manual. 18th ed. Washington: American Public Health Association; 2004.</p> <p>(2) Pickering LK, Baker CJ, Long SS, McMillan JA, editors. Red book: 2006 report of the Committee on Infectious Diseases. 27th ed. Elk Grove Village, IL: American Academy of Pediatrics; 2006. Section 3, Summaries of infectious diseases; p. 729-32.</p>
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	<p>(3) Ministry of Health and Long-Term Care. West Nile Virus Preparedness and Prevention Plan 2008. Toronto: Queen's Printer for Ontario; 2008. Available from http://www.health.gov.on.ca/english/public/pub/ministry_reports/wnv_plan_2008/wnv_plan_full.pdf.</p> <p>(4) Ministry of Health and Long-Term Care. Timely entry of cases. <i>iPHIS Bulletin</i>. 2007 May 11;17.</p>
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8) Additional Resources

	<p>Ministry of Health and Long-Term Care. West Nile Virus Preparedness and Prevention Plan 2008. Toronto: Queen's Printer for Ontario; 2008. Available from http://www.health.gov.on.ca/english/public/pub/ministry_reports/wnv_plan_2008/wnv_plan_full.pdf.</p> <p>Ministry of Health and Long-Term Care. Infectious diseases protocol. Toronto: Queen's Printer for Ontario; 2009. Available from http://www.health.gov.on.ca/english/providers/program/pubhealth/oph_standards/ophs/progstds/protocols/infectious_diseases.pdf. (or as current)</p> <p>Public Health Agency of Canada. Management of patients with West Nile Virus: guidelines for health care providers. <i>Can Commun Dis Rep</i>. 2005;31 Suppl 4:1-10. Available from: http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/05pdf/31s3_e.pdf.</p> <p>Public Health Agency of Canada, Centre for Food-borne, Environmental and Zoonotic Infectious Disease. West Nile Virus MONITOR [Internet]. Ottawa: Public Health Agency of Canada; 2008 [cited 2008 Jul 22]. Available from: http://www.phac-aspc.gc.ca/wnv-vwn/index-eng.php.</p> <p>Public Health Agency of Canada. West Nile Virus – protect yourself! [Internet]. Ottawa: Public Health Agency of Canada; 2006 [cited 2008 Jul 22]. Available from: http://www.phac-aspc.gc.ca/wn-no/index-eng.php.</p>
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