Alberta Case Definitions for West Nile (WN)

Note: *The current Case Definitions were drafted with available information at the time of writing. Case Definitions and Diagnostic Test Criteria are subject to change as new information becomes available.*

West Nile Neurological Syndrome (WNNS)

Disease Case Classification	
Confirmed Case (FMP)	**Clinical Criteria:** ▪ History of exposure in an area where WN virus (WNv) activity is occurring[1] **OR** ▪ History of exposure to an alternate mode of transmission[2] **AND** ▪ Onset of fever **AND NEW ONSET OF AT LEAST ONE** of the following**:** ▪ Encephalitis (acute signs of central or peripheral neurologic dysfunction), or ▪ Viral meningitis (pleocytosis and signs of infection e.g., headache, nuchal rigidity),or ▪ Acute flaccid paralysis (e.g., poliomyelitis-like syndrome or Guillain-Barré-like syndrome),[3] or ▪ Movement disorders (e.g., tremor, myoclonus) or ▪ Parkinsonism or Parkinson like conditions (e.g., cogwheel rigidity, bradykinesia, postural instability); or ▪ Other neurological syndromes as defined in the note** below. **AND** ▪ Laboratory confirmation of infection of one of the following: ▪ WNv NAT positive, blood, or CSF, **OR** ▪ WNv IgM positive, low avidity antibody, WNv PRNT positive, **OR** ▪ Significant rise in WNv IgG, WNv PRNT positive, **OR** ▪ Fourfold or greater rise in WNv HI titre, WNv PRNT positive.
Probable Case (FMP)	**Clinical Criteria: as per confirmed case** **AND the following serology result:** ▪ WNv IgM positive, low avidity antibody, **OR** ▪ WNv IgM positive, significant rise in WNv IgG, **OR** ▪ WNv IgM positive, fourfold or greater rise in WNv HI titre.
Suspect Case (FMP)	**Clinical Criteria: as per confirmed case in:** ▪ The absence of or pending laboratory results **AND** ▪ The absence of any other cause.

West Nile Neurological Syndrome (WNNS)

Disease Case Classification	
National Surveillance	Confirmed Cases
Provincial Surveillance	Confirmed and Probable Cases
Type of Surveillance	Case-by-Case
Comments	Refer to Appendix A - *West Nile Virus Testing in 2006* .
Date of Development	Adopted from *National Surveillance for West Nile Virus Case Definition* May 2006 and WNv diagnostic testing and interpretation prepared by Dr. Peter Tilley, Medical Microbiologist, Provincial Laboratory for Public Health, June 2005.

**** Note:**
A significant feature of West Nile neurological illness may be marked muscle weakness that is more frequently unilateral, but can be bilateral. WNV should be considered in the differential diagnosis of all suspected cases of acute flaccid paralysis with or without sensory deficit. WNV- associated weakness typically affects one or more limbs (sometimes affecting one limb only). Muscle weakness may be the sole presenting feature of WNV illness (in the absence of other neurologic features) or may develop in the setting of fever, altered reflexes, meningitis or encephalitis. Weakness typically develops early in the course of clinical infection. Patients should be carefully monitored for evolving weakness and in particular for acute neuromuscular respiratory failure, which is a severe manifestation associated with high morbidity and mortality. **For the purpose of WNV Neurologic Syndrome Classification, muscle weakness is characterized by severe (Polio-like), non-transient and prolonged symptoms.** Electromyography (EMG) and lumbar puncture should be performed to differentiate WNV- associated paralysis from acute demyelinating polyneuropathy (e.g., Guillain-Barré syndrome). Lymphocytic pleocytosis (an increase in WBC with a predominance of lymphocytes in the cerebrospinal fluid [CSF]) is commonly seen in acute flaccid paralysis due to WNV whereas pleocytosis is not a seen feature of Guillain-Barré Syndrome.

Other emerging clinical syndromes, identified during 2002 included, but were not limited to the following: myelopathy, rhabdomyolysis (acute destruction of skeletal muscle cells), peripheral neuropathy; polyradiculoneuropathy; optic neuritis; and acute demyelinating encephalomyelitis (ADEM). Ophthalmologic conditions including chorioretinitis and vitritis were also reported. Facial weakness was also reported. Myocarditis, pancreatitis and fulminant hepatitis have not been identified in North America, but were reported in outbreaks of WNV in South Africa. **"Aseptic" meningitis without encephalitis or acute flaccid paralysis** occurring in August and September when WNV is circulating may be due to non-polio enteroviruses circulating at the same time. This should be considered in the differential diagnosis. [Sejvar J et al. JAMA (2003) Vol.290 (4) p. 511-515, Sejvar, J. et al. Emerg Infect Dis (2003) Vol 9 (7) p.788-93 and Burton, JM et al Can. J. Neurol. Sci. (2004) Vol.31 (2) p.185-193]

[1]History of exposure when and where West Nile virus transmission is present, or could be present, or history of travel to an area with confirmed WNv activity in birds, horses, other mammals, sentinel chickens, mosquitoes, or humans.

[2]Alternate modes of transmission identified to date include: laboratory-acquired; in utero; receipt of blood components; organ/tissue transplant; and possibly via breast milk.

[3]A person with WNv associated acute flaccid paralysis may present with or without fever or mental status changes. Altered mental status could range from confusion to coma with or without additional signs of brain dysfunction (e.g. paralysis, cranial nerve palsies, sensory deficits, abnormal reflexes, generalized convulsions and abnormal movements). Acute flaccid paralysis may result in respiratory failure.

West Nile Non-Neurological Syndrome (WN Non-NS)

Disease Case Classification	
Confirmed Case	**Clinical Criteria:** ▪ History of exposure in an area where WN virus (WNv) activity is occurring[1] **OR** ▪ History of exposure to an alternate mode of transmission[2] **AND AT LEAST TWO** of the following[3]: ▪ Fever ▪ Myalgia[4] ▪ Arthralgia ▪ Headache ▪ Fatigue ▪ Lymphadenopathy ▪ Maculopapular rash **AND** ▪ Laboratory confirmation of infection of one of the following: ▪ WNv NAT positive, blood, or CSF, **OR** ▪ WNv IgM positive, low avidity antibody, WNv PRNT positive, **OR** ▪ Significant rise in WNv IgG, WNv PRNT positive, **OR** ▪ Fourfold or greater rise in WNv HI titre, WNv PRNT positive.
Probable Case	**Clinical Criteria: as per confirmed case** **AND the following serology result:** ▪ WNv IgM positive, low avidity antibody, **OR** ▪ WNv IgM positive, significant rise in WNv IgG, **OR** ▪ WNv IgM positive, fourfold or greater rise in WNv HI titre.
Suspect Case	**Clinical Criteria: as per confirmed case in:** ▪ The absence of any other cause **AND** ▪ The absence of or pending laboratory results.
National Surveillance	Confirmed Cases
Provincial Surveillance	Confirmed and Probable Cases
Type of Surveillance	Case-by-Case
Comments	Refer to Appendix A - *West Nile Virus Testing in 2006.*
Date of Development	Adopted from *National Surveillance for West Nile Virus Case Definition* May 2006 and WNv diagnostic testing and interpretation prepared by Dr. Peter Tilley, Medical Microbiologist, Provincial Laboratory for Public Health, June 2005.

[1]History of exposure when and where West Nile virus transmission is present, or could be present, or history of travel to an area with confirmed WN virus activity in birds, horses, other mammals, sentinel chickens, mosquitoes, or humans.

[2]Alternate modes of transmission identified to date include: laboratory-acquired; in utero; receipt of blood components; organ/tissue transplant; and possibly via breast milk.

[3]It is possible that other clinical signs and symptoms could be identified that have not been listed and may accompany probable case or confirmed case diagnostic test criteria. For example, gastrointestinal (GI) symptoms were seen in many case-patients in Canada and the USA in 2003 and 2004.

[4] Muscle weakness may be a presenting feature of WNV illness. **For the purpose of WNV Non-Neurological Syndrome classification, muscle weakness or myalgia (muscle aches and pains) is characterized by a mild, transient, unlikely prolonged symptoms that are not associated with motor neuropathy.**

West Nile Asymptomatic Infection (WNAI)**

Disease Case Classification	
Confirmed Case	The absence of clinical criteria **AND** Laboratory confirmation of infection by one of the following: ▪ WNv NAT positive, blood, or CSF, **OR** ▪ WNv IgM positive, low avidity antibody, WNv PRNT positive, **OR** ▪ Significant rise in WNv IgG, WNv PRNT positive **OR** ▪ Fourfold or greater rise in WNv HI titre, WNv PRNT positive.
Probable Case	The absence of clinical criteria **AND** the following serology result: ▪ Positive Canadian Blood Services NAT screening test.
National Surveillance	Confirmed Cases
Provincial Surveillance	Confirmed and Probable Cases
Type of Surveillance	Case-by-Case
Comments	Refer to Appendix A - *West Nile Virus Testing in 2006.*
Date of Development	Adopted from *National Surveillance for West Nile Virus Case Definition* May 2006 and WNv diagnostic testing and interpretation prepared by Dr. Peter Tilley, Medical Microbiologist, Provincial Laboratory for Public Health, June 2005.

**** Note:** This category could include asymptomatic blood donors whose blood is screened using a Nucleic Acid Amplification Test (NAT), by Blood Operators (i.e. Canadian Blood Services or Hema-Quebec) and is subsequently brought to the attention of public health officials. The NAT assay that is used by Blood Operators in Canada is designed to detect all viruses in the Japanese encephalitis (JE) serocomplex. The JE serocomplex includes WN virus and 9 other viruses, although from this group only WN virus and St Louis encephalitis virus are currently endemic to parts of North America. Blood operators in Canada perform supplementary WN virus- specific NAT following any positive donor screen test result.