simcoe muskoka
DISTRICT HEALTH UNIT

Dr. Charles Gardner, Medical Officer of Health
Dr. Jim Pfaff, Associate Medical Officer of Health
Dr. Colin Lee, Associate Medical Officer of Health

HealthFAX

First Lab-Confirmed West Nile Virus Case in the Simcoe-Muskoka Area

Attention: **Physicians, Emergency Departments, Infection Control Practitioners, Walk-In Clinics/Urgent Care Clinics, Nurse Practitioners**
Date: September 14, 2012

The Simcoe Muskoka District Health unit has received confirmation of its first lab confirmed West Nile Virus (WNV) case in an adult residing in Orillia. The following is an update of the West Nile Virus activity in Ontario and Canada:

Ontario

- As of September 11, 2012, there have been 158 confirmed and probable WNV cases in Ontario, almost half of which are in Toronto. This is the highest number of cases in this time period since 2003 and is more than double the 2011 incidence (61 confirmed and probable cases to Sept 11, 2011).

Canada

- As of September 1, 2012, there have been 162 confirmed and probable WNV cases in Canada. Of them, 82 (51%) were classified as West Nile Virus Non-Neurological Syndrome, 34 (21%) as West Nile virus Neurological Syndrome, and 46 (28%) as unclassified. Additionally, 15 asymptomatic infections have been reported. In addition to Ontario, Manitoba reported 29 cases, Quebec reported 20 cases, Alberta reported 5 cases and Saskatchewan reported 2 cases.

80% of infected human cases are asymptomatic and given decreasing temperatures, fewer mosquitos are now present. Nevertheless, health care providers are encouraged to remain vigilant for clients presenting with signs and symptoms compatible with West Nile Virus as infected mosquitos may still be present till mid-October. The incubation period for WNV is usually 2 to 15 days.

<u>Clinical Presentation</u>

West Nile Non-neurological Syndrome (20% of infected cases)

- Generally infection is characterized by a mild febrile illness with sudden onset and usually resolves in 3 to 6 days. Symptoms can include:
  - Fever;
  - Myalgia;
  - Arthralgia;
  - Headache;
  - Fatigue;
  - Lymphodenopathy;
  - Maculopapular rash; or
  - Other signs and symptoms are possible (e.g. GI symptoms).

West Nile Neurological Syndrome (<1% of infected cases)

- Severe manifestations can occur in all age groups but there is increased risk and incidence of severe neurological illness with increasing age. Syndromes include:
  - Encephalitis (acute signs of central or peripheral neurologic dysfunction);
  - Viral meningitis (pleocytosis and signs of infection);
  - Acute flaccid paralysis (e.g. poliomyelitis-like syndrome or GBS);
  - Movement disorders (e.g. tremor, myoclonus);
  - Parkinsonism or Parkinsonia-like conditions (e.g. cogwheel rigidity, bradykinesia, postural instability); or
  - Other neurological syndromes.

Laboratory Testing

Diagnostic Testing of Acute Cases (IgM)

The requisition for all initial WNV blood tests should indicate: ***"Testing is for suspect WNV-V02 for arbovirus testing".*** Please include symptoms and travel history on the requisition.

- Serologic testing of clotted or serum blood is the preferred method of testing for WNV. CSF is not recommended for Arbovirus serology (including WNV and other flaviviruses) because tests have not been validated on this type of specimen.
- Blood should be collected in a red cap tube (5-10 ml).
- Negative or equivocal results from samples taken <10 days after symptom onset should be repeated in 10 days to confirm the diagnosis as it can take this long for a detectable antibody response to develop.

Confirmation Testing (PRNT)

All IgM and/or IgG reactive samples will be further tested using the Plaque Reduction Neutralization Test (PRNT) which is highly specific for WNV. During the West Nile virus seasons, typically, most IgM reactive samples for WNV will be reactive on PRNT.

Indeterminate results for any of the WNV assays may be due to the presence of low-level antibodies or non-specific reactions. Therefore, as with all laboratory tests, the results should be interpreted in the context of the clinical history.

If you suspect a case of West Nile Virus or have questions regarding proper specimen collection, please contact the Simcoe Muskoka District Health Unit Communicable Disease Team at 705-721-7520 or 1-877-721-7520 Ext. 8809.

Attached are interpretation guidelines for WNV serology results. More information can be found on our website at www.simcoemuskokahealth.org.

Ontario
Agency for Health Protection and Promotion
Agence de protection et de promotion de la santé

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March 2008

West Nile Virus - Interpreting Serology Results - Update

To Health Care Providers:

West Nile Virus (WNV) Testing

Screening tests
The WNV IgM and IgG Enzyme–Linked Immunosorbent Assays (ELISA) are used as screening tests:

- a reactive IgM antibody response using ELISA is specific for WNV and is rarely due to cross-reaction with other flaviviruses
- a reactive IgG antibody response using ELISA may be due to infection with WNV or other flaviviruses which may cross react (e.g. Dengue, St. Louis Encephalitis, Japanese Encephalitis or Yellow Fever).

Confirmation tests
All IgM and/or IgG Reactive samples will be further tested using the Plaque Reduction Neutralization Test (PRNT) which is highly specific for WNV.

Indeterminate results for any of the WNV assays may be due to the presence of low-level antibodies or non-specific reactions. Therefore, as with all laboratory tests, the results should be interpreted in the context of the clinical history.

The following table is provided to aid in the interpretation of WNV laboratory tests.

IgM ELISA	IgG ELISA	PRNT	Interpretation of WNV Tests
Non-reactive	Non-reactive	Not tested	No serological evidence of recent or past West Nile Virus infection.
Non-reactive	REACTIVE	REACTIVE ≥1:40	Evidence of past West Nile Virus infection. The West Nile Virus PRNT is highly specific for West Nile Virus, indicating definitive evidence of West Nile Virus infection.
REACTIVE or Indeterminate	REACTIVE	REACTIVE ≥1:40	Possible recent or past West Nile Virus infection. IgM antibodies may persist for >1 year in 60% of patients at low levels and may be indicative of a

IgM ELISA	IgG ELISA	PRNT	Interpretation of WNV Tests
			previous infection.
REACTIVE	Non-reactive or Indeterminate	Non-reactive or REACTIVE ≥1:40 or Indeterminate	Possible recent or acute West Nile Virus infection. A follow-up serum sample in two weeks is recommended to demonstrate the development of IgG antibodies. The failure to develop IgG antibodies suggests a non-specific IgM reaction.
REACTIVE	REACTIVE	Non-reactive	Possible recent or past West Nile Virus and/or other flavivirus infection or vaccination. A follow-up serum sample in two weeks is recommended, as well as consideration for testing for other flaviviruses, depending on the clinical history.
Non-reactive or Indeterminate	REACTIVE	Non-reactive or Indeterminate	Possible past flavivirus infection or vaccination. The IgG ELISA cannot differentiate between members of the Flavivirus Family. A follow-up serum sample in two weeks is recommended, as well as consideration for testing for other flaviviruses, depending on the clinical history.
Indeterminate	Indeterminate	Not tested	West Nile Virus antibody status inconclusive. A follow-up serum sample in two weeks is recommended. Persistent indeterminate results for West Nile Virus IgM and IgG antibodies suggest a non-specific reaction.

Specimen Requirements

Serum is the preferred sample for serology. CSF is not recommended for Arbovirus serology (including WNV and other flaviviruses) because tests have not been validated on this type of specimen.

Under special circumstances, serum and/or cerebral spinal fluid (CSF) samples for WNV polymerase chain reaction (PCR) testing will be sent to the National Microbiology Laboratory in Winnipeg, Manitoba. Contact the West Nile Virus laboratory at the CPHL to make arrangements.

For Further Information:

- Contact the West Nile Laboratory at **416-235-6092**
- Refer to the Specimen Collection Guide at http://www.oahpp.ca/services/specimen-collection-guide.html
- Ministry's website www.health.gov.on.ca