

Provincial Laboratory for Public Health (Microbiology)

Edmonton
8440-112 Street
Edmonton, Alberta T6G 2J2
Phone: (780) 407-8903
Fax: (780) 407-8254

Calgary
3030 Hospital Drive NW
Calgary, Alberta T2N 4W4
Phone: (403) 944-1200
Fax: (403) 270-2216

Laboratory Testing for West Nile Virus

West Nile virus (WNV) continued to spread in 2002, causing a large number of infections in Ontario, and reached as far west as California. It is likely that WNV will be in Alberta this summer. Most human infections with WNV are subclinical or mild resulting in fever +/- rash, but about 1 in 150 infections are severe and present with meningoencephalitis or other neurologic syndromes .

Laboratory testing for WNV has been set up at the Provincial Lab. Testing is not usually required for the majority of mild uncomplicated infections, but the following patients may require diagnosis and will be given priority :

- Meningoencephalitis, acute flaccid paralysis or other neurologic syndromes
- Patients with unexplained fever > 3 days and less than 8 weeks after blood transfusion.
- Febrile patients with a history of blood, organ or tissue donation within 8 weeks
- Immunocompromised patients with fever NYD.
- Healthy blood donors with positive WNV screening tests at Canadian Blood Services.



For WNV testing, please submit the following:

- Requisition, and Arboviral History Form (available at www.provlab.ab.ca)
- Acute serum (5-10 mL in gold top serum separator tube)
- CSF, if LP is performed (1.0 mL)
- Stool for enterovirus culture (stool in sterile container)
- Throat swab for enterovirus culture (in M5 viral transport medium)
- Acute whole blood (5-10 mL EDTA, purple top)
- Convalescent serum, 2-3 weeks later (5-10 mL in gold top serum separator tube).

Serum will be tested by hemagglutination inhibition assay within 7 days. Most patients are seropositive by the time of clinical presentation. Please note that there is extensive cross-reactivity between WNV, St. Louis Encephalitis virus and Japanese encephalitis, and less so between WNV and dengue, powassan, and yellow fever. A travel history and vaccination history is important for correct interpretation. Positives will be sent to the National Lab in Winnipeg for WNV IgM, which is more specific, and the first few from each health region will be confirmed by neutralization titres although this may take a few weeks. A convalescent serum is crucial to document rising titres. When WNV IgM ELISA is available at the Provincial Lab, a new guideline will be circulated.

CSF will be tested for WNV and enteroviruses by nucleic acid amplification. Positives will be sent to the National Lab for confirmation. This is the method of choice for enteroviral meningoencephalitis, and may be useful for WNV very early in the course of illness or in immunocompromised patients in whom seroconversion may be delayed..

Please call if you have questions or comments
Peter Tilley MD FRCPC
(403) 944-1203
p.tilley@provlab.ab.ca

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