
Date: September 2, 2015
To: Infectious Disease Physicians, Medical Officers of Health and Laboratories
From: Provincial Laboratory for Public Health (ProvLab)
Re: Broadening of Detection of WNV by PCR to Include all Lineages

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Key Message:

West Nile Virus (WNV) PCR testing at ProvLab has been improved from detecting only the lineage endemic in North America to detecting all WNV lineages. The new assay will be in use starting September 8, 2015.

Why this is important:

- WNV is a mosquito-borne flavivirus, now endemic throughout North America, including Alberta. Infections often are asymptomatic. Illness presentation includes fever with rash, aseptic meningitis, and encephalitis. The virus was introduced in North America in 1999. Although there is only one serotype of WNV, the virus displays considerable genetic diversity and isolates are classified into lineages. The North American WNV strains are neurotropic strains belonging to lineage 1a. Lineage 1b was formerly known as Kunjin virus and is endemic in Australia. Lineage 2 WNVs are increasingly a Public Health concern in Europe where they are now emerging viruses that have caused numerous outbreaks since 2008 in Eastern and Southern Europe, and it is possible that the virus may eventually emerge in North America. To date, no case in North America has been reported. However, an additional concern is that some viruses within lineages 1b and 2 seem to undergo evolution toward increased neurovirulence. Lineage 3, 4 and 5 have also been described but currently remain geographically very restricted
- The WNV PCR initially implemented at ProvLab only detects lineage 1a. In order to broaden diagnostic performances when assessing returning travelers with fever and in order to prepare for a possible introduction of other WNV lineages in North America, we have improved the assay so that it has now a demonstrated ability to detect lineage 1b and lineage 2; and based on sequence analysis the new assay should also detect lineage 3, 4 and 5.
- The new assay will not however distinguish between the lineages, and the report will only state whether WNV has been detected or not. Should it be necessary to determine which lineage is present, additional typing involving PCR and sequencing can be done at ProvLab by contacting the Virologist on Call (VOC) and explaining the need for additional typing.

Specimen submission:

- It is unchanged. Detection of WNV by PCR in the blood requires submission of a blood in EDTA sample. Detection in the cerebrospinal fluid (CSF) requires submission of CSF without additive in a sterile container. Requisitions and SCM orders are also unchanged.

Inquiries and feedback may be directed to:

- For any question please contact Dr Raymond Tellier, Program Leader for arboviruses, ProvLab.
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This bulletin has been reviewed and approved by:

Dr. Graham Tipples, Medical / Scientific Director, ProvLab