

## West Nile Virus Test Summary for Health Care Professionals



Test Name	Test Format	Test Performance and Interpretation
WNV Nucleic acid testing (NAT)	Also known as polymerase chain reaction (PCR), or NASBA. Detects presence of viral RNA by an amplification method in plasma, serum or CSF.	<ul style="list-style-type: none"> <li>• Detects RNA in plasma in about 50% of cases during the first week of illness. Rarely positive after 8 days of illness or when IgM appears.</li> <li>• Low sensitivity in CSF, probably &lt;20%.</li> <li>• A positive NAT test is always confirmed by a second NAT test targeting a different gene.</li> <li>• A positive NAT test indicates a <b>CONFIRMED CASE</b> of WNV infection.</li> </ul>
WNV IgM	A high volume enzyme immunoassay test (EIA) which detects WNV-specific IgM in serum	<ul style="list-style-type: none"> <li>• Only positive in about 50% of cases during the first week of illness (NAT testing detects most of the other 50%). WNV IgM is nearly always positive in cases after the first week of illness.</li> <li>• Little cross-reactivity with other flaviviruses.</li> <li>• WNV IgM antibody persists for &gt;9 months in at least two thirds of cases. A patient with a positive WNV IgM result may have had the infection last season!</li> </ul>
WNV IgG	EIA for WNV IgG in serum.	<ul style="list-style-type: none"> <li>• Cross reacts extensively with other flaviviruses, such as St. Louis Encephalitis, Dengue, Japanese Encephalitis and Yellow Fever, including vaccination.</li> <li>• NOT recommended for asymptomatic persons. NOT a reliable marker of immunity to WNV.</li> <li>• Useful to show rising IgG levels in acute and convalescent sera, which strongly suggests recent flavivirus infection or vaccination.</li> </ul>



<p>WNV IgG Avidity</p>	<p>Measures strength of antibody binding to WNV.</p>	<ul style="list-style-type: none"> <li>• Low avidity antibodies indicate recent (&lt;4 months) infection or vaccination with a flavivirus. In combination with a positive WNV IgM result, indicates a PROBABLE WNV CASE.</li> <li>• High avidity antibody indicates a mature response, and exposure to a flavivirus at least 6 months previously.</li> </ul>
<p>WNV Hemagglutination Inhibition Titre</p>	<p>Measures ability of patient's antibodies to block binding of WNV to goose red blood cells! Provides a quantitative measure of antibody level (titre). Performed at the National Microbiology Lab in Winnipeg.</p>	<ul style="list-style-type: none"> <li>• Detects both IgM and IgG.</li> <li>• Cross reacts extensively with other flaviviruses, such as St. Louis Encephalitis, Dengue, Japanese Encephalitis and Yellow Fever, including vaccination.</li> <li>• Useful to show rising antibody levels in acute and convalescent serum pairs, which is strongly suggestive of recent flavivirus infection or vaccination</li> </ul>
<p>WNV Plaque Reduction Neutralization Titre (PRNT)</p>	<p>Measures ability of patient serum to block live WNV infection in a cell culture. Performed in the Containment Level-3 Lab at the National Microbiology Lab in Winnipeg.</p>	<ul style="list-style-type: none"> <li>• Highly specific for WNV. "Gold standard" serologic test.</li> <li>• Indicates CONFIRMED previous WNV infection.</li> <li>• Hazardous and laborious. Not a rapid test. Results take many weeks.</li> </ul>