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**Date:** August 24, 2012

**To:** Emergency Physicians, Infectious Diseases Physicians, Intensive Care Physicians, Medical Officers of Health, and Laboratory Directors and Managers

**From:** Provincial Laboratory for Public Health (ProvLab)

**Re:** Implementation of Dengue virus serology assays (IgM and IgG) at ProvLab

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**Key Messages:**

Effective September 4, 2012, serology assays for the detection of anti-Dengue virus antibodies (IgM and IgG) will be available at ProvLab. Previously these tests were referred to the National Microbiology Laboratory; availability of these assays at ProvLab will reduce the turn-around time.

ProvLab also performs serology assays for West Nile virus. Serology assays for other arboviruses will continue to be available, through ProvLab, by referral to the National Microbiology Laboratory.

**Background:**

Dengue virus serotypes 1, 2, 3, 4 are members of the genus *Flavivirus* and are transmitted by mosquito vectors, chiefly *Aedes aegypti* and *Aedes albopictus*. These viruses are endemic in all the tropical and subtropical regions of the world and account for up to 100 million cases a year worldwide. In Alberta the disease is increasingly diagnosed in travelers returning from endemic areas. Dengue serology is recommended as part of the investigation of fever in a returning traveler.

After an incubation time of 4 to 10 days, the typical illness lasts for 2 to 7 days and can present with high fever, headache, retro-orbital pain, muscle and joint pains, and a rash. Rarely, more severe presentations occur such as Dengue shock syndrome or Dengue hemorrhagic fever. Aseptic meningitis and encephalitis are being increasingly reported.

ProvLab has now validated and implemented Dengue serology assays using enzyme immunoassay (EIA) kits from Focus Diagnostics. Anti-Dengue IgG antibodies become detectable on occasion as early as one week after infection but may appear only after several weeks. Anti-Dengue IgG typically persist for many years to a few decades; they do not however protect against infection with a different Dengue serotype.

Anti-Dengue IgM antibodies appear early, typically 10 days after infection, which corresponds to roughly 5 days after onset of symptoms (sooner in some patients); IgM titers will peak around 2 weeks after infection and will slowly wane over a period of 2 to 3 months, eventually becoming undetectable.

Although more specific than the hemagglutination inhibition (HI) assays, the EIA assays for Dengue still can cross-react with other flaviviruses. Diagnostic interpretation must take into account the clinical presentation and travel history.

**Specimen submission:**

Serology for Dengue virus, like serology for other arboviruses, requires serum samples collected in serum separator tubes (SST). A relevant travel history must be provided along with the samples.

If you have any questions or comments regarding this bulletin or other issues related to arbovirus testing, please contact: Dr. Raymond Tellier, Program Leader for Arboviruses at: 403-944-2724 or by email at:

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**This bulletin has been reviewed and approved by Dr. Graham Tipples, Medical Director, ProvLab**