

## ■ Update on Zika Testing from SDCL September 2016

Zika virus infection is caused by a flavivirus transmitted through the bite of an infected *Aedes* mosquito, mainly *Aedes aegypti*. Although infections in humans were documented in the 1950s, Zika virus has only recently emerged as a disease of significant public health concern. At the time of writing, a large outbreak in the Americas has affected more than 20 countries. Before these outbreaks, known areas of endemic transmission were limited to Asia and Africa. It is likely the virus will continue to spread because the principal vectors are found in many tropical and subtropical regions as well as in some warmer temperate regions. Currently, the significant and emerging concern about Zika virus is the spatial and temporal clustering of the Zika virus outbreak in Brazil with the increase in the incidence of children born with microcephaly. This association has been supported in a small number of cases, through detection of Zika virus genome in amniotic fluid, placenta and tissues of affected fetuses and neonates. In addition, an apparent increase in Guillain-Barré syndrome has been noted in Zika virus affected areas of Brazil, and El Salvador, and previously in French Polynesia.

Patients for recommended screening:

(A) Testing is recommended for currently symptomatic patients with illness compatible with acute Zika virus infection within 14 days of symptom onset.

(B) Testing is recommended for asymptomatic pregnant patients. Submit serum as well as urine sample for PCR and serology collected within 14 days of departure from an endemic or currently affected area. Also, submit a serum for serology 30 days after departure from an endemic or currently affected area.

(C) Sample types:

- Serum specimen, 5 ml collected serum separator vacutainer (SST), centrifuged.
- Random urine sample, (20 ml) in sterile container, submitted on an ice pack.

The samples are submitted to the National Microbiology Laboratory for Zika virus PCR. IgM serology will be performed on all PCR-negative serum samples. A positive Zika virus PCR is sufficient to confirm Zika virus infection.

Zika virus serology cross reacts with West Nile virus, dengue and yellow fever, therefore positive serology results will be resolved by further evaluation using PRNT (plaque-reduction neutralization test). The PRNT is a technically complicated test which requires at least one week incubation. Confirmation of Zika virus infection by serology often requires a convalescent sample taken 2-4 weeks after the acute sample.

For each sample you must include:

- Symptoms, and date of onset of symptoms
- Date sample taken
- Travel history, including travel dates to known dengue- and Zika-affected areas.

The NML will test asymptomatic pregnant patients. There are challenges in interpreting serology results of asymptomatic pregnant women who have returned from an area where Zika virus is known or suspected to be circulating:

- Such patients require testing on at least two occasions: (1) within 2 weeks from the date of last potential exposure, (2) **one month after the individual has returned from her trip**. This will ensure one does not miss a seroconversion (false negative) and provide the patient with misinformation about being exposed to the virus.
- The performance characteristics of the assay are not known, that is, at this time we do not know what the sensitivity and specificity of the test means with respect to risk for sequelae such as microcephaly.

Because of the limitations on interpreting serology, clinicians should consider serial ultrasounds (every 3-4 weeks) to follow pregnant women with confirmed or suspected (if testing results are pending) Zika virus infection in pregnancy or for

asymptomatic pregnant travelers returning from Zika virus infected areas. Any results that are concerning should prompt consultation with a specialist such as a Maternal Fetal Medicine Specialist to help define risk and counsel the mother.

In summary, consider testing pregnant women (symptomatic and asymptomatic) who have returned from an area where Zika virus is known or suspected to be circulating. Also consider Zika virus

when investigating Guillian-Barré syndrome, fetal loss or sickle cell crisis if there is a travel history. For additional information on Zika virus for health please see CATMAT guidance on [PHAC website](#): For further information on Zika virus testing please call SDCL microbiologist on-call at 306-798-1234.