

Zika Virus Testing at MDHHS Bureau of Laboratories

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Starting May 2016, the MDHHS Bureau of Laboratories (BOL) began testing patient specimens with the Centers for Disease Control and Prevention's (CDC) MAC-ELISA assay for Zika IgM antibodies and the Trioplex PCR assay for Zika, dengue, and chikungunya viral RNA. Michigan has included dengue and chikungunya IgM antibody testing in their Emerging Arbovirus panel due to the extensive cross reactivity between Zika and dengue viral antibodies. All three Arbo viruses, transmitted by the *Aedes aegypti* and *Aedes albopictus* mosquitos, are acquired in areas with Zika transmission and display similar clinical manifestations. Currently, Michigan is not experiencing any localized transmission of Zika, dengue, or chikungunya viruses, since the carrier mosquitos are not found in this state.

Testing is currently approved for any symptomatic individual or asymptomatic pregnant woman that has had exposure through unprotected sex or traveled to an area of local Zika transmission. PCR (polymerase chain reaction) testing is performed on serum and urine specimens collected within 2 weeks of travel/exposure or onset of symptoms. Symptoms include fever, rash, arthralgia, and conjunctivitis. Patients must have at least one of these symptoms to qualify for testing. Any patient with symptom onset or travel/exposure greater than 12 weeks to an area with local transmission of Zika will not be tested, unless there has been continuous exposure through unprotected sex, since Zika RNA has been shown to persist for up to 6 months in semen. All infants born to mothers with laboratory evidence of Zika virus during pregnancy or who have abnormal findings suggestive of congenital Zika syndrome, should be tested within 2 days after birth for both viral RNA and IgM antibodies. Specimens collected within the first few weeks to months after birth may also be useful in evaluating infants for possible congenital Zika virus infection.

Since initiation, BOL has tested almost 2000 specimens; with 11 Flavivirus, 1 chikungunya, 5 dengue, and 57 Zika cases confirmed. All presumptive positive, equivocal, or uninterpretable test results are confirmed by either PCR or Plaque Reduction Neutralization Test (PRNT). Due to Michigan's expertise with PRNT testing, the BOL is currently serving as one of four PRNT reference centers in the United States to assist the CDC with the burden of PRNT confirmation testing. Michigan is performing PRNT testing for 14 other states in the US from June 2017 through June 2018.

Michigan also offers testing for locally transmitted Arboviruses: West Nile Virus, St. Louis Encephalitis, Eastern Equine Encephalitis, and California Group Virus (LaCrosse).