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Zika Virus Diagnostic Testing: Updated MDHHS Guidance for Providers

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TO: Michigan Healthcare Facilities, Local Public Health Departments, Infection Preventionists, Healthcare Providers, Laboratories

FROM: Eden Wells, MD, MPH, FACPM, Chief Medical Executive

SUBJECT: Zika Virus Testing Update

Over the past few months, capacity for Zika virus testing has improved. Some commercial laboratories are now offering assays for Zika virus PCR and IgM. The MDHHS Bureau of Laboratories (BOL) currently offers an **Emerging Arbovirus Panel** that includes diagnostic testing for the following viruses: Zika, dengue, chikungunya. Clinicians should be aware that there can be substantial antibody cross reactivity between flaviviruses (e.g., Zika, dengue, West Nile virus). Any positive or equivocal Zika IgM should be confirmed with additional testing, which at this time is only available through public health laboratories, including MDHHS Bureau of Laboratories (BOL).

Michigan healthcare providers no longer need pre-approval from the local health department to request Zika virus testing at MDHHS. However, patients must meet the testing criteria and samples must be accompanied by the required MDHHS forms (details contained below). Samples submitted to MDHHS BOL that do not meet testing criteria or lack required paperwork will not be tested.

Zika virus is a reportable condition in Michigan (under "Arboviral" on the list posted at http://www.michigan.gov/documents/mdch/Reportable_Diseases_Michigan_by_Pathogen_478489_7.pdf). Any healthcare provider or laboratory must report suspect and confirmed cases of Zika virus to the appropriate Michigan local public health department. Contact numbers for the local health departments are included with the Reportable Disease List.

How to Submit Specimens for Zika Virus Testing to MDHHS Bureau of Laboratories:

Zika virus testing is indicated when any of the following criteria are met:

- **Pregnant women** who have:
 - History of travel to an area with ongoing Zika virus transmission*
 - And have clinical illness consistent with Zika virus infection (**one** or more of the following: fever, rash, joint pain, red irritated eyes) within two weeks of travel
 - Or have no symptoms, and are **within 12 weeks after their return from travel**
 - Had sex without barrier protection with a partner with possible Zika virus exposure* (neither partner need to be symptomatic)

- A person who has a clinical illness consistent with Zika virus infection (**one** or more of the following: fever, rash, joint pain, red irritated eyes) and within two weeks of illness onset:
 - Has a history of travel to an area with ongoing Zika virus transmission* OR
 - May have been exposed to Zika virus through sex without barrier protection with a person who has a history of travel to an area with ongoing Zika virus transmission*
- A fetus or infant with suspected or confirmed microcephaly or intracranial calcifications (diagnosed prenatally or at birth) whose mother:
 - Spent time in an area with ongoing Zika virus transmission*
 - During pregnancy, had sex without barrier protection with a partner who spent time in an area with active Zika virus transmission*
- A person who developed Guillain-Barre syndrome (GBS) after spending time in an area with active Zika virus transmission*

*See the CDC website for the current list of areas with active Zika virus transmission:

<http://www.cdc.gov/zika/geo/index.html>

At this time, MDHHS is not performing testing for the purposes of pre-conception planning/screening. For additional information, see the CDC guidance “Women and Men with Possible Zika Virus Exposure Who Desire Pregnancy”: <https://www.cdc.gov/zika/hc-providers/reproductive-age/desire-pregnancy.html>. Additionally, **MDHHS is not performing testing on non-pregnant individuals who do NOT have fever, rash, joint pain, or red irritated eyes.**

Diagnostic Testing Methodologies available at MDHHS BOL:

- **PCR:** available on samples collected ≤ 14 days of symptom onset, may be useful for studies on non-serum specimens (ex: CSF, urine, amniotic fluid)
- **IgM detection:** available for samples collected > 4 days after symptom onset, or within 12 weeks of symptom onset or last exposure
- **Plaque Reduction Neutralization Test (PRNT):** Cell culture test performed on samples where cross-reaction with other associated mosquito-borne diseases is detected or results are inconclusive
- Because Zika, dengue and chikungunya viruses display similar clinical presentations in patients and are spread by the same mosquito vectors in the same geographic regions, **when Zika virus testing is requested in patients with Zika symptoms, testing for dengue and chikungunya will also be performed.**

Specimen Requirements:

- Serum and urine are recommended specimens for all symptomatic patients (if available, CSF can also be submitted for cases of GBS or infants with suspected Zika-related congenital defects)
 - If specimen collection is < 14 days after illness onset and Zika PCR and IgM are negative, a second serum sample collected > 14 days post onset should be submitted to rule out Zika exposure
- Collect and submit both serum and urine on all pregnant patients, with or without symptoms

- For symptomatic and asymptomatic pregnant patients tested <2 weeks after last exposure, if PCR is negative, submit second serum and urine pair 2-12 weeks after the exposure
- Amniotic fluid, tissue and other specimens may be submitted to assess the utility of these samples to detect virus. Contact MDHHS BOL Virology at 517-335-8067 for instructions on specimen collection and handling
 - All specimens other than serum must be accompanied by a serum sample

REQUIRED Test Requisition Forms:

SAMPLES RECEIVED AT MDHHS BOL WITH INCOMPLETE OR MISSING FORMS WILL NOT BE TESTED

1. [Michigan Zika Supplemental Questionnaire](#) must be completed for each patient
2. **MDHHS Microbiology/Virology Test Request Form** (DCH-0583)
(http://www.michigan.gov/documents/DCH-0583TEST_REQUEST_7587_7.pdf)
 - Fill in the **Submitter** box with the information of where you want the results to be sent
 - At the bottom of the form:
 - Indicate “Specimen Source”
 - Under “Tests that Require MDHHS Approval”, check the “Emerging Arbovirus Panel” box and select PCR and/or IgM

Specimen Shipping Instructions

- **Refrigerate serum, urine, or CSF and send with an ice pack** (For other types of samples, contact MDHHS BOL Virology at 517-335-8067 for instructions)
- Ship to MDHHS Bureau of Laboratories overnight
 - MDHHS Specimen Shipping information:
http://www.michigan.gov/mdhhs/0,5885,7-339-71551_2945_5103_5278-14793--,00.html
 - Mailing Address:
**Michigan Department of Health and Human Services
Bureau of Laboratories
3350 North Martin Luther King Jr. Blvd.
Building 44 Room 155
P.O. Box 30035
Lansing, Michigan 48909**
 - For additional questions about shipping specimens to MDHHS, contact the DASH unit at 517-335-8059

For more information about Zika virus testing in Michigan, see the “What’s New” topic at <http://www.michigan.gov/mdhhs/lab>.

For other laboratory questions, contact the MDHHS BOL Virology Section at 517-335-8067.

For questions about criteria for testing or to discuss a case, contact the MDHHS Emerging and Zoonotic Infectious Diseases Section at 517-335-8165.