MDHHS Guidance for Local Public Health: Diagnostic Testing and Case Reporting for Zika Virus in at Risk Individuals—Updated 1/05/2017

(UPDATES HIGHLIGHTED IN YELLOW)

In response to the recent emergence of Zika virus, the Michigan Department of Health and Human Services (MDHHS) is able to provide Zika, dengue, and chikungunya testing in our Lansing laboratory, as part of the "Emerging Arbovirus Panel".

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. 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). Clinicians should be aware that there can be substantial antibody cross reactivity between flaviviruses (e.g., Zika, dengue, West Nile virus). Any positive 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).

The following is the current criteria for Zika virus testing at MDHHS BOL:

Criteria for Diagnostic Testing of Potentially Exposed Individuals

Testing is currently indicated for the following individuals:

- **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 after spending time in an area with active Zika virus transmission*

At present, Zika virus testing for the assessment of risk for sexual transmission is of uncertain value, because current understanding of the duration and pattern of shedding of Zika virus in the male and female genitourinary tract is limited. Therefore, testing of specimens to assess risk for sexual transmission or for the purposes of pregnancy planning is currently not recommended. MDHHS cannot provide testing for patients for this purpose.

***See the CDC website for the current list of areas with active Zika virus transmission:**
http://www.cdc.gov/zika/geo/index.html

Diagnostic Testing Methodologies:

- **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
- **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 for Diagnostic Testing:

- 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
    - 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

   (*At this time, MDHHS is not performing testing for non-pregnant individuals without Zika symptoms, or 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).

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†

†NOTE: If the patient's onset of illness is within 3 days of the specimen collection date, select PCR only. If the patient's onset of illness, or in the case of asymptomatic pregnant patients, date of potential exposure through travel or sex, is within 14 days of the specimen collection date, then select both PCR and IgM testing. If the patient's onset of illness is more than 14 days since the specimen collection date, select IgM testing.

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

Case Reporting:

- **Healthcare providers (HCP) no longer need pre-approval from the local health department to request Zika virus testing at MDHHS. Instead, they can follow the instructions on the MDHHS Bureau of Laboratory website at www.michigan.gov/mdhhslab. Click on the "What's New" topic to find the information on Zika virus testing available through the MDHHS.**
- HCPs should report all suspect Zika virus cases for which testing is positive or equivocal to their local health department. A directory of Michigan Local Health Departments can be found at http://www.malph.org/.
- LHD staff should refer to the CSTE Case Definitions for **Zika Virus Disease** and **Zika Virus, Congenital Infection** when completing cases in MDSS.
  - **https://wwwn.cdc.gov/nndss/conditions/zika-virus-disease-and-zika-virus-congenital-infection/case-definition/2016/**

Results:

- Turnaround time for PCR is about 1 week.
- Negative IgM results may be available sooner (within 2 weeks), other results may take longer due to the need to perform additional studies (2-4 weeks)
- As results are available, submitters will either receive a faxed copy to the fax number registered in STARLIMS, or a copy will be mailed to the address provided in the "Submitter" portion of the MDHHS Test Request form
- Positive and equivocal results will be entered in MDSS.

Below are links to the CDC guidance documents for assessing Zika risk in pregnant travelers, or their infants, and risk for sexual transmission. Please share these with any providers who do not already have them.

- **For Healthcare Providers** (https://www.cdc.gov/zika/hc-providers/index.html)
  - "Zika Screening Tool for Pregnant Women": https://www.cdc.gov/zika/pdfs/zikapreg_screeningtool.pdf
  - Update: Interim Guidance for Health Care Providers Caring for Pregnant Women with Possible Zika Virus Exposure — United States, July 2016: https://www.cdc.gov/mmwr/volumes/65/wr/pdfs/mm6529e1.pdf
  - Preventing Transmission of Zika Virus in Labor and Delivery Settings Through Implementation of Standard Precautions — United States, 2016: http://www.cdc.gov/mmwr/volumes/65/wr/pdfs/mm6511e3.pdf

- **For Pediatric Healthcare Providers** (https://www.cdc.gov/zika/hc-providers/infants-children.html)
  - Update: Interim Guidance for the Evaluation and Management of Infants with Possible Congenital Zika Virus Infection — United States, August 2016: https://www.cdc.gov/mmwr/volumes/65/wr/pdfs/mm6533e2.pdf
    - Initial Evaluation and Outpatient Management tool: https://www.cdc.gov/mmwr/volumes/65/wr/pdfs/mm6533e2.pdf

- **Sexual Transmission**
  - Update: Interim Guidance for Preconception Counseling and Prevention of Sexual Transmission of Zika Virus for Persons with Possible Zika Virus Exposure — United States, September 2016: https://www.cdc.gov/mmwr/volumes/65/wr/pdfs/mm6539e1.pdf
  - Update: CDC Interim Guidelines for the Prevention of Sexual Transmission of Zika Virus-United States, July 2016: http://www.cdc.gov/mmwr/volumes/65/wr/pdfs/mm6529e2.pdf