MDHHS Guidance for Local Public Health: Diagnostic Testing and Case Reporting for Zika Virus in at Risk Individuals—Updated 8/1/2016 (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 a new “Emerging Arbovirus Panel”.

Capacity for Zika virus testing remains limited. MDHHS is asking Michigan local health departments (LHD) to continue to assess and approve requests for Zika virus testing by healthcare providers in their jurisdiction. It is likely that commercial laboratories may also soon offer testing for Zika virus IgM. 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. Laboratories and clinicians utilizing commercial Zika testing are advised to also send a sample to the MDHHS Bureau of Laboratories (BOL) for tandem testing. In the event of a positive result at a commercial lab, confirmatory testing will be facilitated and additional samples may not need to be collected from the patient.

The following is updated LHD guidance for approving 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 and
  - 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 at or 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*

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

[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 is currently not recommended.]

**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 patient’s displaying symptoms, testing for dengue and chikungunya will also be performed.

**Specimen Requirements for Diagnostic Testing:**

- Serum, urine, or CSF
- 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, urine, tissue and other specimens may be submitted to assess the utility of these samples to detect virus, contact MDHHS Epi at 517-335-8165 for instructions on specimen collection and handling
- All specimens other than serum must be accompanied by a serum sample

For information about submitting specimens to MDHHS BOL, see the specimen collection and submission page at [http://www.michigan.gov/mdhhs/0,5885,7-339-71551_2945_5103_5278---,00.html](http://www.michigan.gov/mdhhs/0,5885,7-339-71551_2945_5103_5278---,00.html).

**Required Test Requisition Forms:**

- **Michigan Zika Supplemental Questionnaire** must be completed for each patient
  - Complete the top of the form with the **Submitter** information
  - 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. ([Graphic on next page])
### Specimen Shipping Instructions

- **Refrigerate serum, urine, or CSF and send with an ice pack** (For other types of samples, contact MDHHS at 517-335-8165 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](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:

- **LHDs should report all suspect Zika virus cases for which testing is approved to MDHHS**
  - Enter the case in MDSS using the “Zika” form
  - Under Outbreak Associated, mark “yes”
  - Enter “ZIKA 2016” in the Outbreak Identifier box
- Fax a copy of the completed “Zika Supplemental Questionnaire” for each patient to MDHHS at 517-335-8263 or attached a copy of the completed form to the Notes tab in the case in MDSS.
- Refer to the CSTE Case Definitions for Zika Virus Disease and Zika Virus, Congenital Infection when completing cases in MDSS.

<table>
<thead>
<tr>
<th>Date of specimen collection is <strong>within 3 days</strong> of symptom onset (or for pregnant patient, potential exposure through travel or sex)</th>
<th>Date of specimen collection is <strong>4-14 days</strong> after symptom onset (or for pregnant patient, potential exposure through travel or sex)</th>
<th>Date of specimen collection is <strong>2-12 weeks</strong> after symptom onset (or for pregnant patient, potential exposure through travel or sex)</th>
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| **Tests Requested:**  
- Zika PCR (serum & urine)  
- Dengue PCR (serum)  
- Chikungunya PCR (serum) | **Tests Requested:**  
- Zika PCR (serum & urine)  
- Zika IgM (serum)  
- Dengue IgM (serum)  
- Chikungunya IgM (serum) | **Tests Requested:**  
- Zika IgM (serum)  
- Dengue IgM (serum)  
- Chikungunya IgM (serum) |
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 (4-6 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 on the CDC form
- As results are received by the MDHHS epidemiologist, the local health department will be immediately notified and copies will also be attached to patient case report forms 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 Obstetrical Care Providers**
  - July 29, 2016: Interim Guidelines for Health Care Providers Caring for Women of Reproductive Age with Possible Zika Virus Exposure—United States, 2016: [http://www.cdc.gov/mmwr/volumes/65/wr/pdfs/mm6529e1.pdf](http://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](http://www.cdc.gov/mmwr/volumes/65/wr/pdfs/mm6511e3.pdf)

- **For Pediatric Healthcare Providers**
  - Interim Guidelines for Health Care Providers Caring for Infants and Children with Possible Zika Virus Infection — United States, February 2016: [http://www.cdc.gov/mmwr/volumes/65/wr/pdfs/mm6507e1.pdf](http://www.cdc.gov/mmwr/volumes/65/wr/pdfs/mm6507e1.pdf)

- **Sexual Transmission**
  - 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](http://www.cdc.gov/mmwr/volumes/65/wr/pdfs/mm6529e2.pdf)