

**This is an official**  
**CDC HEALTH ADVISORY**

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CDCHAN-00385

**Recognizing, Managing, and Reporting Zika Virus Infections in  
Travelers Returning from Central America, South America, the  
Caribbean, and Mexico**

**\*\*\*Missouri healthcare providers and public health practitioners: Please see the [Missouri-specific addendum](#) to this advisory for information on the availability of Zika virus diagnostic testing, possible public health interventions, and Missouri disease reporting requirements under 19 CSR 20-20.020. Questions can be directed to the Office of Veterinary Public Health at 573/526-4780 or 800/392-0272 (24/7).\*\*\***

**Summary**

In May 2015, the World Health Organization reported the first local transmission of Zika virus in the Western Hemisphere, with autochthonous (locally acquired) cases identified in Brazil. As of January 15, 2016, local transmission had been identified in at least 14 countries or territories in the Americas, including Puerto Rico (See Pan American Health Organization [PAHO] link below for countries and territories in the Americas with Zika virus transmission). Further spread to other countries in the region is likely.

Local transmission of Zika virus has not been documented in the continental United States. However, Zika virus infections have been reported in travelers returning to the United States. With the recent outbreaks in the Americas, the number of Zika virus disease cases among travelers visiting or returning to the United States likely will increase. These imported cases may result in local spread of the virus in some areas of the continental United States, meaning these imported cases may result in human-to-mosquito-to-human spread of the virus.

Zika virus infection should be considered in patients with acute onset of fever, maculopapular rash, arthralgia or conjunctivitis, who traveled to areas with ongoing transmission in the two weeks prior to illness onset. Clinical disease usually is mild. However, during the current outbreak, Zika virus infections have been confirmed in several infants with microcephaly and in fetal losses in women infected during pregnancy. We do not yet understand the full spectrum of outcomes that might be associated with infection during pregnancy, nor the factors that might increase risk to the fetus. Additional studies are planned to learn more about the risks of Zika virus infection during pregnancy.

Healthcare providers are encouraged to report suspected Zika virus disease cases to their state health department to facilitate diagnosis and to mitigate the risk of local transmission. State health departments are requested to report laboratory-confirmed cases to CDC. CDC is working with states to expand Zika virus laboratory testing capacity, using existing RT-PCR protocols.

This CDC Health Advisory includes information and recommendations about Zika virus clinical disease, diagnosis, and prevention, and provides travel guidance for pregnant women and women who are trying to become pregnant. Until more is known and out of an abundance of caution, pregnant women should consider postponing travel to any area where Zika virus transmission is ongoing. Pregnant women who do travel to these areas should talk to their doctors or other healthcare providers first and strictly follow

steps to avoid mosquito bites during the trip. Women trying to become pregnant should consult with their healthcare providers before traveling to these areas and strictly follow steps to avoid mosquito bites during the trip.

## **Background**

Zika virus is a mosquito-borne flavivirus transmitted primarily by *Aedes aegypti*. *Aedes albopictus* mosquitoes might also transmit the virus. Outbreaks of Zika virus disease have been reported previously in Africa, Asia, and islands in the Pacific.

### *Clinical Disease*

About one in five people infected with Zika virus become symptomatic. Characteristic clinical findings include acute onset of fever, maculopapular rash, arthralgia, or conjunctivitis. Clinical illness usually is mild with symptoms lasting for several days to a week. Severe disease requiring hospitalization is uncommon and fatalities are rare. During the current outbreak in Brazil, Zika virus RNA has been identified in tissues from several infants with microcephaly and from fetal losses in women infected during pregnancy. The Brazil Ministry of Health has reported a marked increase in the number of babies born with microcephaly. However, it is not known how many of the microcephaly cases are associated with Zika virus infection and what factors increase risk to the fetus. Guillain-Barré syndrome also has been reported in patients following suspected Zika virus infection.

### *Diagnosis*

Zika virus infection should be considered in patients with acute onset of fever, maculopapular rash, arthralgia, or conjunctivitis who recently returned from affected areas. To confirm evidence of Zika virus infection, RT-PCR should be performed on serum specimens collected within the first week of illness. Immunoglobulin M and neutralizing antibody testing should be performed on specimens collected  $\geq 4$  days after onset of illness. Zika virus IgM antibody assays can be positive due to antibodies against related flaviviruses (e.g., dengue and yellow fever viruses). Virus-specific neutralization testing provides added specificity but might not discriminate between cross-reacting antibodies in people who have been previously infected with or vaccinated against a related flavivirus.

There is no commercially available test for Zika virus. Zika virus testing is performed at the CDC Arbovirus Diagnostic Laboratory and a few state health departments. CDC is working to expand laboratory diagnostic testing in states, using existing RT-PCR protocols. Healthcare providers should contact their state or local health department to facilitate testing.

### *Treatment*

No specific antiviral treatment is available for Zika virus disease. Treatment is generally supportive and can include rest, fluids, and use of analgesics and antipyretics. Because of similar geographic distribution and symptoms, patients with suspected Zika virus infections also should be evaluated and managed for possible dengue or chikungunya virus infection. Aspirin and other non-steroidal anti-inflammatory drugs (NSAIDs) should be avoided until dengue can be ruled out to reduce the risk of hemorrhage. In particular, pregnant women who have a fever should be treated with acetaminophen. People infected with Zika, chikungunya, or dengue virus should be protected from further mosquito exposure during the first few days of illness to reduce the risk of local transmission.

### *Prevention*

No vaccine or preventive drug is available. The best way to prevent Zika virus infection is to:

- Avoid mosquito bites.
- Use air conditioning or window and door screens when indoors.
- Wear long sleeves and pants, and use insect repellents when outdoors. Most repellents, including DEET, can be used on children older than two months. Pregnant and lactating women can use all Environmental Protection Agency (EPA)-registered insect repellents, including DEET, according to the product label.

## Recommendations for Health Care Providers and Public Health Practitioners

- Zika virus infection should be considered in patients with acute fever, rash, arthralgia, or conjunctivitis, who traveled to areas with ongoing transmission in the two weeks prior to onset of illness.
- All travelers should take steps to avoid mosquito bites to prevent Zika virus infection and other mosquito-borne diseases.
- Until more is known and out of an abundance of caution, pregnant women should consider postponing travel to any area where Zika virus transmission is ongoing. Pregnant women who do travel to one of these areas should talk to their doctors or other healthcare providers first and strictly follow steps to avoid mosquito bites during the trip. Women trying to become pregnant should consult with their healthcare providers before traveling to these areas and strictly follow steps to avoid mosquito bites during the trip.
- Fetuses and infants of women infected with Zika virus during pregnancy should be evaluated for possible congenital infection and neurologic abnormalities.
- Healthcare providers are encouraged to report suspected Zika virus disease cases to their state or local health department to facilitate diagnosis and to mitigate the risk of local transmission.
- Health departments should perform surveillance for Zika virus disease in returning travelers and be aware of the risk of possible local transmission in areas where *Aedes* species mosquitoes are active.
- State health departments are requested to report laboratory-confirmed Zika virus infections to CDC.

## For More Information

- General information about Zika virus and disease: <http://www.cdc.gov/zika/>
- Zika virus information for clinicians: <http://www.cdc.gov/zika/hc-providers/index.html>
- Protection against mosquitoes: <http://wwwnc.cdc.gov/travel/yellowbook/2016/the-pre-travel-consultation/protection-against-mosquitoes-ticks-other-arthropods>
- Travel notices related to Zika virus: <http://wwwnc.cdc.gov/travel/notices>
- Information about Zika virus for travelers and travel health providers: <http://wwwnc.cdc.gov/travel/yellowbook/2016/infectious-diseases-related-to-travel/zika>
- Pan American Health Organization (PAHO): [http://www.paho.org/hq/index.php?option=com\\_topics&view=article&id=427&Itemid=41484&lang=en](http://www.paho.org/hq/index.php?option=com_topics&view=article&id=427&Itemid=41484&lang=en)
- Information on microcephaly: <http://www.cdc.gov/ncbddd/birthdefects/microcephaly.html>
- Approximate distribution of *Aedes aegypti* and *Ae. albopictus* mosquitoes in the United States: <http://www.cdc.gov/chikungunya/resources/vector-control.html>

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### Categories of Health Alert Network messages:

**Health Alert** Requires immediate action or attention; highest level of importance

**Health Advisory** May not require immediate action; provides important information for a specific incident or situation

**Health Update** Unlikely to require immediate action; provides updated information regarding an incident or situation

**HAN Info Service** Does not require immediate action; provides general public health information

##This message was distributed to state and local health officers, state and local epidemiologists, state and local laboratory directors, public information officers, HAN coordinators, and clinician organizations##

**Missouri-Specific Recommendations for Diagnostic Testing and Disease Reporting  
Zika Virus and Other Emerging Mosquito-Borne Infections  
Missouri Department of Health and Senior Services  
January 15, 2016**

**\*\*\*Notify Public Health Agency – Interventions May Be Required\*\*\***

**Overlap with Other Conditions**

- Based on typical clinical features, the differential diagnosis for Zika virus (ZIKV) infection is broad
- To reduce potential for hemorrhage, avoidance of non-steroidal anti-inflammatory drugs (NSAIDs) is recommended until dengue virus (DENV) infection is ruled out
- In addition to DENV, other considerations include:
  - alphavirus infections, e.g., chikungunya (CHIKV), Mayaro, Ross River, Barmah Forest, Sindbis, and O'nyong-nyong viruses
  - measles
  - parvovirus
  - enterovirus
  - adenovirus
  - yellow fever
  - leptospirosis
  - malaria
  - *Rickettsia*
  - Rubella
  - Group A streptococcus

**Clinical Assessment: Preliminary diagnosis is based on the patient's clinical features, places, and dates of travel**

- ZIKV infection should be considered in patients with acute onset of fever, maculopapular rash, arthralgia, or conjunctivitis, who traveled to areas with ongoing transmission in the two weeks prior to illness onset
- Based on limited data, patients may have mild leukopenia and elevated C-reactive protein (Campos GS, Bandeira AC, Sardi SI. Zika virus outbreak, Bahia, Brazil. *Emerg Infect Dis.* 2015 Oct. <http://dx.doi.org/10.3201/eid2110.150847>)
- Exposure and Incubation
  - Average incubation period is less than a week, up to 12 days has been reported
  - ZIKV, DENV, and CHIKV are now co-circulating in some affected areas

**Laboratory Tests:** The Missouri State Public Health Laboratory (MSPHL) will facilitate submission of specimens (serum, CSF, tissue) for testing (serology, nucleic acid amplification [RT-PCR], virus isolation) by the Centers for Disease Control and Prevention (CDC). RT-PCR should be performed on serum specimens collected within the first week of illness. Immunoglobulin M and neutralizing antibody testing should be performed on specimens collected  $\geq 4$  days after onset of illness. If specimen collection occurs within 8 days after the onset of symptoms, a convalescent specimen (2 – 3 weeks after acute sample) will be requested. Acute and convalescent specimens, if available, should be sent together.

**Diagnostic Testing Availability**

- Before submitting a specimen to MSPHL, medical providers must call DHSS (Monday through Friday, 8:00AM to 5:00PM, 573/526-4780; after hours and weekends, 800/392-0272) for an epidemiologist consultation to confirm the patient meets testing criteria:
  - Clinical criteria: acute febrile illness, maculopapular rash, arthralgia, or conjunctivitis
  - Epidemiologic criteria: illness onset date and travel history with dates

- Determine if there is a history of previous infection with or immunization against other members of the Flavivirus group, including DENV, yellow fever, Japanese encephalitis, West Nile, or St. Louis encephalitis viruses.
- After a determination that the patient meets laboratory testing criteria, the medical provider should contact MSPHL (Monday through Friday, 8:00AM to 5:00PM, 573/751-3334; after hours and weekends, 800/392-0272) for guidance on specimen collection and shipping.

#### **Public Health Reporting and Intervention**

- Zika virus is a Category 3 reportable condition under 19 CSR 20-20.020 (ICD-10-CM A92.8) and shall be reported to the local public health agency or to the Missouri Department of Health and Senior Services (MDHSS) within three (3) days of first knowledge or suspicion by telephone, facsimile, or rapid communication.
- To prevent infection of others in the community with ZIKV, patients that may be viremic should be instructed, as appropriate, to stay indoors with air conditioning, window and door screens, or other measures to avoid being bitten by mosquitoes. The viremic phase of illness, which usually encompasses the first week of symptoms, is when the person can transmit disease to mosquitoes. Asymptomatic associates of the patient who may have shared exposures while traveling to a ZIKV-endemic region should also avoid mosquitoes.

#### **Questions Regarding This Providers' Reference Sheet: ZIKV Infection**

For Missouri providers, direct questions to DHSS' Office of Veterinary Public Health, Monday through Friday, 8:00AM to 5:00PM, 573/526-4780; after hours/weekends, 800/392-0272.