

Zika Virus: What Clinicians Need to Know

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ZIKA VIRUS, A RELATIVELY new mosquito-borne virus, is prompting worldwide concern because of an alarming association with the development of microcephaly in infants born to mothers infected during pregnancy and the rapid spread of the virus across the globe.



Zika virus is a mosquito-borne flavivirus, part of the same family as yellow fever, West Nile, chikungunya and dengue. The virus was first identified in Uganda in 1947. Before 2007, only sporadic human disease cases were reported from countries in Africa and Asia. In 2007, the first documented outbreak of Zika virus disease was reported in Yap State, Federated States of Micronesia. Subsequent outbreaks occurred in Southeast Asia and the Western Pacific. In May 2015, the World Health Organization reported the first local transmission of Zika virus in the Americas, with cases identified in Brazil. In December, the Ministry of Health of Brazil estimated that 440,000–1,300,000 suspected cases of Zika virus disease had occurred in 2015. By January 20, 2016, locally-transmitted cases had been reported in 20 countries or territories in the Americas including: Barbados, Bolivia, Brazil, Colombia, Ecuador, El Salvador, French Guiana, Guadeloupe, Guatemala, Guyana, Haiti, Honduras, Martinique, Mexico, Panama, Paraguay, Puerto Rico, Saint Martin, Suriname, and Venezuela. Spread to other countries in the region is likely.

Although local transmission of Zika virus has not been documented in the continental United States, infections have been reported among travelers visiting or returning to the United States. In light of the recent outbreaks in the Americas, the number of Zika virus disease cases among travelers visiting or returning to the United States is likely to increase. These imported cases might result in local human-to-mosquito-to-human spread of the virus in limited areas of the continental United States that have the appropriate mosquito vectors.

Zika virus is transmitted primarily by *Aedes aegypti* mosquitoes although *Aedes albopictus* mosquitoes also may transmit the virus. These mosquitoes are found throughout much of the Americas, including parts of the United States, and also transmit dengue and chikungunya viruses. During outbreaks, humans are the primary amplifying host for Zika virus. Mosquitoes become infected when they feed on a person already infected with the virus. Infected mosquitoes can then spread the virus to other people through bites. In addition to mosquito-to-human transmission, Zika virus infections have been documented through intrauterine transmission resulting in congenital infection, intrapartum transmission from a viremic mother to her newborn, sexual transmission, blood transfusion, and laboratory exposure. There is a

theoretical concern that transmission could occur through organ or tissue transplantation, and although Zika virus RNA has been detected in breast milk, transmission through breastfeeding has not been documented.

An estimated 80% of persons who are infected with Zika virus are asymptomatic. Symptomatic disease generally is mild and characterized by acute onset of fever, maculopapular rash, arthralgia, or nonpurulent conjunctivitis. Symptoms usually last from several days to 1 week. Based on information from previous outbreaks, 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 who were infected during pregnancy. The Brazil Ministry of Health has reported a marked increase in the number of infants born with microcephaly in 2015, although it is not known how many of these cases are associated with Zika virus infection. Other Latin American countries are now seeing cases in newborns as well, while in the United States one baby in Hawaii was born with microcephaly after his mother returned from Brazil. In Illinois, two pregnant women who traveled to Latin America have tested positive for the virus; health officials are monitoring their pregnancies. Studies are under way to evaluate the risks for Zika virus transmission during pregnancy and the spectrum of outcomes associated with congenital infection. In addition to microcephaly

Guillain-Barre syndrome has been linked to Zika virus infection in several countries. The possible association between Zika virus infection and Guillain-Barré syndrome is being studied.

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 2 weeks preceding illness onset. Because dengue and chikungunya virus infections share a similar geographic distribution with Zika virus and symptoms of infection are similar, patients with suspected Zika virus infections also should be evaluated and managed for possible dengue or chikungunya virus infection.

There is no commercially available test for Zika virus. Testing is currently performed at CDC and four state health department laboratories. Health care providers should contact their state or local health department to facilitate testing. To evaluate for evidence of Zika virus infection, testing should be performed on serum specimens collected within the first week of illness.

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. Aspirin and other nonsteroidal anti-inflammatory drugs (NSAIDs) should be avoided until dengue can be ruled out to reduce the risk of hemorrhage. Febrile pregnant women should be treated with acetaminophen. Persons infected with Zika, dengue, or chikungunya virus should be protected from further mosquito exposure during the first few days of illness to reduce the risk for local transmission.

No vaccine to prevent Zika virus infection is available. The only protection against Zika is to avoid travel to areas with an active infection. If traveling to a country where Zika is present, the CDC advises strict adherence to mosquito

protection measures including: use an EPA-approved insect repellent over sunscreen and wearing long pants and long-sleeved shirts thick enough to block a mosquito bite. Most EPA-registered repellents, including DEET, can be used on children aged >2 months. When used according to the product label, EPA-registered insect repellents also are safe for pregnant and lactating women. The female *Aedes aegypti*, the primary carrier of Zika, is an aggressive biter, preferring daytime to dusk and indoors to outdoors. Keeping screens on windows and doors is critical to preventing mosquito entry into homes and hotel rooms.

In countries where Zika virus is rapidly spreading health officials are implementing traditional mosquito control techniques such as spraying pesticides and emptying standing water receptacles where mosquitoes breed. Studies show local control is only marginally effective, since it is difficult to eliminate all possible breeding areas. In addition, *Aedes aegypti* has evolved to live near humans and can replicate in flower vases and other small sources of water making these mosquitoes particularly difficult to eradicate.

Until more is known, the CDC is recommending that 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 health care provider before traveling and strictly follow steps to avoid mosquito bites during travel. Pregnant women who develop a clinically compatible illness during or within 2 weeks of returning from an area with Zika virus transmission should be tested for Zika virus infection. Fetuses and infants of women infected with Zika virus during pregnancy should be evaluated for possible congenital infection. ❖

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