

Zika Virus, OSU Extension Communiqué

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History

Zika virus is an arthropod-borne virus or arbovirus that is transmitted to humans by mosquitoes. The principal vector of the virus is the yellow fever mosquito *Aedes aegypti*. The virus is related to other mosquito-borne viruses such as yellow fever, dengue, chikungunya and West Nile. It was first discovered in primates of the Zika Forest in Uganda in the 1940's, and has not been a major concern for global health until recently. Human cases of Zika virus were known to occur in Africa and Asia, but in 2007 there was an outbreak in Micronesia, which was the first time it had been reported off the mainland of Asia and Africa. It was never reported in the Western hemisphere until 2013-2014 when an outbreak occurred in French Polynesia and spread to several other Eastern Pacific Islands (e.g., Easter Island). The first confirmed case of Zika virus on the mainland in the Western Hemisphere was in Brazil in May of 2015. The virus may have arrived to Brazil during the World Cup of 2014 in an infected individual from French Polynesia. To date, the virus has rapidly spread throughout the Americas and has even reached as far north as Puerto Rico, the U.S. Virgin Islands and several other Caribbean destinations including Haiti and the Dominican Republic.

Symptoms, Health Concerns, Treatment, and Prevention of Zika Virus

Typically, the symptoms of a Zika virus infection are mild and last for several days to a week. Most common are fever, rash, joint pain, or conjunctivitis (red eyes). Other common symptoms include muscle pain and headache. However, since the virus arrived in Brazil, there have been an alarmingly large number of reported cases of microcephaly (a birth defect resulting in an underdeveloped cranium) and Guillan-Barre' syndrome (a nerve disorder that leads to paralysis), which has raised concerns that they are connected with Zika infection. Although Zika virus has been detected in developing fetuses with birth defects, no conclusive evidence is available yet implicating the virus as the cause. As a precaution, the CDC recommends that women (and their male partners) who are pregnant or planning a pregnancy postpone travel to regions where transmission of Zika virus has been reported (<http://www.cdc.gov/zika/pregnancy/index.html>). No specific treatments are available for Zika virus. Development of a vaccine is underway, but may take years before it is widely available. Thus, the best way to prevent Zika is to avoid being bitten by mosquitoes when travelling in regions with active Zika transmission; i.e., use insect repellents, wear protective clothing (long sleeves and pants), and stay in housing/lodging with screened windows and/or air-conditioning if possible.

Mosquito Vectors of Zika Virus

The principal vector of Zika virus is the yellow fever mosquito *Aedes aegypti*, which is also responsible for transmitting viruses that cause yellow fever, dengue fever, and chikungunya fevers in humans. These viruses are transmitted to humans by infected adult female mosquitoes during blood feeding. *Ae. aegypti* is an invasive species that is found throughout Central and South America and into the southern reaches of North America, including Mexico and the southern U.S. Since it is a tropical species, *Ae. aegypti* does not thrive in temperate regions and establish populations in Ohio. However, a closely-related species called the Asian tiger mosquito *Aedes albopictus* occurs in Ohio and throughout much of the eastern U.S. The role of *Ae. albopictus* in the present outbreak of Zika virus is uncertain.

Prospects of a Zika Virus Outbreak in Ohio

The likelihood of an outbreak of Zika virus in Ohio is very low. Several travel-associated cases of Zika virus have been reported in Ohio in 2016 in people that were infected while visiting countries where the virus has established. However, the virus has not yet been detected in mosquito populations in the United States. Even if mosquitos in Ohio were to become infected with the virus, there would be no potential threat of mosquito-borne transmission of Zika in Ohio until the late spring and summer when mosquitoes

are more active and abundant. Even then, it will require a person who was infected with Zika outside of Ohio to be bitten by a competent mosquito vector within Ohio. Since *Ae. aegypti* is not found in Ohio and *Ae. albopictus* is not abundant throughout the state, the chances of a widespread outbreak are very small. However, Ohioans should still employ common-sense strategies during mosquito season to avoid being bitten (e.g., use insect repellent, wear protective clothing, eliminate potential mosquito breeding grounds near residences) to reduce the risk of acquiring other mosquito-borne diseases that are already established in Ohio, such as West Nile virus and La Crosse virus.

Additional Resources

Centers for Disease Control and Prevention

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

World Health Organization

<http://www.who.int/mediacentre/factsheets/zika/en/>

New York Times

<http://www.nytimes.com/interactive/2016/health/what-is-zika-virus.html?ref=health>