Zika Virus: On the Move

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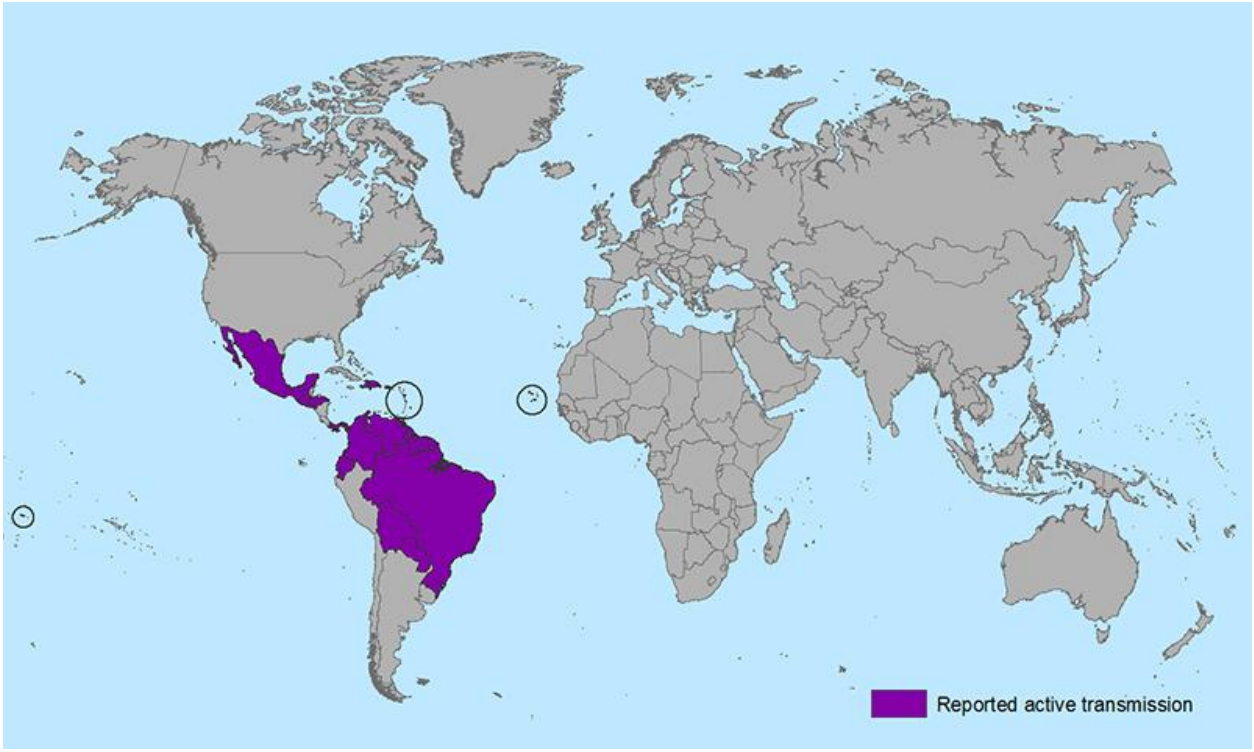

Zika virus is being actively transmitted by mosquitoes in Brazil, Paraguay, Bolivia, Ecuador, Columbia, Venezuela, Curacao, Guyana, French Guyana, Suriname, Mexico, Guatemala, Honduras, El Salvador, Nicaragua, Panama, Haiti, Dominican Republic, US Virgin Islands, St. Martin, Puerto Rico, Guadeloupe, Martinique and Barbados.

The Zika virus, a *flavivirus*[1], is spreading "explosively" through several Latin American and Caribbean countries, according to the World Health Organization (WHO), prompting that group to declare an international health emergency which, according to the BBC "…means research and aid will be fast-tracked to tackle the infection." The virus is transmitted through the bite of the *Aedes aegypti* and *Aedes albopictus* mosquitoes, the same mosquito that, according to WHO, transmits dengue, chikungunya and yellow fever. The virus was identified in the Zika forest of Uganda in 1947 in rhesus monkeys, then in humans in Uganda and the United Republic of Tanzania in 1952. Recently, Zika virus was reported in Chile in 2014, followed by Brazil in 2015. Currently the virus is being transmitted actively in over 20 countries. As of yet, there is no reported active transmission of the virus in the US, but some travelers have returned to the US infected with Zika virus. As CDC notes, "Any travelers visiting or returning to parts of the United States with established populations of *Aedes aegypti* or *Aedes*

[1] Flaviviruses, according to CDC, are a family of positive, single-stranded, enveloped RNA viruses that cause widespread illness and death. They are found primarily in ticks and mosquitoes and can occasionally infect humans. Flaviviruses include Yellow Fever, Dengue Fever, Japanese encephalitis, West Nile viruses and Zika virus.

albopictus mosquitoes could initiate local virus transmission."

Health Effects of Zika Virus

The US Centers for Disease Control and Prevention (CDC) notes that one in every five people infected with Zika virus will become sick for up to one week with fever, rash, joint pain and "nonpurulent" conjunctivitis ("pink eye" without the pus). That means that 80 percent of people infected have no symptoms, but are carriers of the virus.

The Zika virus is spread mainly by the Aedes Aegypti mosquito. Mosquitoes breed in stagnant water and, unchlorinated pools and water storage tanks.

Zika virus testing is not widely available. It is performed only at the CDC Arbovirus Diagnostic Laboratory and a few state health departments, according to CDC. Test results can be misleading (false positive) if the individual in question was previously infected with another flavivirus, such as dengue, or has been vaccinated against yellow fever or Japanese encephalitis.

Pregnant women who are infected with the virus can pass it on to their unborn children. There is a question, based on preliminary data from countries such as Brazil , as to whether those children may be at risk for microcephaly, a condition of abnormally small heads that is associated with underdevelopment of the brain. Studies are needed to clarify whether there is an association between Zika virus infection and microcephaly and Guillain-Barre syndrome.

Maintain Chlorine Levels in Swimming Pools and Water Storage Tanks to Help Prevent Mosquito Breeding

Mosquitoes breed in standing water, not just the puddles and pools remaining following a rainstorm, but any still water that is not intentionally made inhospitable to breeding. For that reason, it is important to maintain appropriate chlorine levels in swimming pools and water storage tanks.

Swimming pool water should be chlorinated in the range of 1-4 parts per million (ppm) and stored drinking water chlorine levels should be kept above 1 ppm free chlorine. This measure not only helps prevent mosquito-breeding, but also helps prevent a host of waterborne illnesses that can be contracted from bacteria and other pathogens in water.

Pregnant women or women who may become pregnant should not travel to outbreak areas. Meanwhile, the virus continues to spread at an alarming rate, and there is neither a vaccine for its prevention nor anti-viral medications for treating symptoms. Research on Zika virus is just beginning, and new information will likely be revealed in the weeks and months ahead.

Preventing Zika Virus Transmission

Strategies to prevent mosquito breeding and human exposure to mosquitoes are our best bet for preventing the virus transmission. These include:

- ✓ Eliminating standing water in flower pots, buckets, barrels, old tires, untreated kiddie pools and other containers that can serve as breeding grounds for mosquitoes.
- ✓ Ensuring good drainage of water around homes.
- ✓ Maintaining a chlorine residual of about 1 mg/l in stored treated drinking water; drinking water storage is common in developing countries that lack central water distribution.
- ✓ Making sure backyard pools are appropriately chlorinated as mosquitoes will not breed in chlorinated water.
- ✓ Inspecting and repairing window and door screens.
- ✓ Applying an insect repellent to exposed skin and/or clothing when spending time outdoors. The *Aedes aegypti* mosquito bites during daytime hours. Products containing DEET, picaridin, IR3535, and some products containing oil of lemon eucalyptus and para-menthane-diol may provide long-lasting protection; follow label directions for use.[2]
- ✓ Applying insect repellent to skin after applying sunscreen, if sunscreen is to be used.
- ✓ When you are outdoors, air movement around your body (from fans or natural breezes) disrupts mosquito flight and reduces your risk of being bitten.

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[2] For more information on insect repellents and their effectiveness, please see http://cfpub.epa.gov/oppref/insect/.