Researcher warns US could see substantial impact of Zika virus

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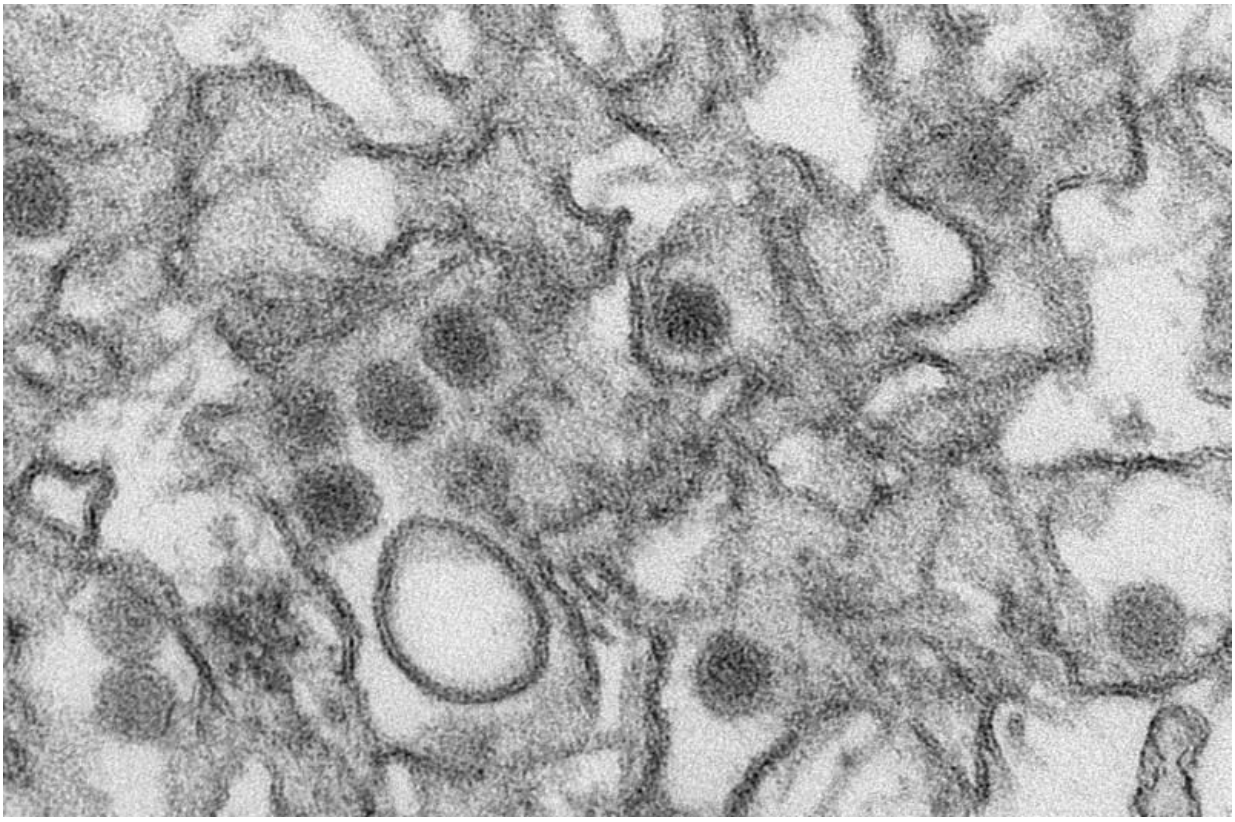

Transmission electron micrograph (TEM) of Zika virus. Credit: Cynthia Goldsmith/Centers for Disease Control and Prevention

A researcher at Boston Medical Center (BMC) and the Boston University School of Public Health (BUSPH) warns that Zika virus could spread quickly to and potentially within the US. The mosquito-borne

virus, which is believed to cause microcephaly in infants who are exposed in utero, causes rash and flu-like symptoms in adults and children who have been infected. Zika virus dates back to 1947; however, the first well-documented outbreak in humans was not reported until 2007. An outbreak in French Polynesia in 2013 was responsible for 19,000 suspected cases, and since October 2015, nearly 4,000 cases of Zika virus-related microcephaly have been reported in Brazil. Microcephaly is abnormal smallness of the head, a congenital condition associated with incomplete brain development and a range of neurological complications.

The findings are published online in advance of print in the *Annals of Internal Medicine*.

Zika virus has been rapidly emerging in the Western Hemisphere in the last few months, and as of Jan. 22, 2016, there were 20 countries and territories in the Americas with Zika virus in circulation. Currently, it can be found in Central America, the Caribbean and Mexico, and transmission has occurred in travelers to these areas returning to non-endemic countries including the US, Canada, Japan, Western Europe, and Israel.

"At this time, we believe that Zika virus is primarily transmitted via infected mosquitoes, and therefore people living in or traveling to impacted areas are strongly encouraged to protect themselves against mosquitoes by using an effective insect repellent (containing DEET or picaridin)," said senior author Davidson Hamer, MD, director of the Travel Clinic at BMC, and professor of global health and medicine at the Boston University School of Public Health and School of Medicine. "However, there is some evidence to suggest that Zika virus could be transmitted via blood transfusion and sexual activity, so researchers are trying to determine if these are meaningful pathways to transmission."

There is also evidence of mother-to-child transmission, which appears to be responsible for the surge in cases of microcephaly being seen in Brazil.

Hamer and his co-author, Lin Chen, MD, of the Mt. Auburn Hospital Travel Clinic, say there is substantial risk of introduction of the Zika virus in the US given the presence of the mosquito species that carry the virus, Aedes aegypti and Ae. albopictus, in many states. While people in the US shouldn't panic, he said they should be aware and vigilant.

"If you are pregnant, put off travel to the endemic areas," Hamer said. "If you absolutely must go, be sure to protect yourself against mosquitoes. For those who are not pregnant, it's still a good idea to delay travel so that you don't risk getting infected and transferring the virus back home - there are many unknowns about its transmission, so there is still a risk."

In 2007, the first case was detected in a human, leading to an outbreak on an island in Micronesia. An estimated 73 percent of the island residents age 3 or older became infected, however, about 80 percent of these cases did not present significant symptoms.

Zika virus is generally mild and typically resolves itself within a week. Symptoms can include rash, conjunctivitis, muscle and joint pain, headache, joint swelling, dizziness and vomiting. However, neurological and autoimmune complications have been linked to the French Polynesia outbreak, particularly development of Guillain-Barre syndrome, a neurological illness that may result in temporary paralysis. Microcephaly has been reported in thousands of cases in Brazil, and recently in a newborn in Hawaii.

There currently is no vaccine or cure for the Zika virus.

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