

Under the Microscope



The Zika virus is a mosquito-transmitted infection related to dengue, yellow fever and West Nile virus. Although it was discovered in the Zika forest in Uganda in 1947 and is common in Africa and Asia, it did not begin spreading widely in the Western Hemisphere until last May, when an outbreak occurred in Brazil. It is currently believed that millions of people in tropical regions of the Americas may now have been infected. For most, the infection causes no symptoms and has no long term consequences. There is, however, significant concern for women who become infected while pregnant.

Only female mosquitoes bite people: they need blood in order to lay eggs. They pick up the virus in the blood. It travels from their gut through their circulatory system to their salivary glands and is injected into its next victim. When a mosquito bites a person it first injects its saliva so that its prey's blood does not clot. This saliva is where the virus is found. Zika is spread by a particular species of mosquitoes of the Aedes genus. This mosquito can be found in the United States, but is limited to Florida, the Gulf Coast, and Hawaii. The Asian tiger mosquito, Aedes albopictus, is also known to transmit the virus, but it is not clear how efficiently. That mosquito ranges as far north as New York and Chicago in summer.

Experts believe that the vast majority of all Zika infections are transmitted by mosquitoes, not sex. As of Feb. 2, there have only been three reports suggesting sexual transmission. Based on these reports, the C.D.C. issued tentative new guidelines suggesting that pregnant women avoid intercourse with men who have recently returned from areas with Zika.

In October, doctors in northern Brazil noticed a surge in babies with a condition called microcephaly. Babies with microcephaly have unusually small heads with brain damage, including developmental delays, intellectual deficits or hearing loss. There is currently no treatment for microcephaly.

At first, Zika was not considered a major threat because its symptoms are relatively mild, such as fever and a rash. Most don't develop any symptoms. There is no widely available test for Zika infection. Because it is closely related to dengue and yellow fever, it may cross-react with antibody tests for those viruses. To detect Zika, a blood sample taken during the first week of the infection must be sent to a laboratory so the virus can be detected through molecular testing. It is believed that the virus will spread to every country in the Americas except Canada and Chile.

As for who should get tested, officials say that pregnant women who have visited any area with Zika transmission should consult a doctor. Those who have had symptoms of infection like fever, rash, joint pain and bloodshot eyes during their trip or within two weeks of returning should have a blood test for the virus. One major point of contention is that 80 percent of those who get the virus do not feel ill — and there is no evidence that babies are hurt only when the mother has been visibly ill. Even for pregnant women who get blood tests, the news is not entirely comforting. Tests for the virus itself only work in the first week or so after infection. There are currently no antiviral drugs or vaccine for the Zika virus.



By: Jie Song, MD