

Zika background piece from the Uganda Virus Research Institute

Zika virus (ZIKV) is a member of the family of viruses called the Flaviviridae, in the genus Flavivirus. It is in the same family with Yellow Fever, West Nile fever, and Dengue Fever viruses. Zika virus is known to occur within a narrow equatorial belt in Africa and Asia. The virus was first isolated in April 1947 from a rhesus macaque monkey. The monkey had been placed in a cage on a platform in the Zika Forest of Uganda near Entebbe, by the scientists of the Yellow Fever Research Institute, as the Uganda Virus Research Institute was then called. Human infections were later reported from African countries such as the Central African Republic, Egypt, Gabon, Sierra Leone, Tanzania, and Uganda, as well as in parts of Asia including India, Indonesia, Malaysia, the Philippines, Thailand, and Vietnam. The vertebrate hosts of the virus are primarily monkeys and humans.

Zika virus causes a mild illness in humans known as Zika fever, or Zika disease. Common symptoms of infection with the virus include mild headaches, maculopapular rash, fever, malaise, conjunctivitis and joint pains. The illness is usually mild with symptoms lasting from several days to a week. Severe disease requiring hospitalization is uncommon. Until more recently, Zika fever has been a relatively mild disease of limited scope, with only one in five persons developing symptoms, with no fatalities. Confirmed cases of Zika virus infection have been rare in Africa and in Asia.

Zika virus is transmitted to people primarily through the bite of an infected *Aedes* species mosquito (*Ae. aegypti*, *Ae. africanus*, *Ae. luteocephalus*, etc.). Mosquitoes become infected when they feed on a monkey or a person already infected with the virus. Infected mosquitoes can then spread the virus to other people through bites. Zika virus usually remains in the blood of an infected person for a few days but it can be found longer in some people.

In 2007, the first outbreak outside of Africa and Asia occurred in the islands of Micronesia. In 2013 it caused outbreaks in Polynesia and since 2015, the current Pandemic was started in South America. Until then Zika virus rarely caused recognized large infections in humans. The disease is now spreading explosively. There are two lineages of Zika virus, the African lineage and the Asian lineage. Phylogenetic studies indicate that the virus spreading in the Americas is most closely related to Asian strains which moved into Micronesia, Polynesia and now in the Americas. Recent preliminary findings indicate that there has been a change in the genome of the virus leading to increased viral replication rate in humans

The threat of ZIKA VIRUS:

1. The Zika virus spreading in South America is not from Uganda
2. While we have the mosquito species capable of transmitting Zika virus, the mosquitoes are arboreal (Forest mosquitoes) and bite at night or at dusk and dawn mostly in the canopy. People have moved out of the forests by the time they bite.
3. The *Ae. aegypti* mosquito commonly found in many parts of Uganda, which bites during the day, does not prefer to bite humans but bites other animals. Because of this, there is reduced risk of transmission.
4. While we have been doing surveillance for Arboviruses in the last 7 years we have not caught any mosquitoes with Zika virus. While there was a sample which was positive for Zika virus antibodies, the same sample was positive for antibodies of several other viruses and this was considered an abnormal cross-reactivity.

There are testing facilities for Zika virus at the Uganda Virus Research Institute.