

Frightenings of Zika: Epidemiology

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In early 2016, the most wide spread **outbreak** occurred due to **Zika virus disease**, in the **Americas**. The outbreak was initiated in April 2015 in Brazil, subsequently spreaded to South America, Central America, and the **Caribbean**. Attracting the eyes of World Health Origination. In January 2016, the virus declared the concern of the whole world up on **microcephaly** and **Guillain-Barré syndrome** (GBS) cases in Brazil, suspected some way related to the Zika virus outbreak. Thus WHO declared it as a **Public Health Emergency of International Concern**.^{1,2,3,4} The Zika virus was first isolated in 1947 in rhesus monkey in forests of, Uganda. Although latter on in 2007 serologic evidence were available in parts of Africa and Asia⁵. There were only 14 cases of human Zika virus disease had been documented before 2007. Brazilian researchers have suggested that Zika virus arrived in the country from French Polynesia during the 2014 FIFA World Cup tournament, based on phylogenetic DNA analysis of the virus⁶. In May 2015, Zika virus was first confirmed as the cause of the outbreak of a dengue-like disease in northern, northeastern and southeastern Brazil, and in the district of Camaçari and the neighboring city Salvador, capital of the state of Bahia.^{7,8} The virus was found in Latin America including the Caribbean and Central America by December. In the process of spread from Africa and Asia to the Americas, Zika followed the resembled as chikungunya after 2004. After this cases started appearing from South America, Europe, Canada, United States, China, and Australia.

Zika is a mosquito-borne disease spread by *Aedes aegypti* as well as *Aedes albopictus* and probably by sexually transmitted infection too.⁹ The *Aedes* mosquito popularly known a ferocious day biter is identified by the white stripes on its legs and spots on the wings—the Tiger mosquito. There is information available of two cases reported where Zika virus may have been sexually transmitted.

While majority of Zika virus infections are asymptomatic (60-80%) or similar to chikungunya,

understanding the prevalence or incidence of the disease is difficult since exact epidemiological definition is difficult to draw. It resembles mild viral fever to exanthematous fever to a disease like Rubella. In most cases symptoms resemble flaviviruses (dengue fever) or the alphavirus (chikungunya) and the milder in forms last only 7 days. Conjunctivitis, transient joint pain of the smaller joints of the both the limbs, maculopapular rash that starts from the face spreading throughout the body like measles may also be seen. It is difficult to diagnose Zika virus infection based on clinical signs and symptoms.

The methods currently available to test for Zika antibodies cross-react with dengue. An IgM-positive result in a dengue or Zika ELISA test can only be considered indicative.

A plaque-reduction neutralization test is considered to be specific. The Zika virus can be identified by RT-PCR in acutely condition.

Zika virus infection in pregnant women has a suspected link with newborn microcephaly by vertical infection in utero. In some reported cases have indicated features like Guillain-Barré syndrome. Many countries therefore have issued **travel warnings** resulting negative impact on tourism industry. In the Brazil Zika virus outbreak, in 2015, there were 2,782 cases of microcephaly. But it is uncertain to emphatically state that all cases were reported. Further many cases were also not confirmed. Hence the number of total cases may be much more. In the same year, the Zika virus was isolated in a newborn baby from state of Ceará, Brazil, with microcephaly and other congenital malformations. It is reported that 134 cases of microcephaly occurred in 2016 believed to be due to Zika virus infection. These were followed by the reports of microcephaly in Oahu and United States in 2016. The increase of GBS was then reported from French Polynesia, the well-known Peninsula Autoimmune outbreak. However, there were no laboratory confirmations of Zika virus infection in patients with GBS⁹. There has been report that links are found between Zika infection and ocular disorders in new born such as scarring of the retina with spots, or pigment alteration¹⁰.

What is scaring is not the sequel of the disease but the geographical distribution and speed of spread of Zika. It has been reported been reported from Colombia, El Salvador, French Guiana, Guatemala, Haiti, Honduras, Martinique, Samoa, Mexico, Panama, Paraguay, Suriname, Venezuela,

the Commonwealth of Puerto Rico Barbados, Bolivia, Ecuador, Guadeloupe, Saint Martin, Guyana and Cape Verde. It is highly sensitive issue to discuss why some countries have this disease and others do not. In fact this is an Epidemiological Mystery. We have to think of Yellow fever too, which is not seen in India, in spite of having a billion of hosts, adequate environment and presence of the vector in India. This strongly stimulates to understand that the diseases do not occur because of the interaction as Epidemiological triad but rather as Epidemiological Quadrate¹¹. The fact of the 4th component as genetic factor has to be taken separately, since having all the factors for yellow fever, Indians do not suffer. Similarly without risk factors people suffer from cancer, or with all risk factor there are people who escape the disease. It has been proved that most of the non communicable diseases are gene dependant. That holds good for Leprosy too and may be true for other infective diseases such as yellow fever or (maybe) Zika.

Let Zika not affect the human beings any more.

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