

ZIKA VIRUS OUTBREAKS, AN OPPORTUNITY TO IMPROVE HEALTHCARE IN INDIA

Relevant for: Developmental Issues | Topic: Health & Sanitation and related issues

Routes of infection: Though primarily mosquito-borne, Zika virus is transmitted from infected mother to fetus during pregnancy, through blood and other body fluids and organ transplantation as well as sexual contact. | Photo Credit: [membio](#)

Viruses are ubiquitous, most are innocuous and some, such as SARS CoV-2, turn out to be pernicious. Zika virus, first detected in rhesus monkeys in the Zika forest in Uganda in 1947 and then identified in humans after a few years, appears to be re-positioning itself. For the first 60 years after detection, only 14 human cases had been reported, from Asia and Tropical Africa. The first ever outbreak of Zika virus was reported in 2007 in the island of Yap (a federated state in Micronesia) in the Pacific. Zika virus received global attention with the start of a major outbreak in Brazil in March 2015, which then spread to many countries in Central and South America and the Caribbean. The outbreak was associated with higher incidences of microcephaly (a condition which results in a small brain in the fetus) as well as the increased neurological symptoms such as Guillain-Barré syndrome and neuropathies in adults and children infected with the virus. On February 1, 2016, Zika virus outbreak was designated a public health emergency of international concern (PHEIC) by the World Health Organization (a classification a step before a disease is declared as pandemic). Between 2015 and 2017, nearly 550,000 suspected and 175,000 confirmed Zika virus cases were reported, which included nearly 2,700 cases of microcephaly in Brazil alone. The outbreak had subsided by mid-2017; however, by late 2019, the Zika virus has been reported from at least 87 countries across the world.

The earliest evidence of Zika virus in India is in 1952-1953. The prevalence studies conducted by the National Institute of Virology, Pune, in different parts of India, had detected the antibodies against the Zika virus from humans.

The first two outbreaks of Zika virus infections in India were reported in 2017. This included three human cases from Ahmedabad, Gujarat (January-February, 2017) and one case from Krishnagiri district of Tamil Nadu (July 2017). There were two more outbreaks in 2018 from Madhya Pradesh (130 cases) and Rajasthan (159 cases). In 2021, at least three Zika virus outbreaks have been reported. In Kerala (at least 89 cases) and then in Maharashtra (Around 12 cases), both in July, and most recently from Uttar Pradesh in October-November, 2021 (nearly 110 confirmed cases till now).

Zika virus is primarily a mosquito-borne illness, transmitted by the *Aedes* mosquitoes (which transmit chikungunya and dengue). However, Zika virus is transmitted from infected mother to fetus during pregnancy, through blood and other body fluids and organ transplantation as well as sexual contact. Most people do not develop any symptoms; however, a few may develop fever, rashes, redness in eye, muscle and joint pain, headache, and generalised fatigue.

It is a mild illness for all age groups except for the pregnant women, whose fetus may develop congenital malformation, especially abnormal brain development, microcephaly and other related neurological outcomes.

The symptoms are very similar to other common viral illnesses. Infection is suspected if there is ongoing Zika virus transmission in the area, travel history or contact history with a confirmed

case. The laboratory confirmation is done from blood or urine samples.

There is no licensed vaccine to prevent disease and no specific treatment available. People are advised to take rest, eat well and drink plenty of fluids.

The current reports of Zika virus outbreaks are not a matter of immediate concern for citizens in India. However, knowing that the vector for Zika virus, the *Aedes* mosquito is present in all States of India, there is a need for stepping up preventive and public health measures. India should use the recent disease outbreaks as an opportunity to strengthen the disease surveillance system and health data recording and reporting systems in the country. The laboratory capacity for COVID-19, developed in the last 18 months, needs to be optimally used to conduct testing for other emerging infections.

One of the key considerations is that the outbreak which had started in Brazil in 2015 was caused by a new variant of Zika virus, termed as American lineage. Though originated from South Asian lineage, it has crucial mutation S139N, attributed to higher incidences of microcephaly and other neurological conditions. All previous outbreaks in India have been due to South-East Asian lineage and no case of microcephaly has been reported from the country. However, there is a need for a systematic surveillance of evolutionary trends in Zika virus, which can be built upon newly developed genetic sequencing capacity for SARS CoV2.

Considering most Indian states have reported Zika virus for the first time, there is a need for enhanced surveillance and equipping laboratories with testing kits for Zika virus. In areas where cases are reported, active case findings and surveillance and mosquito control measures (elimination of breeding sites and the public awareness campaigns, especially for specially for pregnant women should be prioritised. It is also the time to ensure coordinated actions between the State government and municipal corporation to develop joint action plans against vector borne diseases and share responsibilities for public health actions.

The emergence and re-emergence of viral diseases is partly unavoidable. However, with a stronger public health system, application of principles of epidemiology and use of data, their impact can be minimised.

(Chandrakant Lahariya, a physician-epidemiologist, is a vaccines and health systems specialist. His forthcoming book 'The Lighthouse of Peeragarhi: What We Need, To Prevent Diseases And Protect Health' is scheduled for release in 2022.)

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Does the knowledge of nerve impulses which can perceive temperature and pressure when initiated help to treat pain?

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