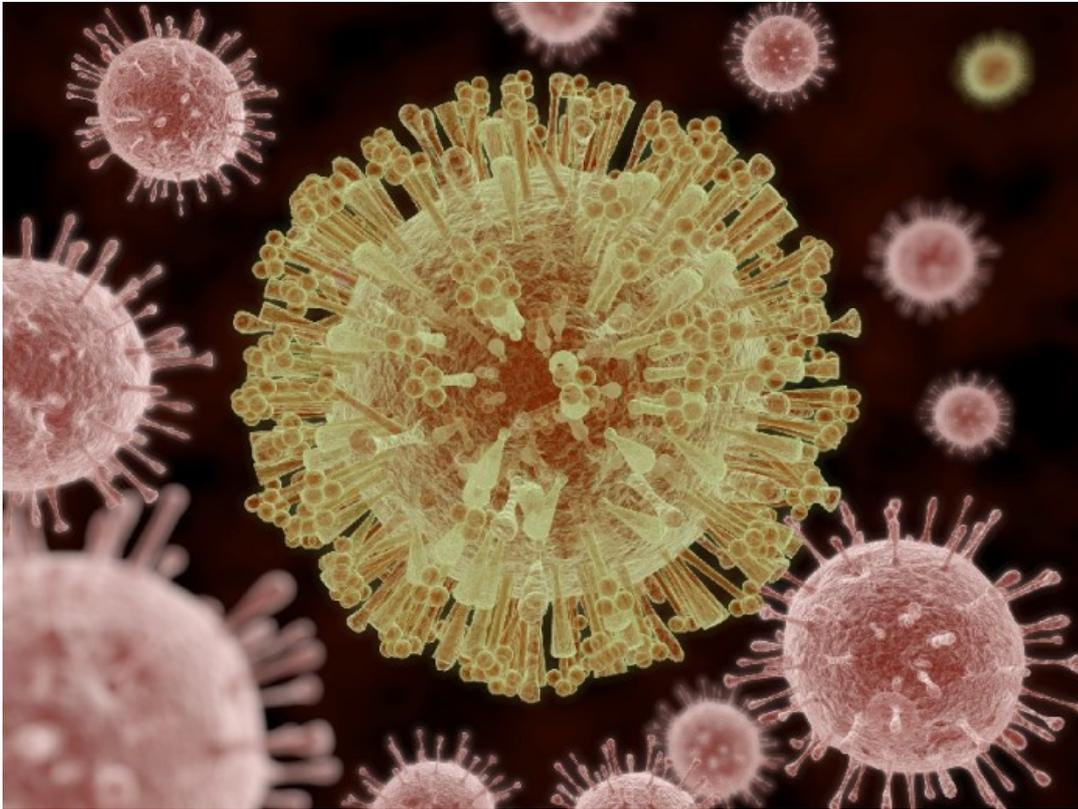


Why does Zika spread so rapidly? An Indian researcher has an answer

The conceptual framework created by Indian researcher, Nitesh Pandey not only helps in understanding the way Zika spreads but also offers some novel ways to control the disease

By **BioVoice News Desk** - November 10, 2018



Mumbai: Zika virus (ZIKV) was first identified in the 1940s in Uganda in Africa. The virus mainly causes a mild illness and therefore was not considered a major threat. However, something very strange happened in Brazil in 2015 that changed the public perception towards Zika completely.

The Doctors in cities in the northeast of Brazil began to see the first startling cases of what today is called congenital Zika syndrome (CZS) – babies born with a range of severe birth defects, including small, misshapen heads (microcephaly) . The doctors suspected and laboratory work soon proved that the damage was caused by a Zika virus infection contracted while the mothers were pregnant. It was estimated that Zika in Brazil infected 1.5 million people with over 5,500 cases of microcephaly reported between October 2015 and January 2016.



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Baby with Zika induced Microcephaly.

A very recent outbreak in the month of October 2018 in Rajasthan, India has brought Zika back to the radar of International agencies like WHO and CDC. As of now, more than 200 Zika cases have been confirmed in the state of Rajasthan including some pregnant women. The disease has also been confirmed among the population of the neighboring states like Gujarat and Madhya Pradesh.

One of the most distinctive features of Zika is its ability to spread rapidly. The high transmission potential of Zika could be easily understood based on its outbreak in the Americas from 2014-2016. It is therefore very vital for India and its neighbouring countries to take all the possible measures required to control the current Zika epidemic of 2018.

Understanding the mechanism behind spreading of Zika virus

The ability of Zika to spread so rapidly is something we still do not understand completely. Nitesh Pandey, a researcher in Evolutionary Medicine with Mumbai based Indian Astrobiology Research Foundation, has some clues to offer in solving this mystery. As per Nitesh his conceptual framework that has been derived from insights about *Aedes aegypti* mosquitoes could explain Why Zika spreads so rapidly?

According to Nitesh, the most important feature of *Aedes aegypti* mosquito is its restrictive movement. *Aedes aegypti* is a lazy mosquito that prefers to stay at home and moves some 30 metres in most of the cases. For diseases transmitted by such mosquitoes that have limited movement, the mobility of infected humans becomes very important in the transmission as well as sustenance of the disease.





Nitesh Pandey.

It is important that constantly new *Aedes aegypti* mosquitoes get infected so that they could bite humans to spread the disease.

The question is how does this *Aedes aegypti* mosquitoes get infected? It is obvious that when female *Aedes aegypti* mosquito would bite a human who has a Zika virus in his or her blood, the mosquito would get infected and spread the disease by biting other humans. Now the reason Zika spreads so rapidly is due to its tendency to cause mild symptoms. Since majority of Zika infected humans are mobile as they neither get high fever nor they have joint pain. Zika infected humans would follow their daily schedule and would go on to infect many new mosquitoes around the offices, homes, salons or clinics they visit in a day. However this might not be the case in Chikungunya though it is also spread by the same day biting *Aedes aegypti* mosquitoes. Unlike Zika, most of the infected individuals in the case of Chikungunya would have high fever and severe joint pain. This usually makes them bedridden and such people are able to infect much lesser no. of mosquitoes than people who have Zika. Since humans infected with Zika would be bitten by much more no. of mosquitoes compared to someone who has Dengue and Chikungunya, it is obvious that Zika would spread faster than any of the other mosquito borne viral disease.

In short any disease that causes mild illness or does not cause fever in majority of the infected humans would spread rapidly if a lazy, day biting, *Aedes aegypti* mosquito transmit it.

The research paper is available on the website of Indian Astrobiology Research Centre under the Research section.

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