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CAUSE TO REMAIN ALERT: ON ZIKA VIRUS

Relevant for: Health, Education & Human Resources | Topic: Health & Sanitation and related issues

Despite the recent announcement suggesting that the Jaipur Zika virus strains cannot cause foetal microcephaly, all possible measures to control transmission and monitor pregnancies should be taken. To the best of our knowledge, there is not a specific Zika virus strain — or mutation — linked to microcephaly. All Zika virus strains could possibly cause birth defects.

Over the last few years, the international community has banded together to quickly address a growing international public health crisis — the Zika virus epidemic. After its detection in Brazil during 2015, observant clinicians began to notice a striking increase in the rates of babies born with microcephaly, a rare neurological condition characterised by underdeveloped brains and undersized heads. Epidemiological, clinical, and experimental data has indicated that microcephaly, and a range of other birth defects (such as miscarriages and ocular disease) could be caused by the Zika virus passing from a pregnant women to her foetus.

While the science on the Zika virus has rapidly progressed, there is still much that we do not know about how it causes birth defects. We do not know the long-term effects of children who were infected with the Zika virus in the womb. We do not know why some lead to stillbirths and miscarriages, some lead to neurological complications, and others seem perfectly healthy. We do not understand why we only noticed microcephaly and other severe forms of disease during the epidemic in the Americas, and not before. There could be biological answers to these: certain Zika virus strains are more likely to cause birth defects than others. But at this point, we do not know.

The Indian Council of Medical Research (ICMR) recently announced that the Zika virus strains causing the outbreak in Jaipur, Rajasthan, cannot cause microcephaly. This conclusion was based on a genetic sequencing of viruses isolated from the outbreak. In these sequences, the ICMR did not find a Zika virus mutation linked to microcephaly that was suggested in a *Science* magazine study, in 2017. The problem with this conclusion is that the research was based on infection in mouse brains — not humans — and contains no epidemiological or clinical support. Numerous other studies suggest that all Zika virus strains may have the capacity to infect foetuses and cause neurological disease. Much more research is needed to determine if some strains are associated with a higher risk.

It is also difficult to determine how extensive Zika virus outbreaks will be in India. If the Zika virus has been silently spreading in the country, as it did throughout most of Asia for the last 50 years, then enough people may be immune to the virus to prevent large outbreaks. According to the most recent updates, 159 people in Jaipur had confirmed Zika virus infections. Considering that most infections do not cause noticeable disease, and thus most infected individuals do not seek medical attention, the true number of cases may be more than 10,000. At least 50 of the infected individuals are pregnant women, but again, the true number is likely to be much higher. According to the Centers for Disease Control and Prevention in the U.S., only 5-10% of Zika virus infections during pregnancies lead to Zika-associated birth defects, and the rates of microcephaly are much lower. So, while the chances for the Zika virus to cause harm to an individual baby are low, there is still a chance, regardless of the Zika virus strain in circulation.

Pregnant women and their families, including those planning to get pregnant, should take great caution to avoid mosquitoes — wear long sleeves and trousers, stay indoors when possible, use DEET/insect repellent, and remove standing water that mosquitoes use for breeding. Zika virus infection is not guaranteed upon mosquito bite, but the chances for infection rise with each new

bite. Zika-associated birth defects could be a serious public health crisis in India, and, without a vaccine, all possible measures to control transmission and monitor pregnancies should be taken. Please, stay alert.

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