EPI-WIN webinar on Zika virus: your questions answered

Thank you for your attendance and engagement at the EPI-WIN webinar **Zika virus: learning from the past, preparing for the future** on Wednesday 30 Aug 2023.

A number of attendees asked questions during the webinar that we ran out of time to answer. WHO Zika virus technical team have kindly provided responses to the most relevant questions below.

For the full webinar recording and presentations, please see: https://www.who.int/news-room/events/detail/2023/08/30/default-calendar/epi-win-webinar-zika-virus-learning-from-the-past--preparing-for-the-future

GENERAL

Does this virus infect domestic animals?

There is no evidence to date that domestic animals play a role in the transmission cycle of Zika virus. The virus has, however, been isolated from non-human primates in sylvatic (jungle environments), although outbreak transmission of Zika virus has occurred through human-mosquito-human transmission. In addition, Zika virus can be transmitted vertically from mother to fetus during pregnancy, through sexual transmission, through laboratory exposure, through transfusion of infected blood products, and probably through infected organ transplantation.

Are there particular subtypes or variants of Zika virus associated with adverse pregnancy outcomes or microcephaly?

Extracted from our WHO Zika Epidemiology update, February 2022: "The differences in the epidemic potential and pathogenicity of these viral lineages and strains remain poorly understood. Although an earlier report postulated the association of a specific viral mutation of the Asian lineage with the observation of teratogenic effects of ZIKV infection following the outbreaks in French Polynesia and the Americas in 2015-2016, this hypothesis was challenged by the documentation of a case of microcephaly in Thailand after congenital infection with Asia lineage-Asian strain ZIKV without the mutation. In contrast, to date, adverse pregnancy outcomes and cases of CZS caused by ZIKV African lineage viruses have not been recognized and it is not known whether this is because they do not occur, or because of limitations of detection and surveillance. Studies of the African lineage in-vitro and in animal models suggest the potential for increased pathogenesis in pregnancy compared with the Asian lineage, suggesting a propensity to cause fetal loss rather than birth defects."

TESTING

Blood serum is usually the preferred specimen choice for detection of ZIKV through either antibody-based serological methods or molecular diagnosis of viral RNA. But low-level viremia and collection of serum 10 days after the onset of symptoms may limit the sensitivity of molecular methods. Is there a better technique?

WHO recommends the use of whole blood, serum, or plasma routine diagnostic testing for arboviruses, and urine for ZIKV nucleic acid amplification (molecular) testing. Molecular assays are the preferred detection method but the period of RNA detectability following infection is limited. Interpretation of serologic test results remains challenging because of cross-reactivity and prolonged detection of virus-specific antibodies; their utility depends on the patient's current and prior flavivirus exposures. Please refer to Laboratory testing for Zika virus and dengue virus infections: interim guidance, 2022 for further information and testing algorithms.

I would greatly appreciate it if any experts here can comment on the present consensus regarding virus neutralization assays for Zika. In our experience, it has been extremely difficult to differentiate Zika from other flaviviral infections, even by neutralization antibody titres, in areas where multiple flaviviruses circulate.

PRNT is not helpful when there is high background flavivirus transmission because they are also subject to cross-reactivity; hence the efforts to improve early specimen collection from blood and urine for PCR testing; we are continuing to evaluate data on confirmatory serology and this is a critical research & development need.

Is immunity after infection long lasting?

Immunity after Zika virus infection is thought to be long-lasting, for many years after infection.

TRAVEL

What is the role of aviation in spread of Zika virus and what controls and steps airlines should take to prevent spread?

WHO does not have specific guidelines for airlines regarding Zika virus infections. The primary vector, *Aedes aegypti*, and competent vector *Aedes albopictus*, are broadly distributed globally and Zika virus infection has been reported in 89 countries. When the virus has been introduced into new areas, this has usually been related to movement of viremic humans that then infect mosquitos locally. Most infections are asymptomatic, so screening of travelers for symptoms of disease would be unlikely to detect infected persons.

In the context of travel medicine, are pregnant women (first trimester) advised not to travel to a zika endemic or risk zone?

Pregnant women should consider delaying nonessential travel to areas with ongoing Zika virus transmission, regardless of trimester of pregnancy. Furthermore, since Zika virus can be transmitted sexually, pregnant women and their sexual partners should use condoms correctly and consistently or abstain from sex for the whole duration of the pregnancy if the sexual partner is returning from areas with ongoing Zika virus transmission. Please consult the WHO guidelines for the prevention of sexual transmission of Zika virus for further information.