Arch Clin Infect Dis. 2016 April; 11(2):e38955. doi: 10.5812/archcid.38955.

Published online 2016 April 27. **Editorial**

Update on Zika Virus Infections

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Received 2016 May 04; **Accepted** 2016 May 04.

Keywords: Zika Virus, Infection, Microcephaly

Zika virus is a mosquito-borne flavivirus that is the focus of an ongoing pandemic and public health emergency (1, 2). Previously limited to sporadic cases in Africa and Asia, the emergence of Zika virus in Brazil in 2015 heralded its rapid spread throughout the Americas. As the Zika virus has widely spread in less than a year, its status has changed from a mild medical curiosity to a disease with severe public health implications (3).

Serosurveillance studies in humans suggest that Zika is widespread throughout Africa, Asia, and Oceania. However, these studies may overestimate the virus's true prevalence, given the serologic overlap between Zika virus and related flaviviruses, such as dengue virus (DENV) and west Nile virus (WNV) (4-6).

Historically, symptomatic Zika virus infections were limited to sporadic cases or small clusters of patients (7). Zika was first reported in May 2015 in continental South America, in Brazil, where 440000 - 1300000 persons were subsequently infected through February 16, 2016. Furthermore, 29 other countries in the Americas have reported autochthonous Zika virus transmission, including Puerto Rico and the U.S. Virgin Islands (8).

Zika virus, like other flaviviruses, is transmitted by mosquitoes, primarily of the Aedes (Stegomyia) genus (9-11). Mosquito acquisition of the virus likely occurs during a blood meal; after uptake, the virus replicates and is transmitted to a reservoir animal at the next blood meal (12).

Other non-vector modes of Zika virus transmission are congenital, perinatal, and sexual. Possible transmission via blood transfusion, animal bite, and laboratory exposure has been described; however, confounding by contemporaneous vector-borne transmission in these instances cannot be excluded (13-18).

In humans, the incubation period from mosquito bite to symptoms is 3 - 12 days. Infection is likely asymptomatic in 80% of cases. All ages are susceptible (4 days to 76 years), with a slight preponderance in females. When symptoms occur, they are typically mild, self-limiting, and nonspecific, similar to other arbovirus infections. Commonly reported symptoms include rash, fever, arthralgia, myalgia, fatigue, headache, and conjunctivitis. Rash is a prominent feature and is maculopapular and pruritic in most cases; it begins proximally and spreads to the extremities, with spontaneous resolution within 1 - 4 days of onset. The symptoms resolve within 2 weeks, and accounts of longer persistence are rare (7, 12, 19).

More severe clinical sequelae have increasingly been associated with Zika virus. During the ongoing outbreak in Brazil, reports of infants born with microcephaly have markedly increased. Also, severe neurologic sequelae have also been described in adults, including meningitis and meningoencephalitis (20). Non-neurologic sequelae include transient hearing loss, hypotension, and genitourinary symptoms (21-23).

Zika virus disease is usually relatively mild and requires no specific treatment. People sick with this virus should get plenty of rest, drink sufficient fluids, and treat pain and fever with common medicines. If symptoms worsen, they should seek medical care and advice. There is currently no vaccine available (24).

Mosquitoes and their breeding sites pose a significant risk factor for Zika virus infection. Prevention and control relies on reducing mosquitoes through source reduction, and reducing contact between mosquitoes and humans (25). This can be done by using insect repellent regularly; wearing clothes (preferably light-colored) that cover as much of the body as possible; installing physical barriers in buildings, such as window screens, closed doors, and windows; and if needed, the use of additional personal protection, such as sleeping under mosquito nets during the day. It is extremely important to regularly empty, clean, or cover containers that can store water, such as buckets, drums, and pots. Other mosquito-breeding sites should be cleaned or removed, including flower pots, used tires, and roof gutters. Communities must support the efforts of the local government to reduce the density of mosquitoes in

their locality. Efforts must be made soon after rain to eliminate mosquito-breeding sites such as still water, and to prevent its accumulation in discarded containers and waste materials in and around houses (8, 26).

During outbreaks, health authorities may advise the spraying of insecticides. Insecticides recommended by the world health organization's pesticide evaluation scheme may also be used as larvicides to treat relatively large water containers (8, 26).

In Iran, there has been increased international travel in recent years, and many Iranians will travel to Brazil for the Olympics in 2016. Attention to travelers returning from countries involved with Zika is critically important. Preparedness and a plan to cope with possible outbreaks is one the most important tasks of the Iranian center for disease control.

Acknowledgments

The author of this manuscript appreciate Bita Pourkaveh for her contribution in collecting data and editing the manuscript.

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