Local Transmission of Zika Virus Infection is Possible in Australia but should be contained by Current Vector Control Measures

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Citation: Andrew W. Taylor-Robinson (2016) Local Transmission of Zika Virus Infection is Possible in Australia but should be contained by Current Vector Control Measures. Infect Dis Vaccines 1: 001.

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At the start of 2016 Zika fever is making headlines around the world. The Zika virus is sweeping through South America at a time when the Rio de Janeiro Olympics is only months away. This epidemic could possibly reach globally as far as Australia but should be containable in this country through adherence to currently applicable measures to control numbers of the mosquito vector of transmission.

First identified in the late 1940s and named after the forest in Uganda where it was originally isolated from rhesus macaques Zika has been recognized at a low level for many years. Quite why there is now an apparent epidemic in Latin America is not entirely clear, but it should be no surprise if inadequate mosquito control is implicated as a causal factor. In many ways, Zika is a prime example of a re-emerging infectious disease, presenting as an old disease in a new context, much like the recent Ebola outbreak in West Africa.

Zika is a member of the Flavivirus genus and is thus closely related both to dengue and to aetiological agents of other less common but still unpleasant mosquito-transmitted infections that are found on the east coast of Australia, such as Ross River fever and Murray Valley encephalitis. In the same geographical region, there are yet other arboviruses which are still to be fully identified that may cause fevers of unknown origin.

Unlike dengue, which can be very debilitating for a person of any age who is infected, the real risk of Zika is so-called congenital infection, to the unborn child or newborn infant. In fact, around four in five adults may be infected without showing any clinical signs, so may not even know that they have had it. If a person does become ill, the main symptoms are a mild fever, muscle and joint pain that last up to a week – similar but less severe than influenza.

As seen from the microcephaly and related neurological abnormalities in South American babies, however, pregnant women are most susceptible and the effects of infection can be severe in babies. Certainly, in the short term caution is strongly advised to pregnant women before travelling to Brazil and surrounding countries. At present, there is no preventative vaccine or therapeutic medicine. Since the Zika virus is a relative of Yellow Fever and Japanese Encephalitis viruses, for which efficacious vaccines are available, it is hoped that a similar preparation can be developed against Zika but this may take a decade to design, trial and gain regulatory approval for public administration.

Theoretically, there is a potential risk for an outbreak of Zika in the north eastern Australian state of Queensland where the species of mosquito, Aedes aegypti, which is principally responsible for its transmission in South America, is also found. Typically, this distribution is in the far north although its geographical range is slowly spreading south, mainly due to climate change but arguably accelerated by inadvertent transportation in boats and cars.
Not to be alarmist, at this time any outbreak (initiated by an infected person returning from overseas) would very probably be contained locally, just like current dengue outbreaks that occur sporadically in and around Townsville. As *A. aegypti* has a very limited flight range, a sustained focus of infection and significant spread requires a high population density of both mosquitoes and humans. That said, it is a mosquito that thrives in urban environments which is a consideration for future control strategies in Queensland, both for Zika itself but also in tandem with the continuing public health threat posed by dengue.

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