



Zika virus

Insight - March 2016

- Zika virus has emerged in Brazil in association with an increase in reported cases of microcephaly among newborns. It has spread to many countries in Latin America and the Pacific region.
- At present, pregnant women and those planning pregnancy are advised to consider postponing travel to areas of Zika virus transmission
- Zika virus is a Group B notifiable condition in Victoria. The Department of Health also requests same-day information on suspected cases in pregnant women, and patients with microcephaly or GBS (1300 65160).

Introduction

The current Zika virus epidemic came to light in early 2015 in Brazil and has now spread throughout many countries in the Americas. There has been an associated increase in the reported cases of microcephaly among live births in the northeast of Brazil. While it is not currently known whether Zika virus causes microcephaly, investigations exploring the link are underway and the WHO has designated the outbreak a public health emergency of international concern.¹

Virology and Epidemiology

Zika virus, along with dengue virus, and Japanese encephalitis virus belong to the family *Flaviviridae*. It is transmitted by *Aedes* mosquitoes, primarily *Aedes aegypti*. In Australia, *Aedes aegypti* is found in central and northern Queensland but not known to be present in other parts of the country. Currently, countries where active Zika transmission has been reported (as of 29 January 2016) are predominantly located in Latin America and the Pacific (box 1).² As the epidemic continues, further cases are expected in other countries where the vector is present.



Clinical Features and Diagnosis

After an incubation period of 3-12 days symptoms include fever, maculopapular rash, arthralgia, myalgia, headache, retro-orbital pain and non-purulent conjunctivitis. The illness is generally uncomplicated, resolving spontaneously in several days to a week. An estimated 80% of infections are asymptomatic. While high rates of Guillain-Barre syndrome (GBS) were described in French Polynesia during a Zika virus outbreak, a causal role for the virus in this condition remains unproven.³

Who to test?

- Patients who have travelled to a country with active Zika virus transmission in the last 2 weeks with a compatible clinical syndrome
- Asymptomatic pregnant women with an appropriate travel history may also be tested in line with the latest guidelines: www2.health.vic.gov.au/about/news-and-events/healthalerts/cho-advisory-on-zika-virus-infection

What to request?

- Acute serology within 5 days of symptom onset and convalescent serology 2-3 weeks later (serum tubes)
- PCR on whole blood (EDTA tube) within the first seven days of illness
- Consider urine for PCR up to 14 days after symptom onset⁴

What to include on the referral?

- Date of symptom onset
- Travel history: country and date of return
- Symptoms and signs
- Pregnancy status

What else to consider?

In febrile returned travellers, important diagnoses including, but not limited to, malaria, typhoid and dengue also need to be considered and tested for as appropriate.

Interpretation of serological testing is complicated by the fact that antibodies to one flavivirus may cross react with other viruses in the family, and less information is currently available regarding the performance of these assays than more well established serological tests.

Zika virus is a Group B notifiable condition in Victoria, so all cases should be notified to the Victorian Department of Health (as flavivirus [unspecified]) within five days. The Department of Health also requests a phone call on the same day if the diagnosis of Zika virus infection is being considered in pregnant women, microcephalic infants or patients with GBS.



Zika virus cont.

Treatment

There is currently no specific antiviral therapy available for Zika virus. Treatment remains supportive.

Prevention

Revolves around mosquito avoidance in areas of transmission:

- wearing long sleeves, trousers, a hat
- effective insect repellent (containing DEET or picaridin and used according to the manufacturers' instructions) during the day and at night
- sleeping in a screened or air-conditioned room or use of a bed net
- Permethrin-treated clothing and gear (such as boots, pants, socks, and tents)

Pregnant women and those planning pregnancy are advised to consider postponing travel to areas where Zika virus transmission is reported or likely to be occurring.¹ Where this is not possible, strict adherence to measures for avoiding mosquitoes is recommended.

The risk of sexual transmission of Zika virus is thought to be very low, but condom use is currently advocated for a man who has been in a country with Zika virus transmission in some circumstances, particularly if his partner is pregnant. Interim guidelines are available here:

<http://www.health.gov.au/internet/main/publishing.nsf/Content/ohp-zika-sex-transmission.htm>

Patients with proven Zika virus infection should be advised against travel to areas in Australia where the mosquito vectors are found.

Zika Virus and Pregnancy

The emergence of Zika virus in northeast Brazil occurred concurrently with an explosive increase in reported cases of microcephaly. An apparent twenty-fold increase in the incidence of microcephaly has been seen since the Brazil Ministry of Health established a registry for new cases in 2015.³

Maternal-foetal transmission of Zika virus has been seen at all stages of pregnancy. And while the virus has been detected in specimens from foetal losses, the role of the virus in these cases is unknown. The Brazilian Ministry of Health has established a task force to investigate the association between Zika virus and microcephaly including the potential roles played by factors such as other infections, nutrition and environment.⁵

There is currently no evidence to suggest that pregnant women are more susceptible to Zika virus infection or that infection during pregnancy results in more severe disease.¹

Guidelines for testing of symptomatic and asymptomatic pregnant women have been issued by the Victorian Department of Health. These guidelines may change as further data become available, and at the time of writing the most up to date recommendations could be found at:

<https://www2.health.vic.gov.au/about/news-and-events/healthalerts/cho-advisory-on-zika-virus-infection>

Testing for Zika virus can be discussed with one of the Medical Microbiologists at Melbourne Pathology on 9287 7700.

References

1. Petersen E, Staples J, Meaney-Delman D, et al. Interim Guidelines for Pregnant Women During a Zika Virus Outbreak – United States, 2016. *MMWR* 2016; 65: 30-3.
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3. Fauci A, Morens D. Zika Virus in the Americas – Yet Another Arbovirus Threat. *NEJM* 2016; DOI: 10.1056/NEJMp1600297
4. Gourinat A-C, O'Connor O, Calvez E, et al. Detection of Zika Virus in Urine. *EID* 2015; 21: 84-6.
5. Schuler-Faccini L, Ribeiro E, Feitosa I, et al. Possible Association Between Zika Virus Infection and Microcephaly – Brazil, 2015. *MMWR* 2016; 65: 59-62.



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Box 1 – Countries with active Zika virus transmission as at 29 January 2016²

Barbados	French Guiana	Panama
Bolivia	Guadeloupe	Paraguay
Brazil	Guatemala	Puerto Rico
Cape Verde	Guyana	Saint Martin
Colombia	Haiti	Samoa
Dominican Republic	Honduras	Suriname
Ecuador	Martinique	US Virgin Islands
El Salvador	Mexico	Venezuela
	Nicaragua	

Further cases of Zika virus are expected to be reported in other countries where the mosquito vector is present, particularly in the Americas. At the time of writing an up to date list could be accessed at: https://smartraveller.gov.au/bulletins/zika_virus