

PATHCHAT

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Zika Virus declared a public health emergency of international concern: 1 February 2016

Introduction

- The Zika virus belongs to the family of viruses, Flaviviridae. The term "flavi", translated from Latin, means "yellow", as the disease most commonly associated with this group of viruses is yellow fever, which can cause jaundice in infected individuals. Flaviviridae mostly circulate among ticks and mosquitoes, which can then transmit the viruses to humans.
- Zika virus is transmitted to people through the bite of an infected mosquito from the *Aedes* genus, mainly *Aedes aegypti* in tropical regions. This is the same mosquito that transmits dengue, chikungunya and yellow fever.
- Doctors in South Africa may encounter cases in travellers returning from affected countries.

Background

- 1947: First identified in Uganda when it was isolated from monkeys from the Zika forest
- 2007: First major outbreak in Yap (Micronesia)
- 2013: Outbreak in French Polynesia
- 2014: Cases in Pacific Islands
- 2015: Outbreak in Brazil
- 2016: Spread to more than 20 countries in the Americas

Transmission

The virus spreads through:

- Mosquito bites: the main route of transmission
- In-utero: from an infected mother to her unborn baby
- Sexual transmission: isolated cases have been reported
- Transfusion: Zika virus-infected blood products

Symptoms

- Most patients experience no symptoms.
- One in five patients will experience fever, small joint arthralgia, headache, conjunctivitis and a maculopapular rash.
- The incubation period is short (between two to twelve days).
- The illness is usually mild with symptoms lasting for two to seven days.
- Zika virus infections in pregnant women have been linked to microcephaly and other adverse pregnancy

outcomes. More than 4 800 cases of Zika virus-associated microcephaly have been reported in Brazil thus far. The virus has been detected in the amniotic fluid and brain tissue of deceased babies, adding to the evidence that Zika virus is the cause.

- It does not appear to affect future pregnancies as Zika virus infections are acute and followed by long-term protective immunity.
- Acute disseminated encephalomyelitis (ADEM) and Guillain-Barré syndrome in patients with recent Zika virus infection has also been reported. This association is being investigated.
- Patients who are severely ill are not likely to have a Zika virus infection and an alternative diagnosis should be investigated, such as dengue, malaria, measles, tick-bite fever and leptospirosis.

Diagnosis

- Preliminary diagnosis is based on the patient's:
 - clinical features
 - places and dates of travel
- Laboratory diagnosis is accomplished by testing blood specimens for the following:
 - viral nucleic acid (PCR testing)
 - virus-specific antibodies (serological testing)
- Laboratory testing should only be performed in persons with a compatible clinical illness with recent (less than 14 days) travel to an affected area. Asymptomatic pregnant women with recent travel should also be tested. The National Institute for Communicable Diseases (NICD) is the referral laboratory for Zika virus testing, as with other arboviruses.

PCR

- Zika virus nucleic acid (RNA) may be detected in the first few days of the illness. PCR testing is recommended, where indicated, in those presenting one to five days after symptom onset.
- Viral RNA may be detected in urine for up to ten days or more after symptoms are noted and its diagnostic utility is being investigated. It is currently not routinely performed.

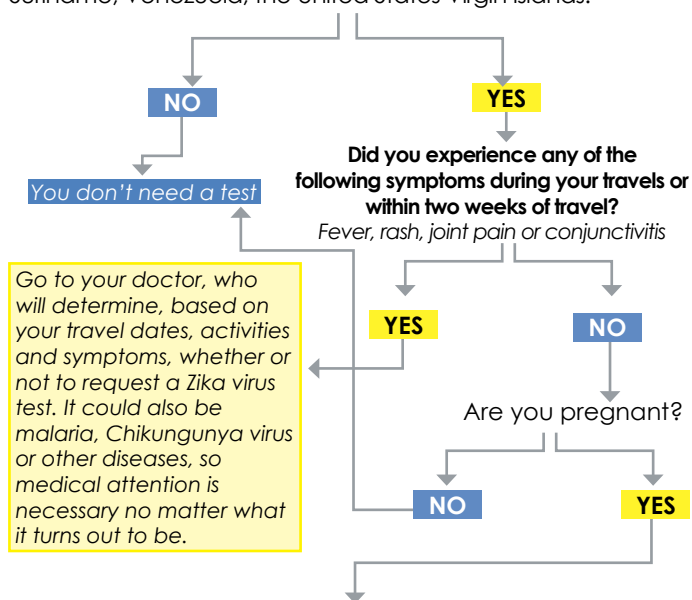
- A positive PCR test for Zika virus RNA confirms an acute infection.
- A negative PCR test for Zika virus may mean that there was no infection or that the individual was infected, but at the time the patient's specimen was collected, the virus was no longer detectable. Serology and viral culture would be the next diagnostic tests indicated.

Serology to detect viral antibodies

- Paired serum specimens collected up to 14 days apart can be tested for the presence of Zika virus antibodies.
- Serological testing is specifically indicated if a patient presents more than five days after symptom onset.
- Two serology tests are available: haemagglutination inhibition tests (HAI) and Zika virus-specific IgM ELISA testing.
- A positive serological test for Zika virus is harder to interpret or may require more extensive testing due to the risk of cross-reactivity with other viruses related to the Zika virus. Paired testing is thus essential.
- A negative test for Zika virus by serology indicates either that the test was done too early in the disease course (no antibodies have been made and are not present in the collected specimen), or that there was no infection. A follow-up serological test after 14 days would thus be indicated to exclude a recent infection.

Should I request a test for Zika virus from my doctor?

Did you travel from one of the following 24 Zika virus-affected countries or territories within the past two weeks? Barbados, Bolivia, Brazil, Cape Verde, Colombia, Ecuador, El Salvador, Dominican Republic, French Guiana, Guadeloupe, Guatemala, Guyana, Haiti, Honduras, Martinique, Mexico, Panama, Paraguay, Puerto Rico, Saint Martin, Samoa, Suriname, Venezuela, the United States Virgin Islands.



Tell your obstetrician or gynaecologist about your travels and get an ultrasound to see if you can detect microcephaly or other abnormalities. Consider scheduling regular ultrasounds to monitor the development of your fetus. If your doctor detects brain or skull abnormalities, get tested for Zika virus and consider getting an amniocentesis to see if the virus is in the baby's environment. However, this procedure is only recommended after 15 weeks of pregnancy.

Source: Centres of Disease Control and Prevention (CDC)
Featured in The Huffington Post, 27 January 2016

Treatment

- No vaccine or antiviral medication is available to prevent or treat Zika virus infections.
- Treat the symptoms:
 - Get plenty of rest.
 - Drink fluids to prevent dehydration.
 - Take medicine to relieve fever and pain.
- Do not take aspirin or other non-steroidal anti-inflammatory drugs (NSAIDs) like ibuprofen or naproxen. Aspirin and NSAIDs should be avoided until dengue can be ruled out to reduce the risk of haemorrhage.

Prevention

- Avoid travelling to countries that are currently experiencing an outbreak. This applies particularly to pregnant women and women who wish to fall pregnant.
- When travelling in a country experiencing a Zika virus outbreak, avoid mosquito bites by using protective clothing and an insect repellent.

First reported case in South Africa

- A 46-year-old industrial mechanic, resident in Cali, Colombia, arrived in Johannesburg on Wednesday, 10 February 2016.
- He became ill on Monday, 15 February, with anorexia, fever and a fine, puncture-like rash on his hands, thorax and neck. He had no joint or muscle pain, or conjunctivitis.
- He visited a private general practitioner who advised Zika virus testing.
- His blood specimen was positive by PCR for Zika virus at a private laboratory in Johannesburg.
- A second PCR test on the same specimen was conducted by the NICD, and confirmed the positive result.
- The risk of Zika virus introduction into South Africa is very low and one is only likely to see the occasional infection in travellers, as in this first case.

WHO intervention

- On 1 February 2016, The World Health Organization (WHO) declared the Zika virus and its suspected link to birth defects an international public health emergency.
- The WHO has called for researchers to develop a vaccine for the Zika virus, as well as better diagnostic testing.
- Initial trials using genetically modified mosquitoes have been taking place in the Cayman Islands and Brazil. The mosquitoes are altered so that their offspring will die before reaching adulthood and being able to reproduce.
- Another technique under consideration involves releasing male mosquitoes that have been sterilised by low doses of radiation.

Benjamin Franklin once said: "An ounce of prevention is worth a pound of cure." Since the Zika virus is transmitted by mosquitoes, the best way to protect yourself is by preventing mosquito bites.