

ZIKA VIRUS: A GLOBAL HEALTH THREAT

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ABSTRACT

The ongoing outbreak of Zika virus has captured media attention and caused worldwide concern. This article highlights the typical clinical picture and possible complications of this disease, current recommendations for personal protection and prevention, its implications for couples of child-bearing age as well as the local situation with regards to Zika virus.

INTRODUCTION

Zika is a mosquito-borne Flavivirus which is transmitted to humans through the bite of infected mosquitoes from the *Aedes* genus. It was first discovered in 1941 and has since caused sporadic disease in Africa and Asia. Zika recently caught the media's attention following an outbreak that started in Brazil in May 2015.¹ It was during this outbreak that Zika virus was linked to an increased incidence of the birth defect known as microcephaly, which results in babies born with abnormally small heads and central nervous system malformations. Zika was confirmed as a threat to pregnant women after laboratory research demonstrated its detrimental effects on developing nerve cells in foetuses.² It has also been linked to Guillian Barré syndrome.³

Since the start of the 2015 outbreak this virus has spread geographically to Latin America, the Caribbean and parts of Oceania. Currently, 61 countries and territories are experiencing ongoing Zika transmission while over seven hundred cases of travel-associated Zika have been reported in a total of ten EU countries since May 2015.⁴ On 1st February 2016, the World Health Organisation declared Zika virus a Public Health

Emergency of International Concern (PHEIC) under the International Health Regulations (2005)⁵ due to emerging data linking this virus to transplacental infections, adverse foetal outcomes, congenital CNS malformations and neurological complications as mentioned above.⁶

CLINICAL FEATURES

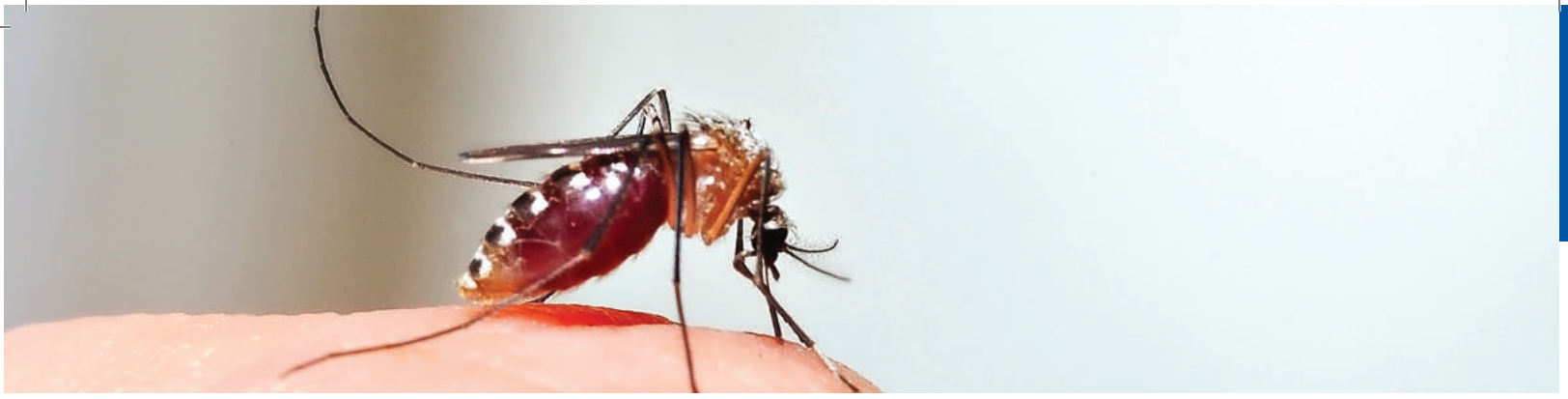
The incubation period for Zika virus is 3 to 7 days, with only 20% of those infected going on to develop clinical symptoms.⁷ The symptoms of Zika virus are similar to those caused by other arboviruses such as Dengue and Chikungunya, and include low-grade fever, maculopapular rash, conjunctivitis, fatigue, myalgia and arthralgia.⁶ The symptom most characteristic of Zika virus infection is maculopapular rash.⁶ Symptoms usually last 7-10 days and are mild, self-limiting and non-specific. Zika virus is known to be detectable for at least 7 days after development of symptoms in blood, at least two weeks in urine and at least 2 months in semen.⁸ It has also recently been detected in vaginal secretions.⁹ Diagnosis is carried out using RT-PCR techniques.

MODE OF TRANSMISSION

Zika is a vector-borne disease which is most commonly transmitted via the bite of an infected *Aedes Aegypti* mosquito. However, studies have shown that *Aedes Albopictus*, commonly known as the Asian Tiger mosquito, can also transmit this virus. Other modes of transmission include:

1. Vertical transmission from mother to child during pregnancy or childbirth;
2. Transmission via blood transfusion;
3. Transmission from a sexual partner.





The latest information regarding sexual transmission of Zika virus is based on a recent report documenting a case of female-to-male Zika virus transmission and confirming the detection of Zika RNA in vaginal secretions.¹⁰ Male-to-female and male-to-male transmission has been already documented. This recent discovery implies that any type of sexual activity (be it vaginal, anal, oral, or contact with genital secretions) can lead to Zika exposure in sexual partners of both male and female individuals who are infected with Zika virus. All those who can potentially be infected with Zika (males and females) are advised to consistently and correctly use male or female condoms for vaginal and anal sex. Attention should be paid when sharing sex toys. Appropriate barriers should also be used for oral sex.¹¹

WHO now recommends that travellers to Zika-affected countries should delay conception and abstain from sex or practice safe sex for a period of at least eight weeks after their return if they do not develop any symptoms suggestive of Zika virus infection. Individuals who do develop symptoms compatible with Zika virus infection or for whom Zika infection has been confirmed by laboratory testing should delay conception and abstain or practice safer sex for six months after recovery.¹² Pregnant women with male or female sex partners who live in or have travelled to a Zika-affected country are advised to abstain from sex or consistently practice safer sex for the duration of the pregnancy.⁹

PREVENTIVE MEASURES

There is no existing licensed vaccine or specific treatment for the Zika virus available. However, research into vaccine development is ongoing. A DNA plasmid vaccine known as GLS-5700 was granted US Food and Drug Administration approval for a Phase 1 safety trial in human volunteers in June, while another two candidate vaccines have shown promising results in mice.¹³ Preventive measures centre on personal protection from mosquito bites, avoiding pregnancy while in Zika-affected areas and postponing travel to these areas if pregnant. Travellers returning from Zika-affected countries are deferred from donating blood at the National Blood Transfusion Service for a period of four weeks.

The following advice is taken from the Infectious Disease Control Unit's publication: 'Information for People Travelling to Zika-affected areas' and relates to personal protective measures against mosquito bites.¹⁴

1. Protect skin from exposure to mosquitoes by wearing long sleeves, long trousers and hats.
2. Use mosquito repellent that has DEET as an ingredient (30-50% concentration for those above 2 years of age including pregnant women, 20% concentration for children under

2 years). Repellents may be applied to exposed skin or to clothing. Repellents are safe to use during pregnancy and in infants older than 3 months. Repellents need to be applied at regular intervals and must be used in strict accordance with the instructions indicated on the product label, especially regarding duration of protection and frequency of reapplication. If a traveller is applying both sunscreen and insect repellent, the sun screen should be applied first, followed by the insect repellent.

3. Use physical barriers such as mosquito screens on doors and windows.
4. Sleep in closed air-conditioned accommodation or under insecticide-treated mosquito netting especially when resting during the day, when *Aedes* mosquitoes are most active.
5. Eliminate any possible mosquito breeding sites, such as standing collections of water while staying in a Zika-affected country.

THE LOCAL SITUATION

Aedes albopictus (Asian Tiger mosquito), a potential vector for Zika virus, is known to be present on the Maltese Islands.¹⁵ There is, however, no evidence to suggest that our local mosquito population is infected with Zika virus.¹⁶ The public health authorities are preparing a national plan on mosquito-borne diseases and surveillance of mosquitoes is being enacted.

Zika has recently been declared a notifiable disease in Malta together with Dengue, Chikungunya and West Nile fever.¹⁷ Testing for all these vector-borne diseases is now possible locally. Symptomatic returning travellers are obliged to contact public health authorities no later than the day after their return so that the necessary precautions are taken and testing is carried out.

An awareness campaign is also being carried out with the general public. This includes social media updates, information leaflets and posters encouraging individuals to contribute to vector control. Posters have also been set up at the airport and seaport with information for outgoing and returning travellers. Detailed advice for travellers to Zika-affected areas and travellers to the Rio Olympics, as well as further information on Zika virus, is available on the Infectious Disease Prevention and Control Unit's (IDCU) website. Those requiring further information can contact the Zika helpline on 21324086. 📞

IDCU website link: <http://health.gov.mt/en/health-promotion/idpcu/Pages/introduction.aspx>