

Zika virus in pregnancy: Information for health professionals

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This interim guidance is the result of consultation by the Ministry of Health with members of the following professional groups via a Technical Advisory Group: The New Zealand Maternal Fetal Medicine Network, the Royal Australian and New Zealand College of Obstetricians and Gynaecologists, the New Zealand Microbiology Network, the Institute of Environmental Science and Research Ltd., the New Zealand Royal College of GPs, New Zealand College of Midwives and the Royal Australian and New Zealand College of Radiologists.

This is a rapidly evolving situation. Check the Ministry of Health website for up-to-date information.

Zika virus

Zika virus is a mosquito-borne flavivirus, related to the dengue virus. Cases of Zika virus have been reported in Africa, southern Asia and the Pacific Islands. Since 2015 Zika virus outbreaks have spread throughout the tropical and sub-tropical areas of the Americas as far north as Mexico, Florida and Puerto Rico.

Those living in or travelling to an area where Zika virus is found and who have not been infected with the virus before are at risk for Zika virus infection. Please visit the [ECDC website](#) for information on areas that have the Zika virus.

There is also a risk of sexual transmission of Zika virus. Zika virus is considered to be mainly spread by infected mosquitoes. However there is growing information available about the risk of sexual transmission of Zika virus (mostly from male to partner).

Transmission

In New Zealand, Zika virus is usually a travel-related infection transmitted through the bite of an infected *Aedes* mosquito. These mosquitoes are aggressive daytime biters, feeding most actively early in the morning and late in the afternoon, both indoors and outdoors. *Aedes* mosquitos that transmit arboviral diseases such as Zika virus are not found in New Zealand.

Pregnant women who become infected with Zika virus can transmit the disease to their unborn babies, though it is unclear how frequently transmission occurs.

Zika virus has also been detected in semen, and cases of sexual transmission have been reported, with supporting evidence becoming available.

Sexual transmission

There is only limited information available to estimate the risk of sexual transmission of Zika virus from men to women, but the risk is considered to be low when compared to the risk of transmission from infected mosquitoes. The following advice is given due to the potentially serious implications of transmission of Zika virus to a pregnant woman.

- Men (asymptomatic or symptomatic) who have travelled to a Zika-affected area and have a pregnant partner are advised to abstain from sexual activity or use condoms for the duration of pregnancy.
- Men (asymptomatic or symptomatic) who have travelled to a Zika affected area should be advised to abstain from sexual activity or use condoms with any partner at risk of becoming pregnant for at least 6 months.

New Zealand guidance will continue to be reviewed as further information becomes available.

Incubation period and symptoms

Only 1 in 5 people infected with the Zika virus develop symptoms. The incubation period is typically 3 to 12 days. The symptoms, where present, are usually mild and last for several days to one week. Symptoms include:

- low-grade fever
- arthralgia, notably of small joints of hands and feet, with possible swollen joints
- myalgia
- headache, retro-ocular headaches
- conjunctivitis
- cutaneous maculopapular rash.

Zika virus infection may cause a rash that could be confused with diseases such as measles, rubella, chikungunya and dengue, so these need to be ruled out. Diagnosis of Zika virus infection will first and foremost be based on symptoms, travel history and exclusion of other diseases.

Serious complications from Zika virus infection are uncommon. However, based on research to date, there is scientific consensus that Zika virus is a cause of microcephaly and other severe fetal brain abnormalities, as well as Guillain-Barré syndrome.

The effects of Zika virus on pregnant women is similar to that in the general population. There is no evidence to suggest that pregnant women are more susceptible or experience more severe disease during pregnancy.

Zika virus infection during pregnancy

We know that Zika virus infection during pregnancy is a cause of congenital microcephaly and other severe brain abnormalities. Zika virus has also been linked to other problems in pregnancies and among fetuses and infants infected before birth, such as miscarriage, stillbirth, and other birth defects.

A distinct pattern of birth defects, called [congenital Zika syndrome](#), has emerged among fetuses and infants of women infected with Zika during pregnancy. In addition to cognitive, sensory, and motor disabilities that are shared with other birth defects, congenital Zika syndrome is associated with five types of birth defects that are either not seen or occur rarely with other infections (eg, cytomegalovirus or rubella).

- Severe microcephaly resulting in a partially collapsed skull.
- Decreased brain tissue with brain damage (as indicated by a specific pattern of calcium deposits).
- Damage to the back of the eye with a specific pattern of scarring and increased pigment.
- Limited range of joint motion, such as clubfoot.
- Too much muscle tone restricting body movement soon after birth.

It is particularly important to understand that the cases of congenital Zika syndrome have been seen in countries with very widespread transmission. The risk to short-term travellers is likely to be very low, particularly as it is not yet known what proportion of pregnant women infected with Zika virus transmit the virus to the fetus, and what proportion of infected fetuses are severely affected. Studies are under way to investigate the association of Zika virus infection and microcephaly.

Testing for Zika virus in pregnant women

Reverse-transcriptase PCR (RT-PCR) can be used to detect the Zika virus during the first week (in serum) to 2 weeks (in urine) of the illness. Testing whole blood is a suitable alternative to serum, particularly in investigations during the first two weeks. After the first two weeks, advice from an infectious disease specialist or microbiologist should inform any PCR testing.

This RT-PCR test is currently performed in Wellington at ESR, Auckland at LabPLUS and Christchurch at Canterbury Health Laboratories, with an expected turnaround time of two working days.

Serology is less reliable due to potential cross reaction with antibodies against other similar viruses (including dengue). This makes it difficult to differentiate Zika virus infection using antibody testing alone. Additionally, on 5 May 2017 the CDC issued a Health Alert Notice (HAN) sharing evidence that IgM antibodies may stay in the body for months after the infection, making it difficult to determine if a positive IgM antibody test on a pregnant woman reflects a recent infection or one acquired before the pregnancy. The HAN is available here: <https://emergency.cdc.gov/han/han00402.asp>.

For these reasons, while a potentially valuable diagnostic tool, Zika virus serology may be difficult to interpret, and should involve a discussion with a microbiologist before testing.

Zika virus RT-PCR can also be performed on amniotic fluid although it is not currently known how sensitive or specific this test is for congenital infection. The likelihood of an infected fetus developing a fetal abnormality is not known at this time.

Fetal ultrasound is recommended

Fetal ultrasound is usually performed at 18 to 20 weeks to assess fetal anatomy. Microcephaly and intracranial calcifications can be detected then, or later in pregnancy. Additional ultrasounds are recommended for pregnant women who have travelled to an area with Zika virus transmission to detect possible fetal abnormalities and to allow for further management as required. The number of pregnant women who will require additional ultrasounds is not expected to be high and this may also help to reassure those at-risk pregnant women.

Pregnant women with a history of travel to an area with Zika virus transmission and who have not experienced clinical symptoms or have negative PCR test results can be offered ultrasound scanning in the community at an appropriate time for detection of microcephaly or intracranial calcifications. A suggested regime is 4 weekly scans after 24 weeks' gestation.

If a pregnant woman is found to be PCR+ for Zika infection, refer them to a Maternal Fetal Medicine specialist for evaluation. The specialist will determine timing of the ultrasound.

Preventing Zika virus infection

Until more is known, the Ministry of Health recommends that women who are pregnant or plan to become pregnant soon should defer travel to areas with Zika virus present. If travelling in Zika-infected areas, women who are pregnant or plan to become pregnant should consult with their health care provider and take all precautions to avoid mosquito bites.

- Wear long-sleeved shirts and long pants.
- Use insect repellents containing DEET, picaridin, oil of lemon eucalyptus (OLE), or IR3535 (always use as directed). Insect repellents containing DEET, picaridin, and IR3535 are safe for pregnant and breastfeeding women and children older than 2 months when used according to the product label. Oil of lemon eucalyptus products should not be used on children under 3 years of age.
- If using both sunscreen and insect repellent, apply the sunscreen first and then the repellent.
- Use permethrin-treated clothing and gear (such as boots, pants, socks and tents).
- Use bed nets as necessary.
- Stay and sleep in screened-in or air-conditioned rooms if possible.
- Be particularly vigilant for the 2 hours after sunrise and the 2 hours before sunset.

Women who have travelled to an affected country should use appropriate contraception for eight weeks to avoid pregnancy. If a woman's partner has travelled to an affected country, then see advice on sexual transmission above.

Further information

Advice from WHO: <http://www.who.int/csr/resources/publications/zika/sexual-transmission-prevention/en/>

Advice from ECDC:

http://ecdc.europa.eu/en/publications/_layouts/forms/Publication_DispForm.aspx?List=f55ad51-4aed-4d32-b960-af70113dbb90&ID=1525

Advice from CDC: www.cdc.gov/zika/transmission/sexual-transmission.html

Advice from Public Health England: www.gov.uk/guidance/zika-virus#sex

Advice from Australia: www.health.gov.au/internet/main/publishing.nsf/Content/ohp-zika-sex-transmission.htm

Interim testing and referral algorithm for pregnant women

