

Zika FAQs for Clinicians

*This document was updated on November 10, 2016, and content will be updated as the situation changes.

How is Zika virus transmitted?

Zika virus is transmitted to humans primarily through the bite of an infected *Aedes* species mosquito—the same type of mosquito that spreads dengue, chikungunya, and yellow fever. *Aedes* mosquitoes are aggressive daytime biters and feed both indoors and outdoors.

Zika virus can be transmitted from a pregnant mother to her fetus during pregnancy or around the time of birth. We do not know how often congenital or perinatal transmission of Zika virus occurs. Zika virus can also be transmitted through sex even if the infected person is asymptomatic. Zika virus has been detected in the blood, semen, and vaginal fluid of symptomatic and asymptomatic people and can persist in semen longer than in blood and vaginal fluid; however, the duration of persistence in semen is unknown. Transmission of Zika virus by a person who is infected but never develops symptoms may be possible, but is not well documented. Research is ongoing to determine how long Zika can be passed to sex partners. Transmission is also possible through blood transfusion and laboratory or healthcare exposures.

CDC continues to emphasize that the primary mode of Zika virus transmission is through the bite of an infected mosquito. People who have Zika virus infection can protect others by preventing additional mosquito bites and using condoms or abstaining from sex to prevent sexual transmission. Zika virus has also been identified in saliva and urine, but the likelihood of transmission from these sources is unknown. Further guidance will be shared as information becomes available.

What is the epidemiology of Zika virus disease (or Zika)?

The infection rate is 73% with a symptomatic attack rate of 18%, based on a [2007 outbreak on Yap Island](#). All age groups can be affected by Zika virus. Disease is typically mild and does not lead to hospitalizations or deaths. Zika occurs in tropical areas with large mosquito populations, and is known to circulate in Africa, the Americas, Southern Asia and Western Pacific. Zika virus was discovered in 1947, but for many years only sporadic human cases were detected in Africa and Southern Asia. In 2007, the first documented outbreak of Zika virus disease occurred in the Pacific. Since 2013, mosquito-borne transmission of Zika virus has been reported in the Pacific Islands, the Americas, Africa, and Asia.

Who is at risk of infection?

Anyone who is living in or traveling to an area where Zika virus is found who has not already been infected with Zika virus is at risk of infection; sex partners of those residents or recent travelers are also at risk of infection through sexual exposure. Those who do not travel to affected areas are currently at low risk of acquiring the infection via mosquitoes. Because competent mosquito vectors are located in Virginia, it is possible that local transmission of Zika virus via mosquitoes could occur during Virginia's mosquito season (May through October). For a map of where the mosquitoes that could spread Zika virus are located in the U.S., see [CDC's vector range](#)

[maps](#). Specific areas where Zika virus transmission is ongoing are often difficult to determine and are likely to change over time. Please visit [CDC's Zika Travel Information webpage](#) for the most updated information.

How can Zika virus infection be prevented?

There is no vaccine to prevent Zika infection. Natural immunity follows infection.

Pregnant women should not travel to an [area with Zika](#). If a pregnant woman must travel to one of these areas, she should talk to her healthcare provider. If she travels, she should be counseled to strictly follow [steps to avoid mosquito bites](#), including using an EPA-registered insect repellent according to the product label. She should also prevent sexual transmission during the trip; if a pregnant woman has a partner who lives in or has traveled to [area with Zika](#), she should use a condom or other barrier protection every time she has sex or should not have sex with that partner for the duration of her pregnancy. Currently, there is no evidence to suggest that past Zika virus infection poses an increased risk of birth defects for future pregnancies once the virus has completely cleared a woman's body.

All travelers to [areas with Zika](#) can protect themselves by [taking steps to prevent mosquito bites](#). Use insect repellent, wear long-sleeved shirts and long pants, and stay in places with air conditioning or with window and door screens.

Zika virus usually remains in the blood of an infected person for about a week, but it can be found longer in some people. Therefore, to prevent introduction and spread of Zika virus into local mosquitoes during the mosquito season, all travelers returning to the U.S. from an [area with Zika](#) should [take steps to prevent mosquito bites](#) for 3 weeks; if a person is infected with Zika, he or she should [take steps to prevent mosquito bites](#) for the first week of illness.

Regarding the possibility of sexual transmission of Zika virus:

- The risk of sexual transmission of many infections is eliminated by abstaining from sexual activity and the risk can be reduced by consistent and correct use of condoms.
- People who reside in or have traveled to an [area of active Zika virus transmission](#) who have a pregnant partner should abstain from sexual activity or consistently and correctly use condoms during sex (i.e., vaginal sex, anal sex, oral sex, or other activities that might expose a sex partner to genital secretions) for the duration of the pregnancy. Pregnant women should discuss their partner's potential exposures to mosquitoes and history of Zika-like illness with their healthcare provider.
- For couples who are planning to become pregnant and who have traveled to an [area with Zika](#):
 - Women should wait at least 8 weeks from symptom onset (if symptomatic) or last possible exposure (if asymptomatic) to attempt conception.
 - Men should wait at least 6 months from symptom onset (if symptomatic) or last possible exposure (if asymptomatic) before attempting conception with their partner.
- Couples who have traveled to an [area with Zika](#) and who do not want to get pregnant, but are concerned about sexual transmission of Zika virus should abstain from sexual activity or use condoms consistently and

correctly during sex for at least 6 months for men or 8 weeks for women after symptom onset (if symptomatic) or last possible exposure (if asymptomatic).

What are symptoms of Zika?

The range of incubation period of Zika is 3–14 days after exposure. Characteristic clinical findings are acute onset of fever with maculopapular rash, arthralgia, or conjunctivitis. Other commonly reported symptoms include myalgia and headache. Clinical illness is usually mild with symptoms lasting for several days to a week. Viremia persists up to 1 week after symptom onset. Severe disease requiring hospitalization is rare.

The illness may be mistaken for dengue virus or chikungunya virus infections; clinical features comparing Zika, Dengue, and Chikungunya are described below:

Features	Zika	Dengue	Chikungunya
Fever	++	+++	+++
Rash	+++	+	++
Conjunctivitis	++	-	-
Arthralgia	++	+	+++
Myalgia	+	++	+
Headache	+	++	++
Hemorrhage	-	++	-
Shock	-	+	-

Zika virus can cause microcephaly and other severe birth defects. For the current outbreak in the Americas, some countries, including Brazil, Columbia, Dominican Republic, El Salvador, French Guiana, French Polynesia, Honduras, Jamaica, Martinique, Suriname, and Venezuela, are reporting an increase in Guillain-Barré Syndrome (GBS) cases and other neurologic conditions according to [WHO](#).

What is the treatment for Zika?

There is currently no cure, but the symptoms of Zika can be treated with pain and fever-reducing medications like acetaminophen, rest, and plenty of fluids to prevent dehydration. Patients should not take aspirin or non-steroidal anti-inflammatory drugs until dengue virus is ruled out.

Is there any association between Zika and congenital microcephaly?

Yes. Scientists at the CDC have concluded, after careful review of existing evidence, that Zika virus is a cause of microcephaly and other severe fetal brain defects. Microcephaly describes a baby or child with a smaller than normal brain and head. Increasing evidence from a number of studies and a careful evaluation using established scientific criteria supports these conclusions. It does not mean, however, that all women who have Zika virus infection during pregnancy will have babies with health problems. CDC's media statement on this conclusion can be found [here](#). Studies are still underway to learn more about health conditions associated with Zika virus and the effects of Zika virus infection during pregnancy.

What gaps do we have in our understanding of Zika?

Key issues to be addressed in our understanding of Zika include:

- Epidemiological characteristics of the virus
- Potential medical countermeasures (including treatments and vaccines) that can be developed
- How Zika virus interacts with other arboviruses (viruses that are transmitted by mosquitoes, ticks and other arthropods), such as dengue
- Development of more specific laboratory diagnostic tests for Zika virus that can reduce misdiagnosis that may occur due to the presence of dengue or other viruses in a test sample

Laboratory testing

What types of testing for Zika virus are available?

Healthcare providers should become familiar with Virginia Department of Health's [testing recommendations](#). For public health testing of pregnant women, infants with possible congenital infection, those diagnosed with Guillain-Barré Syndrome, or those with an unusual exposure (e.g., transfusion, laboratory exposure), healthcare providers should contact their [local health department](#) to facilitate testing at Virginia's state laboratory, the Division of Consolidated Laboratory Services (DCLS). DCLS has testing capacity for Zika virus through RT-PCR (serum and urine specimens) and IgM (serum only). DCLS is also assisting with specimen submission and shipping to CDC when warranted. For testing of non-pregnant patients who developed an uncomplicated illness within two weeks of travel to an [area with Zika](#), testing can be pursued through a number of [private labs](#).

Because Zika virus is strongly sero-cross reactive with other flaviviruses (e.g., dengue virus and WNV), submission of an acute serum specimen (collected within 14 days of symptom onset for RT-PCR is encouraged. Urine specimens can be submitted (in conjunction with a serum specimen) up to 14 days after symptom onset. Immunologic testing must rely on IgM serology and the use of the virus-specific Plaque Reduction Neutralization Test (PRNT). IgM antibodies are expected to be present about 1 week after symptom onset and can persist for up to 12 weeks. For more information, please see [CDC laboratory testing guidelines](#).

Because of overlapping clinical presentations, testing for chikungunya, dengue and Zika should be considered. DCLS is able to test for chikungunya (RT-PCR and serology) and dengue (PCR).

What are the challenges in interpreting Zika virus testing?

RT-PCR test may not demonstrate Zika virus RNA in someone with Zika if the period of viremia has passed. Serum serologic testing can be performed; however, cross-reactivity with related flaviviruses (e.g., dengue, and yellow fever viruses) is common. Plaque-reduction neutralization testing (PRNT) can be performed to measure virus-specific neutralizing antibodies to Zika virus, but neutralizing antibodies may still yield cross-reactive results in persons who were previously infected with another flavivirus, such as dengue, or has been vaccinated against yellow fever or Japanese encephalitis. PRNT results are also not reliable for interpreting infant antibody levels at birth because IgG crosses the placenta and the test cannot differentiate maternal and infant antibodies. Maternal antibodies in the infant are expected to wane by 18 months of age; therefore, in some circumstances, retesting infants with possible congenital infection at 18 months might be recommended. Because of all these

factors, it is important to work closely with your local health department to ensure the appropriate test is ordered and that the results are interpreted correctly.

Who should be tested for Zika virus?

Public health testing through DCLS and with approval from the local health department is recommended for the following people:

- All pregnant women (regardless of symptoms) potentially exposed to Zika virus through travel to an [area with active Zika virus transmission](#), sexual exposure[†], or mosquito bites.
- A fetus or infant:
 - with suspected or confirmed microcephaly or other neurologic abnormality (diagnosed prenatally or at birth) whose mother was potentially exposed to Zika virus, or
 - whose mother had laboratory evidence of Zika virus infection during pregnancy
- A person who developed Guillain-Barré Syndrome or another neurologic manifestation and had potential exposure to Zika virus.
- A person with an unusual potential exposure to Zika virus as described below:
 - Any potential transfusion or transplant exposure or a laboratory exposure
 - Sexual exposure[†] or local (Virginia) mosquito exposure and two or more Zika-compatible symptoms (e.g., fever, rash, arthralgia, conjunctivitis) within two weeks of exposure

VDH encourages the use of private laboratories[§] for Zika virus testing for patients who meet all of the following criteria:

- Not pregnant,
- Uncomplicated clinical illnesses,
- Potential Zika virus exposure was related to travel to an [area with active Zika virus transmission](#), and
- Symptom onset was up to 2 weeks after that travel

[†]Sexual exposure means unprotected sex with someone who has traveled to or lives in an [area with active Zika virus transmission](#). Sexual exposure includes vaginal sex, anal sex, oral sex, or other activities that might expose a sex partner to genital secretions.

[§]If Zika virus testing by a private laboratory is not feasible, please call your [local health department](#) to discuss.

See VDH's [testing webpage](#) for a figure describing who should be tested.

Zika and Pregnancy

What is the US Zika Pregnancy Registry?

To understand more about Zika virus infection during pregnancy and congenital Zika virus infections, CDC has established the US Zika Pregnancy Registry. Data collected through this surveillance effort will help guide recommendations for clinical care and testing, plan for services for pregnant women and families affected by Zika virus, and improve prevention of Zika virus infection during pregnancy. Local health departments may reach out to health care providers caring for pregnant women who have laboratory evidence of Zika virus infection (regardless of symptoms) and their infants. As more details emerge, VDH will inform providers. Preliminary information can be found on the [CDC's US Zika Pregnancy Registry website](#).

What is known about the effects of Zika virus on pregnant women?

We expect that the course of Zika in pregnant women is similar to that in the general population. No evidence exists to suggest that pregnant women are more susceptible or experience more severe disease during pregnancy. It is not known if pregnant women are more susceptible to Guillain-Barré Syndrome.

Is there any association between Zika and congenital microcephaly?

Yes. Scientists at the CDC have concluded, after careful review of existing evidence, that Zika virus is a cause of microcephaly and other severe fetal brain defects. Additional studies are underway to investigate further details about timing of infection, risk of birth defects, the full range of effects of Zika virus infection during pregnancy, and other relevant scientific questions.

Is there any known association between maternal Zika and other adverse pregnancy outcomes?

The full spectrum of outcomes that might be associated with Zika during pregnancy is unknown and is being investigated.

How should pregnant patients who are considering travel to an area with Zika virus transmission be counseled?

CDC recommends that pregnant women in any trimester should consider postponing travel to an area where [Zika virus transmission is ongoing](#). If a pregnant woman is considering travel to one of these areas, she should talk to her healthcare provider. If she travels, she should strictly follow steps to [avoid mosquito bites](#) and she should use a condom or other barrier protection every time she has sex or abstain from sex during the trip.

Which pregnant women should be tested for Zika?

All pregnant women (regardless of symptoms) potentially exposed to Zika virus through travel to an [area with active Zika virus transmission](#), sexual exposure, or mosquito bites. Note that sexual exposure means unprotected sex with someone who has traveled to or lives in an [area with active Zika virus transmission](#). Sexual exposure includes vaginal sex, anal sex, oral sex, or other activities that might expose a sex partner to genital secretions. VDH recommends pregnant women be tested through public health by DCLS (not a private laboratory). [Local health department](#) approval is required before sending specimens to DCLS.

What are the potential sequelae of microcephaly?

For infants diagnosed with microcephaly, head size correlates with underlying brain size. However, these measurements do not consistently predict long term sequelae. Neurologic sequelae may include seizures, vision or hearing problems, and developmental disabilities; symptoms vary with the extent of brain disruption. The symptoms of microcephaly are not always detectable at birth. Infants with microcephaly or other problems related to Zika virus infection may appear normal at birth then only develop symptoms later on. More information on microcephaly can be found here: <http://www.cdc.gov/ncbddd/birthdefects/microcephaly.html>

What causes congenital microcephaly?

Causes of congenital microcephaly may include genetic conditions such as chromosomal abnormalities or maternal exposures (e.g., alcohol, mercury, or radiation) during pregnancy. In addition to Zika virus, maternal

infections that have been associated with microcephaly include cytomegalovirus (CMV), herpes simplex virus, rubella virus, lymphocytic choriomeningitis virus (LCMV), *Treponema pallidum* (i.e., syphilis), and *Toxoplasma gondii*.

Information on infants with Zika

What treatment exists for infants with congenital Zika?

No treatment is currently available for Zika. Care for these infants is focused on diagnosing and managing conditions that are present, monitoring the child's development over time, and addressing problems as they arise.

What is the prognosis for a newborn with congenital Zika?

The prognosis for infants with congenital Zika is not known. In infants with severe microcephaly from other causes, a range of neurologic sequelae have been reported (e.g., intellectual disability, hearing loss, vision loss, and seizures). These problems can range from mild to severe, are often life-long, and in some cases can be life-threatening.

It is important to note that some infants might not have apparent abnormalities at birth; this is because some neurologic sequelae of congenital Zika virus infection (e.g., seizures, cognitive impairment, and vision and hearing abnormalities) might be subtle or have delayed onset.

Which newborns should be tested for Zika?

Testing for Zika virus via DCLS is recommended for infants with suspected or confirmed microcephaly or other neurologic abnormality (diagnosed prenatally or at birth) whose mother was potentially exposed to Zika virus, or for infants whose mother had laboratory evidence of Zika virus infection during pregnancy.

If a mother had Zika during pregnancy, should she breastfeed her infant?

Although Zika virus RNA has been detected in breast milk, Zika infection caused by breastfeeding has not been documented. Based on available evidence, the benefits of breastfeeding infants outweigh any theoretical risk related to Zika virus transmission.

CDC's updated guidance on Zika

- [Update: Interim Guidance for Preconception Counseling and Prevention of Sexual Transmission of Zika Virus for Persons with Possible Zika Virus Exposure — United States, September 2016](#)
 - [Update: Interim Guidance for the Evaluation and Management of Infants with Possible Congenital Zika Virus Infection — United States, August 2016](#)
 - [VDH Guidance for the Evaluation and Management of Infants with Possible Congenital Zika Virus Infection](#)
- [Update: Interim Guidance for Health Care Providers Caring for Pregnant Women with Possible Zika Virus Exposure — United States, July 2016](#)

- [Guidance for U.S. Laboratories Testing for Zika Virus Infection](#)
- [Interim Guidance for Interpretation of Zika Virus Antibody Test Results](#)
- All of [CDC's MMWR Reports on Zika](#)

References

- CDC. Clinical Guidance for Healthcare Providers Caring for Pregnant Women <http://www.cdc.gov/zika/hc-providers/qa-pregnant-women.html>
- CDC. Clinical Guidance for Healthcare Providers Caring for Infants & Children <http://www.cdc.gov/zika/hc-providers/qa-pediatrician.html>
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- World Health Organization. Zika Virus Situation Report <http://www.who.int/emergencies/zika-virus/situation-report/27-october-2016/en/>