The Zika Virus has emerged recently as a new international health crisis to pregnant women or those trying to become pregnant. INCIID is getting calls and questions about Zika and the threat for women of reproductive age who are seeking to get pregnant. Many are worried. INCIID has put together a fact sheet to help with understanding the threat and how to protect yourself.

**Origin**

The Zika virus was discovered almost 70 years ago in the Zika Forest in Uganda. There were sporadic outbreaks in Africa and Southeast Asia in 2007, then another in French Polynesia in 2013. In the 2013 outbreak, authorities noted a contemporaneous association of an increase in cases of Guillain-Barre syndrome. Simultaneously, officials saw a dramatic increase in microcephaly and a rapid spread of Zika virus through the Americas. This February (2016) The World Health Organization (WHO) declared the outbreak an international public health crisis because of the link to microcephaly as well as other neurologic syndromes.

**What is the Zika Virus and how does it spread?**

A virus is an infective agent that is too small to be seen by light microscopy; Viruses multiply only within the living cells of a host. Zika is an RNA virus, closely related to flaviviruses. You
might remember from your biology classes that Ribonucleic Acid (RNA) is present in all living cells. RNA acts as a messenger carrying instructions from DNA. Flaviviruses carried mostly by arthropod vectors (in this case mosquitoes) cause serious diseases like Yellow Fever, various types of encephalitis, and hepatitis C.

Scientists working on Zika do not completely understand the pathology. Researchers think the viral replication takes place in dendritic cells after being bitten by a mosquito. Dendritic cells initiate an immune response, and the virus spreads to the lymph nodes and throughout the bloodstream. The virus itself can be detected in the blood as early as the day of onset of symptoms. Testing also documents the Zika virus as detected in urine, sperm, and saliva of an infected individual. The period between exposure to the virus and infection and appearance of first symptoms (the incubation period) is most likely between 3 days to 2 weeks. However, approximately 80% of individuals infected with Zika show no symptoms. Only 1 out of 5 patients show symptoms of the Zika virus. When symptoms do occur, they are usually mild and occur within two weeks after exposure (travel). (Sampathkumar, 2016)

**Most common symptoms may include:**

- A maculopapular rash (A rash in which there are discrete macular and papular lesions or a combination of both.) This rash is more common with the Zika virus.
- Nonpurulent (without pus) conjunctivitis
- Pain in the small joints of hands and feet
- There may be a headache
- Pain in the orbit of the eyes
- Rarely is the infection severe enough for hospitalization.

**Transmission**

Transmission to humans is through the bites of two kinds of carrier mosquitos. Both Aedes aegypti from tropical and subtropical regions and the Aedes albopictus found in more temperate climates inhabit the United States. The later A. albopictus (originally imported from Southeast Asia) is of particular concern because it has a broader range of habitation, and it adapted remarkably well to cooler climates. A. albopictus, an aggressive daytime “biter,” is well-established in the United States.
Aside from being bitten by a carrier mosquito, sexual transmission is a possibility but ability to become infected through this method is unclear. In 2011 an American researching Zika in Senegal went home to Colorado and experienced Zika symptoms. He transmitted the virus to his wife through sexual intercourse. There are two other confirmed cases thought to be sexually transmitted. Researchers do not yet know how long the virus persists in sperm. The CDC recommends that pregnant women should avoid unprotected sex with a partner who travels to Zika infected regions for the duration of their pregnancy as a precaution. Data on the sexual transmission is limited. (Sampathkumar, 2016)

Transfusion-related transmission has occurred. The virus was also found in breast milk. However, the benefits of breastfeeding likely outweigh the risks. Seek information from your obstetrician, maternal-fetal medicine specialist and lactate consultant for risks associated with breastfeeding. No cases of transmission due to breastfeeding reported thus far. Creation of a vaccine is a priority, but at present, there is no vaccine for Zika. Equally important is the development of extraordinary measures by public health officials to further understand and stop transmission of Zika. Also important is exploring the roles of interventions such as IVIg and Zika specific immunoglobulins (a class of proteins present in cells of the immune system that function as antibodies). (Barton, 2016)

**Pregnancy, Birth Defects, and Zika**

All pregnant women should think carefully about traveling to regions where Zika outbreaks occur. When physicians consult with any pregnant woman, she should be asked about travel history. Expectant mothers who ventured into to high-risk areas and are asymptomatic should be offered blood testing and screening for Zika. This testing should occur between 2-12 weeks after travel.

Researchers are working and studying the link between Zika during pregnancy and microcephaly. CDC scientists recently announced there is now enough evidence-based science to conclude a Zika virus infection during pregnancy is a cause of microcephaly. (Questions and Answers: Zika Virus Infection, 2016)

Microcephaly defined by an abnormally small head based on the circumference of the head and often intellectual disabilities and other neurological diseases and conditions
accompany the diagnosis. Some examples would include hearing loss, eye defects, and impaired growth. Researchers are looking carefully to determine other associated problems that Zika causes during pregnancy. (Note: norms for head circumference vary in different ethnic and geographic populations. Head size is not universally applied.)

The Zika virus during pregnancy has been documented in all trimesters through viral RNA testing of fetal tissue. Amniotic fluid testing revealed Zika in ongoing pregnancies and in newborn infants as well as in the placenta of pregnant women. Many of the symptoms for Zika overlap with other similar viruses. For example, Zika symptoms resemble those of dengue and chikungunya, also spread by the same mosquitoes that transmit Zika. See your doctor if you develop the symptoms and have visited a region where the Zika virus exists.

Understanding the difference between the presence of the virus and the immunological response that produces antibodies is important. Only the presence of the virus causes fetal abnormalities.

After blood testing, the next step in managing patients may include high-resolution ultrasound. In some cases, the doctor may order amniocentesis AFTER 15 weeks gestation to screen for Zika viral RNA. Referral to a maternal-fetal medicine (high-risk OB) or infectious disease specialist may also be indicated to help manage the pregnancy.

Based on the available evidence, the CDC does not think that Zika virus infection in a woman who is not pregnant would not pose a risk for congenital disabilities in future pregnancies after the virus has cleared from her blood.

From what we know about similar infections, once a person has been developed antibodies to the Zika virus, she is likely to be protected from a future Zika infections. (Questions and Answers Zika Virus Infection and Pregnancy, 2016)

If a person travels to an affected region and has a blood test that shows positive antibodies to the virus, this means you likely cannot transmit the virus to the fetus AFTER the incubation period (thought to be 3-12 days).

For example, a person travels to South America for Christmas. She comes back in January but doesn’t attempt pregnancy until the end of February the resulting pregnancy (occurring in February) is not at risk. Only the presence of the virus (through RNA testing) puts a pregnancy at risk. Presence of positive antibodies to the virus likely means she is immune to further infections.
Prevention Precautions

The best way to avoid infection is through prevention of exposure to Zika.

- Avoid mosquito bites.
- Wear clothes covering exposed areas.
- Use a repellent with “DEET” (a brand of diethyltoluamide, a colorless oily liquid with a mild odor, used as an insect repellent. See CDC Fact Sheet on Deet.
- Stay indoors with air-conditioning or in screened-in areas.
- Treat clothes with Permethrin (a synthetic insecticide of the used chiefly against disease-carrying insects). See the National Pesticide Information Center for more.
Information.

Travel

Before you plan a trip or travel, we suggest you visit the [Centers for Disease Control Travel Site](https://www.cdc.gov/travel/). The CDC provides the most up-to-date travel information and reviews the current at-risk locations for Zika.

Hopefully, you will find this information helpful and reassuring to your present and future reproductive plans. Should you have any additional questions, Email.

References and Resources


Questions and Answers Zika Virus Infection and Pregnancy. (2016, April 19). Retrieved from [Centers for Disease Control and Prevention](https://www.cdc.gov/)


Seven Other Zika Resource Links

1. [Centers for Disease Control and Prevention](https://www.cdc.gov/)
2. [New England Journal of Medicine](https://www.nejm.org/)
3. [The BMJ](https://www.bmj.com/)
4. [Elsevier Zika Resources](https://www.elsevier.com/)
5. [The Lancet Zika Collection of Resources](https://www.thelancet.com/)
6. [Oxford University Press Zika Collection](https://www.oup.com/)
7. [PLOS Journal Zika Collection](https://www.plos.org/)

Four Emergency Bulletins from the CDC

1. [Update: Interim Guidelines for Prevention of Sexual Transmission of Zika Virus — the United States, 2016](https://www.cdc.gov/)

2. Zika Virus Emergency Use Authorization
3. US Department of Health & Human Services
   Disaster Information Management Research Center
4. World Health Organization (Zika Information)