

A to Zika: Everything You Need to Know About Zika Virus

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This little known virus has been capturing headlines around the world since mid-2015.

Zika virus has been a source of public anxiety since November when Brazilian officials tentatively linked this illness to an increased incidence of a birth defect called microcephaly. Authorities in many countries have issued statements warning pregnant women to take extra precautions against Zika virus infection or avoid pregnancy altogether due to the threat of Zika virus. And the US CDC issued a series of “Alert - Level 2” travel advisories for Zika-affected countries in the Americas, recommending that pregnant women consider postponing nonessential travel or consult with a doctor to discuss specific risk factors while traveling.

Until recently Zika virus was considered only a minor nuisance, since most people never realize they are sick or that they have anything more than a cold or the flu. Even the suggestion of a connection between infection and birth defects has seriously increased concern among experts, officials, and the public, though.

Remember, though, that – even if researchers confirm the link between Zika and microcephaly – only a small fraction of infections seem to lead to birth defects. Furthermore, the same precautions travelers should already be taking to prevent infection by dengue fever, chikungunya, and malaria will also reduce the risk of Zika virus infection when traveling in affected areas. And, as always, all travelers should visit a doctor prior to departure to discuss the specific health risks they may face while away from home.

What Are Officials Saying?

On Jan. 15, the US CDC issued a series of Zika virus-related “Alert - Level 2” travel advisories out of an abundance of caution. These notices affect Mexico and approximately 15 countries in the Caribbean, Central America, and South America so far, but additional countries could be added as Zika virus spreads through the region.

Canadian health authorities have issued similar recommendations, as have officials in Hong Kong. Media had previously suggested that the CDC could recommend that pregnant women – or potentially all women of child-bearing age – avoid travel to areas of Latin America that are or could be experiencing Zika virus activity.

The actual travel notices, though, try to strike a balance between protecting unborn children from a new and poorly understood disease and avoiding unnecessary or disproportionate economic damage to Zika-affected countries.

The CDC has not recommended that all travelers defer nonessential travel to countries experiencing Zika virus activity, as it did for Guinea, Liberia, and Sierra Leone due to Ebola during 2015. These advisories did not even

recommend that all women avoid travel to Zika-affected areas. Instead, the CDC has urged – out of an abundance of caution – that that women who are pregnant consider postponing travel to Zika-affected areas or consult with their doctor prior to departure in order to discuss specific, enhanced mosquito bite preventions.

Furthermore, the CDC recommends that women who are trying to get pregnant also talk to their doctor before departure. Finally, all travelers, but especially pregnant women or women who may become pregnant, should take precautions against mosquito bites.

How Can I Protect Myself?

If you are planning a trip to any Zika-affected country – such as during the upcoming 2016 Summer Olympic Games in Rio de Janeiro, Brazil – follow these guidelines:

Visit a doctor – ideally, a doctor specializing in travel medicine – prior to departure to discuss the relative threat of Zika virus infection at your destination. This is especially important if you are pregnant or may become pregnant while traveling.

Use insect repellent containing at least 20-percent or more DEET. Non-DEET alternatives are also available – such as picaridin, oil of lemon eucalyptus, or IR3535 – but the concentration of these products must generally be higher than DEET to provide the same level of protection. Be sure to follow the specific instructions on the repellent you use, to make sure that you maintain protection at all times.

As weather permits, wear long sleeves, pants, socks, and hats to cover as much skin as is comfortable. The more skin you cover with clothing, the less opportunity disease-carrying mosquitoes have to bite you. Clothing can also be treated with permethrin to provide additional protection against mosquitoes.

Prevent mosquitoes from coming indoors. Whenever possible, stay in rooms that are air-conditioned or that have intact window and door screens. Routinely check rooms for mosquitoes, and use indoor insecticide sprays and/or traps to kill any mosquitoes that come inside. Monitor yourself for signs of fever, vomiting, or aches and pains. If you get sick while traveling in a Zika-affected area or shortly after returning home – especially if you were pregnant during your trip or suspect you might have become pregnant – seek medical attention, and be sure to inform your doctor that you may have been exposed to Zika virus.

What is Zika Virus?

Zika virus is a mosquito-borne disease closely related to dengue fever, chikungunya, and West Nile virus. Like dengue fever and chikungunya, Zika virus is transmitted by Aedes mosquitoes. These insects breed quickly near human homes and workplaces, and diseases spread by Aedes mosquitoes are often highest in urban areas.

Experts have long known that, in rare cases, an infected mother can pass the virus on to her unborn child, and research has suggested that Zika virus can also be transmitted sexually in some cases. However, most cases of Zika virus are contracted after the patient is bitten by a mosquito that previously fed on someone else who has Zika virus.

In general, Zika virus infections are mild, and the US CDC reports that only about one in five people infected by Zika virus ever get sick. These people usually suffer relatively mild symptoms like fever, rash, red eyes, joint and muscle pain, headache, and vomiting. The symptoms usually last for several days to a week before going away on their own.

Hospitalization for Zika virus infection has only been reported in rare cases, and no Zika-related death had ever been corroborated prior to the Brazil microcephaly epidemic in 2015 (more on this later).

Zika virus was first discovered in Uganda in 1952. However, confirmed Zika virus infections remained rare until 2007. That year, officials reported a significant outbreak on the island of Yap in Micronesia, and research has suggested that as much as 73 percent of all residents on the island were infected during this outbreak. Authorities also reported notable outbreaks of Zika virus in the South Pacific countries of French Polynesia, Cook Islands, and New Caledonia 2013-2014.

2014 also saw the first known instance of local Zika virus transmission in the Americas: Officials reported an outbreak of nearly 50 cases on Easter Island, Chile during early 2014. However, Zika virus activity in the Americas surged during 2015 following the April identification of locally acquired infections in northeastern Brazil.

Since April, officials had reported at least sporadic local Zika virus infections in at least 20 countries in the Americas. Disease activity has been most widespread in the tropical countries of Brazil and Colombia, but infections have been identified as far north as Mexico and Puerto Rico. US officials also reported at least eight known imported Zika virus cases during 2015, followed by imported cases in the states of Florida, Hawaii, Illinois.

Because of the presence of mosquitoes that can transmit the disease, many experts have speculated that such imported cases could lead to limited local Zika virus activity in Texas or other parts of the southern US – as the state of Florida experienced limited local chikungunya activity in 2014.

Growing Links to Zika Virus and Neurological Conditions

Such rapid spread of a little-known disease is scary enough. Media cycles during 2014 were similarly fixated on the introduction and spread of chikungunya in the

Americas. Recent coverage of Zika virus, though, has focused mainly on the possibility that Zika virus infection can lead to neurological issues, including birth defects. This is not the first time experts have suggested that Zika virus can cause neurological side effects. Previous outbreaks in French Polynesia during 2013 and 2014 suggested an association between Zika virus infection and Guillain-Barré syndrome.

Officials have likewise reported increases in Guillain-Barré syndrome in El Salvador and in Venezuela. Zika virus and other related diseases were not previously thought to cause birth defects, but previous research did suggest that severe chikungunya infection during pregnancy could lead to neurological effects in children.

Nevertheless, in 2015, Brazilian officials reported more than 3,530 cases of the birth defect microcephaly, which causes babies to be born with significantly reduced head size and often leads to developmental disorders or death. This statistic compares to an average of just 150 cases each year 2010-2014.

Most microcephaly cases in 2015 were reported in northeastern Brazil, especially the states of Pernambuco, Paraíba, and Bahia. Experts have cautioned that the link between Zika virus and microcephaly remains under investigation. For example, Zika virus reporting has not been mandated in Brazil, making it impossible to determine whether microcephaly cases are highest in areas experiencing the most Zika virus activity. However, researchers in Brazil found evidence of Zika virus in amniotic fluid from two pregnant women whose unborn babies had been diagnosed with microcephaly in November.

In January, researchers at the US CDC likewise found evidence of Zika virus in brain and placenta tissue from Brazilian newborns who had died of microcephaly. However, very few microcephalic children have been laboratory-tested for Zika virus infection so far, and the link between Zika virus and microcephaly remains far from certain.

Furthermore, no other country experiencing widespread Zika virus activity – such as Colombia – has observed any such increase in microcephaly cases so far, but health officials in the US state of Hawaii reported on Jan. 16 that a baby had been born on the island of Oahu with microcephaly after the pregnant mother had traveled in Brazil during May.

Zika virus and its potential link to neurological conditions and birth defects have caused significant international anxiety in recent months. Remember, though, that the same precautions travelers should already be taking to prevent infection by other mosquito-borne diseases will also reduce the risk of Zika virus infection when traveling in affected areas. And, again, all travelers should visit a physician prior to traveling to understand the specific

health risks for their particular destination and unique health status.

Overview

Zika virus is a disease spread to humans through mosquito bites. Symptoms of Zika virus infection closely resemble the early symptoms of dengue fever infection, which can complicate diagnosis and treatment. However, Zika virus cases are usually mild and resolve without the need for hospitalization.

Zika virus activity is most common in Africa and Southeast Asia. However, the *Aedes* mosquitoes that transmit Zika virus are found in tropical and subtropical areas throughout the world. International travel has led to new Zika virus outbreaks through the South Pacific the Americas during recent years.

Signs and Symptoms:

- Only about 20 percent of people infected with Zika virus develop symptoms.
- Common symptoms include fever, rash, joint pain, and red eyes.
- Other symptoms include muscle pain, headache, pain behind the eyes, and vomiting.
- Zika virus illnesses are usually mild and last less than one week. Severe disease requiring hospitalization is rare.

- Emerging research has suggested that Zika virus infection during pregnancy can lead to birth defects, such as microcephaly.

Prevention:

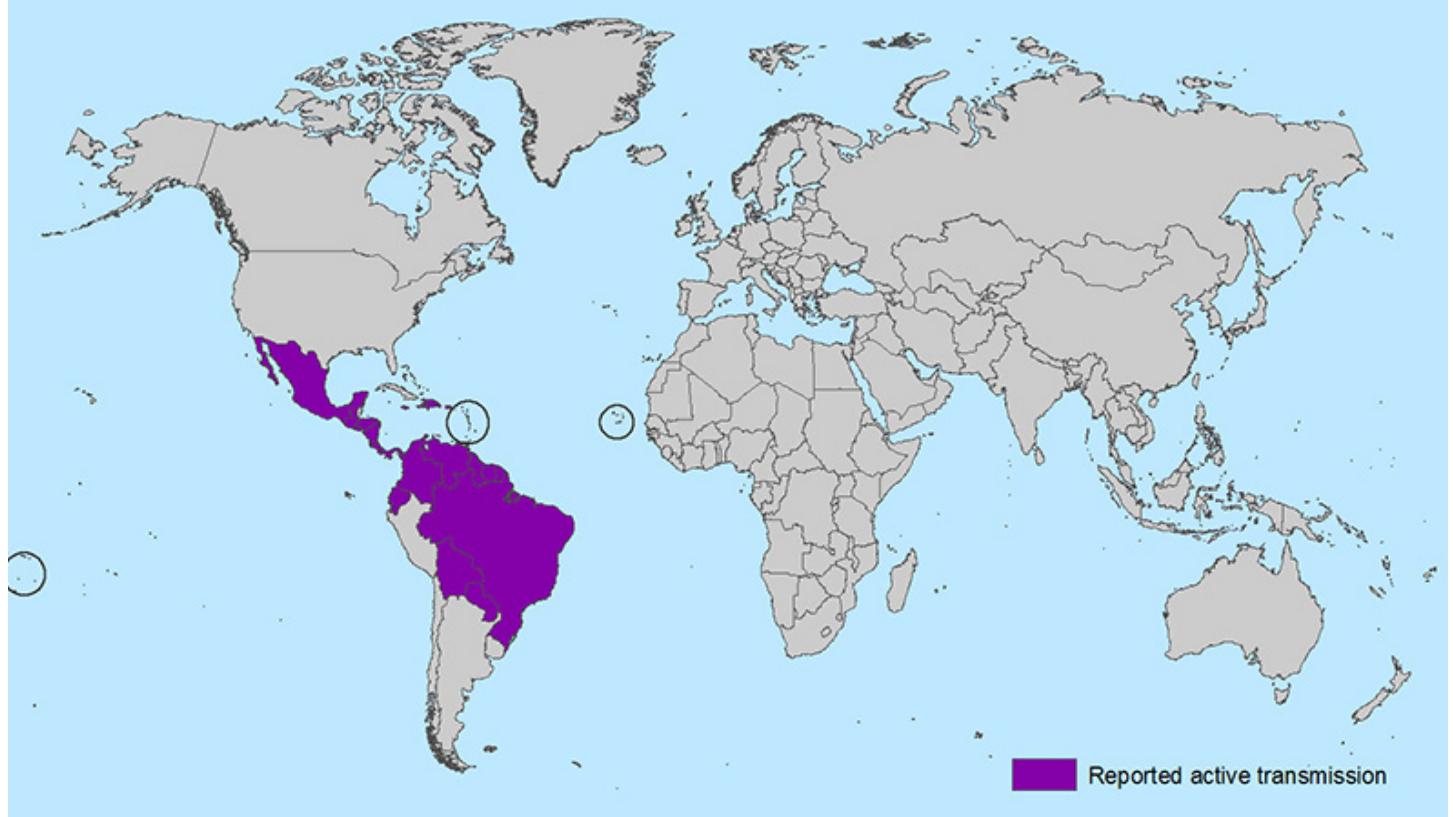
- No vaccination exists for Zika virus.
- Reduce the amount of exposed skin that mosquitoes can bite: Wear long sleeved shirts and pants, socks, and shoes, and consider wearing a hat.
- Use insect repellent containing DEET, picaridin, or IR3535 on remaining exposed skin.
- When possible, eradicate mosquito breeding areas by eliminating standing water.
- Use air conditioning or secure screens on windows and doors to prevent mosquitoes from entering the home or workplace.

Treatment:

- Take medicines such as acetaminophen or paracetamol to relieve fever and pain.
- Avoid taking aspirin or other non-steroidal anti-inflammatory drugs (NSAIDs) until dengue fever has been ruled out.

Affected Areas

Countries and territories with active Zika virus transmission



AMERICAS

Barbados
Bolivia
Brazil
Colombia
Commonwealth of Puerto Rico, US territory
Costa Rica
Curacao
Dominican Republic
Ecuador
El Salvador
French Guiana
Guadeloupe
Guatemala
Guyana
Haiti
Honduras
Jamaica
Martinique
Mexico
Nicaragua
Panama
Paraguay
Saint Martin
Suriname
U.S. Virgin Islands
Venezuela

OCEANIA/PACIFIC ISLANDS

American Samoa
Samoa
Tonga

AFRICA

Cape Verde

Insect Precautions

Immunizations and medications may afford the traveler protection against some travel-related diseases transmitted by insects, such as yellow fever and malaria, but there are many other serious diseases transmitted by insects that require careful avoidance and use of protective measures. Travelers visiting rural areas or engaging in camping, hiking, or adventure travel are at the greatest risk of exposure to mosquitoes, ticks, mites, fleas, and other disease-carrying insects; but even urban visitors need to take precautions to avoid insect exposure in some areas.

General Protective Measures

Know the disease risks in the area of travel, the insects that transmit diseases, and times of highest activity. For example:

- Dengue fever is transmitted by mosquitoes active during the day and usually present in urban areas.

- Sand flies transmit leishmaniasis and are commonly active in forested areas from dusk to dawn.
- Mosquitoes that transmit malaria are active from dusk to dawn.

Cover as much skin as possible; wear long sleeves, long trousers, socks, shoes/boots, and a hat. Avoid sandals, and tuck shirts into pants and pant legs into socks.

Perform body tick checks at the end of the day when traveling in areas with tick-borne diseases.

Sleep in protected areas with screens or air conditioning, or use a permethrin-impregnated sleeping bed net. Ensure there are no tears in the netting and that it is tucked in securely around the bed area. Check and eliminate any mosquitoes from inside rooms and sleeping areas prior to retiring. This is especially important in areas with malaria.

Insecticide sprays may be used to clear rooms of mosquitoes. Coils should only be used outdoors; avoid using coils that contain DDT. Be aware that many foreign-produced repellents and insecticides are extremely toxic.

Use an insect repellent that contains DEET (around 35 percent) on exposed areas of skin and on clothing. Avoid eyes and inhalation of the spray. DEET formulations as high as 50 percent are recommended for both adults and children older than 2 months of age. Repellent products that do not contain DEET are not likely to offer the same degree of protection from mosquito bites as products containing DEET. Other types of repellents have not necessarily been as thoroughly studied as DEET and may not be safer for use on children. The recommendations for DEET use in pregnant women do not differ from those for nonpregnant adults.

Repellents containing permethrin can be sprayed on clothing, bed nets, and camping gear. This is an effective repellent for mosquitoes, ticks, and other insects. Permethrin remains effective even with repeated washings.

Access a full discussion of repellents at: <http://www.cdc.gov/travel/yellowBookCh2-InsectsArthropods.aspx>.



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