

# What You Should Know About Zika Virus



## What is Zika virus and how does it spread?

Zika virus (ZIKV) was first discovered in 1947 in the Zika Forest of Uganda. Shortly thereafter, it was isolated from mosquitoes and then humans in 1968. ZIKV is a flavivirus similar to yellow fever, dengue, Japanese encephalitis, and West Nile virus. Prior to 2007, it had only been detected in central Africa and throughout southeast Asia. However, in 2007, it was associated with a disease outbreak on Yap Island in the south Pacific, representing the first time it had spread outside of Asia. From there, it spread to South America with human cases first reported in 2014.

ZIKV is transmitted by *Aedes* mosquitoes. In the Americas, it has only been linked to transmission by *Aedes aegypti*. *Ae. aegypti* is also responsible for the transmission of dengue virus, yellow fever virus, and chikungunya virus. Recently in Africa, the virus was detected in *Aedes albopictus*, or the Asian tiger mosquito; hence, it is likely that *Ae. albopictus* could vector the virus in the Americas.



## Symptoms of Zika Infection

- Typically, people with ZIKV infection begin showing symptoms with a mild headache.
- Within a day or two, a maculopapular rash may appear and can cover many parts of the body (arms, hands, face, and chest).
- Following the rash, people generally report continued fever, malaise, and body aches.
- Other symptoms can include diarrhea, constipation, abdominal pain, and dizziness.

## Treatment of Zika Infection

- Treatment includes rest and the use of acetaminophen to relieve fever.
- Patients should also be advised to drink plenty of fluids if diagnosed.
- If anyone has recently traveled to a known endemic area and are displaying any of the symptoms of Zika infection, they should consult their physician immediately.

## Concerns with Pregnancy and Perinatal Infections

If a pregnant woman is infected with Zika virus, it may result in microcephaly, a birth defect causing underdevelopment of the head and brain in newborn children. However, the link between ZIKV and infant microcephaly is poorly understood at this time.



## >>> More about *Aedes aegypti*



*Ae. aegypti*, the yellow fever mosquito, is characterized by a silvery-white “lyre-shaped” pattern of scales on its body. It is a peridomestic species found not far from human dwellings, and is particularly abundant in towns and cities. They are primarily early morning or late afternoon feeders, but females can also take a bloodmeal at night under artificial illumination. *Aedes aegypti* is reported to fly only a few hundred yards from breeding sites. Larvae can be found in a variety of artificial containers, including buckets, tires, cans, and flower pots.

# Zika and *Aedes aegypti* in the United States

As of February 2016, most US cases were imported from travelers who contracted the virus in other countries and returned to the US while infected. One of the factors accelerating spread of Zika virus throughout the Americas could be that it does not appear to require an animal reservoir host, like West Nile virus. In other words, non-infected mosquitoes are able to acquire the virus after feeding directly on infected humans. In essence, there is no “middle man” in the endemic cycle of ZIKV, allowing it to spread rapidly where abundant, competent vector mosquitoes and humans are present together.

## United States Areas of Risk

A portion of the United States is at the highest risk because of climate and the presence of *Aedes* mosquitoes. Both *Ae. aegypti* and *Ae. albopictus* are limited in their distribution in the US. Therefore, it is unlikely that ZIKV will become a disease that circulates in the local mosquito populations throughout the US like West Nile virus, but select areas of the US are at high risk. Please refer to the figure to the right for a map depicting each mosquito's US distribution.

Approximate distribution of *Aedes aegypti* in the US\*



Approximate distribution of *Aedes albopictus* in the US\*



\*These maps are courtesy of the Centers for Disease Control and Prevention (CDC) and were developed using currently available information. *Aedes aegypti* and *Ae. albopictus* populations may be detected in areas not shaded, and may not be consistently found in all shaded areas.

## Controlling *Aedes aegypti/albopictus* and Zika virus: How VDCI can help

VDCI recommends a 4-pronged approach for an effective mosquito control strategy designed to target all phases of the mosquito's life cycle.

**Note: It is especially important to take action in communities where a Zika Virus case has been imported by humans. Acting early may prevent local transmission of the disease in mosquitoes and further spread of the disease.**

### 1 Public Education



Community understanding of mosquito sources and how to properly “mosquito-proof” homes is critical. Furthermore, educational pieces that encourage individuals and families to seek prompt medical care when Zika virus is detected in a community should be distributed.

### 2 Surveillance



Adult mosquito surveillance will determine the mosquito distribution, density, and species composition throughout the target area. It will also provide direct evidence of an increased transmission risk of Zika virus.

### 3 Larval Mosquito Control



When mosquito larvae are detected in an area, trained and experienced ground crews preferentially apply *Bacillus thuringiensis* var *israelensis* (Bti) to all areas of standing water, stagnant pools, and water-holding containers.

Aerial and ground application of larvicide via ULV equipment can provide control in hard to reach container habitats.

### 4 Adult Mosquito Control



VDCI recommends the deployment of two-person teams to conduct targeted ULV applications combined with residual “barrier” applications via backpack applicators to mosquito harborage areas near homes and

other structures. When combined with our larvicide efforts, these applications have proven highly effective at significantly reducing local populations of the target mosquitoes.



For more information on mosquito surveillance, disease testing, or adult control, contact Vector Disease Control International (VDCI) at **800-413-4445** and we will help you get started immediately.