National Pest Alert

Zika Virus

Zika Virus Transmission

Zika, a mosquito-transmitted virus, has recently been reported in North America from travelers who have returned from areas where the virus is present. The primary means of transmission is from the bite of infected female *Aedes* mosquitoes. Other modes of transmission that have been documented include blood transfusion, sexual contact, and rarely, from mother to child.

To date, all cases of humans infected with the Zika virus in the U.S. have contracted it from mosquitoes while traveling to countries where the Zika virus is present or through sexual transmission from an infected partner. The primary mosquito vector appears to be the yellow fever mosquito, *Aedes aegypti,* although a number of other *Aedes* species are known to serve as vectors capable of transmitting the disease to humans including the Asian tiger mosquito (*Aedes albopictus*).

Origin of Zika

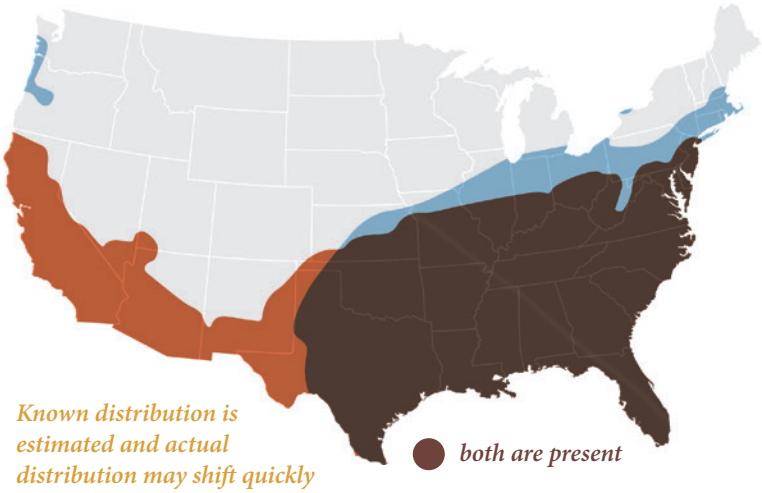
Zika was first isolated in 1947 in Uganda's Zika Forest in Africa where it was discovered in a rhesus monkey. The virus remained relatively unknown until a large outbreak occurred in Micronesia in 2007. Scientists believe the Zika virus mutated into the 2007 increased virulence strain from the original strain found in Uganda. Since 2007 the virus has rapidly spread through the Pacific Islands and in 2015 it appeared in South America.

Mosquito Life Cycle

Mosquitoes are classified into the order Diptera (true flies) and have four distinct life stages (egg, larva, pupa, and adult). Female mosquito species known to transmit Zika virus lay their eggs on moist surfaces such as the interior walls of treeholes, cans, bromeliad plants, various types of containers, and old tires that are likely to be flooded by water. Most larvae hatch within 48 hours and the larvae and pupae live in water. The adult mosquito emerges from the pupal case and rests on the water's surface until its body dries and its exoskeleton hardens. Male and female mosquitoes generally feed on flower nectar. Female mosquitoes require a blood meal before they can lay eggs, so only female mosquitoes bite. They bite every few days during their entire adult lives, which may last several weeks.

Ed Freytag

Aedes aegypti *Aedes albopictus*



both are present

Known distribution is estimated and actual distribution may shift quickly due to mosquito movement and weather patterns.

Mosquito Prevention and Control

You can most effectively reduce the number of mosquitoes around your home and neighborhood by eliminating the standing water in which mosquitoes require to complete their development cycle.

- Dispose of any refuse that can hold water, such as tin cans, containers, and in

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USDA United States Department of Agriculture National Institute of Food and Agriculture

particular, used tires. Tires have become the most important developmental sites for Zika-transmitting mosquitoes in the U.S. Even small containers holding less than one cup of water are sufficient for the development of these mosquitoes.

- Drill holes in the bottoms of recycling containers and check uncovered junk piles.
- Clean clogged roof gutters every year, and check storm drains, leaky outdoor faucets, and window wells. Fallen leaves and other organic debris indirectly provide food for mosquito larvae.
- Prevent the accumulation of standing water and empty water from wheelbarrows, boats, cargo trailers, pet dishes, toys, saucers underneath flower pots, and ceramic pots. If possible, turn these items over when not in use.
- Do not allow water to stagnate in birdbaths, ornamental pools, water gardens, and swimming pools or their covers. Ornamental pools can be aerated or stocked with fish. Swimming pools should be cleaned and chlorinated when not in use.
- Alter the landscape of your property to eliminate standing water. *Keep in mind that during warm weather, mosquitoes can develop in any puddle of water.* Larvicides are highly effective in controlling immature mosquitoes and should be considered when standing water cannot be eliminated.

Protect Yourself from Bites

Even though your property may lack mosquito-developmental sites, mosquitoes can travel 2 to 3 miles from their aquatic habitat site in search of a blood meal. Therefore, it may be necessary to supplement larval control with other control measures directed at adult mosquitoes. The following tips can help to reduce your risk of being bitten by a mosquito:

Make sure window and door screens are "bug tight." Window screening is made to keep out mosquitoes, so repair any holes or tears. Install weather-stripping to keep mosquitoes from entering around loose fitting doors and windows.

Use the proper type of light outside: incandescent lights attract mosquitoes, whereas fluorescent lights neither attract nor repel mosquitoes.

Aedes species associated with the Zika virus are considered "day" biters so protect yourself whenever outside or in the presence of mosquitoes. Long-sleeved shirts and long pants provide some protection against bites.

Insect repellents when applied according to the label directions to exposed skin deter mosquitoes from biting. Spray thin clothing with repellent because mosquitoes can bite through it. Various repellents differ in how they are formulated. Some are labelled for application to skin only, some can be applied to clothing only, and some are labeled for both skin and clothing. It is important to read the label of the product to determine how it should be applied. The American Academy of Pediatrics recommends that repellents used on children contain no more than 10 percent DEET, the active ingredient in mosquito repellents. The Centers for Disease Control guidelines state that pregnant women are not excluded from using EPA-registered repellents. Be sure to follow all directions on product labels.

Symptoms of the Zika Virus

Most humans infected with Zika have very mild or no symptoms so many individuals may not realize they are infected with the virus. A small number of infected individuals (1 in 5) develop mild symptoms that include fever, joint pain, conjunctivitis and a body rash. Symptoms typically occur 2 to 7 days following the bite from an infected mosquito. More severe symptoms may occur in some individuals including paralysis. Researchers are investigating the link between the Zika virus and birth defects including microcephaly.

The World Health Organization and the Centers for Disease Control and Prevention are tracking the distribution of the virus and recommending some individuals including pregnant women refrain from traveling to areas where the virus is present. State health departments and university extension personnel may have mosquito control and detection programs for your state.

For more information about the Zika virus, mosquito control recommendations, and state resources visit the Centers for Disease Control website at: **cdc.gov/zika**

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