

Seven things you should know about Zika virus

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The Zika virus outbreak and related health issues—including an observed increase in neurological disorders and neonatal malformations in Brazil—led World Health Organization officials to declare a Public Health Emergency of International Concern on Feb. 1.

How concerned should you be about Zika virus? What research is being conducted on the virus? Is a vaccine the best or only approach to

containing the virus?

Scientists in Colorado State University's Arthropod-borne and Infectious Diseases Laboratory are among the nation's experts on these topics, and they've provided responses to some of these questions, and more.

What's an arthropod? It's a member of the family of insects, spiders and crustaceans that have no backbone, a segmented body, jointed legs or limbs and an external skeleton or exoskeleton.



CSU's Rebekah Kading at work. Kading's research once took her to the Zika forest in Uganda.

7 facts about the Zika virus

1. The *Aedes aegypti*, known as the "rat" of the mosquito world, is the main culprit spreading the virus. This mosquito lives in tropical environments and feeds mostly, if not exclusively, on human blood, said Rebekah Kading, CSU assistant professor in the Department of Microbiology, Immunology and Pathology.

"Aedes aegypti is known to feed more frequently, which leads to more [virus transmission](#)," she said. It has everything it needs in a household environment and it is very well-adapted to being around people. In its early stages, the mosquito develops in containers of water.

2. People who have had Zika virus describe the symptoms as similar to having a migraine. Brian Foy, associate professor in the Department of Microbiology, Immunology and Pathology, said when he came down with the Zika virus in 2008, he had a really bad headache and that light bothered his eyes. He also had arthritis-like pain in his wrists, ankles and thumb joints. "Having the flu was much worse," Foy said. "But everybody is different."
3. To prevent mosquito bites in general, use insect repellent and consider using one with DEET, which experts say provides the best protection against mosquitos. Kading said that you should dump water standing in containers in or near your home and wear long sleeves and pants if you're heading to a place that has mosquitos. If you really want to play it safe, wear a hat with netting that covers your head. Kading said that when she was conducting research on mosquitos in salt marshes on the East Coast, she bundled up and sported a head net.
4. It is highly unlikely that we'll see mass outbreaks of Zika virus in large parts of the United States because the country lacks the tropical climate that has supported the recent, explosive spread of Zika virus in Central and South America. Foy said it's likely that the virus will spread in limited parts of the country when the weather warms up. To date, there have been about 30 confirmed cases of Zika virus in the U.S.; all stem from people traveling overseas. Foy said since most Americans have screens in their windows or air conditioning, the chance of being bitten by a mosquito is decreased; the insects can't transmit virus if they are shut out. "But we have to be vigilant," he said. In Colorado, "local transmission is not likely at all," Foy said. "We don't have

the *Aedes aegypti*."

5. The Gulf Coast of the United States—which includes the coasts of Texas, Louisiana, Mississippi, Alabama and Florida—is susceptible to an outbreak and people with a lower socioeconomic status will be most affected, said Greg Ebel, associate professor in the Department of Microbiology, Immunology and Pathology, and director of CSU's Arthropod-borne and Infectious Diseases Laboratory. As Foy pointed out, people with air conditioned homes are less likely to be bitten by mosquitos.
6. There is some evidence that the virus can be transmitted sexually. Foy has been interviewed by journalists around the world about "Probable Non–Vector-borne Transmission of Zika Virus," a study published in *Emerging Infectious Diseases* in 2011. In this paper, he described an anonymous scientist who came down with Zika virus and transmitted the virus to his wife (Zika virus was not immediately confirmed because medical staff were not looking for it). An enterprising reporter for *Science* deduced that the anonymous researcher was Foy, who admitted that was the case. Based on circumstantial evidence, the transmission was through sexual intercourse. In addition, researchers isolated Zika virus in a man's semen during an outbreak in the South Pacific islands.
7. Potential solutions for stopping the Zika virus go beyond developing a vaccine. Foy said that there is new, interesting technology that aims to stop the virus spread within mosquitos. In addition, researchers are trying to target infected mosquitos instead of the entire population. There are also new genetic strategies aimed at tackling the virus. "We are eager to get research implemented in the field," said Foy, who is collaborating with Richard Bowen, professor in the CSU Department of Biomedical Sciences, on research to identify an animal model to better study the Zika virus. More recently, on

Feb. 2, Dallas County Health and Human Services confirmed the first Zika [virus](#) case acquired through sexual transmission.

Provided by Colorado State University

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