

# Why Zika risk is low for Olympic athletes in Rio

July 8 2016, by Carol Clark

---



An aerial view of Rio de Janeiro, host of the 2016 Summer Olympics. "August is the winter season in Rio, when mosquito populations are at their lowest," says Emory disease ecologist Uriel Kitron.

Some health professionals have lobbied to postpone the upcoming Rio de Janeiro Olympics due to the risk of the Zika virus, which is spread by

mosquitos and – less commonly – through sexual intercourse. Other experts disagree that Zika poses a significant enough threat to warrant changing the venue or date of the games, set for August 5 to August 21.

"The risk of Zika infection in Rio during the Olympics is very low," says Uriel Kitron, chair of Emory's Department of Environmental Sciences and an expert on mosquito-borne diseases. "But if you are pregnant, or are thinking of getting pregnant right now as part of a couple, then you may want to consider even this low risk of transmission, given the potential serious complications."

He refers travelers to the current advisory of the Centers for Disease Control and Prevention. The CDC advises women who are pregnant "to consider not going to the Olympics," due to the link between Zika infections and severe birth defects. The CDC also recommends special precautions for men and women to practice safe sex following any possible exposure to the Zika virus.

When Zika popped up in Brazil last year, Kitron already had ongoing research projects in the country focused on how urban [mosquitos](#) spread the viruses of dengue and chikungunga. The population had no immunity to Zika and the virus swept like wildfire through the country. Kitron and his Brazilian colleagues quickly expanded their research to include cases of Zika, which can cause a rash and relatively mild illness, although most of those infected have no symptoms at all. It was not until months later that the more insidious effects of the Zika virus became apparent.

Kitron and his colleagues completed one of the first epidemiological studies, now out in Emerging Infectious Diseases, showing the strong link between the epidemic curve of the outbreak and a spike in cases of Guillain-Barré syndrome and babies born with smaller than normal heads, a condition known as microcephaly.

In the following interview, Kitron discusses some of what is now known about this emerging infectious disease and why mosquito surveillance and control is currently the key to containing its spread.

## **Why do you think the risk is low for Zika virus transmission during the Olympics?**

For one thing, August is the winter season in Rio, when mosquito populations are at their lowest. And the areas where the athletes will be staying and competing are well-maintained, making Olympic visitors even less likely to encounter a mosquito.

The rates of Zika infection in Brazil have gone down drastically since last year, probably because the population now has herd immunity, so that further lowers the risk of transmission. Brazil is no longer the "hot spot" of the Zika pandemic. The horse has already left the barn as Zika has moved throughout Latin America and the Caribbean.

The U.S. territory of Puerto Rico, where an outbreak began more recently, currently has high rates of new Zika infections and summer is the high season for transmission.

## **What is the risk of contracting Zika virus from a mosquito in the United States?**

Unless you are in the U.S. territories of American Samoa, Puerto Rico or the U.S. Virgin Islands, the risk is very low for most of the United States and will likely remain very low.





The Nilton Santos stadium in Rio, one of several Olympic venues. Credit: Emory University

In the past, we have seen a few cases of locally transmitted dengue fever and chikungunya in South Texas and South Florida. The *Aedes aegypti* mosquito, the main vector of dengue, chikungunya and Zika, can be found in states bordering the Gulf of Mexico. The much more widespread *Aedes albopictus*, better known as the Asian tiger mosquito, has also shown that it can transmit these diseases, at least in a laboratory setting. *Aedes albopictus*, however, is not as effective as a vector.

We've greatly reduced the density of *Aedes aegypti* in most of the country. It feeds almost exclusively on humans, prefers a tropical climate and particularly thrives in dense neighborhoods with substandard

housing. People in warmer areas of the United States generally have window screens and air-conditioning.

While we could see limited transmission of Zika virus from mosquitos in the Gulf states, it would be unlikely to develop into intensive transmission. We have relatively better methods of disease surveillance and mosquito control in the United States, which is one reason why we haven't had a major outbreak of [dengue fever](#). So far, we have been able to catch cases early and control the spread.

## **Is the Zika virus a disease of the poor?**

Mosquitos bite everybody so it's not only the poor who are affected by diseases like dengue and Zika. But, of course, there are more mosquitos in poorer areas and less protection from them. So the poor are generally at much higher risk.

## **What are the prospects for effectively combating the Zika virus globally?**

I'm optimistic that we will have a vaccine for Zika within a few years because there is only one strain of the [virus](#), unlike the [dengue virus](#), which has many different strains.

People have proposed releasing genetically modified, sterile male *Aedes aegypti* mosquitos. The idea is they would compete with the wild sterile males to reduce populations of disease-carrying mosquitos. Genetically modified mosquitos might be one tool to fight mosquito-borne diseases, but I'm skeptical whether they would compete that well with other mosquitos in natural conditions. The jury is still out on that question.

For now, good mosquito surveillance and larvae control remain the keys

to prevent and contain outbreaks. It's generally much easier to control mosquitoes at the larval stage by eliminating breeding sites.

**A study led by the Emory Vaccine Center recently found that people infected with dengue virus develop antibodies that cross-react with Zika virus. Can you talk about how that relates to your ongoing epidemiological research in Brazil?**

I'm part of a collaboration with Brazilian scientists focused in Salvador, the capital of the Brazilian state of Bahia in the northeast region of the country.

We are continuing to study the epidemiology and ecology of the Zika, chikungunya and dengue viruses. We're particularly interested in the co-circulation of the three. What does it mean to have several arboviruses circulating among a population as far as the complications in humans? For instance, during the Zika outbreak last year in Bahia, we think there was more chikungunya circulating than was previously realized. And it's possible that the spike in Guillian-Barré cases may be more related to chikungunya.

It's important to gather data on the interactions of people, pathogens and disease vectors like mosquitos. Not only could it help us combat current outbreaks, the data may help us deal with the next emerging infectious disease.

**More information:** Igor A.D. Paploski et al. Time Lags between Exanthematous Illness Attributed to Zika Virus, Guillain-Barré Syndrome, and Microcephaly, Salvador, Brazil, *Emerging Infectious Diseases* (2016). [DOI: 10.3201/eid2208.160496](https://doi.org/10.3201/eid2208.160496)

Provided by Emory University

Citation: Why Zika risk is low for Olympic athletes in Rio (2016, July 8) retrieved 10 May 2024 from <https://medicalxpress.com/news/2016-07-zika-olympic-athletes-rio.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.