

Researchers find first direct evidence that *A. aegypti* mosquito transmits Zika virus

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Credit: University of Texas Medical Branch at Galveston

In collaboration with colleagues from Mexico, University of Texas Medical Branch at Galveston researchers were the first to directly connect the *Aedes aegypti* mosquito with Zika transmission in the Americas, during an outbreak in southern Mexico. The findings are available in the *Journal of Infectious Diseases*.

The findings will help scientists to better target efforts for controlling the population of [mosquitoes](#) carrying the Zika virus.

In early 2015 the first Zika infections were described in Brazil,

harbingers of an explosive hemispheric epidemic. As of July 2016, local Zika infections have been reported in 39 countries and territories in the Americas, with the epidemic spreading throughout most of northern South America and nearly all of Central America and the Caribbean. Many countries in North America and Europe have also reported hundreds of imported cases.

"Because several experimental studies have suggested that *A. aegypti* is not highly susceptible to Zika [virus infection](#) and there has been a lack of direct evidence of *A. aegypti* infection during outbreaks, some scientists have speculated that other common tropical urban mosquitoes such as *Culex quinquefasciatus* could be involved," said UTMB professor Scott Weaver, senior author of this paper. "We sought to more directly investigate which mosquito is responsible for spreading Zika virus so that we can selectively tailor our mosquito control efforts to a specific mosquito species' habits."

The signs and symptoms of Zika infection are similar to the mosquito-borne diseases chikungunya and dengue. However, near the beginning of the outbreak in November of 2015 physicians in communities on the Mexico-Guatemala border reported to the Centro Regional de Investigacion Salud Publica an increase in the number of patients showing signs and symptoms thought to be different from those of chikungunya or dengue.

To investigate this outbreak further, during November and December last year, researchers from the Mexican National Institute of Public Health completed a house-to-house survey to identify patients who met the World Health Organization case definition of Zika virus infection in several locations in the state of Chiapas.

The researchers collected 119 blood samples with permission from people suspected of Zika virus infection. Zika virus was confirmed in 21

percent of the blood samples using a PCR-based test. No pregnant females were studied.

The researchers also gathered adult mosquitoes in and around 69 homes of suspected Zika patients using backpack aspirators, and identified Zika virus in several samples of *A. aegypti* but not in other mosquito species.

"Our study indicates that *A. aegypti* was the principal carrier of Zika virus in the Tapachula area of Chiapas State, based on the detection of virus in several mosquito pools and the prior demonstrated transmission competence of this species of mosquito," said Weaver. "It's important to note that Zika was not found in *C. quinquefasciatus*, another common urban tropical mosquito discussed as a potential Zika vector."

More information: *Journal of Infectious Diseases*,
[jid.oxfordjournals.org/content ... fdis.jiw302.full.pdf](http://jid.oxfordjournals.org/content/.../fdis.jiw302.full.pdf)

Provided by University of Texas Medical Branch at Galveston

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