
Zika arrived in the Americas two years earlier than thought

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The discovery, and recent changes in human migration, suggest that Zika's rampage could soon be repeated by other, now-obscure viruses circulating in the southern hemisphere.

Zika is a virus carried by *Aedes* mosquitoes. It is native to Africa but had spread to South-East Asia by the 1960s. In 2007, it jumped to the Micronesian island of Yap, and in 2013 it appeared in French Polynesia and other Pacific islands.

It was reported for the first time in the Americas in Brazil in May 2015 and has since infected hundreds of thousands of people in [33 countries](#). It has been linked to a neural disorder, [Guillaine-Barré syndrome](#), and a huge increase in [microcephaly](#) and [other birth defects](#) in babies born to women infected while pregnant, a phenomenon [also seen in Polynesia](#).

"In less than a year, the status of Zika has changed from a mild medical curiosity to a disease with severe public health implications," Margaret Chan, head of the World Health Organization, said this week. "The more we know the worse things look."

Retracing its path

Oliver Pybus of the University of Oxford and colleagues have compared the genetic sequences of seven Zika viruses from Brazil with sequences from Polynesia. The Brazilian and Polynesian sequences are so similar that Brazil's infection is very likely to have come from Polynesia, they conclude.

What's more, the Brazilian viruses are so alike they probably descended from the same ancestor. "That means

one person with the infection was bitten by a mosquito and that chain of infection persisted," says Pybus.

Like all viral genes, Zika mutates as it spreads. Because mutations are acquired at a predictable rate, Pybus's team was able to use the genetic sequences to deduce when Zika first began circulating: sometime between May and December 2013.

The first case in the Americas could have been in Brazil – Polynesians coming for the FIFA Confederations Cup held in June would have provided ample opportunity for mosquitoes to pick up and spread the virus

However, we can't assume that the first case was in Brazil, cautions Pybus. There are two odd cases that suggest otherwise. Zika was found in blood taken in Haiti in 2014. And a pregnant woman from Switzerland who got married in the Dominican Republic – which shares an island with Haiti – in August 2013, gave birth to a boy with microcephaly, normally a very rare condition.

Migration explosion

In any case, it isn't too surprising it took two years to detect the virus, says Pybus. Its symptoms closely resemble those of dengue and chikungunya viruses, which were already circulating. And the first few generations of exponential spread of a virus involve very few cases – until numbers suddenly rocket.

Zika is unlikely to be the last continent-hopping virus. [Two years ago chikungunya](#), also carried by *Aedes* mosquitoes, jumped from Asia to South America. Pybus says that more and more people are travelling directly between countries in the southern hemisphere, which have mosquito breeding seasons at the same time, allowing someone to catch and spread the virus at either end of the trip.

According to the United Nations, people migrating for work in the global south have grown from 60 to 80 million a year since 2000, and now outnumber those migrating to the north.
