

Zika virus has potential to spread rapidly through Americas

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The Zika virus, possibly linked to serious birth defects in Brazil, has the potential to spread within the Americas, including parts of the United States, according to a research letter published in *The Lancet* today by Dr. Kamran Khan of St. Michael's Hospital in Toronto. Credit: Courtesy of St. Michael's Hospital

The Zika virus, possibly linked to serious birth defects in Brazil, has the potential to spread within the Americas, including parts of the United States, according to an international team of researchers who track the spread of infectious diseases.

The Zika virus, native to parts of Africa and Asia, has for the first time been introduced into the Americas where it is spreading locally among people who have not travelled abroad. There is no vaccine against the virus or [antiviral treatment](#).

"The summer Olympic Games in Brazil in August heighten the need for awareness of this emerging virus," Dr. Kamran Khan of St. Michael's Hospital wrote in a research letter published today in *The Lancet*.

Zika is generally a mild illness, spread by a day-biting mosquito. However, there is a worrisome,

but as of yet unproven, association of infected mothers in Brazil giving birth to babies with small heads and underdeveloped brains, Dr. Khan said. There has been a 20-fold increase in the number of babies born with this condition, known as microcephaly, since Zika first appeared in Brazil in May 2015.

The virus has since spread across more than a dozen countries in South and Central America and up into Mexico. A case was confirmed in Puerto Rico in December in an individual who had not recently travelled, meaning he or she was bitten by a local infected mosquito. The Centers for Disease Control say some travellers returning to the United States from Zika-affected areas have also been infected with the virus, which has the potential of allowing the virus to then spread locally.

To predict where Zika might spread, Dr. Khan and his team mapped the final destinations of international travellers leaving airports in Brazil from September 2014 to August 2015.

Of those 9.9 million travellers, 65 per cent were going to the Americas, 27 per cent to Europe and 5 per cent to Asia. Traveller volumes were greatest to the United States, followed by Argentina, Chile, Italy, Portugal, and France. China and Angola received the highest volume of travellers in Asia and Africa, respectively.

Members of the team from Oxford University mapped the global geography of (*Aedes* species) mosquitoes capable of transmitting Zika virus and then modeled the worldwide climate conditions necessary for the virus to spread between *Aedes* mosquitoes and humans. They estimated that more than 60 per cent of the populations of the United States, Argentina and Italy live in areas conducive to seasonal transmission of Zika virus. By comparison, Mexico, Colombia and the United States have an estimated 30.5 million, 23.2 million and 22.7 million people respectively living in areas

conducive to year-round Zika virus transmission.

Dr. Khan said that with no vaccine or antiviral therapy available, possible interventions include personal protection (i.e., repellent use); daytime avoidance of mosquito bites (especially by pregnant women until more is known about the association between Zika [virus](#) infection and microcephaly) and community-level mosquito surveillance and control measures.

"The world we live in is very interconnected now said Dr. Isaac Bogoch, a tropical infectious disease specialist at the Toronto General Hospital who contributed to the study. "Things don't happen in isolation anymore. Infections from the farthest corners of the world can quickly arrive on our doorstep."

Provided by St. Michael's Hospital

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