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Pitt Vaccine Researcher Among First to Study Zika Virus Causing Birth Defects in Brazil **(<http://insideupmc.upmc.com/pitt-vaccine-researcher-among-first-to-study-zika-virus-causing-birth-defects-in-brazil/>)**

by [Allison Hydzik \(http://www.upmc.com/\)](http://www.upmc.com/) 0 Comments ([#comments](#))

http://insideupmc.upmc.com/wp-content/uploads/2016/01/ErnestoMarques_lab.jpg When Ernesto Marques, M.D., Ph.D., first started hearing of strange rashes in Brazilian patients, he didn't think much of it – perhaps it was a mild strain of dengue.

So the [University of Pittsburgh \(http://www.health.pitt.edu/\)](http://www.health.pitt.edu/) scientist and Brazilian citizen was quite surprised when his laboratory tests came back revealing it was a mosquito-borne virus called Zika that had most recently been implicated in outbreaks nearly half a world away in Polynesia.



And now, nine months later, the finding has reached new urgency as babies are being born with microcephaly, a congenital smallness of the head associated with incomplete brain development, to mothers most likely infected with Zika during pregnancy. Normally the northeast Brazilian state of Pernambuco sees 10 cases of microcephaly per year. In the past year that number has skyrocketed to 500, possibly more, according to Dr. Marques.

"It's such an obscure virus with no previous reports of any really severe disease associated with it," said Dr. Marques, associate professor in Pitt's [Center for Vaccine Research \(http://www.cvr.pitt.edu/\)](http://www.cvr.pitt.edu/). "It's a virus nobody really cared about until now. So it's basically a whole new disease to us – we have no good diagnostic tools, no vaccine, and very little is known about how it causes disease in people."

Dr. Marques is hoping to change that with two studies. He and his colleagues will be modifying an ongoing dengue virus study so participants can also be considered for inclusion if they have a rash and to improve recruitment of pregnant women. The hope is that this will create a cohort of Zika virus patients whose infections can be studied in the search for treatment.

And in about a week they hope to launch a more robust case-control study to compare patients with Zika infections to those without them.

Both studies will seek to learn more about how the virus infects and affects people, particularly pregnant women and their unborn babies. Scientists at [Magee-Women's Research Institute & Foundation \(http://mageewomens.org/\)](http://mageewomens.org/) will help explore how the virus transfers from the mother through the placenta to the baby – and how that potentially could be blocked.

While the results of both studies – and others – will be necessary to develop a therapy or vaccine, Dr. Marques believes the fastest route to treatment might be for women to acquire antibodies to the virus before they have babies because the most severe effect is the microcephaly that seems to be caused when infection occurs during pregnancy. This could be achieved several ways, including contracting the infection in childhood or getting an antiserum, which is blood serum from someone who already had the disease.

Dr. Marques – whose hometown is Recife, the epicenter of the Brazilian Zika outbreak – says he and his colleague’s findings won’t just benefit Brazil.

“We’ve been talking with the World Health Organization and the Pan American Health Organization to put this in a global context,” he said. “The response to this should not just be leaning on Brazil to solve it – this is rapidly becoming a global disease and it will require international efforts, like our partnership with Pitt, to control it.”



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