

8 in 10 Indonesian children has been infected with dengue

June 16 2017



Female *Aedes aegypti* mosquito while she was in the process of acquiring a blood meal from her human host, who in this instance, was actually the biomedical photographer, James Gathany, here at the Centers for Disease Control. Credit: James Gathany, Prof. Frank Hadley Collins, Dir., Cntr. for Global Health and Infectious Diseases, Univ. of Notre Dame

Indonesia has one of the highest burdens of dengue fever, a mosquito-borne virus, in the world, and children account for many cases. Well over half of all children in urban areas are infected with dengue by the age of 5, and more than 80 percent have been infected with the virus at least once by age 10, researchers now report in *PLOS Neglected Tropical Diseases*.

Dengue is transmitted to people through the bites of infected *Aedes* mosquitoes. Symptoms can range from a fever, rash, and headache to severe bleeding in [dengue hemorrhagic fever](#). Infection from one serotype does not provide immunity to the other three serotypes and individuals may be affected with dengue more than once. While fatality rates are less than 1 percent in most countries, overall dengue incidence is on the rise, leading to an increase in deaths from the virus worldwide. An understanding of who is infected with dengue is critical to public health planning for the disease.

This new study was designed to represent the entire Indonesian urban pediatric population. Led by Prof. Sri Rezeki Hadinegoro from the Faculty of Medicine, Universitas Indonesia, in partnership with Sanofi Pasteur, researchers collected blood samples from 3,194 children aged 1 through 18 years who lived in 30 different urban neighborhoods. Each blood sample was tested for antibodies to dengue, an indication that someone has been infected with the virus in the past. Questionnaires were also administered to determine information about each child's household demographics.

The researchers found that 69.4% of all children tested positive for dengue antibodies; 33.8% of 1-4 year olds; 65.4% of 5-9 year olds; 83.1% of 10-14 year olds; and 89.0% of 15-18 year olds. The median age to become infected with dengue for the first time was 4.8 years, and the researchers calculated that on average, 13.1% of children get their first [dengue infection](#) each year. In addition, the more people in a

household who had been diagnosed with dengue since a child's birth, the more likely children were to test positive for dengue antibodies.

"The observation that 13.1% of children suffer a primary [infection](#) per year translates into many millions of infections a year. Adults are presumably infected with a similar frequency," the researchers say.

"While a modelling approach would be required to quantify this burden, these data are strongly suggestive that [dengue](#) infections result in a significant burden of symptomatic and severe disease in urban Indonesia."

More information: Ari Prayitno et al, Dengue seroprevalence and force of primary infection in a representative population of urban dwelling Indonesian children, *PLOS Neglected Tropical Diseases* (2017). [DOI: 10.1371/journal.pntd.0005621](https://doi.org/10.1371/journal.pntd.0005621)

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