Study gauges impact of dengue virus on Ethiopia

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Samples are collected for daily quality control testing on blood bank reagents at the David Grant Medical Center, Aug 30. Credit: Liliana Moreno, USAF

Dengue, a mosquito-borne RNA virus, is one of the most serious and rapidly spreading arboviral diseases in the world. Now, researchers reporting in *PLOS Neglected Tropical Diseases* have provided the first baseline data on the prevalence and risk factors of the virus in Ethiopia.

It is estimated that more than 390 million dengue virus (DENV) infections occur every year, and it is endemic across more than 100 countries, including 34 countries in Africa. In Ethiopia, there were no reports of DENV prior to 2013, but the virus has emerged in multiple regions since. Studies have also indicated that there are many febrile illnesses of unknown causes in Ethiopia, many of which may be attributed to DENV.

In the new work, Getachew Ferede, of the University of Gondar, Ethiopia, and colleagues performed a cross-sectional study of all febrile patients visiting Metema and Humera hospitals in Northwest Ethiopia between March 2016 and May 2017. Blood samples from each patient were tested for anti-DENV and risk factors for the virus were assessed.

Of 600 blood samples tested, the overall prevalence of anti-DENV detected was 33.3%, with slightly higher rates in Metema (40%) compared to Humera (27.5%). The overall prevalence of IgM and IgG antibodies against DENV infection was 19% and 21% respectively. The highest prevalence of antibodies was found in the spring and summer, with a peak in August. Residence, occupation, the presence of uncovered water, and lack of mosquito net use were all associated with DENV infection or antibody status.

"The presence of antibodies against DENV infection indicates dengue as one of the causes of undifferentiated febrile illness in the study areas," the researchers say. "This suggests that prevention and control measures should be designed considering the risk factors identified in the study."

More information: Ferede G, Tiruneh M, Abate E, Wondimeneh Y, Damtie D, et al. (2018) A serologic study of dengue in northwest Ethiopia: Suggesting preventive and control measures. *PLOS Neglected Tropical Diseases* 12(5): e0006430.doi.org/10.1371/journal.pntd.0006430