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### Neurodevelopment and Vector-Borne Diseases: Building Research Capacity in the Tropics

**Background:** Chikungunya (CHIKV), a mosquito-borne viral disease, has been linked to neurodevelopmental problems among children such as delayed coordination and language development. Grenada and other Caribbean nations have experienced a rapid spread of CHIKV since 2013. This trend motivated investigators from St. George's University in Grenada and Stanford University to research arboviral and neurodevelopmental at St. George's University. They specifically aimed to 1) assess the burden of confounding factors to better understand the specific impact of CHIKV on neurodevelopment and inform public health priorities; 2) determine the prevalence of mother to child transmission of CHIKV in Grenadian pregnant mothers; and 3) measure neurodevelopment in children at 2 years of age exposed at different trimesters in utero to CHIKV and compare with unexposed children.

**Methodology:** The study, which is still enrolling participants, currently has enrolled 526 mothers and 381 children born during and up to one year after the 2014 CHIKV outbreak. The study measures several variables using: 1) a questionnaire about the home environment, relationships, food security and pregnancy outcomes; 2) multidimensional and objective assessment of early neurodevelopment in infants using a robust multi-dimensional clinical tool (Intergrowth-21st Neurodevelopmental Assessment); and 3) blood samples to measure CHIKV exposure of mothers and their children.

**Results:** Results to date indicate that: a) most mothers included in the study were infected with CHIKV during the first and second trimester, b) the most frequent maternal symptoms were joint pain, fever, rash, itchiness, headache, muscle pains and generalized body aches, and c) mothers infected during pregnancy appear to be more symptomatic compared to those infected outside of pregnancy. Further recruitment, testing, and analysis is ongoing to confirm these initial findings.

**Conclusions:** So far there is no final conclusion about the association between mother's exposure to CHIKV and abnormal neurodevelopment of infant. Preliminary results suggest that there is no association between mothers exposed to CHIKV and child neurodevelopment.