

HANNAH MCDONALD, QING WANG, and ZHIJUN WANG. Department of Computer Sciences, Mathematics, and Engineering, Shepherd University, Shepherdstown, WV, 25443. Stability Analysis of a Zika Model.

The Zika virus threatens human health due to its correlation with serious birth defects. It is predominantly a vector-borne disease, carried by the *Aedes aegypti* mosquito. No vaccine or other treatment is yet available, so various efforts have been made to control mosquito populations. Two different compartmental models are developed to describe the effects of various control methods. The first considers the effects on the size of the mosquito population, while the second examines the resulting impacts on the spread of Zika. The equilibrium points are calculated and a stability analysis is then performed. The results of this analysis will predict which mosquito control methods are the most effective and the optimal time to implement these measures. The project was supported by NIH Grant P20GM103434 to the West Virginia IDeA Network for Biomedical Research Excellence and the Research Challenge Fund through a Summer Undergraduate Research Experience Grant from the West Virginia Higher Education Policy Commission Division of Science and Research.