

SUMMARY OF RESEARCH

TITLE: AN AGENT BASED MODEL FOR SURVEILLANCE OF DENGUE IN SUB-SAHARAN AFRICA: A CASE OF TANZANIA

My research aims to employ Agent Based Modeling and Simulation to address the challenges of early detection and surveillance of mosquito borne diseases such as Dengue in Sub-Saharan Africa. Agent based modeling enables the incorporation of climatic variables, socio-environmental variables and ecological variables when modeling the interactions between mosquitoes and humans to monitor the spread of diseases and devise means that aid in the early detection, containment, reporting and surveillance of the disease so as to provide decision makers and health data stakeholders with evidence based decision making concerning the population health. Agent based modeling will be used to comprehend the spatial patterns of variation to determine the ecological association between the observed spatial-temporal variations in dengue disease and be able to develop best fit decision support tools to help in the early detection and reporting of infectious diseases in Sub-Saharan Africa starting with Tanzania as a case study area. The research intends to use Multi-Agent Research Simulation (MARS) framework which is perfectly suited for large scenario simulation and can handle the modeling complexity of coupled mosquito-human-environmental systems.