

1086-VG-2239

Nathanial Burch* (njburch@ncsu.edu), **Levis Eneya** (leneya@cc.ac.mw), **Sean Kramer** (kramersj@clarkson.edu) and **Samantha Tracht** (tracht@math.utk.edu). *The Utility of Transient Sensitivity Analysis for Malaria Intervention Strategies*. Preliminary report.

In this talk, we review so-called transient sensitivity analysis in the context of a compartmental disease model for the transmission of malaria between human and mosquito populations. Such transient sensitivity analyses as this provide information that is synergistic with short-term and adaptive management strategies, while also helping to quantify and understand the effects of uncertainties, e.g., that arise in parameter estimation from noisy data. We derive the sensitivity equations for this model and compare the subsequent results to analogous equilibrium-based sensitivity analyses such as the sensitivity of the effective reproduction number R_0 . Our findings elucidate complicated transient dynamics of malaria transmission, highlight potential effective strategies for the control and intervention of malaria outbreaks, and provide a tool for uncertainty quantification. (Received September 25, 2012)