
HUI WAN, York University

The backward bifurcation in compartmental models for West Nile virus

There have been several compartmental models for the transmission of the West Nile virus in the mosquito-bird cycle, usually the basic reproduction number serves as a crucial control threshold for the eradication of the virus. In this talk, we first review and give a comparison of the four compartmental models for the virus, and focus on one model proposed by Gustavo et al. to explore the backward bifurcation in the model. Our study suggests that backward bifurcation can be a common property of all the available compartmental models for West Nile virus with host birds satisfying a logistic or linear growth. Whether the virus can become endemic depends also on the initial state.