

Department of Mathematics and Statistics Colloquium

Modeling the Spread of Waterborne Disease: Incorporating Heterogeneity in Multiple Transmission Pathways

Abstract: Heterogeneity is a fundamental issue in mathematical epidemiology. Many factors influencing disease transmission vary across populations and across different spatial scales. Many results exist for how heterogeneity affects the spread of disease for SIR type models, where transmission occurs only as a result of direct contact with infected individuals. However, waterborne diseases such as cholera may be spread through contact with a contaminated water source as well as via direct person-person transmission. Cholera dynamics are well described by a modified SIR model that incorporates a compartment (W) to track the concentration of pathogen in the water. I investigate the effect of heterogeneity in multiple transmission pathways on the value of the basic reproductive number R_0 in multiple patch SIWR models.

The speaker is a candidate for an open position in the Department of Mathematics and Statistics. For reasons of confidentiality, the speaker's name and institutional affiliation have been suppressed.

Thursday, February 9 at 3:45 in Roop 103
refreshments at 3:30