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The impact of spatial arrangements on intervention strategies in epidemic models

The role of spatial arrangements in a metapopulation on the spread and optimal intervention strategies of a cholera epidemic is investigated. We consider how the movement of individuals and water affects the optimal vaccination strategy. For each metapopulation, the model has an SIR system of differential equations coupled with an equation modeling the concentration of *Vibrio cholerae* in an aquatic reservoir. The model will be used to compare two basic spatial arrangements. The work is motivated by the recent cholera outbreak in Haiti and is in collaboration with Joseph Tien, Suzanne Lenhart, and Marisa Eisenberg.