FRED BRAUER, Department of Mathematics, University of British Columbia, Vancouver, BC V6T 1Z2
A simple epidemic model with behavioral changes

People change their behavior during an epidemic. Infectious members of a population may reduce the number of contacts they make with other people because of the physical effects of their illness and possibly because of public health announcements asking them to do so in order to decrease the number of new infections, while susceptible members of the population may reduce the number of contacts they make in order to try to avoid becoming infected. We study a simple epidemic model in which these two classes of members reduce contacts by different fractions. This produces a model with heterogeneous mixing, and we analyze the effect of such contact reductions on the size of the epidemic. We assume constant fractional reductions, without attempting to consider the way in which susceptible members might respond to information about the epidemic.