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Mathematical Epidemiology and the Economics of Social Planning

Over the last 50 years, mathematical biologists have developed a deep theory of infectious disease dynamics. Today, management problems are as much economic and social as biological. We face a variety of social, behavioral, and political challenges today in the public-health management of infectious diseases. In the last few years, a variety of new modelling approaches including social networks, game theory, information propagation and explicit-behavioral models have been proposed as descriptions of how these economic influences interact with the biology of disease transmission. In this talk, I will review some of recent work I've been involved with in game-theoretic economics models of infectious disease management, and mentioning some open problems in the field.