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James M Hyman* (hyman@lanl.gov), Mail Stop B284, Los Alamos National Laboratory, Los Alamos, NM 87544. *Emerging Paradigms in Modeling the Spread of Epidemics.*

Mathematical models based on the underlying transmission mechanisms of the disease can help the medical/scientific community understand and anticipate the spread of an epidemic and evaluate the potential effectiveness of different approaches for bringing an epidemic under control. It can also estimate the benefits and the costs of projected interventions and project the requirements that an epidemic will place on the health care system. Thus, the modeling techniques can join with biological, epidemiological, behavioral, and social science studies to produce better projections and better understanding of the epidemic I will describe a flexible, stochastic agent-based decision simulation model for understanding the spread of a disease within a major city and compare it with a class of deterministic differential equation models. (Received August 21, 2008)