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*Impact of Modeling and Simulation on Decision-Making: Infectious Diseases.*

At Los Alamos National Laboratory (LANL), one of the main missions is to develop and apply science, technology, and engineering solutions to reduce global threats. Infectious diseases are a major threat to the population's health and welfare and the U.S. economy. Protecting the nation against natural and man-made emerging and re-emerging infectious diseases can mitigate the potential impacts of these events.

Basic research at LANL has led to a deeper understanding of how infectious diseases spread from person to person, how to prevent disease transmission, and how to better treat these diseases. Modeling efforts can help improve the effectiveness of public health intervention measures and minimize the population and economic impacts of an epidemic. In this talk, I will discuss different mathematical and computational models used to simulate the spread of infectious diseases and how they provide decision support during an outbreak. (Received September 13, 2011)