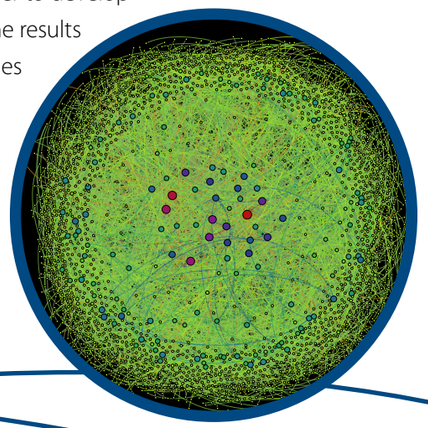
The National Institutes of Health's Models of Infectious Disease Agent Study (MIDAS)

"Until we understand and incorporate these complex social dynamics in our models, we won't be able to accurately predict the spread of epidemics."

Sara Del Valle, Energy & Infrastructure Analysis

In 2011, The National Institutes of Health awarded a five-year Models of Infectious Disease Agent Study (MIDAS) grant to a team of researchers from Los Alamos National Laboratory (LANL) and Tulane University. This team, lead by principal investigator Sara Del Valle, connects social media and epidemiological research in an attempt to predict people's social behavior and quantify uncertainty during an epidemic. If successful, the study could lead to improvements in the computer models used to simulate disease outbreaks, thus saving lives as well as millions of dollars in epidemic response planning.

As an example, in 2009, many people were afraid of getting infected with pandemic H1N1 influenza and changed their behavior. Through social media, LANL scientists were able to quantify the degree to which some people started wearing surgical masks and their impact on disease spread. If there's a new pandemic, scientists can start tracking what people are tweeting and use this information to make better predictions of how likely they are to change their behavior, such as, getting vaccinated, washing their hands, or wearing a mask. In addition, they are estimating the geographic and demographic contact patterns for the U.S. in order to develop social contact networks and the spread of behaviors. Based on the results of the model, public health practitioners and government agencies can change their communication strategies and policy decisions.



Studies such as this one can help improve all existing epidemiological models, furthering the ability of public health practitioners and policymakers to effectively manage a burgeoning epidemic.