Epidemic modeling does more than forecast

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TALK: 12pm

ABSTRACT
Recent years have witnessed the development of data driven models of infectious diseases rooted in the combination of large-scale data mining techniques, computational approaches and mathematical modeling. Although these models are increasingly used to support public-health decisions they are often under debate by only considering their value as forecasting tools. Here I will discuss, by using specific modeling examples of the H1N1 pandemic and the West Africa Ebola epidemic, how computational models can be used in real time to provide situational awareness, intervention planning and projections, and the identification of factors that fundamentally influence the course of an outbreak.

Predicting infectious disease outbreaks

Samuel V. Scarpino, PhD
Assistant Professor
Mathematics and Statistics
University of Vermont
TALK: 11am

ABSTRACT
Infectious disease outbreaks recapitulate ecology, emerging from the multi-level interaction of hosts, pathogens, and their environment. Therefore, predicting when and where diseases will spread requires a complex systems approach to modeling. In this talk, I will provide an overview of how mathematical epidemiologists use models, statistics, and computer simulations to predict the occurrence and spread of infectious diseases. Specifically, the talk will focus on examples from the recent Ebola virus outbreak, seasonal influenza, and the ongoing Zika virus outbreak. Finally, I will explore exciting future directions and possible fundamental limits to our ability to forecast outbreaks.