

Peer Review

Review of: "Poisson Network SIR Epidemic Model"

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Summary

The paper considers SIR epidemics on networks and, using a stochastic model for network connections, abstracts out all network properties into a single parameter representing the average node degree. This results in a simple ODE similar to standard compartment models for the total number of infections, which can be solved much more easily compared to full-network models. The authors also fit this model to an Ebola outbreak and show it can capture real-world epidemic dynamics.

Strengths

The paper is easy to follow, and the plots are clear. It's interesting that network effects can be abstracted out using a single parameter.

Weaknesses

It's not properly mentioned what the exact contribution of this paper is. Reference [7] seems to have a theorem very similar to Proposition 1 in this paper. Is there anything new on the theory side? The authors should mention this clearly. The numerical experiments are interesting, but it seems like the results are not really different from those of a standard compartment model. So what's the advantage of using the new model? I think the authors should use a different dataset to demonstrate the utility of this model (for example, use data from a network with a much lower average node degree).

Declarations

Potential competing interests: No potential competing interests to declare.