

Influence of awareness that results from direct experience on the spread of epidemics

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Abstract

Here we study ODE epidemic models with spread of awareness, assuming that a certain proportion of the hosts will become aware of the ongoing outbreak upon recovery. This study builds on W. Just and J. Saldaña's work in [1], and is conducted under the same framework, while addressing the influence of the awareness gained from direct experience of the disease.

In [1], the authors investigated the question whether preventive behavioral response triggered by awareness of the infection is sufficient to prevent future flare-ups from low endemic levels if awareness decays over time. They showed that if all the hosts experienced infection return directly to the susceptible compartment upon recovery, such oscillations are ruled out in Susceptible-Aware- Infectious-Susceptible models with a single compartment of aware hosts, but can occur if two distinct compartments of aware hosts who differ in their willingness to alert other susceptible hosts are considered. Qualitatively, the models studied here produce the same results when we assume that recovery from the disease may or even will convey awareness from direct experience.

References

- [1] W. Just, J. Saldaña. Oscillations in epidemic models with spread of awareness. Submitted to *Journal of Mathematical Biology*. Preprint available at arXiv:1606.08788, 2016.