

Application for KRMP

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Project start date: October 2016

Project end date: June 30, 2017

Title of project: Can homeopathic remedies such as the Neti pot reduce the spread of the common cold? A Boolean networks approach.

Abstract: In this project we are exploring the dynamics of the spread and recovery of the common cold in a network of individuals that can be in one of two states: infected or not. Using various initial conditions and varying individualistic susceptibility to the cold as well as time to recovery, we describe some basic network dynamics. The homeopathic remedy Neti pot is introduced to the network, and the magnitude of the spread of cold is studied. We also introduce a deterministic mean-field mathematical model for the number of infected individuals and explore its goodness of fit.

Purposes of the project:

1. Generate the epidemic network model under the SIS (susceptible-infected-susceptible) scenario.
2. Explore its dynamics for various parameter combinations with and without the Neti pot assumption. This is done by generating Matlab codes for simulations.
3. Use the mean-field approach to find a map for the fraction of infected nodes.
4. Explore the goodness of fit of the mean-field model. Matlab codes are generated and used for simulations.
5. KRMP report.

Timetable:

Month	Purpose items
2016	1, 2, 3
January-May 2017	3, 4
June 2017	5
July 2017-forward	Writing results for MA thesis and publication.

Note: Audra has started working on this project and is already preparing her application for a GRACA grant with an extension of the work proposed here.