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Simulation of disease dynamics co-evolving with network structure

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The structural patterns of sexual contacts are believed to shape the spreading dynamics of Sexually Transmitted Infections (STI). More importantly, the order the contacts are made creates heterogeneity in the contacts sequence and restricts the possible paths for an infection to propagate in the population. This temporal constrain has not been much explored but has several consequences for dynamics on the network, for example, it results in larger outbreaks and increases the diversity of outbreak sizes. In this talk, I will first introduce a large empirical dynamic network of sexual contacts, obtained from a web community related to sexual encounters between sex-buyers and -sellers in Brazil. Afterwards, I present some results about the simulation of general STIs on this evolving network and discuss how the infection patterns change due to not only the temporal constrain but also to other network properties, as the cluster structures.

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