The *Down Low* Effect on the Spread of Non-Curable Sexually Transmitted Diseases

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Abstract

The goal of this research is to examine the spread of non-curable sexually transmitted diseases in bisexually mixing populations. In particular, we are interested in determining the role that covert bisexuality, colloquially known as the *down low*, plays on the spread of STD's within the heterosexual female population. Due to the social stigma of identifying with homosexual or bisexual orientations, these men engage in homosexual activity secretly, while maintaining a heterosexual cover. Research in this area is limited due to the difficulty in identifying and gathering data on this particular community. A system of eight ordinary differential equations is constructed to describe the dynamics between homosexual, bisexual, and heterosexual females and males. Data is used to determine the parameter ranges for the model and such information will assist in making predictions, through numerical simulations, as to whether the disease will stabilize, increase, or decrease.