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*Vaccination programs against sexually transmitted diseases*

A main goal of a vaccination program is to interrupt pathogen transmission so as to eradicate the disease from the population in the future, and/or to decrease mortality and morbidity due to the disease in the short term. For sexually transmitted diseases (STD) the determination of an optimal vaccination program to achieve these goals is not straightforward. First, heterogeneity in transmission exist between genders and by age. Also, gender differences in demographics exist, and vertical transmission to the neonate can occur, affecting future generations. Finally, the existence of pathogens closely related to the STD in question (i.e. herpes - HSV-1 vs. HSV-2) may induce immunity in individuals that render a vaccine ineffective. In this talk, we will present some models of sexually transmitted infections (including age structure and gender) to evaluate the cost-efficacy of vaccination programs for different sexes in the context of STD control, with special application to a potential genital herpes vaccination program. We find that the stability of the system and the ultimate eradication of the disease depend explicitly on the reproduction number. In general, the models show that a female-only vaccination program provides a greater reduction in disease prevalence in the population.