MODELING TRANSMISSION DYNAMICS OF INFLUENZA SOME MODELS AND CHALLENGES

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A deterministic model is formulated to investigate the transmission dynamics of two strain influenza (flu). In particular, our model takes into account the effects of cross-immunity. Dynamical Systems analysis of the model is performed and conditions are obtained for the stability of the disease-free state. We also show that if the disease-free equilibrium is unstable, the endemic state is persistent. Moreover, the model undergoes competitive exclusion where Strain ﷺ drives out Strain i, (ﷺ = 1,2) to extinction under certain conditions. Finally, we evaluate the efficacy of hospitalization as a control measure for the disease.

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