Modified Maternally-Derived-Immunity Susceptible Infectious Recovered (MSIR) Model of Infectious Disease: Existence of Equilibrium and Basic Reproduction Number

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Abstract

In this paper we modified the MSIR Model by adding the vaccination rate and death rate due to the disease to the existing MSIR model. We verified the positivity of the solution and obtained the Disease Free Equilibrium (DFE) of the model. We also determined the basic reproduction number using next generation Matrix and Jacobian matrix methods.

Key words: Modified, Model, Equilibrium and Basic Reproduction Number

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