

A Mathematical Model for Hepatitis B Virus Infection and the Impact of Vaccination on Its Dynamics

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Abstract : This paper describes a mathematical model developed to predict the dynamics of Hepatitis B virus (HBV) infection and to evaluate the potential impact of vaccination and treatment on its dynamics. We used a compartmental model expressed by a set of differential equations based on the characteristic of HBV transmission. With these, we find the threshold quantity R_0 , then find the local asymptotic stability of disease free equilibrium and endemic equilibrium. Furthermore, we find the global stability of the disease free and endemic equilibrium.

Keywords : hepatitis B virus, epidemiology, vaccination, mathematical model

Conference Title : ICME 2014 : International Conference on Mathematical Engineering

Conference Location : Berlin, Germany

Conference Dates : May 22-23, 2014