

1065-92-109

Sun Ruoyan* (rsun@email.wm.edu), Department of Mathematics, College of William and Mary, Williamsburg, VA 23187. *Global stability of the endemic equilibrium of multigroup SIR model with nonlinear incidence.*

We introduce a basic reproduction number for a multigroup epidemic model with nonlinear incidence. Then, we establish that global dynamics are completely determined by the basic reproduction number R_0 . It shows that, the basic reproduction number R_0 is a global threshold parameter in the sense that if it is less than or equal to one, the disease free equilibrium is globally stable and the disease dies out; whereas if it is larger than one, there is a unique endemic equilibrium which is globally stable and thus the disease persists in the population. (Received September 07, 2010)