AN EPIDEMIOLOGICAL MODEL WITH MULTIPLE ENDEMIC STATES

GEISER VILLAVICENCIO-PULIDO, IGNACIO BARRADAS, and LUNA BEATRIZ

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Abstract

We present a model describing the dynamics of an infectious disease for which the force of infection is diminished through a reaction of the susceptible to the number of infected individuals. We show that, even though the structure of the model is a simple one, different kinds of backward bifurcation can appear for values of the basic reproductive number bigger than one. Under some conditions on the parameters, multiple endemic equilibria may appear for values of the basic reproductive number less or greater than one.

Keywords: Multiple Endemic State ▪ Epidemic Model ▪ Force of Infection ▪ Backward Bifurcation