

Differential susceptible and staged progression model for HIV

ABSTRACT

In this paper we first review the mathematical formulation of the original differential infectivity DI and staged-progression SP models, then we formulate a HIV new model with differential susceptibility and staged-progression DSSP to account for variations in viral loads and in the rate of disease progression in infected individuals. Then we derive an explicit formula for the reproductive number of infection for this model, then we provide numerical example for it.

Keyword: Differential infectivity; Transmission; Reproductive number