

The use of generation stochastic models to study an epidemic disease

ABSTRACT

Stochastic models have an important role in modeling and analyzing epidemic diseases for small size population. In this article, we study the generation of stochastic models for epidemic disease susceptible-infective-susceptible model. Here, we use the separation variable method to solve partial differential equation and the new developed modified probability generating function (PGF) of a random process to include a random catastrophe to solve the ordinary differential equations generated from partial differential equation. The results show that the probability function is too sensitive to μ , β and γ parameters.

Keyword: Deterministic model; Epidemic diseases; Probability function; Stochastic model; Susceptible-infective-susceptible.