

Some Stochastic Models for Spread of Infectious Diseases

E.S.V. Narayana Rao and P. Tirupathi Rao

^{1,2}Dept. of Statistics, Pondicherry University, Puducherry-605014
E-mail: ¹esvnrmaomadhavi@gmail.com, ²drtrpadi@gmail.com

Abstract: *Infectious Diseases are important and emerging public-health problems throughout the world. The mechanisms that cause an infection to spread are highly variable and difficult to measure and assess its intensity. Thus probabilistic tools need to be used to study infectious transmission dynamics. In this paper we proposed some stochastic models on the spread of infectious diseases. The factors of influence on the groups of susceptible, infected and diseased are modelled with suitable assumptions. The concepts namely trivariate stochastic processes and linear differential equations are used to get the probability functions and related statistical measures. Sensitivity of the model was analyzed with numerical illustrations. This study has the scope in understanding various parameters of the said diseases like time of onset, incubation, latent period etc.*

Keywords: *Infectious Diseases, Trivariate Stochastic Processes, Linear Differential Equations.*