



## A STOCHASTIC MODEL FOR EXPECTED TIME TO SEROCONVERSION UNDER CORRELATED INTERCONTACT TIMES USING EXPONENTIAL-GEOMETRIC DISTRIBUTION

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### ABSTRACT

*This paper focuses on the study on a stochastic model for predicting the seroconversion time of HIV transmission under correlated intercontact time. Every individual's immune capacity as varies from person to person and also the antigenic diversity threshold is different from person to person. A stochastic model assuming that intercontact times between successive contacts as correlated random variables are proposed. Sathiyamoorthi<sup>5</sup> has been studied the shock models with correlated intercontact time. Shock models with intercontact time have been obtained by Sathiyamoorthi and Kannan<sup>7</sup> assuming the threshold distribution as exponential. In this paper, it is assumed that threshold follows exponential-geometric distribution. The result of Gurland<sup>3</sup> has been used for developing this model. The mean time to seroconversion and its variance are derived and the numerical illustrations are provided.*

### Key words

Human Immunodeficiency Virus, Acquired Immuno Deficiency Syndrome, Antigenic Diversity Threshold, Intercontact times, Seroconversion