Computing Transition Intensity Using Time-Homogeneous Markov Jump Process: Case of South African HIV/AIDS Disposition

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Abstract : This research provides a technical account of estimating Transition Probability using Time-homogeneous Markov Jump Process applying by South African HIV/AIDS data from the Statistics South Africa. It employs Maximum Likelihood Estimator (MLE) model to explore the possible influence of Transition Probability of mortality cases in which case the data was based on actual Statistics South Africa. This was conducted via an integrated demographic and epidemiological model of South African HIV/AIDS epidemic. The model was fitted to age-specific HIV prevalence data and recorded death data using MLE model. Though the previous model results suggest HIV in South Africa has declined and AIDS mortality rates have declined since 2002 – 2013, in contrast, our results differ evidently with the generally accepted HIV models (Spectrum/EPP and ASSA2008) in South Africa. However, there is the need for supplementary research to be conducted to enhance the demographic parameters in the model and as well apply it to each of the nine (9) provinces of South Africa.