

Inference in multi-state survival data

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Abstract

In longitudinal studies of disease, patients can experience several events through a follow-up period. In these studies, the sequentially ordered events (gap times) are often of interest. The events of concern may be of the same nature (e.g. cancer patients may experience recurrent disease episodes) or represent different states in the disease process (e.g. alive and disease-free, alive with recurrence and dead). If the events are of the same nature this are usually referred as recurrent event, whereas if they represent different states (i.e. multi-state models) they are usually modelled through their intensity functions. In this talk we present new estimators for several quantities in a three-state model. We present a simple estimator for the bivariate distribution function for censored gap times and estimators for the transition probabilities. Another topic of discussion is the relationship between the different covariates and disease evolution. The proposed methods are applied to a database on breast cancer.