

# Nonparametric regression for sojourn time distributions in a multistate model

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## **Abstract**

Multistate models are generalizations of traditional survival data where an individual undergoes different types of events corresponding to transitions to various states of a system. We consider multistate event data that are right censored. Under this setup, inferring on the state waiting (or sojourn) time distribution corresponding to a given transient state  $j$  is problematic since neither the entry nor the exit times are fully observed. In this talk, we introduce novel procedures to test the effect of a categorical covariate on the sojourn time distribution. In the later part of the talk, we introduce an Aalen type linear hazard model for the state waiting time distribution that can incorporate both discrete and continuous covariates. The methods are illustrated using a number of real data applications.