

# ANALYSIS OF SEQUENTIAL TIMES SUBJECT TO DEPENDENT CENSORING

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We present two different approaches for the analysis of a multivariate vector of consecutive survival times. The motivation comes from the TIBET ongoing clinical trial in which an intermittent therapeutic strategy has been assigned to each patient. This strategy defines a sequence of successive stages on which the patients are alternatively without treatment (state OFF) or under treatment (state ON). Of special clinical interest are the lifetime variables  $T_1, T_2, \dots, T_m$  defined as the length that a patient stays on each stage with follow-up continuing to a total follow-up time  $C$  that right-censors the process.

First, we analyze the effect of covariates on the sequential times. Under the assumption that the consecutive survival times are conditionally independent given covariates, we characterize those patients able to spend a long period of time without treatment by means of a standard multivariate regression approach.

Second, we propose a weighted nonparametric estimator for the survival function of  $T_2$ , the time spent in state ON, stratified on different categories of  $T_1$ , time spent in state OFF, based on a correction to unbiased the effect of dependent censoring within each stratum. We prove the large sample properties of the estimator and we explore its performance for finite samples through an exhaustive simulation study.