

Biostatistical method for clustered time-to-event data

Many time-to-event studies are complicated by the presence of competing risks and by nesting of individuals within a cluster, such as patients in the same center in a multicenter study. Several methods have been proposed for modeling the cumulative incidence function with independent observations. However, when subjects are clustered, one needs to account for the presence of a cluster effect either through frailty modeling of the hazard or subdistribution hazard, or by adjusting for the within-cluster correlation in a marginal model. The authors propose a method for modeling the marginal cumulative incidence function directly and illustrate the method on a dataset looking at outcomes after bone marrow transplantation.