Prof. Micha Mandel
Department of Statistics, The Hebrew University of Jerusalem

The illness–death model under cross-sectional sampling

The illness–death model describes the dynamics of subjects who may move to an “illness” state before leaving the population. A motivating example concerns patients in a hospital who may acquire infections during their stay. We consider a cross-sectional sampling of independent illness–death processes in which data are subject to length bias and censoring and discuss estimation of different functionals, such as the probability of illness (infection) and the distribution of length of stay. We will emphasize the assumptions required in order that the estimators be valid and will comment on efficient inference approaches. Infection data obtained in a cross-sectional study of patients hospitalized in intensive care units will be used for demonstration.