



JOHNS HOPKINS
BLOOMBERG
SCHOOL of PUBLIC HEALTH

Department of Biostatistics

BIostatISTICS SEMINAR

The Conundrum of Dependent Truncation

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Abstract:

Left-truncated survival data arise frequently in the context of cohort studies that feature delayed entry. The standard methods for estimation of the event time distribution are easily extended to accommodate left truncation, if the event and truncation times are independent. Advantageously, unlike for censored data, a notion of independence can be tested for these data, as both event and truncation times are observed for all subjects. Unfortunately, if dependence is not detected, the data cannot identify whether the marginal distribution of event time or the marginal distribution of truncation time, or both can be estimated nonparametrically. I will discuss new tests that are powerful for general dependence alternatives. I will then present a nonparametric estimator and importantly, bounds, for the marginal event time distribution under a ratio function that links the unobservable and observable regions. I will present a transformation model estimator and an inverse probability weighted estimator that can accommodate dependent truncation that is subject to two common types of censoring. Goodness of fit is essential throughout, though it remains inadequate in assessing real effects on the estimation of the event time distribution.

Johns Hopkins Bloomberg School of Public Health, Department of Biostatistics
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