

BIOSTATISTICS SEMINAR



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Semiparametric Analysis of Longitudinal Data Anchored by Interval-Censored Events

In many longitudinal studies, outcomes are assessed on time scales anchored by certain clinical events. When the anchoring events are unobserved, the study timeline becomes undefined, and the traditional longitudinal analysis loses its temporal reference. We consider the analytical situations where the anchoring events are interval censored. We show that by expressing the regression parameter estimators as stochastic functionals of a plug-in estimate of the unknown anchoring event distribution, the standard longitudinal models can be modified and extended to accommodate the less well defined time scale. This extension enhances the existing tools for longitudinal data analysis. Under mild regularity conditions, we show that for a broad class of models, including the frequently used generalized mixed-effects models, the functional parameter estimates are consistent and asymptotically normally distributed with an $n^{1/2}$ convergence rate. To implement, we developed a hybrid computational procedure combining the strengths of the Fisher's scoring method and the expectation-expectation (EM) algorithm. We conducted a simulation study to validate the asymptotic properties, and to examine the finite sample performance of the proposed method. A real data analysis was used to illustrate the proposed method.

Thursday November 15, 2018

3:30 pm - 4:30 pm

Blue Cross and Blue Shield of North Carolina Foundation Auditorium



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