Biostatistics Seminars
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Matching Methods for Evaluating the Effect of a Time-Dependent Treatment on the Survival Function

Tuesday, January 22, 2019 - 3:30-4:30pm
Purvis Hall, 1020 Pine Ave. West, Room 24 - <u>All are Welcome</u>

Abstract

Abstract: We consider observational studies of survival time featuring a binary time-dependent treatment. We propose flexible methods applicable to big data sets for the purpose of estimating the causal effect of treatment among the treated with respect to survival probability. The objective is to compare post-treatment survival with the survival function that would have been observed in the absence of treatment. The proposed methods utilize prognostic scores, but are otherwise nonparametric. Essentially, each treated patient is matched to a group of similar not-yet-treated patients. The treatment effect is then estimated through a difference in weighted Nelson-Aalen survival curves, which can be subsequently integrated to obtain the corresponding difference in restricted mean survival time (area between the survival curves). Large-sample properties are derived, with finite-sample properties evaluated through simulation. The proposed methods are then applied to estimate the effect on survival of kidney transplantation. This is joint work with Kevin He, Yun Li and Danting Zhu.

Bio: Douglas Schaubel is Professor of Biostatistics at the University of Michigan, School of Public Health. He received his Ph.D. in Biostatistics in 2002 from the University of North Carolina at Chapel Hill. Professor Schaubel's methodologic research interests mostly involve survival analysis and the analysis of recurrent event data. Along those lines, he has developed methods in the areas of time-dependent treatments, causal inference, time-varying treatment effects, biased sampling, and dependent censoring. Much of his methods research has been funded through two previous R01 grants, "Survival Analysis Methods for Organ Failure Data" and current R01, "Methods for the Analysis of Survival Processes Arising in End-Stage Renal Disease". Professor Schaubel's collaborative work is mostly in the area of end-stage renal disease and liver transplantation, with his collaborators including the University of Michigan Kidney Epidemiology and Cost Center (KECC) and Arbor Research Collaborative for Health. KECC projects that he works on include a measure development project funded by the Centers for Medicare and Medicaid Services, and the United States Renal Data System (USRDS). At Arbor Research, he mostly works on the Dialysis Outcomes and Practice Patterns Study (DOPPS). Professor Schaubel is a Fellow of the American Statistical Association, and serves as Associate Editor for Biometrics, Statistics in the Biosciences, Lifetime Data Analysis, and the Journal of the American Statistical Association (Theory and Methods).
For more information, please visit: https://sph.umich.edu/faculty-profiles/schaubel-douglas.html

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