



Quantitative Methods Core Methods Seminars

Tuesday, March 19, 2019

12:00-1:00pm

Albert Sherman Center, AS9.2072

“Analysis of Restricted Mean Survival Time for Length-Biased Data”

Presented by: Chi Hyun Lee, PhD

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Health Sciences, University of Massachusetts Amherst**

Chi Hyun Lee is an Assistant Professor in the Department of Biostatistics and Epidemiology at the University of Massachusetts Amherst. She joined the department in Fall 2018. Prior to coming to UMASS, she worked as a postdoctoral fellow at The University of Texas MD Anderson Cancer Center for three years after earning her PhD degree in Biostatistics at the University of Minnesota in 2015. Her research interests are in statistical methodology developments for complex survival data with applications to biomedical research. For her Ph.D. dissertation, she worked on modelling gap times between recurrent infections after transplantation. Her dissertation work was recognized with Distinguished Student Paper Awards at the annual ENAR meeting and Ph.D. Student Paper Award at the University of Minnesota. During her postdoctoral training, her research centered on modeling survival data subject to biased sampling. She developed statistical methods to check model assumptions and to estimate clinically interpretable measurements for length-biased data. Recently, her area of interest further expanded to the analysis of combined incident and prevalent cohort data to gain efficient inferential results and the novel approaches for biomarker discovery with high-dimensional data. She is especially interested in applying these methods to cancer research and Alzheimer’s disease and dementia study.

In clinical studies with time-to-event outcomes, the restricted mean survival time (RMST) has attracted substantial attention as a summary measurement for its straightforward clinical interpretation. When the data are subject to length-biased sampling, which is frequently encountered in observational cohort studies, existing methods to estimate the RMST are not applicable. In this talk, I will briefly introduce RMST and describe challenges in analyzing length-biased data. Then, I will present nonparametric and semiparametric regression methods to estimate the RMST under the setting of length-biased sampling. The proposed regression model allows us to assess the covariate effects directly on the RMST. The application of the methods will be illustrated with a prevalent cohort study of dementia in Canada. In addition, I will discuss an ongoing work related to the analysis of length-biased data. In this second topic, I will present a statistical method that combines incident and prevalent cohort data to estimate covariate effects efficiently.