CASE WESTERN RESERVE UNIVERSITY EST. 1826

Department of Epidemiology and Biostatistics
Biostatistics Seminar

Thursday, October 16, 2013
12:00pm - 1:00pm -- WG73

"Evaluation of Dynamic Treatment Regimes from SMART via Artificial Randomization"

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Abstract: Hypothesis testing to compare adaptive treatment strategies (ATS) from a sequential multiple assignment randomization trial (SMART) are usually based on inverse probability weighting or g-estimation. However, regression methods that allow for comparison of treatment strategies that flexibly adjusts for baseline covariates using these methods are not as straight-forward due to the fact that one patient can belong to multiple strategies. This poses a challenge for data analysts as it violates basic assumptions of regression modeling of unique group membership. In this talk, we will propose an "artificial randomization" technique to make the data appear that each subject belongs to a single ATS. This enables treatment strategy indicators to be inserted as covariates in a regression model and apply standard tests such as t- or F-tests. The properties of this method are investigated analytically and through simulation. We demonstrate the application of this method by applying to a SMART study of cancer regimens. This is a joint work with Semhar Ogbagaber, PhD of Food and Drug Administration.