

COLLOQUIUM

3:30 P.M.

FEBRUARY 24, 2009

LYTLE HALL 228

*Making Valid Inferences in Observational Studies
Using Propensity Score Analysis*

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ABSTRACT

Randomized controlled trials are considered the gold standard in research studies. However, situations often arise which make them unfeasible, unethical, too restrictive in their generalizability, or just too time consuming and expensive. A common alternative is using observational or natural studies where subjects self-select into modalities. However, observational studies present challenges in making valid inferences in the presence of selection bias and confounding variables. The propensity score method is frequently used to deal with bias in observational studies in fields including public health, psychology, education, and surveys. It is essentially stratification on multiple factors using a single summary measure and is performed by calculating the conditional probability (propensity) of being in the treated group given a set of covariates, weighting (or sampling) the data based on these propensity scores, and then making statistical inferences using the weighted data.

In this colloquium, I provide an overview of propensity score analysis and review methods of data selection or allocation of weights, including proposing an alternative weighting method - weighting within strata. This new method is compared to existing ones using empirical analysis and via an application on sending patients to respite care. Simulations are then described and discussed to compare the existing and new methods.

Refreshments served between 3:00 and 3:30 p.m.

The talk begins at 3:30 p.m.