

STATISTICS COLLOQUIUM

FRIDAY, JANUARY 31, 2014

TALK: 4:15 PM — SCIENCE CENTER RM. 705

RECEPTION: 3:50 PM — SCIENCE CENTER, 7TH FLOOR

“Using Post-Quality of Life Measurement Information in Censoring by Death Problems”

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ABSTRACT

Many clinical studies suffer from the censoring by death problem when the effect of treatment on a non-mortality outcome is of interest. To address the problem that the censoring of the non-mortality measurement is informative, in this talk, we focus on deriving bound on the survivor average causal effect (SACE) which is a well-defined causal quantity. The previous literature on bounding the SACE used only the survival information before the measurement of the non-mortality outcome. However, survival information after the measurement of non-mortality outcome could also be informative in many studies. For randomized trials, we propose a set of ranked average score with two-stage survival assumptions which are plausibly satisfied in many studies and developed a two-step linear programming approach to obtain the closed form for bounds on the SACE under our assumptions. We also extend our method to randomized trials with noncompliance or observational studies with a valid IV to obtain bounds on the complier survivor average causal effect. We apply our method to a randomized trial study of the effect of mechanical ventilation with lower trial volume vs. traditional volume for acute lung injury patients. Our bounds on SACE are much shorter than the bounds obtained only using the pre-measurement survival information.