



McGill

Department of
Epidemiology, Biostatistics
and Occupational Health

Biostatistics Seminars

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Breaking the Myth of Breaking Randomization: a Causal Examination of Arm-Based Meta-Analysis

Tuesday, 14 November 2017

3:30 pm – 4:30 pm - Purvis Hall, 1020 Pine Ave. West, Room 24

ALL ARE WELCOME

Abstract:

In the analysis of multi-arm randomized trials, methods for pooling data across trials generally belong to one of two broad classes. The first class of methods consists of contrast-based estimators that estimate the contrast in treatment effect for each pair of treatment levels and then pool across the estimated contrasts. The second class encompasses arm-based methods that construct marginal estimates for each treatment arm and then computes the contrast from the marginal estimates. Leading researchers have assailed arm-based methods under the broad criticism of "breaking randomization", implying biased estimation for population causal effects of treatment. However, to date no one has established a formal causal definition of "breaking randomization", nor a critical examination of the amount of bias that would result. In this talk, I characterize the conditions under which the bias of arm-based methods will (and will not) be biased for population causal effects and also discuss the advantages that arm-based methods have over contrast-based methods with regards to precision.

Bio:

[Russell Steele](#) is an Associate Professor in the Department of Mathematics and Statistics at McGill University and a Research Investigator in the Centre for Clinical Epidemiology at the Jewish General Hospital. He received his PhD in statistics from the University of Washington in 2002 and began collaborating with researchers at the Jewish General Hospital soon after arriving to McGill. He has not only published papers in statistics journals, but also made important contributions to research in rheumatology, sports medicine, cancer, cardiovascular treatments, and epidemiology. He has a deep interest in applied statistics, in particular collaborating with researchers in other disciplines to improve the state of statistical methods in their areas and to develop new approaches to analyzing data.

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