Biostatistics Seminars
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Statistical modelling of threats to validity:
Inference, sensitivity analysis, or stuck in the middle with Bayes?

Wednesday, October 4, 2023
3:30 pm – 4:30 pm
Room 1140
Hybrid Seminar (Dr. Gustafson will present virtually from Vancouver)
Zoom Link: https://mcgill.zoom.us/j/88354140659

Abstract: One or more of selection bias, unobserved confounding, missing data, and measurement error often threaten the validity of findings from observational studies. In some contexts, statistical modeling might neutralize the threat, leading, roughly, to inference as usual. (Example: non-pernicious measurement error with availability of validation data.) In other contexts, however, sensitivity analysis might be the only mitigation available. (Example: measurement error of unknown perniciousness without availability of validation data.) At its simplest, sensitivity analysis can be regarded as a collection of different inferences drawn under different assumptions about the threats to validity at hand. Working from a Bayesian standpoint, we will discuss statistical modelling of threats to validity. The main point will be that inference versus sensitivity analysis is best thought of as a spectrum rather than a dichotomy. Fortuitously, for a given problem we can pursue a Bayesian data analysis without having to pre-specify whether inference or sensitivity analysis is the goal.

Bio: Paul Gustafson is a Professor in the Department of Statistics at the University of British Columbia. He is a Fellow of the American Statistical Association, the 2008 recipient of the CRM-SSC Prize in Statistics, and the 2020 Gold Medalist of the Statistical Society of Canada. His research interests include Bayesian methods, causal inference, evidence synthesis, measurement error, and partial identification. He has authored two books: Measurement Error and Misclassification in Statistics and Epidemiology: Impact and Bayesian Adjustments (2004, Chapman and Hall / CRC Press), and Bayesian Inference for Partially Identified Models: Exploring the Limits of Limited Data (2015, Chapman and Hall / CRC Press). He was the Editor-in-Chief of the Canadian Journal of Statistics (2007-2009), and is currently the Special Editor for Statistical Methods for the journal Epidemiology. Paul served as a founding Co-director of the Master of Data Science program at UBC, and currently serves as Head of the Department of Statistics. Link to website: www.stat.ubc.ca/~gustaf

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