Yale SCHOOL OF PUBLIC HEALTH

Public Health Modeling Unit
Seminar Series

Eleanor J.Murray, ScD

Assistant Professor
Boston University School of Public Health
Dept of Epidemiology

Turning assumptions into knowledge: causal inference with individual-level simulation models

February 1, 2021
12 - 1 pm EDT (US & Canada)

Individual-level simulation models are an important tool for understanding complex interacting relationships and may be the only available tool in many cases where randomized controlled trials are unavailable or inappropriate. Although simulation models naturally provide counterfactual contrasts, these may not be related to any real-world counterfactuals making causal inference challenging. However, by designing individual-level simulation models to under the target trial emulation framework we can explicitly target the estimation of causal effects. In this presentation, I describe the required causal inference assumptions for individual-level simulation models, and discuss approaches for calibrating these models to obtain valid real-world causal effect estimates.

Professor Murray's research is on causal inference methodology for improving evidence-based decision-making by patients, clinicians, and policy makers. She uses novel statistical methods to answer comparative effectiveness questions for complex and time-varying treatments using observational data and randomized trials when available, and individual-level simulation modeling when insufficient data exist in the time frame required for decision-making. She is applying these methods to a variety of medical conditions including HIV progression, cancer, psychiatric conditions, and cardiovascular disease. Professor Murraywas previously a postdoctoral research fellow in Epidemiology at the Harvard T.H. Chan School of Public Health, working on causal inference for comparative effectiveness and real-world evidence in the HSPH Program on Causal Inference. She has an ScD in Epidemiology and MSc in Biostatistics from Harvard, an MPH in Epidemiology from Columbia Mailman School of Public Health, and a BSc in Biology from McGill University.

EPH 580 01 (FA20): Seminar for Modeling in PH

Join from PC, Mac, Linux, iOS or Android: https://yale.zoom.us/j/99292471923
Or Telephone：203-432-9666 (2-ZOOM if on-campus) or 646 568 7788