

SUMMER SCHOOL 2016 TWO-DAY PROGRAM

VicBiostat and School of Public Health, University of Adelaide,

February 2nd & 3rd 2016

University of Adelaide (venue details to be advised)

Causal Inference: Concepts and Methods

- **Prof. Andrew Forbes and Dr Jessica Kasza**
School of Population Health and Preventive Medicine, Monash University
- **A/Prof. Lyle Gurrin**
School of Population and Global Health, University of Melbourne
- **Dr Tibor Schuster**
Clinical Epidemiology and Biostatistics Unit, Murdoch Childrens Research Institute
- **Dr Murthy Mittinty**
School of Public Health, University of Adelaide

In the past two decades methods for causal inference have been increasingly used in the design and analysis of studies in the health and social sciences. This two-day short course provides a broad overview of the main areas of causal inference used in current practice. It will commence with an introduction to potential outcomes as the basis for a framework for causation, and causal diagrams as a mechanism for translating scientific research questions and background knowledge into appropriate data collection and modelling strategies. These form the background for estimating the effects of point-treatments or exposures using propensity scoring (inverse probability of treatment weighting) and for repeated exposures in the presence of time-dependent confounding using marginal structural models and G-computation. Examples of the use of each of these methods will be demonstrated and participants will, with the assistance of course lecturers, tutors and demonstrators, have the opportunity to work on some hands-on practical examples of data analysis in Stata and/or R.

Prerequisite knowledge for this workshop is a sound understanding of epidemiological and statistical concepts including multivariable regression models. No prior experience with causal concepts or methods is assumed.

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VicBiostat is a Centre of Research Excellence in biostatistics funded by Australia's National Health & Medical Research Council (NHMRC). The Centre is a collaboration between biostatistical researchers at the Murdoch Childrens Research Institute, the Department of Epidemiology & Preventive Medicine at Monash University, and the Centre for Epidemiology & Biostatistics (CEB) at The University of Melbourne.