One Day Workshop

Causal Inference and Mediation Analysis

Wednesday 25th November 2015
9.00am to 5.00pm

Department of Epidemiology & Preventive Medicine, Monash University, Alfred Centre Lecture Theatre Level 5, 99 Commercial Rd, Prahran, Melbourne

Presented by
Dr Richard Emsley
Centre for Biostatistics, University of Manchester

Studying the mechanisms that explain the connections between exposures and outcomes, commonly known as "mediation analysis", has a long history in social science and economics and has in the 21st Century appeared with increasing frequency in epidemiological research. The standard approach for constructing inferences for parameters in the single mediator model of *Statistical Mediation Analysis*, while popular, relies on the truth of strong assumptions and is limited to particular types of variables and the corresponding regression models. Recently a great deal of theoretical and practical work has been done to extend existing techniques to a more general framework for *Causal Mediation Analysis*. In this workshop we'll present an introduction to this new mediation analysis, which relies on the potential outcomes approach to causal inference, relaxes assumptions to allow for essentially arbitrary variable types for exposure and outcomes related through generalised linear models, can accommodate treatment by mediator interactions, supplies total, direct and indirect effects on the observed outcome scale and generates parameters estimates that have a causal interpretation. Approaches that can deal with measured post-randomisation confounders and hidden confounders in trials will also be discussed. The methods presented in the course will be demonstrated using Stata, and in Stata practical sessions participants will learn to apply the methods themselves. The course is targeted towards statisticians, epidemiologists and medical researchers with experience performing statistical analysis of clinical trials or with interests in mediation analyses and who are comfortable with multivariable regression methods**.**

Dr Richard Emsley is a Senior Lecturer in Biostatistics in the Centre for Biostatistics, University of Manchester, UK. He is also Visiting Lecturer in the Department of Biostatistics at the Institute of Psychiatry, Psychology and Neuroscience at King's College London. His research aims to answer three key questions: Are treatments effective? How do they work? Which groups are they most effective for? This involves the development of statistical methods for causal inference, efficacy and mechanisms evaluation and stratified medicine. He is the initiator and Chair of the steering group for the UK Causal Inference Meeting (UK-CIM). He is involved in stratified medicine research programmes in schizophrenia, psoriasis, arthritis and cancer.

For further information including registration please visit: www.vicbiostat.org.au

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