Introduction to Network Meta-Analysis: A Hands-On Workshop in Stata

Workshop description

Network meta-analysis (NMA) is a general term for the statistical methods used to compare multiple treatments and their alternatives simultaneously. NMA's are often complex and challenging projects. This interactive workshop will provide an overview of NMA methods and its applications including demonstrations of worked examples and hands-on sessions where participants will work through real-world examples.

Course objectives

By the end of the course participants will be able to:

- Understand the concept and the main principles of indirect treatment comparison and network meta-analysis;
- Explain different methods available for indirect comparisons and network meta-analysis;
- Understand the assumptions made in network meta-analysis (heterogeneity, transitivity, consistency) and how to examine them;
- Perform network meta-analysis using Stata, with continuous and dichotomous data;
- Learn different techniques to present the results from network meta-analysis and develop a treatment hierarchy using estimates from network meta-analysis and the certainty of evidence (using GRADE approach).

Who the course is intended for

This course is designed for health services researchers, epidemiologists, statisticians, systematic reviewers, and decision analysts.

Teaching Strategies

The workshop will consist of a mixture of lectures and interactive sessions including practical sessions in Stata.

Assumed Knowledge and Materials

A basic understanding of common statistical concepts (e.g., confidence intervals and hypothesis tests) and, though not essential, some prior knowledge of systematic review and meta-analytic concepts.

Computer practicals will use Stata®, including the new network suite for performing NMA. Free complementary Stata® licenses will be provided to participants.

Please note: Equipment is required for this course. You must bring your own laptop/computer.

Date: Monday, 9 September 2024

Time: 13:00 – 17:00 CET

Location: GES2024 (Prague, Czech Republic – Conference meeting room G8
(further instructions on how to access the meeting room will be provided before workshop)

Registration Fees (plus HST/VAT)

Standard Registration: € 470 (700 CAD)

Discounted for Students: € 350 (520 CAD)

Industry/for profit: € 600 (880 CAD)

Registration deadline: 31/July/2024

- **Instructors:**

Dr Behnam Sadeghirad, is an assistant professor in the Department of Anesthesia and Department of Health Research Methods, Evidence and Impact at McMaster University and a research methodologist at Michael G. DeGroote Institute for Pain Research and Care. He is also a member of GRADE Working Group and Cochrane Anesthesia group. His research focus is methodology of systematic review and meta-analysis, network meta-analysis, evidence-based medicine and clinical practice guidelines. He has published over 100 systematic reviews and (network) meta-analyses in high impact journals such as JAMA, BMJ, Annals of Internal Medicine and taught in a number of evidence synthesis workshops and courses. https://experts.mcmaster.ca/display/sadeghb

Dr Lawrence Mbuagbaw, Research Methods Scientist and an associate professor at McMaster University and associate professor extraordinary of Epidemiology and Biostatistics at Stellenbosch University. He is also and research methods scientist in the Research Institute of St Joseph's Health Care Hamilton where he provides methodological and statistical support for other researchers as the Director of the Biostatistics Unit. He teaches courses in biostatistics, randomized trials and evidence synthesis. www.lawrencembuagbaw.ca

Dr Ivan D. Florez, Pediatrician, MSc Clinical Epidemiology and PhD in Health Research Methodology. Full Professor at the Department of Pediatrics at University of Antioquia (Medellin, Colombia), and Assistant professor (adjunct) at McMaster University (Hamilton, Canada). He has published over 15 NMA in high impact journals and several articles on NMA methods and certainty of the evidence assessment. He is the Director of Cochrane Colombia, member of the GRADE working group. He has taught several evidence synthesis courses and NMA workshops https://experts.mcmaster.ca/display/florezid

Workshop Schedule

Virtual sessions	
Recorded presentation	Introduction to indirect comparisons and network meta-analysis
Recorded presentation	Design, data structure, and planning for network meta-analysis
Recorded presentation	Assumptions and model selection (Bayesian vs. frequentist) for network meta-analysis
In-person sessions:	GES2024 - meeting room G8
13:00 - 13:45	Hands-on exercise: Network meta-analysis in Stata® (part 1) [Data and network structure, checking assumptions]
13:45 - 14:45	Hands-on exercise: Network meta-analysis in Stata® (part 2) [relative effect estimates (binary/continuous), probability ranking, network meta-regression]
14:45 – 15:00	Coffee break and refreshment
15:00 - 15:50	Assessing certainty of evidence (GRADE) in network meta-analysis
15:50 - 16:35	Developing treatment hierarchy using the GRADE Working Group minimally and partially contextualized approaches
16:35 - 17:00	Group discussion. Discussion on published network meta-analyses and on challenges from participants' network meta-analysis projects

Recommended books and handbook

- Palmer TM and Sterne JAC. Meta-Analysis in Stata: An Updated Collection from the Stata Journal. 2nd Edition, Stata Press, 2016.
- Matthias Egger, Julian P.T. Higgins, George Davey Smith. Systematic Reviews in Health Research: Meta-Analysis in Context. Third Edition, 2022 Wiley-Blackwell BMJ Books. https://onlinelibrary.wiley.com/doi/book/10.1002/9781119099369
- GRADE working group. GRADE Series. Journal of Clinical Epidemiology. Available at: http://www.jclinepi.com/content/jce-GRADE-Series