Meta-analysis of Individual Participant Data (IPD) from intervention studies

Background

Systematic reviews and meta-analyses are an important cornerstone of contemporary evidence-based medicine. The large majority summarize published aggregate data, but it is increasingly common that individual participant data (IPD) are obtained from primary studies. As a result, new opportunities arise, and more advanced statistical methods are needed to properly analyze the available data. In this course, we discuss how a meta-analysis involving IPD can be conducted to investigate the comparative efficacy between different interventions. The course consists of plenary presentations, small-group discussions, and computer and reading exercises.

Objectives

In this two-day workshop participants learn to synthesize the evidence from multiple studies assessing the comparative efficacy between two interventions. Participants will get familiar with the advantages of obtaining IPD, and discuss the characteristics, advantages and limitations of various meta-analysis methods to summarize estimates of treatment effect, quantify between-study heterogeneity and identify moderators of treatment effect. Participants will be introduced into the principles of meta-analysis, so that they are able to understand and interpret meta-analysis results.

At the end of the course, participants will understand the essentials of IPD meta-analyses and able to:
1. Explain the rationale for performing an individual participant data meta-analysis (IPD-MA)
2. Understand the advantages, limitations and key characteristics of IPD-MA in intervention research
3. Understand the relevance of between-study heterogeneity, and be familiar with statistical methods for investigating and reporting this
4. Be familiar with statistical methods for summarizing relative treatment effects and exploring the presence of treatment-covariate interaction
5. Be familiar with the similarities and differences between one-stage and two-stage meta-analysis methods
6. Interpret and critically appraise the results from an IPD-MA

Target audience

The workshop is directed to review authors, statisticians, healthcare workers, clinicians, researchers, guideline developers and policy makers, who wish to know more about when and how to perform, and how to assess the validity of meta-analyses with IPD.

Prerequisites

Participants must have basic knowledge about the principles of intervention research and the conduct of systematic reviews and meta-analysis. Computer exercises will be done using the free statistical software R. Although knowledge of basic R commands is desired, syntax code will be provided to replicate all analyses. Participants are asked to bring their own laptop with R installed (detailed guidance will be provided later).

Topics

1. Introduction to IPD reviews.
    a. Drawbacks of aggregate data (AD) systematic reviews
    b. Potential benefits of IPD reviews
    c. Challenges in IPD reviews
    d. Differences between aggregate data and IPD reviews
2. Statistical methodology for IPD meta-analysis
    a. Two-stage IPD meta-analysis: summarizing treatment effect, quantifying between-study heterogeneity, identifying treatment-effect modifiers
    b. One-stage IPD meta-analysis: summarizing treatment effect, quantifying between-study heterogeneity, identifying treatment-effect modifiers
    c. Differences between one-stage and two-stage meta-analysis
    d. Computer practical: performing an IPD meta-analysis in R
    e. Reading assignment: interpreting a published IPD meta-analysis

Workshop Style

The workshop will consist of interactive, plenary presentations with ample room for discussion, small group exercises and computer exercises. Participants are asked to do some preparatory work before the workshop and to do some self-study during the workshop. On the second day, participants can choose between a computer exercise (focus on practical skills) and a reading exercise (focus on interpretation) to get familiar with the presented topics. As indicated, participants are asked to bring their own laptop with R installed (detailed guidance will be provided later).

Faculty

- Thomas Debray, PhD, Cochrane Netherlands and Julius Center, Utrecht.
- Carl Moons, PhD, Cochrane Netherlands and Julius Center, Utrecht.
- Hans Reitsma, MD, PhD, Cochrane Netherlands and Julius Center, Utrecht.
- Ewoud Schuit, PhD, Cochrane Netherlands and Julius Center, Utrecht.

Facilitators are member of the Cochrane IPD meta-analysis group (https://methods.cochrane.org/ipdma/)

Language

English.

Dates, insurance & cancellation

Utrecht – 28-29 March, 2019

NB: For this course a minimum number of participants is required. On February 22, 20198 we will decide whether the course will go ahead. Participants from abroad should take account of this when making travel arrangements.

A full refund will be available if you notify us by email up to 30 working days before the date of the event. Refunds are not available if you cancel your place within 30 working days before the date of the event. The organization does not accept liability for individual medical, travel or personal insurance. Participants are strongly advised to take out their own personal insurance policies. In case an unforeseen event would force the organization to cancel the meeting, the organization will fully reimburse the participants registration fees, but will not be responsible for the refund of travel and accommodation costs.

Course fees

- € 595.-

Online application

To register for the course, click here.

For more information on the content of the course

Send an e-mail with your question(s) to cochrane@umcutrecht.nl

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For organizational information

For organizational information, f.i. about location, invoicing etc. you can contact the course organiser at the PAO Julius Center, Bianca Veenhof-Groeneveld, PAOJuliusCenter@umcutrecht.nl