Systematic reviews and meta-analysis of diagnostic test accuracy studies

Background

Clinicians, healthcare workers and guideline developers have to take many decisions regarding the application of diagnostic tests. For such decisions knowledge of the accuracy of tests is necessary. Diagnostic test accuracy (DTA) applies to comparing the results of the test under study (the so-called index test) with those of a reference standard (the best test to identify the patient's condition). In DTA studies various diagnostic accuracy parameters can be calculated, such as sensitivity, specificity and predictive values. To help making diagnostic decisions, systematic reviews of DTA evidence have become a helpful tool for medical decision making. Although the principles of systematic reviews of DTA are similar to those of systematic reviews of interventions, many aspects of systematic reviews of DTA (SRDTAs) require special skills. This doesn't only apply to the systematic review process itself, but also to meta-analysis of DTA. This workshop is targeted at people who need to make decisions about diagnostic tests and forms a coherent basis for systematically reviewing, analysing and interpreting diagnostic evidence.

Objectives

In this three-day workshop participants learn to define the diagnostic 'journey' of a patient with a particular health problem (including the role of tests), to formulate clear diagnostic questions and to identify and appraise DTA studies. Much time will be devoted to the conduct and interpretation of meta-analysis of DTA studies. This will include computer exercises in which an actual meta-analysis will be conducted. Finally, participants will learn how to make their results understandable for end-users. We will follow Cochrane guidance for preparing a Cochrane systematic review of diagnostic test accuracy (see http://dta.cochrane.org/handbook-dta-reviews).

After successful completion of the workshop, participants will:

1. know the various steps involved in conducting an SRDTA;
2. be able to write a protocol for an SRDTA, including a description of the clinical pathway;
3. be able to frame the study question and define criteria for inclusion and exclusion of studies;
4. understand the principles of conducting sensitive search strategies for DTA studies;
5. be able to assess the methodological quality of DTA studies by the use of QUADAS-2;
6. understand the principles of meta-analysis of diagnostic test accuracy;
7. be able to perform a diagnostic meta-analysis in R;
8. be able to explore heterogeneity in a diagnostic meta-analysis;
9. be able to interpret and present the results.

Target audience

The workshop is directed to review authors, healthcare workers, clinicians, researchers (statisticians and epidemiologists), guideline developers and policy makers, who wish to know more about systematically reviewing and understanding diagnostic evidence.

Prerequisites

1. Basic knowledge of the methodology and statistical analysis of primary studies of diagnostic test accuracy.
2. Familiarity with the methodology and conduct of systematic reviews.
3. Basic skills in R would be helpful (a link to an introductory instruction will be provided).
4. Participants are asked to bring their own laptop with R installed (detailed guidance will be provided later).

Topics

- Introduction to diagnostic studies.
- Developing a protocol for a systematic review of DTA.
- Framing the study question, defining the title, objectives and criteria for inclusion of studies.
- Introduction to study identification.
- Assessment of methodological quality (QUADAS-2).
- Data extraction.
- Principles of diagnostic meta-analysis.
- Hierarchical Summary ROC and Bivariate Normal models for diagnostic meta-analysis.
- Use of R for diagnostic meta-analysis.
- Investigating and interpreting heterogeneity (subgroup analyses and meta-regression).
- Making the results understandable for non-experienced end-users.

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. Participants are asked to bring their own laptop with R installed (detailed guidance will be provided later).

Faculty

- Rob Scholten, MD, PhD, Cochrane Netherlands and Julius Center, Utrecht.
- Lotty Hooft, PhD, Cochrane Netherlands and Julius Center, Utrecht.
- Hans Reitsma, MD, PhD, Cochrane Netherlands and Julius Center, Utrecht.
- René Spijker, MSc, Cochrane Netherlands, Utrecht, and Amsterdam University Medical Center, Amsterdam.

All facilitators are member of the Cochrane Screening and Diagnostic Test Methods Group and/or Cochrane Diagnostic Test Accuracy Editorial Team.

Language

English (unless all participants are Dutch).

Dates, insurance & cancellation

Utrecht 15-17 June, 2020.

On day 1, we will start at 10:00 h AM. The last day, the course will end 16:00 h PM the latest.

NB: For this course a minimum number of participants is required. Six weeks before the start of the course 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 fee

The course fee amounts € 895.-

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