



Cochrane Netherlands

Understanding, appraising,
interpreting and summarising
evidence regarding
diagnostic tests

A series of two workshops

June 19th, 20th, and 21st, 2017

Understanding, appraising, interpreting and summarising evidence regarding diagnostic tests

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). From this various diagnostic accuracy parameters can be derived, such as sensitivity, specificity and predictive values.

To help making diagnostic decisions systematically summarising DTA evidence has become a major part of medical decision making.

Although the principles of systematically summarising diagnostic evidence are similar to those of systematic reviews of interventions, many aspects of systematic reviews of DTA (SRDTAs) require special skills. This not only applies to the systematic review process itself, but also to meta-analysis of DTA.

This series of two workshops 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. Both workshops could be followed in isolation.

Part 1. (Cochrane) systematic reviews of diagnostic test accuracy (2 days)

Objectives

In this two-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. They will be introduced into the principles of meta-analysis, so that they are able to understand and interpret diagnostic meta-analysis. This workshop forms an essential basis for the next workshop. 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;
3. be able to frame the study question and define criteria for inclusion and exclusion of studies;
4. know the various steps involved in searching for DTA studies, managing references and documenting and reporting search results;
5. understand the principles of conducting sensitive search strategies for DTA studies;
6. be able to assess the methodological quality of DTA studies by the use of QUADAS-2;
7. understand the principles of DTA meta-analysis;
8. be able to interpret and present the results.

Target audience

The workshop is directed to review authors, healthcare workers, clinicians, researchers, guideline developers and policy makers, who wish to know more about systematically reviewing and understanding diagnostic evidence. The workshop is essential for understanding the subject matter of the meta-analysis workshop (part 2).

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.

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.
- Practical introduction to diagnostic meta-analysis.
- Making the results understandable for non-experienced end-users.

Workshop Style

The workshop will consist of interactive, plenary presentations with ample room for discussion, and small group exercises. Participants are asked to do some preparatory work before the workshop.

Faculty

- Lotty Hooft, PhD, Cochrane Netherlands and Julius Center, Utrecht.
- Mariska Leeftang, Cochrane Screening and Diagnostic Tests Methods Group and Academic Medical Center, Amsterdam.
- Hans Reitsma, MD, PhD, Cochrane Netherlands and Julius Center, Utrecht.
- René Spijker, Cochrane Netherlands, Utrecht, and Academic Medical Center, Amsterdam.
- Rob Scholten, MD, PhD, Cochrane Netherlands and Julius Center, Utrecht.

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

Language

Depending on the background of the participants: Dutch or English.

Dates and location

Utrecht – June 19th and 20th, 2017

NB: For this course a minimum number of participants is required. On April 19th we will decide whether the course will go ahead. Participants from abroad should take account of this when making travel arrangements.

Part 2. Meta-analysis of diagnostic test accuracy (1 day)

Objectives

In this one-day hands-on workshop participants will learn the main aspects of meta-analysis of diagnostic studies. Meta-analysis is directed at combining sensitivity and specificity of primary diagnostic studies. Because those parameters are not independent of each other, they must be analysed jointly by the use of advanced statistical models. We will address both hierarchical and bivariate models for diagnostic meta-analysis by the use of R software. In addition, we will address how to explore heterogeneity and to perform subgroup analyses.

After successful completion of the workshop, participants will:

1. understand the principles of meta-analysis of diagnostic test accuracy;
2. be able to perform a diagnostic meta-analysis in R;
3. be able to explore heterogeneity in a diagnostic meta-analysis;
4. interpret and present the results.

Target audience

This workshop is intended for researchers (statisticians and epidemiologists), but is also very useful for review authors, healthcare workers, clinicians, guideline developers and policy makers who wish to perform diagnostic meta-analyses.

Prerequisites

1. Knowledge regarding the methodology and conduct of (systematic reviews of) diagnostic test accuracy studies (e.g. of the level of workshop 1) is essential.
2. Basic skills in R would be helpful (a link to an introductory instruction will be provided).
3. Participants are asked to bring their own laptop with R installed (detailed guidance will be provided later).

Topics

- Principles of diagnostic meta-analysis.
- Hierarchical Summary ROC and Bivariate Normal models for diagnostic meta-analysis.
- Use of R, Stata and SAS for diagnostic meta-analysis.
- Investigating and interpreting heterogeneity (subgroup analyses and meta-regression).

Workshop Style

The workshop will consist of interactive, plenary presentations with ample room for discussion and computer sessions.

Faculty

- Thomas Debray, PhD, Cochrane Netherlands and Julius Center, Utrecht.
- Hans Reitsma, MD, PhD, Cochrane Netherlands and Julius Center, Utrecht / Cochrane Screening and Diagnostic Test Methods Group.
- Rob Scholten, MD, PhD, Cochrane Netherlands and Julius Center, Utrecht.

Language

Depending on the background of the participants: Dutch or English.

Dates

Utrecht – June 21st, 2017

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Course fees

- Whole series (workshop 1 + 2): € 875,-
- Single workshops:
 - Workshop 1 (2 days): € 650,-
 - Workshop 2 (1 day): € 325,-

If one of the courses will be cancelled, the separate course fee applies.

We are in the process of obtaining free registrations for a small number of Cochrane authors, who have at least a registered title for a Cochrane Diagnostic Test Accuracy review. If you are a Cochrane author, please contact us at cochrane@umcutrecht.nl, so that we can keep you posted.

Online application

To apply for one or both courses please visit www.juliusacademy.nl – ‘courses’

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 organizer at the Julius Academy, Inge Kuurman, I.P.Kuurman@umcutrecht.nl

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