Swiss Epidemiology Winter School 2018

Systematic Reviews and Meta-analysis of Diagnostic Test Accuracy Studies

January 18th – 20th, 2018

Course description

Faculty	**Dr. Anne W.S. Rutjes, PhD** Institute of Social and Preventive Medicine (ISPM), University of Bern, Switzerland & Fondazione Università "Gabriele d'Annunzio", University of Chieti – Pescara, Italy **Dr. Yemisi Takwoingi, PhD** Institute of Applied Health Research, University of Birmingham, Birmingham, UK
Place	**CH – 3823 Wengen | SWITZERLAND** Hotel Edelweiss (see map on http://www.epi-winterschool.org/hotels)
Introduction	This course will focus on the systematic review process to identify, critically appraise and summarise data from diagnostic test accuracy (DTA) studies. DTA studies evaluate the performance of a diagnostic test, for example to gauge how good a test is at discriminating between diseased and non-diseased persons. A systematic review is a useful design to summarise all evidence on the clinical performance of a diagnostic test for a specific disease or condition. This course starts with a basic introduction to what a DTA study is and what estimates such as sensitivity and specificity mean. Thereafter, the course participants are introduced to the steps involved in the conduct of a high quality systematic review. Friday afternoon and Saturday, we will focus on the planning, organisation and conduct of the statistical analyses (meta-analyses). The target audience of the course are epidemiologists, statisticians and others who wish to conduct systematic reviews and meta-analyses of DTA studies. Participants should have a basic understanding of general statistical and epidemiological principles. Although exercises are done in STATA and RevMan, no prior experience with these packages is required.

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Course objectives

To:

- Understand the different objectives and designs of DTA studies
- Understand the basic elements of a thorough literature search for DTA studies
- Understand potential risk of bias and concerns regarding applicability of DTA study results
- Understand the concepts underlying different approaches to meta-analysis of DTA studies
- Perform different types of meta-analyses of DTA studies (in RevMan and Stata)
- Describe summary estimates and interpret results from meta-analyses appropriately

What you have to bring

Students should bring their own portable computers. Prior to the course, we will provide instructions regarding the installation of the software packages that will be used in the course. These are the freeware RevMan (http://tech.cochrane.org/revman/download) and STATA. STATA is a widely used statistical software package. We will install it on your computer at the start of the course.

Outline of course

The course will run over three days and consists of a mixture of lectures, discussions and (computer) practicals. During the extended break in the afternoon, participants review course materials, catch up on emails or go skiing.

Thursday, January 18th

- Lecture: General introduction to the course
- Lecture: Design and analysis of a single test accuracy study
- Lecture: General structure of systematic reviews of DTA studies
- Lecture: Building a search strategy
- Practical session: Searching in PubMed for DTA studies

Friday, January 19th

- Lecture: Data extraction & quality assessment
- Practical session: Using QUADAS-2 and calculating estimates of diagnostic test accuracy
- Lecture: Basic approach for DTA meta-analysis
- Lecture: Hierarchical models for meta-analysis of DTA studies
- Practical session: Using RevMan and Stata for meta-analyses

Saturday, January 20st

- Lecture: Comparing tests and investigating heterogeneity
- Lecture: Planning analysis
- Practical session: Using Stata for test comparisons and investigations of heterogeneity
- Lecture/Exercise: Interpreting results and drawing conclusions
- Question and answer session, and feedback on the course

Credit	1.5 ECTS
Course fee	SSPH+: CHF 0 Academic: CHF 900 Industry: CHF 2000
Registration	Registration on the Winter School website www.epi-winterschool.org.
Course hotels	Participants must book their accommodations themselves (see map and recommendations on www.epi-winterschool.org/hotels).