Swiss Epidemiology Winter School 2018

Advanced Methods in (Network) Meta-Analysis

A Practical Course in R

January 15th – 17th, 2018

Course description	
Faculty	**Prof. Georgia Salanti** Institute of Social and Preventive Medicine (ISPM), University of Bern, Switzerland **Dr. Guido Schwarzer** Institute for Medical Biometry and Statistics (IMBI), University of Freiburg, Germany
Place	**CH – 3823 Wengen | SWITZERLAND** Room Bühlstube (see map at http://www.epi-winterschool.org/hotels)
Introduction	Standard meta-analysis methods for clinical and epidemiological studies are widely used with focus on comparisons of two interventions, such as a drug versus a placebo, or a new intervention versus standard practice. However, contemporary research questions require methods that are beyond the state-of the art. Investigators often need to synthesized data that are potentially subject to publication bias, several health outcomes or need to compare more than two interventions for the same condition. Extensions of meta-analysis methods to address these aims have been the subject of much methodological research in recent years, and are increasingly being applied. This course will explain the theory and application of meta-regression models, methods to investigate the risk of publication bias, multivariate meta-analysis, and network meta-analysis. This course is aimed at statisticians, epidemiologists and other quantitatively-minded researchers who want to understand and undertake

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	beyond-the-standard statistical syntheses of clinical trials. Knowledge of systematic reviews and the fundamentals of meta-analysis is expected of all participants. Participants must be statistically literate, including a good understanding of linear regression, meta-analysis, random-effects models and matrices. Computer practicals will use R packages requiring basic experience with R software.
The Course objectives	By the end of this short course participants will have an understanding of: • The role and potential of meta-regression, multivariate meta-analysis and network meta-analysis; the potential and limitations of methods to detect and account for small-study effects; methods to infer about the risk of publication bias • The principles, steps and statistical methods involved. Participants will gain practical experience in performing analyses in R.
What you have to bring	Students should bring their own portable computers. The latest version of R and R Studio need to be installed. Information on R packages used in the course will be send to participants in due course. University of Bern IT staff onsite can provide help on the night before the course.
Outline of course	The course will run over three days and consist of lectures, group work and computer practicals. ***Sunday, January 14th (evening)*** Assistance in installation of R software on students' laptop computers, and possibility of self-directed session for students wishing to refresh themselves with R and RStudio. ***Monday, January 15th*** • Welcome and introductions • Meta-analysis of pairwise comparisons; methods to estimate heterogeneity and summary effects • Meta-regression models • Methods to investigate the potential influence of publication bias • Multivariate meta-analysis ***Tuesday, January 16th*** • Indirect and mixed treatment comparisons • Drawing network plots, doing multiple pairwise analyses at once • Network meta-analysis using meta-regression • Statistical issues in network meta-analysis • Methods for presenting results ***Wednesday, January 17th*** • Detecting and exploring inconsistency in a network of interventions • Presenting results and ranking interventions

	• Reporting standards and quality assessment of network meta-analyses
Credit	1.5 ECTS
Course fee	SSPH+: CHF 0 Academic: CHF 900 Industry: CHF 2000
Registration	You can register 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).