Swiss Epidemiology Winter School 2019

Advanced Methods in (Network) Meta-Analysis – A Practical Course in R
January 21st – 23rd, 2019

Faculty	**Prof. Georgia Salanti** Institute of Social and Preventive Medicine (ISPM), University of Bern, Switzerland **Dr. Guido Schwarzer** Institute of Medical Biometry and Statistics (IMBI), University of Freiburg, Germany
Venue	**CH – 3823 Wengen | SWITZERLAND** Hotel Sunstar (see map on http://www.epi-winterschool.org/hotels)
Description	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 synthesize data that are potentially subject to small-study effects / 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 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.
Objectives	By the end of this course participants will: - understand the role and potential of meta-regression, multivariate meta-analysis, dose-response meta-analysis and network meta-analysis - understand the potential and limitations of methods to detect and account for small-study effects - understand the principles, steps and statistical methods involved - be able to perform the above mentioned methods using R packages.

Target audience	Researchers in health sciences with some experience or understanding of the basics of meta-analysis who wish to expand their knowledge and skills in the context of clinical effectiveness evaluation.

Outline

The course will run over three days and consist of lectures, group work and computer practical sessions. We start early in the morning with a review of the previous day. During the extended break in the afternoon participants review course materials, catch up on emails or go skiing. We reconvene at 4:30 pm for the computer sessions.

Monday, January 21st (8:00 – 12:00 | 16:30 – 18:30)

- Meta-analysis of pairwise comparisons; methods to estimate heterogeneity and summary effects
- Meta-regression models
- Methods to investigate the potential influence of publication bias

Tuesday, January 22nd (8:00 – 12:00 | 16:30 – 18:30)

- Multivariate meta-analysis
- Dose-response meta-analysis
- Indirect and mixed treatment comparisons

Wednesday, January 23rd (8:00 – 12:00 | 16:30 – 18:30)

- Network meta-analysis
- Reporting standards and quality assessment of network meta-analyses

Credits	1.0 ECTS

To bring along	Students should bring their own portable computers. A course license for Stata® will be available, to be installed before arrival. University of Bern IT staff onsite can provide help upon request per e-mail (it@ispm.unibe.ch)

Course book	Schwarzer G, Carpenter JR, Rücker G. (2015) *Meta-Analysis with R*. The book will be provided on the first course day.

Course fee

SSPH+ students: CHF   0 [*)]
Academic: CHF 950
Industry: CHF 2050
[*)] except students from University of Geneva (cohort 4) and Lucerne

Registration	You can register on the Winter School website www.epi-winterschool.org.

Accomodation	Participants must book their accommodations themselves. Please see our recommendations on www.epi-winterschool.org/hotels for special prices.