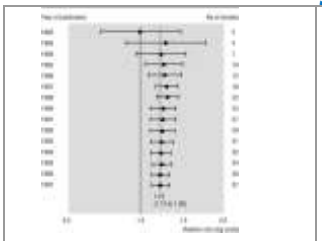
EPIB-619: Systematic Reviews and Meta-analyses, 2014



Course #	EPIB 619
Course Title	Systematic Reviews & Meta-analyses
Dates	May 5 - 16, 2014
Days	Monday to Friday
Times	1:00 - 4:15 PM
Location	Leacock 212, Leacock Bldg
Faculty	Madhukar Pai, MD, PhD (madhukar.pai@mcgill.ca) Kristian Filion, PhD (kristian.filion@mcgill.ca)

COURSE SCHEDULE

Date	Topic	Faculty
May 5, Mon	Introduction to systematic reviews and meta-analysis: the big picture The systematic reviews road map & protocol writing	Madhu Pai
May 6, Tues	Formulation of the focused review question Literature searching and screening of citations Critical appraisal of a SR: Mobile phones Drop-in consultations clinic (optional) after class ends	Madhu Pai Kris Filion Madhu & Kris
May 7, Wed	Quality assessment: approaches and tools Data extraction and analysis Critical appraisal of a SR: Echinacea Drop-in consultations clinic (optional) after class ends	Madhu Pai Kris Filion Madhu & Kris
May 8, Thurs	Data analysis: Meta-analysis in Stata and demo (computer lab) Protocol development: SR on male circumcision and HIV [MC-HIV] Data extraction example: depression and suicides (case-control)	Madhu Pai Kris Filion Madhu Pai
May 9, Fri	Planning a literature search and overview of databases and sources (computer lab) Effective use of PubMed & EndNote (computer lab) Database searching: MC-HIV Data extraction example: Male circumcision and HIV (RCT)	Genevieve Gore Kris Filion
May 12, Mon	Statistical aspects of meta-analysis: choice of models, evaluation of heterogeneity, subgroup analyses, meta-regression, publication bias Case study 1: Omega-3 fatty acids in cardiovascular patients Drop-in consultations clinic (optional) after class ends	Robert Platt Kris Filion Kris Filion
May 13, Tues	Systematic reviews of observational studies Systematic reviews of diagnostic studies Critical appraisal of a SR: Polypill	Brett Thombs Madhu Pai Kris Filion
May 14, Wed	Case study 2: Network meta-analysis Case study 3: Prevalence of e-cigarettes use Case study 4: Asthma and invasive pneumococcal disease	Michelle Bally Nita Perumal & Cindra Robazza Tina Boikos
May 15, Thurs	Data analysis in Stata: MC-HIV Writing a SR for publication & tips for getting published Course evaluation	Madhu Pai
May 16, Fri	Consultations by appointment	

Instructors:

- Dr Madhukar Pai, MD, PhD, Associate Professor, Department of Epidemiology, Biostatistics & Occupational Health, McGill University, Montreal [madhukar.pai@mcgill.ca]
- Dr Kristian B Filion, PhD, Assistant Professor, Department of Medicine, McGill University, Montreal [kristian.filion@mcgill.ca]

Guest faculty:

- Dr Robert Platt, PhD, Professor, Department of Epidemiology, Biostatistics & Occupational Health, McGill University & Department of Pediatrics, Montreal Children's Hospital
- Ms. Genevieve Gore, Liaison Librarian, McGill Life Sciences Library, McGill University, Montreal
- Dr Brett Thombs, Associate Professor, Department of Psychiatry McGill Univ. and Jewish General Hospital
- Ms Michelle Bally, PhD Candidate, Dept of Epidemiology & Biostats, McGill University, Montreal
- Ms Tina Boikos, PhD Candidate, Dept of Epidemiology & Biostats, McGill University, Montreal
- Ms Nita Perumal, MScPH Candidate, Dept of Epidemiology & Biostats, McGill University, Montreal
- Ms Cindra Robazza, MScPH Candidate, Dept of Epidemiology & Biostats, McGill University, Montreal

Course description: Systematic reviews and meta-analyses are critical for evidence-based clinical and public health practice. The widespread and growing application of systematic reviews to synthesize evidence on key research and clinical questions makes it useful for health professionals to be able to understand and critique this research design. This course will provide a detailed description of the systematic review process, discuss the strengths and limitations of the method, and provide step-by-step guidance on how to perform a systematic review, and how to critically appraise systematic reviews. Specific topics to be covered include: formulation of the review question, searching of literature, quality assessment of studies, data extraction, meta-analytic methods, and report writing. The course will also cover statistical issues such as selection of statistical models for meta-analysis, including problem sets with practical examples of fixed and random effects models as well as examples of methods to evaluate heterogeneity and publication bias; graphical and tabular templates for the presentation of data from a meta-analysis. Several software packages (mainly STATA) will be discussed, along with tutorials on how to effectively use tools such as PubMed and EndNote for conducting systematic reviews. This course will feature guest faculty who will provide overviews of special topics. Students will be required to complete an example review during the course.

Prerequisites: Introductory level training in epidemiology (e.g. EPIB601 or EPIB606) and biostatistics (e.g. EPIB607). All others **must** seek the instructor's permission.

Assessment for pass/fail grade:

1. Attendance and participation: 10%
2. Take home projects (Critical appraisal of systematic reviews): 40%
3. Preparation and completion of an example systematic review exercise: 50%

Recommended textbooks:

- Systematic reviews to support evidence-based medicine. 2nd Edition. Khalid Khan, Regina Kunz, Jos Kleijnen and Gerd Antes. Hodder Arnold, 2011. http://www.amazon.ca/Systematic-reviews-support-evidence-based-medicine/dp/1853157945
- Sterne J. Meta-analysis in Stata. Stata Press, 2009. URL: http://www.stata-press.com/books/mais.html

All participants will receive a USB drive that contains useful resources for systematic reviews, such as free software, guidelines, sample data extraction forms, quality checklists, powerpoint slides, etc. Additional materials can be found at: http://www.teachepi.org/ and http://wikisites.mcgill.ca/systematicreview/index.php/Main_Page