

Systematic reviews and meta-analysis

16th-20th November 2020

15h-20h Monday-Thursday

8h-13h Friday

Teacher: Bright Nwaru, University of Gothenburg, Sweden

Introduction:

Decisions in healthcare and policy depend on the highest available evidence. Systematic reviews and meta-analyses rank highest in the evidence hierarchy in informing such important decisions. Over the last decade, their use in different fields of inquiry has rapidly grown in length and breadth. In this course, participants will be taken through the rudiments of conducting systematic reviews and meta-analyses, covering all stages of the review process, including question formulation, study identification, data extraction, quality appraisal, meta-analysis, and many more. Tutoring is participatory, with hands-on practical sessions that allow participants to implement the skills learned. The course is suitable for postgraduate students and researchers from any field of research.

Learning outcomes:

After completing the course, the students will:

Knowledge and understanding

Understand the motivation and grasp the rudiments of systematic reviews and meta-analysis in medicine and healthcare

Skill and ability

Plan and carry out their own systematic reviews and meta-analysis

Judgement and approach

Develop hands-on skills in reading and critiquing evidence synthesis papers in medicine and healthcare

Types of instructions

Lectures; Case studies; Computer lab sessions; Group work

Requested reading

1. *Systematic Reviews: CRD's guidance for undertaking reviews in health care.* Centre for Reviews and Dissemination, University of York, 2008. pages 3-14. https://www.york.ac.uk/media/crd/Systematic_Reviews.pdf.
2. *Cochrane Handbook of Systematic Reviews of Interventions. Version 5.1.0,* 2011, John Wiley & Sons. <https://handbook-5-1.cochrane.org/>

Assessment

Group work:

Each group will develop a topic to undertake a systematic review and meta-analysis, which will be presented to the class on the last day of class.

Course evaluation

Students will be given a questionnaire to grade different aspects of the course.

Daily Course Schedule

ALL TIMES ARE CENTRAL EUROPEAN TIMES

Monday 16th November 2020

14:00-19:00

Introductions and principles of systematic reviews

14:00-14:30 Introductions and general overviews

14:30-14:40 10 minutes break

14:40-15:30 Definition and rationale for systematic reviews
(lecture + in-class activity 1: defining systematic review)

15:30-15:40 10 minutes break

15:40-16:40 Question formulation for a systematic review
(classroom: lecture + in-class activity 2: finding PICO)

16:40-16:50 10 minutes break

16:50-17:20 Protocol development

17:20-18:20 Planning and performing searches: search strategies and databases

18:20-18:30 10 minutes break

18:30-19:00 Study screening

Tuesday 17th November 2020

14:00-19:00

Data extraction, critical appraisal and meta-analysis

14:00-15:00 Group work
15:00-15:10 10 minutes break
15:10-16:30 Data extraction and critical appraisal
16:30-16:40 10 minutes break
16:40-17:20 Data synthesis: narrative synthesis, principles of meta-analysis
17:20-17:30 10 minutes break
17:30-18:30 Fixed-effect versus random-effects models in meta-analysis
18:30-19:00 Meta-analysis demonstrations

Wednesday 18th November 2020

14:00-19:00

Meta-analysis and reporting of results

14:00-15:00 Heterogeneity, publication bias in meta-analysis, sub-group analysis, meta-regression, and sensitivity analysis
15:00-15:10 10 minutes break
15:10-16:10 Meta-analysis demonstrations continue
16:10-16:20 10 minutes break
16:20-17:20 In-class activity 3: Judging appropriateness of choice of MA approach in a SR paper
17:20-19:00 Group work

Thursday 19th November 2020

14:00-19:00

Overview of contemporary topics

14:00-14:40 Reporting, publishing, and updating systematic reviews
14:40-14:50 10 minutes break
14:50-15:20 Umbrella reviews
15:20-16:20 In-class activity 4: How to read/critique a systematic review paper
16:20-16:30 10 minutes break
16:30-17:00 Individual patient data meta-analysis
17:00-19:00 Group work

Friday 20th November 2020

8:00-13:00

Group work, presentation, and conclusions

8:00-8:30 Criticisms of systematic reviews and meta-analysis
8:30-11:00 Finalizing group work
11:00-11:10 10 minutes break
11:10-13:00 Group presentations and conclusions