

Systematic review and meta-analysis – full course

Module 1 – Systematic review bootcamp

Module outline

- Introduction to conducting systematic reviews
- Writing and submitting the review protocol
- Searching for studies
- Selecting studies and collecting data
- Introduction to risk of bias
- Analysing the data
- Interpreting the findings

Intended learning outcomes

This module will teach you to:

- Recognize features of systematic reviews as a research design
- Recognize the importance of using rigorous methods to conduct a systematic review
- Identify the types and elements of review questions
- Identify the eligibility criteria for studies to be included in a Review
- Recognize the key components of a well-written objective
- Recognize the structure of a protocol
- Identify the key sources to search when conducting a Review
- Identify the elements of the search process that need to be documented and reported
- Recognize the key features of the study selection process
- Identify the data required from a study included in a Cochrane Review
- Recognize the different types and formats of outcome data in the included studies
- Assess the risk of bias arising from the randomization process in the included studies
- Assess the risk of bias due to deviations from the intended interventions in the included studies

- Assess the risk of bias due to missing outcome data in the included studies
- Assess the risk of bias in measurement of the outcome in the included studies
- Assess the risk of bias due to selective reporting
- Recognize characteristics of different effect measures
- Identify ways in which continuous outcomes and their comparisons can be expressed
- Assess the certainty of the evidence
- Define a meta-analysis and identify its possible uses

Module 2 – Developing your systematic review

Module outline

- Online tutoring with 1:1 fortnightly meetings
- Developing research question and search strategy
- Writing and submitting the review protocol
- Screening, identification and selection of studies
- Assessing the quality of studies
- Interpreting the findings
- Writing and submitting the review protocol

Intended learning outcomes

In this module, you will:

- Develop your research question and search protocol
- Apply concepts and terms to be used in a search strategy
- Set eligibility criteria for studies to be included
- Submit the review protocol to PROSPERO (if applicable)
- Undertake all the steps of study selection process
- Identify the data required from a study included in a Review
- Annotate the different types and formats of outcome data in the included studies
- Extract the data from the included studies
- Assess the risk of bias in the included studies
- Reach a judgement on the overall 'risk of bias' in the included studies
- Incorporate 'Risk of bias' assessment into the analysis
- Determine the certainty of the evidence
- Decide on rating up a body of evidence

Module 3 – Meta-analysis workshop

Module outline

- The role of meta-analysis in the research process
- Fixed-effect and random-effects models for synthesizing data
- Interpreting the findings
- Network meta-analysis
- Introduction to economic evaluations

Intended learning outcomes

This module will teach you to:

- Define a meta-analysis
- Decide when it is appropriate to conduct a meta-analysis
- Identify and understand the data presented in forest plots
- Identify heterogeneity between included studies
- Consider heterogeneity appropriately when making decisions about analysis
- Interpret the results of subgroup analysis
- Compute effects sizes and treatment effects
- Assess and interpret variation in effect size across studies
- Consider the analysis of other (non-standard) data in included studies
- Recognize non-standard study designs
- Understand confidence intervals in the interpretation of results of meta-analysis
- Identify ways of re-expressing the standardized mean difference
- Interpret a funnel plot asymmetry
- Decide when it is (not) appropriate to do an NMA (network meta-analysis)
- Understand assumptions required for NMA
- Plan an analytical strategy to address a particular question by an NMA
- Understand the results of an NMA
- Assess the confidence in results from an NMA
- Understand what is cost in an economic evaluation
- Differentiate 'up-front' and 'downstream' costs
- Identify factors of resource use relevant to decision making
- Understand the role and relevance of economic evidence in Intervention Reviews

Module 4 – Write up and submission

Module outline

- Online tutoring with 1:1 fortnightly meetings
- Preferred Reporting Items for Systematic Reviews and Meta-Analyses
- From evidence to clinical guidelines
- Scientific journals and publication cycle
- Writing and publishing your systematic review

Intended learning outcomes

In this module, you will:

- Identify ways of ensuring consistency in a Systematic Review
- Identify elements of the 'Summary of findings' table
- Decide how to present an outcome in a 'Summary of findings' table
- Identify the elements of good reporting of systematic review results
- Understand the purpose of 'Authors' conclusions' in a Cochrane Review
- Recognize features of a Systematic Review abstract
- Recognize the vocabulary appropriate for the PLSs
- Select a target journal for submission
- Format your manuscript according to journal requirements
- Submit your manuscript