CONCEPT

Systematic Review and Meta-Analysis Course: Search Strategy, Critical Appraisal and Synthesis

20 – 24 June 2027
Dammam - Eastern Province five-star



Systematic Review and Meta-Analysis Course: Search Strategy, Critical Appraisal and Synthesis

Ref: 1634_25925 **Date:** 20 – 24 June 2027 **Location:** Dammam - Eastern Province five-star **Fees:** 19500 SAR

Introduction:

Systematic review and meta-analysis, from search strategy through critical appraisal to synthesis, is a 1-week course for health technology assessment, guideline development, policy analysis and research teams, ending with a Review Protocol and Synthesis Plan for a case organisation. Many units commission evidence reviews whose searches cannot be reproduced, whose study selection is undocumented and whose pooled estimates ignore heterogeneity, leaving committees unable to defend recommendations. Nominees already read published studies and support evidence-informed decisions; teaching uses case study work on review protocols and study datasets. CoreConcept Training Center delivers this systematic review and meta-analysis course.

Course Objectives:

- Select the appropriate review type, including rapid and scoping reviews, and frame a structured PICO question with explicit eligibility criteria
- Draft a PRISMA-P review protocol and prepare a PROSPERO prospective registration record
- Build reproducible database search strings that combine Boolean logic, controlled vocabulary and grey literature sources
- Run dual screening, data extraction and RoB 2 or ROBINS-I risk-of-bias assessments with documented reviewer decisions
- Pool effect sizes with fixed-effect and random-effects models, explore heterogeneity and check for bias due to missing results
- Grade certainty with GRADE, report against the PRISMA statement and prepare a Review Protocol and Synthesis Plan

Target Audience:

- Health technology assessment units that appraise medicines, devices and procedures for coverage decisions
- Clinical guideline development groups responsible for evidence tables and recommendation strength
- Policy analysis units that prepare evidence summaries for public health and social policy options
- Research and knowledge translation functions that conduct or commission literature reviews
- Library and information specialists who design and run database searches for review teams

Course Outline:

Day 1: Systematic Review Foundations, Review Types and Question Framing

- Narrative, Scoping and Systematic Review Purpose Comparison
- PICO and PECO Question Structuring for Intervention Reviews
- Eligibility Criteria Matrix for Study Designs and Outcomes
- Existing Review Check Using AMSTAR 2 Quality Ratings
- Rapid Review Streamlining Options and Their Bias Trade-Offs

Day 2: Review Protocols, Registration and Search Strategy Design

- PRISMA-P Protocol Template Drafting Section by Section
- PROSPERO Prospective Registration Record and Amendment Log
- Boolean Operators, Truncation and Proximity Search String Construction
- Controlled Vocabulary Mapping with Subject Headings and Free Text
- Grey Literature, Trial Registers and Citation Chasing Sources

Day 3: Study Screening, Data Extraction and Risk-of-Bias Appraisal

- Reference Deduplication and Dual Title and Abstract Screening
- Full-Text Eligibility Decisions with Exclusion Reason Coding
- Piloted Data Extraction Form for Outcomes and Effect Data
- RoB 2 Domain Judgements for Randomised Trials
- ROBINS-I Assessment of Non-Randomised Intervention Studies

Day 4: Meta-Analysis, Heterogeneity, Reporting Bias and Certainty Grading

- Effect Size Selection and Inverse-Variance Random-Effects Pooling
- Heterogeneity Exploration with Tau Squared, Subgroups and Meta-Regression
- Funnel Plot Asymmetry and Missing Results Bias Assessment
- GRADE Certainty Ratings and Summary of Findings Tables
- PRISMA Statement Checklist, Flow Diagram and Abstract Items

Day 5: Case Study Work and Review Protocol and Synthesis Plan Build

- Case Organisation Policy Question Converted into PICO Protocol
- Case Search Strings Peer Checked Against a Structured Checklist
- Pilot Screening and RoB 2 Calibration on Case Studies
- Case Forest Plot Interpretation and GRADE Evidence Profile
- Review Protocol and Synthesis Plan Completion and Panel Defence

Skills You Will Gain:

- Review Protocol Drafting
- Database Search Strategy Design
- Dual Study Screening
- Study Bias Appraisal
- Meta-Analytic Pooling
- Heterogeneity Investigation
- Certainty of Evidence Grading
- Systematic Review Reporting

Why Attend This Course:

- Deliver a Review Protocol and Synthesis Plan to the evidence committee or guideline panel that commissioned the review
- Judge whether a pooled estimate is credible enough to support a coverage, guideline or policy recommendation
- Avoid rework, delayed recommendations and challenged decisions caused by unreproducible searches and undocumented study selection
- Coach colleagues in screening calibration, risk-of-bias judgements and search string peer checking

Conclusion:

Back at work, the participant hands the evidence committee, guideline panel or policy unit a Review Protocol and Synthesis Plan for a live question in the organisation. Decision makers use it to agree scope, timelines and the certainty threshold a recommendation will need, and reviewers use it to run searching, screening and pooling consistently. After the first completed review, the unit should check the PRISMA flow counts, inter-reviewer agreement and GRADE ratings against the plan and tighten the protocol template for the next question.

Frequently Asked Questions FAQ:

What should participants know before a systematic review and meta-analysis course?

Participants should already read published studies and understand basic effect measures such as risk ratios and mean differences. Bringing a current review question, an existing search or a set of study reports from their own unit makes the protocol and case work more useful.

How does a systematic review and meta-analysis course differ from a biostatistics or evidence-based management course?

It teaches the full review workflow, from protocol and searching to pooling and certainty grading across many studies. Biostatistics courses analyse a single dataset or trial, and evidence-based management courses weigh several kinds of evidence for one management decision without formal pooling.

When is a rapid review acceptable instead of a full systematic review and meta-analysis?

A rapid review is acceptable when a decision deadline cannot wait for a full review and the team states which steps it streamlined, such as single screening or fewer databases. Each shortcut raises the risk of bias and must be reported openly.

What does a participant take back from a systematic review and meta-analysis course?

Participants take back a Review Protocol and Synthesis Plan for a case question, with search strings, screening rules, an extraction form, risk-of-bias tools, a pooling approach and a GRADE plan, ready to adapt for a real review in their organisation.