

## **Advanced Search Techniques and Advanced Search Strategy Design for Systematic Reviews, Health Technology Assessment, Guideline Development and other major research questions.**

This course addresses both advanced search techniques and advanced search strategy design in the context of evidence syntheses, such as systematic reviews, health technology assessment and guidelines. Extensive searches are the foundation of high quality systematic reviews, health technology assessment (HTA), guideline development and other major projects. Conducting searches to retrieve research evidence from databases and other resources requires a range of knowledge and skills. There are constant challenges to keeping up-to-date with new database features and approaches to achieving efficient searches. Search approaches may need to be adapted depending on the end-product which the search is informing and the resources available. Search approaches increasingly need to be explained to sponsors and other end-users in terms of the extent to which they are fit-for-purpose.

As the volume of published research grows it is becoming more challenging to identify efficiently studies performed according to specific methods or relating to broad topics. As well as increasing volumes of research, many research topics are complex and challenging to capture in search strategies. Examples of complex topics may include, but are not limited to, reviews of complex interventions, reviews requiring the identification of study designs other than RCTs, public health and social care topics, veterinary literature, food and feed safety research.

Information professionals and others wishing to develop advanced strategies face challenges in designing strategies which retrieve relevant material but are also efficient in numbers of records retrieved. As well as approaches to developing strategies to run in traditional bibliographic databases, increasingly text analytical software and text mining techniques are being used to interrogate large literatures. These techniques can be used to identify concepts in complex topics and assist with developing strategies to capture complex topics.

This course will address the challenges of designing advanced search strategies in large bibliographic databases using different conceptual combinations and search techniques. The course will also introduce textual analytic and text mining techniques to demonstrate their potential for strategy design and testing.

The course will provide opportunities to learn new techniques, to discuss best approaches, to share insights and to assess variations in current best practice. The course will consist of short presentations, small group and plenary discussion and hand-on exercises.

## TIMETABLE

**Trainers:** Julie Glanville, York Health Economics Consortium, UK

Carol Lefebvre, Lefebvre Associates Ltd, UK

### Day 1: General introduction and identifying search terms

09:15	Welcome and introduction to the course (Carol)
09:30	Discussion: The librarian's role in systematic reviews and other evidence syntheses (Carol) Presentation: Systematic reviews, meta-analyses and forest plots (Carol)
10:15	Discussion and information exchange on search techniques (Carol) <ul style="list-style-type: none"><li>• What are the challenging questions in search term identification?</li><li>• What do we want to learn to improve our work?</li></ul>
10.45	Coffee
11:00	Presentation: Developing search strategies: How to identify search terms (Julie) <ul style="list-style-type: none"><li>• Pearl growing</li><li>• Text analysis software</li><li>• Visual data presentation software</li></ul>
11.45	Hands-on exercise with search term identification
12.45	Lunch
13.45	Discussion of search term identification and use of search filters
14:15	Presentation: ISSG Search Filter Resource (Carol)
14:30	Presentation: Search filters (Julie) <ul style="list-style-type: none"><li>• Key issues in developing search filters</li><li>• How to choose a search filter</li></ul>
15:15	Coffee
15:30	Exercise: choosing a search filter
16:15	Discussion and questions
16.45	Close

## Day 2: Building search strategies and identifying and combining concepts

09:15	Welcome and introduction to the day (Carol)
09:30	Group discussion on structuring searches (Julie) <ul style="list-style-type: none"><li>• How do we decide how to structure our searches?</li><li>• What do we want to learn to improve our work?</li></ul>
10:15	Presentation: Conceptual structures (Carol) <ul style="list-style-type: none"><li>• Origins, value and limitations of PICO</li><li>• Other conceptual breakdowns</li></ul>
10.45	Coffee
11.00	Exercise: developing conceptual structures for some standard questions (Julie) <ul style="list-style-type: none"><li>• Questions about effectiveness</li><li>• Questions about diagnostic test accuracy</li><li>• Open questions</li></ul>
12:15	Review of exercises and discussion
12.45	Lunch
13.45	Presentation: How do we decide which concepts to use in our searches? (Julie) <ul style="list-style-type: none"><li>• Choosing concepts</li><li>• Testing and revising</li></ul>
14:15	Discussion: Complex search strategies – the context and the challenges (Carol): <ul style="list-style-type: none"><li>• What is the current advice in search manuals/guidance?</li><li>• Non-PICO conceptual structures</li></ul>
14.45	Presentation: How to develop strategies for complex questions (Julie) <ul style="list-style-type: none"><li>• Moving beyond PICO</li><li>• Multi-stranded searches</li><li>• Can text mining help?</li></ul>
15:15	Coffee
15:30	Exercise: developing strategies to search for complex questions (Julie)
16:30	Discussion and questions
16.45	Close

### Day 3: What shall we search and how?

09:15	Welcome and introduction to the day (Carol)
09:30	Discussion: choosing resources to search (Carol) <ul style="list-style-type: none"><li>• Best practice</li><li>• Challenges</li></ul>
10:00	Presentation: Core resources for different questions (Carol and Julie) <ul style="list-style-type: none"><li>• Effects (Carol)</li><li>• Safety (Julie)</li><li>• Diagnostic test accuracy (Julie)</li><li>• Economic evidence (Julie)</li><li>• Systematic reviews (Julie)</li></ul>
10.45	Coffee
11.00	Presentation: Techniques: Tips and pitfalls of database features (Carol) <ul style="list-style-type: none"><li>• AND, OR and NOT – beyond the basics</li><li>• retractions and errata</li><li>• updating searches</li></ul>
11:30	Exercises: hands on exploring tips and pitfalls (Carol)
12:15	Discussion of the exercises and sharing of experiences of database particularities/peculiarities (Carol)
12.45	Lunch
13.45	Presentation: Beyond MEDLINE/PubMed (Carol): <ul style="list-style-type: none"><li>• Focus on Embase</li><li>• Focus on The Cochrane Library</li></ul>
14:30	Presentation: Citation indexes – tool of the future? (Julie) <ul style="list-style-type: none"><li>• Can citation indexes make searching to inform systematic reviews more efficient?</li></ul>
15:15	Coffee
15:30	Exercise: Testing out new search resources (Julie)
16:30	Discussion and questions
16.45	Close

### Day 4: Search performance

09:15	Welcome and introduction to the day (Julie)
09:30	Discussion: how do we currently measure the performance of our searches? (Julie)
10:00	Presentation: Measuring search performance and deciding when to stop searching (Julie)

	<ul style="list-style-type: none"> <li>• Known record identification</li> <li>• Relative recall</li> <li>• Capture recapture</li> <li>• When to stop</li> </ul>
10.45	Coffee
11.00	Discussion: testing search performance (Julie)
11:30	Presentation: Peer review of search strategies (Carol)
12:15	Lunch
13:15	Exercise: critiquing a search strategy (Carol)
14:15	Discussion of exercise (Carol)
14.45	Coffee
15:00	Presentation: Documenting and reporting searches (Carol)
15:30	Exercise: critique of search documentation (Carol)
16:15	Final discussion and questions (Carol and Julie)
16.45	Close