EVIDENCE SYNTHESIS IRELAND

Cochrane Ireland

ESI Winter School

26th & 27th January 2027

Introduction to Systematic Reviews

Riddel Hall, Queen's University Belfast

Build your evidence synthesis skills: hands-on training in systematic reviews

HRB An Bord Taighde Sláinte Health Research Board

HSC Public Health Agency Research and Development

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Winter School: Introduction to Systematic Reviews

Overview:

Systematic reviews and evidence syntheses are powerful tools that compile and evaluate all relevant research on a particular question, providing a high-quality evidence base for decision-making. They are crucial for informing policy, guiding practice, and identifying future research needs—not just in health but across various sectors.

Healthcare policy and practice decisions should be based on a synthesis of the global body of evidence rather than relying on individual studies. Evidence Synthesis Ireland and Cochrane Ireland promote evidence-based healthcare policy and practice by supporting high quality, relevant systematic reviews and other synthesised research evidence.

Aim:

This Winter School provides those at the beginning of the systematic review process with a clear understanding of how reviews are planned and conducted. It offers an insight into the development of a protocol, introducing participants to methodology, question formulation, search methods, data extraction, risk of bias assessment, meta-analysis, interpretation and reporting.

Audience:

Healthcare professionals, academics, students, researchers, decision makers and Evidence Synthesis Ireland fellows who are planning, or about to start, a systematic review.

Date
January 26-27 2027

Time:
Day 1: 10:00-17:00
Day 2: 09:30-16:00

Duration:
In person; 2 days

Skill Level:
Introductory

Location:
Riddel Hall, Queen's University Belfast

Places:
70 places available for individuals who are resident on the island of Ireland

Registration fee:
€150 General admission
€80 Student admission

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Learning Outcomes

By the end of the two days, participants will be able to:

- Describe the basic principles of a systematic review
- Formulate a review question using PICO and identify the scope of their review
- Describe the key sections of a systematic review protocol and why it should be registered
- Explain search methods and how a search strategy is built
- Apply the eligibility criteria for selecting studies
- Explain the principles of creating a data collection form and of data extraction
- Explain the principles of risk of bias assessment
- Explain the concept of heterogeneity and describe the methods for assessing and addressing it
- Describe the basic principles of meta-analysis and interpret a forest plot
- Describe how the certainty of evidence is assessed with GRADE and presented in a summary of findings table
- Outline what needs to be reported in a systematic review, using PRISMA

Pre-requisites:

Have a basic knowledge of health research. Are interested in learning more about the methods of a systematic review.

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Teaching strategies

The Winter School will consist of a mixture of short presentations, led by members of Evidence Synthesis Ireland and Cochrane Ireland's teaching faculty covering each of the stages of a systematic review, worked examples, live demonstrations, interactive polls and plenary question and answer sessions. Interactive elements use live polling, so please bring a phone, tablet or laptop.

Faculty

- Prof. Bronwen Connolly Professor of Critical Care
  Queen's University Belfast & Evidence Synthesis Ireland
- Dr. Emma McCall Evidence Synthesis Research Fellow
  NIHR Aberdeen-Belfast Evidence Collaboration (ABEC)
- Dr. Peter McGuigan Consultant in Intensive Care Medicine and Anaesthesia
  Royal Victoria Hospital Belfast
- Dr. KM Saif-Ur-Rahman Evidence Synthesis Methods Lead
  Evidence Synthesis Ireland, University of Galway
- Prof. Declan Devane Professor of Health Research Methodology
  Evidence Synthesis Ireland, University of Galway

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Day 1, Tuesday 26th January 2027, Riddel Hall, Queen's University Belfast

10:00 - 10:15	**Welcome,** Introductions and how the two days will run
10:15 – 10:35	**What a systematic review is and the stages of a review**
10:35 – 11:05	**Defining a review question** Defining objectives and creating a PICO
11:05 – 11:15	**Interactive** Building a PICO from a scenario (live poll and discussion)
11:15 – 11:45	**Break**
11:45 – 12:15	**Writing and registering a protocol**
12:15 – 12:50	**Identifying search terms and searching for relevant studies in a systematic way**
12:50 – 13:05	**Live demonstration:** Building a search strategy in one database
13:05 – 13:15	**Questions on the morning sessions**
13:15 – 14:15	**Lunch**

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Day 1, Tuesday 26th January 2027, Riddel Hall, Queen's University Belfast

14:15 - 14:30	**Tools for managing a review** Reference managers, screening software and RevMan
14:30 – 15:00	**Selecting studies**
15:00 – 15:20	**Interactive** Screening abstracts against eligibility criteria (live poll)
15.20 – 15:30	**Questions and discussion**
15:30 – 16:00	**Break**
16:00 – 16:35	**Data extraction and management** Different types and formats of outcome data
16:35 – 16:50	**Worked example** Extracting outcome data from a trial report (live poll)
16:50 – 17:00	**Day 1 wrap-up and questions**
17:00	**Close of day**

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Day 2, Wednesday 27th January 2027, Riddel Hall, Queen's University Belfast

09:30 - 09:45 **Recap and questions on previous day**

09:45 – 10:25 **Assessing risk of bias**

10:25 – 10:45 **Interactive**
Risk of bias judgements from a trial extract (live poll)

10:45 – 11:15 **Break**

11:15 – 11:45 **Effect measures for binary data (odds ratio, risk ratio)**

11:45 – 12:15 **Effect measures for continuous data**
(mean difference, standardised mean difference)

12:15 – 12:30 **Interactive**
Interpreting effect measures from published reviews (live poll)

12:30 – 13:30 **Lunch**

13:30 - 14:05 **Introduction to meta-analysis**

14:05 – 14:15 **Interactive: reading a forest plot (live poll)**

14:15 – 14:40 **Interpreting the findings**
Summary of findings tables using GRADE

14:40 – 14:55 **Break**

14:55 – 15:20 **Writing up the systematic review:**
PRISMA checklists and related reporting guidelines

15:20 – 15:45 **AI in evidence synthesis**

15:45 – 16:00 **Panel discussion and questions**

16:00 **Close of day**

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Prof. Bronwen Connolly

Professor of Critical Care
Queen's University Belfast & Evidence Synthesis Ireland

Bronwen Connolly is a Professor of Critical Care at Queen's University Belfast, where she is Deputy Director of the Wellcome-Wolfson Institute for Experimental Medicine, and Honorary Senior Fellow at The University of Melbourne, with over 25 years' experience as a physiotherapist. Her research interests focus on acute respiratory and rehabilitation interventions in critical illness, the recovery, long-term outcome, and survivorship of post critical illness patients, and clinical trial methods.



Dr. Emma McCall

Evidence Synthesis Research Fellow
NIHR Aberdeen-Belfast Evidence Collaboration (ABEC)

Emma joined the NIHR Aberdeen-Belfast Evidence Collaboration (ABEC) in 2025 as an Evidence Synthesis Research Fellow, leading and contributing to a range of evidence reviews. She holds a degree in Biochemistry, an MSc in Information Technology, and a PhD which focused on developing a health visitor-led, home-based early intervention for preterm infants and families.

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Dr Peter McGuigan is a Consultant in Intensive Care Medicine and Anaesthesia at the Regional Intensive Care Unit at the Royal Victoria Hospital Belfast. Peter is an early career researcher in the field of critical care medicine, who recently successfully defended his PhD, with a particular interest in neuro-monitoring and phenotypes in cardiac arrest. Dr. McGuigan is also co-National Investigator for the STEPCARE cardiac arrest trial in the UK and won the ICC-CTN Early career researcher Seed funding award in 2023.

Dr. Peter McGuigan

Consultant in Intensive Care Medicine and Anaesthesia
Royal Victoria Hospital Belfast

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Prof. Declan Devane

Professor of Health Research Methodology
Evidence Synthesis Ireland, University of Galway

Declan is the Scientific Director of the HRB-Trials Methodology Research Network, Director of Evidence Synthesis Ireland, and Director of Cochrane Ireland. He is Professor of Health Research Methodology and Deputy Dean of the College of Medicine, Nursing and Health Sciences at University of Galway. He is also Principal Investigator with the INFANT – Irish Centre for Foetal and Neonatal Translational Research.



Dr. KM Saif-Ur-Rahman

Evidence Synthesis Methods Lead
Evidence Synthesis Ireland, University of Galway

Dr. KM Saif-Ur-Rahman specialises in evidence synthesis and health research methods. Saif is a Research Fellow at the University of Galway and the Senior Research Methodologist at Evidence Synthesis Ireland and Cochrane Ireland. Originally trained as a physician, he later specialised in epidemiology and evidence synthesis, completing his Ph.D. at Nagoya University, where he focused on non-communicable diseases and geriatric epidemiology. Saif has extensive experience in researching both infectious and chronic diseases in resource-limited settings, employing diverse research methodologies.