

Systematic Review Fact Sheet

What is a Systematic Review?

This fact sheet is one of a series available that discusses systematic reviews, methodology, searching and sources. For research assistance contact the [Flinders University Library](#)

A definition

A systematic review “attempts to identify, appraise and synthesize all the empirical evidence that meets pre-specified eligibility criteria to answer a given research question”

Cochrane Collaboration 2015, About Cochrane Reviews, accessed 20 Feb 2015, <http://cochranelibrary.com/about/about-cochrane-systematic-reviews.html>

What's the difference between a 'systematic review' and a literature (or 'narrative) review?

Systematic reviews are characterised by:

- a clear, unambiguous research question
- a comprehensive search to identify all potentially relevant studies
- an explicit, reproducible and uniformly applied criteria for the inclusion/exclusion of studies
- a rigorous appraisal of the quality of individual studies, and
- a systematic synthesis of the results of included studies¹.

Other types of review are not required to follow this rigorous, transparent process. They can therefore be prone to bias in terms of how the author searches for studies and then selects, evaluates, and discusses them. Non-systematic reviews provide no means to evaluate the completeness of the review or the author's agenda.

Watch the [Cochrane Consumers and Communication Group video](#) on why systematic reviews are important and how they are done.

Uman LS. [Systematic reviews and meta-analyses](#). J Can Acad Child Adolesc Psychiatry. 2011 Feb; 20(1): 57–59.

Petticrew M. [Systematic reviews from astronomy to zoology: myths and misconceptions](#). BMJ. 2001 Jan; 322(7278): 98-101.

What's the difference between a systematic review and a meta-analysis?

'Meta-analysis' refers to the statistical technique often used by quantitative systematic reviews to integrate the results of included studies. This increases the power and precision of estimates of treatment effect or exposure risk. Not all systematic reviews include a meta-analysis and not all meta-analyses are undertaken "systematically"

Cochrane Collaboration n.d., Glossary: Cochrane Community, accessed 20 Feb 2015, <http://community.cochrane.org/glossary/5#letterm>

In this video, [Meta-Analysis, Calcium, and Organic Food](#), Prof. Aaron Carroll explains meta-analysis using the nutrient content of organic food as an example

Why are systematic reviews important?

Systematic reviews condense research evidence from multiple primary studies using a process designed to minimise the risk of reporting conclusions in a biased way. They therefore provide us with a far more comprehensive and trustworthy picture of the topic of interest than can be gained from individual pieces of research.

Worth reading

[Aromataris E, Pearson A. The systematic review: an overview. Am J Nurs. 2014 Mar;114\(3\):53-8. PubMed PMID: 24572533.](#)

How are systematic reviews used?

Systematic reviews inform us of what is already known, as well as what is currently unknown, about a topic.

They help researchers:

- place new research into a proper context
- plan a research agenda by highlighting areas where further research is needed
- minimise the risk of wasting research resources by duplicating research effort.

If sought and used by clinicians and healthcare consumers, systematic reviews (along with evidence-based guidelines) can:

- assist clinician decision making by providing an easily digestible summation of the best research evidence available
- improve individual patient care outcomes by highlighting best practice
- minimise the risk of harming patients by exposing treatments proven to be dangerous or downright ineffective
- help consumers make more informed decisions about their own care.

Systematic reviews (and health technology assessments (HTAs) incorporating systematic review methods) can assist healthcare policy makers and administrators to:

- formulate policy, guidelines or legislation concerning the use of certain health technologies and treatment strategies
- be more transparent in accounting to stakeholders for how public money is spent.

Systematic review and evidence-based medicine

In this video, Prof. Aaron Carroll gives an interesting [overview of systematic reviews](#) and their importance to evidence based medicine.

Finding Systematic Reviews

Systematic reviews may be published in the peer-reviewed journal literature. You can find these reviews using databases and restricting your search to publication type 'systematic review'.

Systematic reviews are also produced by government, NGOs, agencies and academic institutions and made available on websites. These reviews are an example of 'unpublished' (or 'grey') research. To find these reviews, you need to:

- check the websites of relevant organisations
- or, using [Google Advanced Search](#), enter search terms for your topic in the top search box ('all these terms') as well as the phrase 'systematic review'.

Major producers of systematic reviews

The [Cochrane Collaboration](#) is a global independent network of health practitioners, researchers, and patient advocates producing systematic reviews of primary research in human health care and health policy. Cochrane reviews are internationally recognised as the highest standard in evidence-based health care. Cochrane reviews are published online in [The Cochrane Library](#).

The [Joanna Briggs Institute](#) (JBI) is the international not-for-profit, research and development arm of the School of Translational Science based within the Faculty of Health Sciences at the University of Adelaide, South Australia. JBI collaborates internationally with over 70 entities across the world in producing systematic reviews.

JBI reviews are published in the subscription journal [JBI Database of Systematic Reviews and Implementation Reports](#).

[EPPI-Centre](#) is part of the Social Science Research Unit at the Institute of Education, University of London. It conducts systematic reviews across a range of topics and works with a large number of funders.

Major areas include:

- Education and social policy
- Health promotion and public health
- International health systems and development
- Participative research and policy.

Full reviews can be found in the Centre's online [Evidence Library](#).

The [Campbell Collaboration](#) is an international research network that produces systematic reviews of the effects of social interventions in education, crime and justice, social welfare and international development.

Full reports are published online in the [Campbell Library](#).

Systematic Reviews Resources

Find PubMed articles about systematic reviews

Click on a link below to launch a real-time PubMed search for literature on:

- [Systematic review methodology](#)
- the contribution of [systematic reviews to evidence based decision making](#)
- [Constructing a search strategy](#) for systematic reviews.

All searches limited to English language and last 5 years only.

Tools for producing systematic reviews

[Covidence](#) is a web-based software program designed to assist reviewers with some of the first stages of a systematic review.

[Systematic Review \(SR\) Toolbox](#) is a searchable online catalogue of tools to support SRs. Find tools for storing, managing, appraising, extracting, synthesising, writing up, and collaborating.

Manuals for conducting systematic reviews

[An Introduction to Systematic Reviews by David Gough \(Editor\); Sandy Oliver \(Editor\); James Thomas \(Editor\)](#)

An Introduction to Systematic Reviews provides a short, accessible and technically up-to-date book covering the full breadth of approaches to reviews from statistical meta analysis to meta ethnography. The content is divided into five main sections covering: approaches to reviewing; getting started; gathering and describing research; appraising and synthesizing data; and making use of reviews and models of research use. As systematic reviews become included in many more graduate-level courses this book answers the growing demand for a user-friendly guide.

Location Number: Medical Library 300.723 I61 Publication Date: 2012

[Systematic Reviews: CRD's guidance for undertaking systematic reviews in health care by Centre for Reviews and Dissemination, University of York](#) "The third updated and expanded edition of Systematic Reviews by the Centre for Reviews and Dissemination, a part of the National Institute for Health Research (University of York, UK) is an easy to follow guide that provides researchers with practical suggestions on doing systematic reviews and meta-analyses, from getting started to the final dissemination of the results. The authors explain how to write the protocol (including protocol amendments during the review), select studies, extract data, do quality assessment and data synthesis, and discuss results" -- Tacconelli, E. (2010). Systematic reviews: CRD's guidance for undertaking reviews in health care. The Lancet Infectious Diseases, 10(4), 226.

Location Number: Online Publication Date: 2009

[Cochrane Handbook for Systematic Reviews of Interventions by Julian P. T. Higgins \(Editor\); Sally Green \(Editor\)](#) The Cochrane Handbook for Systematic Reviews of Interventions contains methodological guidance for the preparation and maintenance of Cochrane intervention reviews. Written in a clear and accessible format, it is the essential manual for all those preparing, maintaining and reading Cochrane reviews. Many of the principles and methods described here are appropriate for systematic reviews applied to other types of research and to systematic reviews of interventions undertaken by others. It is hoped therefore that this book will be invaluable to all those who want to understand the role of systematic reviews, critically appraise published reviews or perform reviews themselves.

Location Number: Online Publication Date: Version 5.1.0 [updated March 2011]

[Joanna Briggs Institute Reviewers' Manual: 2014 edition by Joanna Briggs Institute](#) The JBI Reviewers' Manual is designed to provide authors with a comprehensive guide to conducting JBI systematic reviews. It describes in detail the process of planning, undertaking and writing up a systematic review of qualitative, quantitative, economic, text and opinion based evidence. It also outlines JBI support mechanisms for those doing review work and opportunities for publication and training. The JBI Reviewers Manual should be used in conjunction with the JBI SUMARI User Guide.

Location Number: Online Publication Date: 2014

[Systematic Reviews in the Social Sciences by Helen Roberts; Mark Petticrew](#) This book provides an overview of systematic literature review methods: outlining the rationale and methods of systematic reviews; giving worked examples from social science and other fields; and applying the practice to all social science disciplines. It requires no previous knowledge, but takes the reader through the process stage by stage, drawing on examples from such diverse fields as psychology, criminology, education, transport, social welfare, public health, and housing and urban policy, among others. Including detailed sections on assessing the quality of both quantitative, and qualitative research; searching for evidence in the social sciences; meta-analytic and other methods of evidence synthesis; publication bias; heterogeneity; and approaches to dissemination.

Location Number: Online Publication Date: 2008

[Systematic Reviews to Answer Health Care Questions by Heidi D. Nelson](#) This volume provides useful instruction on how to conduct a high-quality systematic review that meets the recent standards of the Institute of Medicine. Accessible, concise information about the state-of-the-art methods of systematic review, from key question formulation to assessing the quality of included studies and reporting results. Illustrated throughout with real-world examples from systematic reviews that have been used to inform practice guidelines and health policy.

Location Number: Sturt Library 610.72 N426s Publication Date: 2014

Video tutorial series

[Systematic review online tutorial series \(Yale University\)](#) An excellent series of video tutorials from Yale University's Harvey Cushing/John Hay Whitney Medical Library). These cover topics such as: how to do a systematic review; building search strategies; finding grey literature; and using filters to restrict to specific study designs.

Tools – Covidence

What is Covidence?

The Covidence platform helps you manage the systematic review process including importing citations, screening titles and abstracts, uploading references and screening full text. You must use your Flinders University email address to request access to the University's account in Covidence.

Accessing Covidence

1. First time Users, sign-up to use Covidence by selecting '[Request Invitation](#)'
2. Enter your information (@flinders.edu.au OR fan@flinders.edu.au) and click "Request Invitation"
3. Accept the invitation in your email
4. Go to [Covidence](#). Sign up for a new account or Sign in

Getting Started

Covidence has a suite of YouTube videos that can walk you through the process of a Systematic Review. Please visit the Covidence tutorials for further information.

[Step 1: start a new review](#)

[Step 2: Import Citations](#) (If you require help searching databases for relevant research and citations, please contact the library for help).

[Step 3: Screening by Title and Abstract](#)

[Step 4: Quality Assessment](#)

At the moment Covidence only supports the Cochrane Risk of Bias domains that include; sequence generation, allocation concealment, blinding of participants and personnel, blinding of outcome assessment, incomplete outcome data, selective outcome reporting and 'other issues'. You may need to either customize the Quality Assessment form to meet your requirements or choose another quality assessment tool.

[Step 5: Data Extraction](#)

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