Before we start

Please open a separate tab on your browser for this website:

PollEv.com/kellogglabra530

OR

Text: TO 37607 (text number)

KELLOGGLIBRA530 (text message)
Introduction to Review Methodologies – Choosing the Appropriate Approach for Your Purpose
Information in Action series

Check out the collection of presentations and available recordings here:

→ https://library.nshealth.ca/InfoinAction

Don’t forget to provide your feedback on this series. We want to know what interests you for our next set of sessions.
Learning Objectives

By the end of this session, participants will be able to:
• Identify appropriate scenarios for each review type
• Learn about the steps and resources involved in completing reviews
• Articulate what each review type can and cannot accomplish

The instructors will also provide lists of resources and tools to help you produce high-quality reviews.
What types of reviews (syntheses) have you heard of?
Purpose and review type

  - See Table 1 for review types and descriptions, including search, appraisal, synthesis, and analysis characteristics

  - Categorized by type of question, eg. effectiveness, prevalence, diagnostic test accuracy. See Table 1 for review (question) types with corresponding aims, question format, and example question

  - See Tables 2 & 3 for similarities between methods and method types with corresponding types of evidence used, disciplines represented, and categories of objectives
<table>
<thead>
<tr>
<th>Label</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical review</td>
<td>Aims to demonstrate writer has extensively researched literature and critically evaluated its quality. Goes beyond mere description to include degree of analysis and conceptual innovation. Typically results in hypothesis or model</td>
</tr>
<tr>
<td>Literature review</td>
<td>Generic term: published materials that provide examination of recent or current literature. Can cover wide range of subjects at various levels of completeness and comprehensiveness. May include research findings</td>
</tr>
<tr>
<td>Mapping review/ systematic map</td>
<td>Map out and categorize existing literature from which to commission further reviews and/or primary research by identifying gaps in research literature</td>
</tr>
<tr>
<td>Meta-analysis</td>
<td>Technique that statistically combines the results of quantitative studies to provide a more precise effect of the results</td>
</tr>
<tr>
<td>Mixed studies review/mixed methods review</td>
<td>Refers to any combination of methods where one significant component is a literature review (usually systematic). Within a review context it refers to a combination of review approaches for example combining quantitative with qualitative research or outcome with process studies</td>
</tr>
<tr>
<td>Overview</td>
<td>Generic term: summary of the [medical] literature that attempts to survey the literature and describe its characteristics</td>
</tr>
<tr>
<td>Qualitative systematic review/qualitative evidence synthesis</td>
<td>Method for integrating or comparing the findings from qualitative studies. It looks for ‘themes’ or ‘constructs’ that lie in or across individual qualitative studies</td>
</tr>
<tr>
<td>Rapid review</td>
<td>Assessment of what is already known about a policy or practice issue, by using systematic review methods to search and critically appraise existing research</td>
</tr>
<tr>
<td>Scoping review</td>
<td>Preliminary assessment of potential size and scope of available research literature. Aims to identify nature and extent of research evidence (usually including ongoing research)</td>
</tr>
<tr>
<td>State-of-the-art review</td>
<td>Tend to address more current matters in contrast to other combined retrospective and current approaches. May offer new perspectives on issue or point out area for further research</td>
</tr>
<tr>
<td><strong>Systematic review</strong></td>
<td><strong>Seeks to systematically search for, appraise and synthesis research evidence, often adhering to guidelines on the conduct of a review</strong></td>
</tr>
<tr>
<td>Systematic search and review</td>
<td>Combines strengths of critical review with a comprehensive search process. Typically addresses broad questions to produce ‘best evidence synthesis’</td>
</tr>
<tr>
<td>Systematized review</td>
<td>Attempt to include elements of systematic review process while stopping short of systematic review. Typically conducted as postgraduate student assignment</td>
</tr>
<tr>
<td>Umbrella review</td>
<td>Specifically refers to review compiling evidence from multiple reviews into one accessible and usable document. Focuses on broad condition or problem for which there are competing interventions and highlights reviews that address these interventions and their results</td>
</tr>
</tbody>
</table>
Systematic Review or Scoping Review?

One of the most common questions I get these days
What is a systematic review?

“A systematic review attempts to collate all empirical evidence that fits pre-specified eligibility criteria in order to answer a specific research question. It uses explicit, systematic methods that are selected with a view to minimizing bias, thus providing more reliable findings from which conclusions can be drawn and decisions made.” (Cochrane Handbook v.5.1.0)
What is a scoping review?

“Scoping reviews, a type of knowledge synthesis, follow a systematic approach to map evidence on a topic and identify main concepts, theories, sources, and knowledge gaps.” (PRISMA-ScR Checklist)
<table>
<thead>
<tr>
<th>Purpose</th>
<th>Systematic Review</th>
<th>Scoping Review</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Purpose</strong></td>
<td>To determine whether something very specific works (usually an intervention)</td>
<td>To find out more about a topic, and provide a description of what a field looks like</td>
</tr>
<tr>
<td><strong>Question examples</strong></td>
<td>Is intervention A effective in providing outcomes X, Y, Z in population Q?</td>
<td>What forms, models, or types of interventions have been offered to population Q?</td>
</tr>
<tr>
<td><strong>Critical appraisal</strong></td>
<td>Yes, using an established tool like GRADE</td>
<td>Not required – this means that results are descriptive, and the review can’t comment on whether A works better than B</td>
</tr>
<tr>
<td><strong>What this method can achieve</strong></td>
<td>If there is sufficient literature, a systematic review can state whether a specific intervention works or not, or if additional research is needed</td>
<td>A scoping review can, for example, map out all the different interventions that are currently being used to support population Q</td>
</tr>
<tr>
<td><strong>What this method cannot achieve</strong></td>
<td>There may not be enough evaluation studies to support any recommendations, or they may not all use the same measures. A systematic review can also be premature if it is not yet known which interventions to examine or compare</td>
<td>A scoping review can’t make any kind of recommendations about what works and what doesn’t; it can only describe what others have done</td>
</tr>
</tbody>
</table>

*Thanks to Sarah Visintini for the first draft of this table!*
Tips for approaching the systematic vs. scoping review debate

DON’Ts

• “I should just do a scoping review, it’s easier.”
• “My supervisor/the peer reviewer said I should turn this scoping review into a systematic review.”

DOs

• “Which method is the best approach for my question? What can feasibly be done?”
• “What do I want to be able to do with my end product?”
Example: Systematic Review

Individual-, family-, and school-level interventions targeting multiple risk behaviours in young people (Cochrane Review)

Objective: To examine the effects of interventions implemented up to 18 years of age for the primary or secondary prevention of multiple risk behaviours among young people.

Methods: We searched 11 databases. ... We conducted handsearches of reference lists, contacted experts in the field, conducted citation searches, and searched websites of relevant organisations. ... We included randomised controlled trials (RCTs), including cluster RCTs, which aimed to address at least two risk behaviours. ... We identified a total of 34,680 titles, screened 27,691 articles and assessed 424 full-text articles for eligibility. Two or more review authors independently assessed studies for inclusion in the review, extracted data, and assessed risk of bias. We pooled data in meta-analyses using a random-effects (DerSimonian and Laird) model in RevMan 5.3. For each outcome, we included subgroups related to study type (individual, family, or school level, and universal or targeted approach) and examined effectiveness at up to 12 months' follow-up and over the longer term (> 12 months). We assessed the quality and certainty of evidence using the Grades of Recommendation, Assessment, Development and Evaluation (GRADE) approach.
Example: Scoping Review

Dissemination and implementation research in dementia care: a systematic scoping review and evidence map

Objective: The aim of this scoping review was to give an overview of the state of the evidence on implementation and dissemination of dementia care, and create a systematic evidence map.

Methods: We sought studies that addressed dissemination and implementation strategies or described barriers and facilitators to implementation across dementia stages and care settings. Twelve databases were searched from inception to October 2015 followed by forward citation and grey literature searches. Quantitative studies with a comparative research design and qualitative studies with recognised methods of data collection were included. Titles, abstracts and full texts were screened independently by two reviewers with discrepancies resolved by a third where necessary. Data extraction was performed by one reviewer and checked by a second. Strategies were mapped according to the ERIC compilation.
Reporting and appraising tools: Systematic reviews

- Cochrane Handbook v.5.1.0 (2011)
- JBI Reviewer’s Manual
- PROSPERO (register your protocols!)
- PRISMA Statement (reporting guidelines)
- GRADE (for critical appraisal)
Reporting tools: Scoping reviews


• JBI Reviewer’s Manual (includes scoping reviews)

Exercise

Scenario A:
Team A is planning on developing a formal support program for established physicians looking to get into doing research. They have about a year to do some kind of evidence synthesis in order to take stock of existing research supports and programs for physician-researchers in Canada. They’ve designated one team member to “take care” of the evidence synthesis portion of the project.
Scenario A: What type of review?

Scoping review

A

Systematic review

B
Exercise

Scenario B:
Disorder X burst onto the global health scene five years ago after its first major epidemic. Team B wants to synthesize evidence published in the last five years to determine the best intervention for Disorder X.
Scenario B: What type of review?

Scoping review

Systematic review
Emerging Knowledge Synthesis Methods

When a “conventional” approach doesn’t quite fit
Emerging KS methods


- See Tables 2 & 3 for similarities between methods and method types with corresponding types of evidence used, disciplines represented, and categories of objectives
Reporting tools


• Realist and meta-narrative reviews: http://www.equator-network.org/reporting-guidelines/rameses-publication-standards-realist-syntheses/
Social Work Practices for Young People with Complex Needs: An Integrative Review

The aim of this integrative review is to investigate research of social work practices for adolescents and young adults with complex needs. The research questions are: What are the major themes in studies of practices for young people with complex needs? How do studies suggest that complex needs can be met in ways that are beneficial for young people? A young person with complex needs is in this review defined as an adolescent or young adult who, due to mental ill-health in combination with different types of social vulnerabilities, is receiving assistance from multiple welfare services. Searches were conducted in seven databases. These searches resulted in a sample of 1677 records, published 2007–2016, which in the screening process were reduced to 24 publications, all peer-reviewed articles.
Social Work Practices for Young People with Complex Needs: An Integrative Review

...The articles were analyzed with qualitative summative content analysis. Three empirically generated themes were found in studies of work practices targeting young people with complex needs: collaboration-, relationship- and empowerment-oriented practices. In conclusion, the practices contain a wide variety of features, but with the joint aim of acknowledging young people’s needs. The results can be used by practitioners and policymakers to further the development of services for youth with mental ill-health and social vulnerabilities, who use multiple welfare services.
TABLE 1: Four Forms of Synthesis from Integrative Literature Reviews

<table>
<thead>
<tr>
<th>Four Forms of Synthesis from Integrative Literature Reviews</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A research agenda</strong> that flows logically from the critical analysis of the literature. The research agenda should pose provocative questions (or propositions) that give direction for future research.</td>
</tr>
<tr>
<td><strong>A taxonomy or other conceptual classification of constructs</strong> is often developed as a means to classify previous research. They, in turn, lay the foundation for new theorizing (Doty &amp; Glick, 1994).</td>
</tr>
<tr>
<td><strong>Alternative models or conceptual frameworks</strong>—new ways of thinking about the topic addressed by the integrative review. Alternative models or conceptions proposed by the author should be derived directly from the critical analysis and synthesis provided.</td>
</tr>
<tr>
<td><strong>Metatheory</strong>—The integration and synthesis of a literature review can provide the basis for developing metatheory across theoretical domains through future research.</td>
</tr>
</tbody>
</table>

Example: Realist Review

Experiences with integrative Indigenous and Western knowledge in water research and management: A systematic realist review of literature from Canada, Australia, New Zealand, and the United States

The implementation of Indigenous and Western knowledge systems in integrative water research and management is gaining prominence in the realm of academia, particularly in four countries with a shared, albeit different, history of British colonialism: Canada, Australia, New Zealand, and the United States. While integrative water research in particular is gaining popularity, currently there is a gap in our understanding regarding where, when, why, how, and for whom this type of research has been successful. ...
Example: Realist Review, cont’d

Experiences with integrative Indigenous and Western knowledge in water research and management: A systematic realist review of literature from Canada, Australia, New Zealand, and the United States

...A systematic review method was used to identify peer-reviewed literature from each of the four countries and to understand where and when integrative water research projects were taking place. Then, we used a realist review method to synthesize and analyze the included peer-reviewed literature to determine why, how, and for whom this type of research has been successful, or not.
Marijuana and College Students: A Critical Review of the Literature

Background: Marijuana represents the most widely used illicit drug on college campuses. Repeated use can impair students’ academic, emotional, and physical success and can lead to chronic diseases. Purpose: The purpose of this study was to evaluate existing literature on the associated effects of marijuana use on U.S. college students’ academic success, including conduct/legal issues, negative outcomes, normative perceptions, and physical/mental health.
Marijuana and College Students: A Critical Review of the Literature

Method: A critical review was conducted in January 2015 using the PubMed, Academic Search Complete, Electronic Journal Center, ProQuest, and Google Scholar databases. Studies were included if they focused on epidemiological outcomes of marijuana use on U.S. undergraduate college students aged 17–24. Results: Overall, studies lacked scientific rigor. In several studies, researchers relied on convenience samples, used small sample sizes, did not report response rates, or did not report the psychometrics of the instrument. The majority of the studies were conducted at single institutions, limiting external validity.
Resources for conducting and evaluating emerging KS methods

RAMESES I: Publication and quality standards (plus training resources) for both realist synthesizes and meta-narrative reviews
http://www.ramesesproject.org/Standards_and_Training_materials.php

From the WHO, this document provides guidance on reviews related to policy and health care systems research

Evidence synthesis for health policy and systems: a methods guide
Exercise

The aim of this study was to examine how nurse-led interventions that support self-management of outpatients with chronic conditions work and in what contexts they work successfully. ... 

**Review Methods:** For each study, we described how the intervention was supposed to improve self-management and compared this with the empirical evidence. Next, we described the context-mechanism-outcome strings for each separate study, explored patterns and integrated the findings.
Exercise 3: What kind of review?

- Realist review
- Critical theory review
- Meta-narrative
Exercise

The objective of this review was to identify, synthesize, and report the findings of evaluated breech birth training strategies. ...

METHODS: A systematic search of the following on-line databases: Medline, CINAHL Plus, PsychINFO, EBM Reviews/Cochrane Library, EMBASE, Maternity and Infant Care, and Pubmed, using a structured search strategy. Studies were included in the review if they evaluated the efficacy of a breech birth training program or particular strategies, including obstetric emergency training evaluations that reported differentiated outcomes for breech. Out of 1040 original citings, 303 full-text articles were assessed for eligibility, and 17 methodologically diverse studies met the inclusion criteria. A data collection form was used to extract relevant information. Data were synthesized, using an evaluation levels framework, including reaction, learning (subjective and objective assessment), and behavioral change.
Exercise 4: What kind of review?

- Realist review
- Critical review
- Integrative review
- Meta-narrative review
Rapid Reviews and Evidence Summaries

Looking for quick answers
What is a rapid review?

• Rapid reviews are designed to be an efficient and cost-effective alternative to full reviews
• They don’t need to follow the systematic review model; you can do a rapid scoping review, etc.
• Generally, they follow the original method of choice as much as possible while using shortcuts to speed things up
• May or may not be published traditionally
• **Audience tends to be knowledge users/policy- and decision-makers**
Rapid review shortcut examples

Any combination of the following:
• Focus the question and/or inclusion criteria; limit study type
• Search only one or two databases
• Limit date and/or language
• Reduce the number of reviewers (e.g. one screener; one abstracts data and another verifies)
• Skip critical appraisal/risk of bias assessment, or limit to one reviewer
• Utilize machine learning and automation for some part of the screening and/or data extraction (second reviewer, prioritize, etc.)

Alternatively, you can avoid shortcuts by increasing the size of the team to speed up the process.

IMPORTANT: Be clear in your reporting about the shortcuts you’ve taken.
Example: Rapid Review

Criteria for Referral to Heart Failure Clinics: A Rapid Review (Health Quality Ontario)

Methods: A literature search was performed on March 19, 2014, using Ovid MEDLINE, Ovid MEDLINE InProcess and Other Non-Indexed Citations, and EBM Reviews, for studies published from January 1, 2008, to March 19, 2014... Abstracts were reviewed by a single reviewer.

- Limited to two databases
- Single reviewer
- 2008-2014 only
- Limited to English
- Observational studies, RCTs, systematic reviews, meta-analyses only
- GRADE completed
- Only 3 eligible studies found
- Timeframe for completion: 2-4 weeks
Rapid review resources


• McMaster Health Forum
What is an evidence summary?

• Also known as a rapid response brief or similar
• Presents a summary of the evidence, but does not generate new knowledge/recommendations (“answers”)
• Goes a step further than an inventory or bibliography by actually summarizing the evidence found
• Can summarize multiple resources or even just one
• Uses plain language
Example: Evidence Summary

In people with irritable bowel syndrome, very-low-quality evidence suggests low FODMAP diets improve symptoms. There isn’t enough evidence to draw conclusions about gluten-free diets.

Open access, created by the McMaster Optimal Aging Portal. Summarizes a single systematic review in plain language meant for consumers.

This is just one example of what an evidence summary can look like. The concept can be adapted to other audiences and contexts.
Timelines

Example of services offered by McMaster University Health Forum’s Rapid Response Program:

<table>
<thead>
<tr>
<th>Timeline*</th>
<th>What can be done</th>
<th>What we cannot be done</th>
</tr>
</thead>
</table>
| Three business days | • Identify systematic reviews and economic evaluations relevant to health systems from key databases (e.g., Health Systems Evidence)  
• Provide summary tables that outline:  
  o key findings from relevant systematic reviews;  
  o quality appraisals of systematic reviews (for reviews that are available through Health Systems Evidence); and  
  o countries in which studies included in systematic reviews were conducted (for reviews that are available in Health Systems Evidence) | • Identify primary research studies (e.g. published studies and unpublished reports)  
• Conduct quality appraisals for reviews that are not available through Health Systems Evidence  
• Prepare a detailed summary of key findings  
• Engage experts to conduct a merit review of the findings to ensure scientific rigour and system relevance  
• Conduct jurisdictional scans of what is being done nationally and internationally  
• Conduct a full systematic review |

## Timelines

<table>
<thead>
<tr>
<th>10 business days</th>
<th>10 business days</th>
</tr>
</thead>
</table>
| • Identify systematic reviews and economic evaluations relevant to health systems from key databases (e.g., Health Systems Evidence)  
• Identify relevant primary research studies when limited evidence is available from systematic reviews  
• Provide summary tables that outline:  
  o key findings from relevant systematic reviews;  
  o quality appraisals of systematic reviews (for reviews that are available through Health Systems Evidence); and  
  o countries in which studies included in systematic reviews were conducted (for reviews that are available in Health Systems Evidence)  
• Prepare a brief summary of the key findings from systematic reviews (and primary research studies where relevant)  
• Engage experts to conduct a merit review of the brief summary to ensure scientific rigour and system relevance (a draft summary will be sent before merit reviewer feedback is received and then a final summary that incorporates reviewers’ feedback will be sent within another five business days) | • Identify grey literature (e.g., unpublished reports) that is not already contained in key databases (e.g., Health Systems Evidence)  
• Prepare a detailed summary of key findings  
• Incorporate feedback from experts engaged in the merit process within a 10-day timeline (but a final summary that incorporates reviewers’ feedback will be sent within another five business days)  
• Conduct jurisdictional scans of what is being done nationally and internationally  
• Conduct a full systematic review |

## Timelines

<table>
<thead>
<tr>
<th>30 business days</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Identify systematic reviews and economic evaluations relevant to health systems from key databases (e.g., Health Systems Evidence)</td>
<td>• Conduct a full systematic review</td>
</tr>
<tr>
<td>• Identify relevant primary research studies when limited evidence is available from systematic reviews</td>
<td></td>
</tr>
<tr>
<td>• Conduct jurisdictional scans of what is being done nationally and internationally through targeted searches of databases for published literature, and websites of relevant jurisdictions and stakeholders for grey literature that is not already contained in key databases (e.g., Health Systems Evidence)</td>
<td></td>
</tr>
<tr>
<td>• Consult with experts with knowledge of the topic to identify additional relevant research evidence (contingent on locating relevant experts)</td>
<td></td>
</tr>
<tr>
<td>• Provide summary tables that outline:</td>
<td></td>
</tr>
<tr>
<td>▪ key findings from relevant systematic reviews;</td>
<td></td>
</tr>
<tr>
<td>▪ quality appraisals of systematic reviews (for reviews that are available through Health Systems Evidence); and</td>
<td></td>
</tr>
<tr>
<td>▪ countries in which studies included in systematic reviews were conducted (for reviews that are available in Health Systems Evidence)</td>
<td></td>
</tr>
<tr>
<td>• Prepare a detailed summary of the key findings from systematic reviews (and primary research studies where relevant)</td>
<td></td>
</tr>
<tr>
<td>• Engage experts to conduct a merit review of the detailed summary to ensure scientific rigour and system relevance, and incorporate reviewers’ feedback in the final report within the 30-business-day timeline</td>
<td></td>
</tr>
</tbody>
</table>

Reviews of Non-Research Evidence

Environmental scans, social media analyses, bibliometric analyses, jurisdictional reviews, grey literature... and beyond
Example: Environmental scan


The objective for this project was to conduct an environmental scan of online systematic review training resources and evaluate those identified resources.
Conclusions

• Let the question guide the way, not the method
• Consider what a method can and cannot do
  • Knowledge translation should be a consideration
• Consider your audience
Thank you!

Check the collection of presentations and available recordings here
→ https://library.nshealth.ca/InfoinAction

Don’t forget to provide your feedback on this series. We want to know what interests you for our next set of sessions.

Questions?
Leah Boulos: LeahM.Boulos@nshealth.ca
Robin Parker: Robin.Parker@dal.ca
Do you have any other questions about knowledge synthesis methods?
If you regularly work on evidence synthesis projects, or are interested in learning more, we invite you to join the Evidence Synthesis Community of Practice in Halifax. We meet about every six weeks. Contact Leah for more information and to join our mailing list: LeahM.Boulos@nshealth.ca