EVIDENT Guidance for Reviewing the Evidence: a compendium of methodological literature and websites

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Getting Started

So you have identified a priority issue relating to health and nutrition. What next? No doubt you will want to identify a potential solution – not simply the first answer that comes to mind but one that is based upon the evidence. By evidence we mean potential solutions that have been evaluated in the research literature which we will use alongside local data and a knowledge of the attitudes and values of our local population.

Research Literature + Local Data + Community Values = Evidence

Using the Research Literature

In the past a group of decision-makers might have come up with a "good idea" from a meeting or discussion. The problem was that these good ideas would not usually have been evaluated – they might only work in some settings but not others, they might only work some of the time or they might not even work at all! Even if a decision-maker had found a research study that looked at how an idea worked in practice s/he might have picked the first study that came to hand. S/he may even have carefully selected a research study that supports what s/he wants to do. Clearly it is much better to bring together a full set of studies, to weigh them all up, alongside local data and community values, and then make a decision on what, on balance, is the best way to tackle your particular problem or issue. This process involves systematic approaches to reviewing the literature.[1]

Reviewing the Literature

When someone reviews the literature they may still make similar mistakes to those made by someone who picks just one article. They could select the first group of studies that comes to hand. They could pick a group of studies that supports their own opinion. When someone is reviewing the literature we want them to (i) search as well as they can for all studies on their particular topic, and, (ii) find a group of studies that work together to provide an accurate representation of the topic and any potential solutions.

In the past the author of a literature review often drew only on studies that were close at hand.[2] [3]A review author might select only those studies that support their own opinion. A review would be judged by the quality of the argument, not on the quality of the evidence. This is like awarding an Olympic Gold Medal to the athlete who gave the best TV interview instead of presenting it to the one who ran the fastest!

A well-conducted, rigorous literature review will seek to use all the relevant evidence and to provide a full picture both in favour and against each possible decision choice.[4] To this we can add two further requirements – a well-conducted literature review must be systematic (so that people can

tell how much they can trust the review) and transparent (so that people can tell exactly what has been done).

What does it mean to be systematic and transparent?

If a decision maker is to make a decision based upon the analysis of the literature that you have produced they need to know that when you created the evidence product you took steps to minimise bias. Bias refers to any systematic error that may result in a user of the research coming to an inaccurate judgement about what the evidence says.[5] This would include selecting items that only support the action being considered, excluding from the analysis any outcomes or results that might result in the intervention or programme being viewed unfavourably, and using language in a report that implies that an intervention or programme is more effective than it actually is. Because the effects of all these types of bias are systematic they can be counterbalanced by stages of the review process that are themselves systematic. For example, a systematic evidence product would specify clear inclusion and exclusion for potentially includable studies, would seek to report all relevant outcomes whether positive or negative and would frame the results and recommendations in a way that is appropriate to the collective findings from the individual studies. Following a process that has been documented beforehand, e.g. through a research proposal or review protocol, minimises the likelihood of bias and, potentially, can increase the confidence of a reader in the results and recommendations.

Related to the requirement to be **systematic** in the way the evidence product has been **conducted** is the need to be **transparent** in the way that same product is **reported**. A user of research is able to gain much more confidence in the quality of that report if they can clearly identify that the steps through which the research has passed are reasonable and rigorous. For this reason, much attention is currently focused on reporting standards for research studies. e.g. the EQUATOR Network. Transparency may be handled by producing a specific protocol for a substantive piece of work (e.g. a systematic review). Alternatively, you might develop a standard operating procedure for a more ephemeral series of products e.g. evidence briefings. In the latter case each product should be checked for fidelity to the operating procedure and any deviations should be documented, together with the likely implications for that specific product. Documenting the process or product as completely as is feasible minimises the likelihood that the fitness for purpose of the evidence product is challenged. It can also potentially increase the confidence of the reader in the results and recommendations.

But what about time, quality, & money (resources)?

When you produce an evidence synthesis product you must make a trade-off between rigour, timeliness and feasibility. These considerations are embodied in the Time-Quality-Money (TQM) mnemonic.[1] Extending the Time taken to produce an output may offer the opportunity to improve the Quality but it will increase the costs (Money) required for that product. Delivering a High-Quality product within a narrowly constrained Timeframe may require that you expand the review team so that more members are involved in production. However this may, in turn, result in further challenges to the Quality by adding concerns about the consistency of processes and judgements between members of a larger team of reviewers. Delivering a product within a limited Timeframe without increasing the resources (Money) will invariably require that some compromises must be

made to the Quality; for example, in searching fewer sources, in being more superficial when assessing study quality, or in reducing the depth of analysis or the extent of an accompanying interpretation.

What are my choices?

Fortunately, you have a wide choice of review methods from which you can select an appropriate method for your own evidence review. Your final choice will be based upon:

1. The Type of Review Question you are asking
2. The Type and Quantity of Studies Available to Answer your Question
3. How your final Review is going to be used
4. The Skills, Resources and Expertise of Your Team

Summary Table of Evidence Products

Product	What is it?	When should I use this Method?	How is it done?	How long will it take?
Evidence Briefing (page 21)	Begins with explicit identification of a high-priority issue before summarising best available evidence to clarify size and nature of the problem, describing likely impacts of key options for addressing the problem, and identifying potential barriers to implementing options and strategies for addressing these barriers.	You would produce an evidence briefing when you intend to explicitly signal one or more courses of action from a list of options.	Identifies high-priority issue accompanied by concise, yet rich, description of context being addressed. Outlines problem, costs and consequences of options to address the issue, and key implementation issues. Uses systematic and transparent methods to identify, select, and assess synthesised research evidence	2 weeks
Evidence Summary (page 24)	Short neutral summary of best available evidence on a defined question, with consideration of implications for further research.	You would use this when seeking to support policy makers to use the best available evidence in decision-making about interventions	1 Define the question. 2 Provide justification for evidence summary. 3 Specify the inclusion criteria. 4 Search for studies. 5 Review the studies. 6 Assess the intervention/s against the relevant criteria. 7 Consider the research gaps. 8 Find appropriate case studies.	2-3 weeks
Framework synthesis (page 51)	Uses existing framework from stakeholder consultation or literature as a template for data extraction and analysis. Data not adequately explained by the existing framework is analysed inductively to create themes that populate a revised framework.	You would use framework synthesis where a dominant theory is already well-accepted among stakeholders or where you wish to extract unsurprising data speedily to a data extraction framework and thus concentrate review efforts on more novel aspects of the phenomenon.	1. Generate a priori framework 2. Extract data from included studies 3. Code data against existing framework 4. Create new themes for data not explained by framework 5. Produce new framework supported by additional data 6. Revisit evidence to explore relationships between themes or concepts to create enhanced model.	9-12 months
Mapping Review (page 14)	Overview of a research area that pinpoints specific knowledge gaps that might require more complete systematic reviews or further	When you are trying to gain a picture of a particular field prior to identifying an opportunity for systematic review.	1. Determine search strategy 2. Perform literature search 3. Conduct selection process for relevant articles	1-4 months

	primary research		4. Extract data for coding and analysis. 5. Present data on results	
Meta-Analysis (page 42)	Statistical technique for combining the findings from all relevant studies which looks for the presence of heterogeneity, and explores the robustness of the main findings using sensitivity analysis.	You would use a meta-analysis if you wish to quantify the effect of an intervention or programme that has	Follows conventional SR process and then identifies a set of studies that use common outcome measures measured in broadly comparable ways for more detailed analysis and statistical pooling of effects.	12-24 months
Narrative Synthesis (page 52)	Approach to SR and synthesis of findings from multiple studies that relies primarily on the use of words and text to summarise and explain the findings of the synthesis.	You use narrative synthesis where you have a heterogeneous range of types of studies, typically with a mixture of quantitative and qualitative data. You might seek to explain the data by using a combination of graphical tabular and narrative means.	Narrative synthesis involves four elements: ***Element 1: Developing an intervention theory*** ***Element 2: Developing a preliminary synthesis*** (May involve Textual descriptions of studies, Groupings and clusters, Tabulation, Transforming data into a common rubric, Vote counting and Translating data) ***Element 3: Exploring relationships*** (may include graphing and plotting, moderator variable and sub-group analyses, Ideas webbing and conceptual mapping, qualitative case descriptions, triangulation and translation). ***Element 4: Assessing robustness of the synthesis*** (May include weighting evidence, validity assessment, reflecting critically on the synthesis process and/or Checking the synthesis product with authors of primary studies)	12 months (within a full SR) Individual elements may be employed for a shorter duration in other evidence synthesis products (e.g. in mapping studies)
Qualitative Comparative Analysis (page 53)	Mixed synthesis method that analyses complex causal connections using Boolean logic to explain pathways to a particular outcome based on a	You use qualitative comparative analysis where you have a large number of cases with a fairly standardised level of reporting of elements. Presence and absence of individual components or outcomes	**Phase 1: Identify relevant cases and causal conditions** 1- Identify outcome of interest and cases to exemplify this outcome. Explore "positive" cases. 2- Identify negative cases.	15-24 months within a systematic review

	truth table.	can thus be mapped within a truth table.	3- Identify major causal conditions relevant to outcome (causal "recipes") 4- Streamline causal conditions as much as possible. **Phase 2: Construct the truth table and resolve contradictions** 5- Construct "truth table" based on causal conditions from phase 1 or subset of these conditions. 6- Assess consistency of cases with respect to outcome: Do they agree? 7- Identify contradictory rows. 8- Compare cases within contradictory rows. **Phase 3: Analyze the truth table** **Phase 4: Evaluate the Results** 9- Interpret the results as causal recipes. Do the combinations make sense? 10- Identify cases that conform to each causal recipe. 11- Conduct additional case-level analysis to identify mechanisms implied in each recipe.	
Rapid Evidence Assessment (page 29)	Quicker and less rigorous than full SR but more rigorous than ad hoc searching. Combines key informant interviews with targeted literature searches to produce report in a few days/weeks. Balanced assessment of what is already known about a policy or practice issue, using SR methods to search and critically appraise research but limiting aspects of SR process.	You would use a rapid evidence assessment when you are seeking to assess a policy or service within a limited policy timeframe. Typically the need to access evidence rapidly will outweigh the increased risk of bias.	• Limited question or limited scale of searching. • Focus on easily available sources • Limited mapping or coding • Data extraction focused on results and methodological quality • Simple quality appraisal and/or synthesis of studies.	2-6 months
Rapid Realist Review (page 35)	Applies a realist approach to knowledge synthesis to produce a	When you need to gain a rapid understanding not only of what	1. Describe the initial hypotheses, or relevant	2-6 months

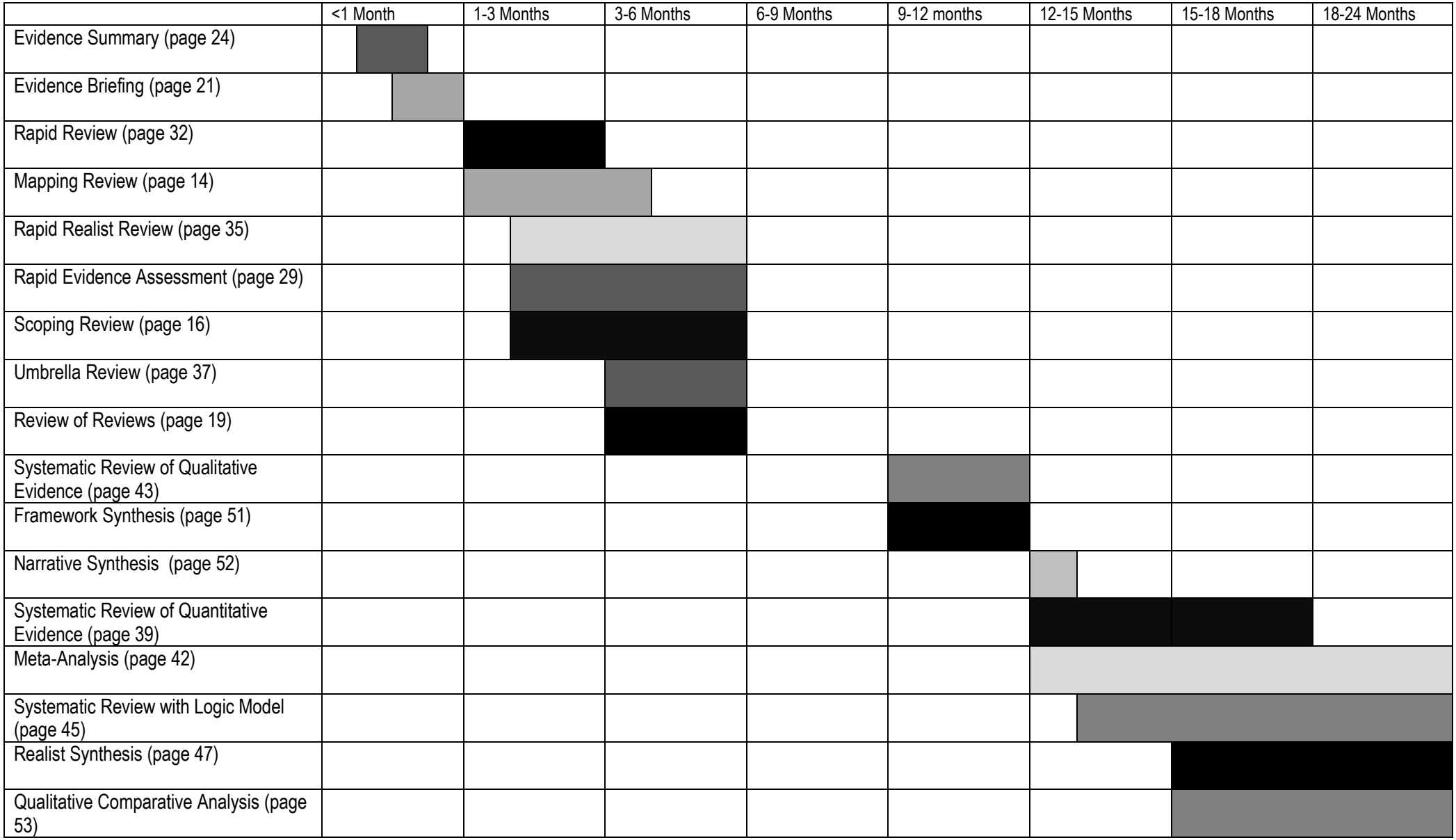
	product that is useful to policy makers in responding to time-sensitive and/or emerging issues within limited time and resources	works but also how it might work within a time- and resource limited window.	candidate theories 2. Construct a theoretical framework 3. Undertake a more thorough search of the literature for pertinent papers 4. Extract and synthesise data based on theoretical framework.	
Rapid Review (page 32)	Brief synthesis and judgement of available research evidence related to a specific question and drawn primarily from existing systematic reviews, meta-analyses and economic evaluations	You would use a rapid review when you want to identify the more evident patterns or trends in the literature accompanied by cautious interpretation. Additional interpretation is the responsibility of the reader.	• Search smaller selection of databases • Restrict to particular study type • Review reviews • Data extract direct into tables of results • Limit number of outcomes • Perform quality assessment at study design level rather than appraising each individual study • Limit amount of analysis and interpretation	1-3 months
Realist Synthesis (page 47)	Answers the question "What works for whom under what circumstances?" rather than "What works?". Specifically, it seeks to 'unpack the mechanism' of how complex programmes work (or why they fail) in particular contexts and settings	You would conduct a realist synthesis if important questions about how an intervention or programme works have not been answered by existing SRs of the evidence, particularly when trying to understand which are the active ingredients of a complex intervention or programme and which aspects of an intervention or programme can be tailored and which aspects it is important to retain and deliver with fidelity	Follows similar stages to conventional SR with some notable differences: 1. Focus of synthesis derives from negotiation between stakeholders and reviewers and stakeholder involvement is high. 2. Search and appraisal of evidence is purposive and theoretically driven. 3. Multiple types of information and evidence can be included. 4. Process is iterative. 5. Findings from synthesis focus on explaining why (or not) intervention works and in what ways, to enable informed choices about further use and/or research.	15-24 months
Review of Reviews (page 19)	Attempt to enhance existing systematic reviews by providing	When there is good coverage of a topic by existing systematic reviews	Follows steps of an SR but includes systematic reviews, not primary	3-6 months

	an up-to-date synthesis of recent evidence and by gaining common view of quality of included studies.	but where the reviews are sufficiently heterogeneous to require additional work on integrating their data.	studies. May require mapping of included studies and an assessment of quality using the AMSTAR instrument.	
Scoping Review (page 16)	Preliminary assessment of the quality and quantity of the literature, typically to determine the boundaries for inclusion and exclusion of a planned systematic review.	When you wish to establish the parameters for a planned review; both in conceptual terms (what topics should be included) and in logistic terms (how much evidence can feasibly be covered).	1. clarifying and linking purpose and research question 2. balancing feasibility with breadth and comprehensiveness of scoping process 3. using iterative team approach to selecting studies 4. extracting data; 5. incorporating numerical summary and qualitative thematic analysis, reporting results and considering implications of study findings to policy, practice, or research; 6. incorporating consultation with stakeholders as a knowledge translation component of scoping.	6 months (2 months for a quick scoping review)
Systematic Review of Qualitative Evidence (page 43)	Uses qualitative methods to synthesize existing qualitative studies to construct greater meaning through an interpretive process. Involves using a rigorous and methodologically grounded approach for analysis that is filtered through an interpretive lens, deriving meaning from translation.	You would use a systematic review of qualitative research to complement evidence on the effectiveness of an intervention, programme or policy with an understanding of how it might be received or implemented by patients, practitioners or the wider community and subsequently to explain why an intervention, programme or policy does not work as well as might have been expected	1. Formulate Research Question (and Protocol) 2. Search Databases (identify papers) and Remove Duplicates 3. Screen Papers by title/abstract Exclude Papers 4. Full text Review Exclude Papers 5. Synthesis and Analysis of themes or findings from included papers	9-12 months
Systematic Review of Quantitative Evidence (page 39)	Summary of available research on a given topic that compares studies based on design and methods. It summarizes the findings of each, and points out flaws or potentially confounding	You would conduct an SR of qualitative research if you wish to establish whether an intervention or programme is effective across a wide range of settings yet applicable to your setting. Findings from the	Formal stages of question formulation, searching the literature, developing inclusion and exclusion criteria, extracting data from included studies in a common format and synthesising data are followed according to a pre-	12-18 months

	variables that may have been overlooked.	review are synthesised into a bottom line which may or may not be expressed as a pooled estimate (see meta-analysis).	specified protocol	
Systematic Review with Logic Model (page 45)	Seeks to explain both what is happening and why it is happening. The latter may be informed by theory but, unlike theory-driven approaches, the logic model may simply impose its own programme logic through causal links, mediators and moderators.	You would use an SR with logic model where you need to understand the conceptual underpinnings of a particular intervention or programme. In particular you could use this to explore causal links, effect mediators or moderators.	SR is conducted following existing procedures and review methodology. The logic model may be constructed *a priori* or may emerge from the findings of the systematic review with new data being used to explore, test or modify the relationships depicted in a draft logic model.	13-24 months
Umbrella Review (page 37)	Cluster of existing systematic reviews that seeks to build upon a topic that is well-covered by existing systematic reviews by synthesizing the evidence from all relevant reviews within a single report summarizing the current state of knowledge on the topic.	You perform an umbrella review when a particular topic area is already well-covered by systematic reviews and/or meta-analyses. The umbrella review seeks to impose an overall coherence by lumping more precise reviews together. This can be particularly valuable within health technology assessments that aim to consider all management options and yet also commission separate reviews of individual treatments.	Typically an umbrella review will require a preliminary stage of mapping the coverage of existing systematic reviews within the umbrella review scope. Then an assessment of the included reviews will establish the extent to which they can be integrated in a meaningful manner. Integration is easier if the reviews share a common format e.g. Cochrane Reviews.	3-6 months

How Long have You Got?

[All durations are illustrative and may be used as a starting point to individual negotiations related to the needs of a specific review].



An Overview of Review Types

I need to see the overall picture…

Mapping Review

What is it?

A **mapping review** is "a secondary study that reviews articles related to a specific research topic"[1]. It has three principal objectives: (i) to provide an overview of a research area to assess the existing evidence[2], (ii) to identify gaps in sets of primary studies, where new or better primary studies are required (iii) to pinpoint specific knowledge gaps where more complete systematic literature reviews might be required.[6, 7]

Ultimately, a **mapping review** aims at categorising, classifying, characterising patterns, trends or themes in evidence production or publication[3]. The main difference between a mapping study and a systematic literature review is the formulation of the research questions and the analysis of the available information.[7] According to Grant & Booth: "**Mapping reviews** can be distinguished from **scoping reviews** (see below) because the subsequent outcome may involve either further review work or primary research and this outcome is not known beforehand".[8] Similarly Anderson describes a **mapping review** as a **scoping review** that focuses on examining the range and nature of a broad topic area[9] (i.e. not a PICO question)[10]. In such **mapping reviews** the research question is generic and usually relates to research trends. Because there is no specific PICO, with multiple PICOs being accommodated by the broad topic area, the reviewers do not have a preconceived plan to systematically review the literature. Essentially, researchers are constructing a nominal sampling frame for a topic (e.g. what research has been conducted in the past 10 years) and characterise the literature located within that sampling frame.

When should I use this Method?

A mapping review is best used where a clear target for a more focused evidence product has not yet been identified. Sensitisation to the field – in particular where there is a critical mass of literature and, equally importantly, where the gaps are – helps in the planning of future primary research or synthesis work. Coding and categorisation of the evidence that has been retrieved, instead of subjecting the literature to more detailed quality assessment and synthesis, helps in preparing for follow-up review activities. Indeed it is not unusual to code and categorise a wider body of literature, at least at a superficial level, and then to select a smaller subset for more detailed review. Of course the coding and categorisation activity becomes even more useful if a team is planning a number of reviews within the initial scope of the literature "map". If mapping is carried out as a one off activity

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[1] Fernández-Diego, M., & González-Ladrón-de-Guevara, F. (2014). Potential and limitations of the ISBSG dataset in enhancing software engineering research: A mapping review. *Information and Software Technology*, *56*(6), 527-544.

[2] W. Afzal, R. Torkar, R. Feldt, A systematic mapping study on non-functional search-based software testing, in: Proc. 20th Int. Conf. Softw. Eng. Knowl. Eng. SEKE'08 Knowl. Syst. Inst. Grad. Sch., 2008.

[3] K. Petersen, R. Feldt, S. Mujtaba, M. Mattsson, Systematic mapping studies in software engineering, in: 12th Int. Conf. Eval. Assess. Softw. Eng., 2008, p. 1.

the review team may decide to code and categorise only a sample of studies sufficient to highlight the potential of the data and the study types within which they are included.

How is it done?

Petticrew and Roberts[6] suggest that a mapping review ‘‘involves a search of the literature to determine what sorts of studies addressing the systematic review question have been carried out, where they are published, in what databases they have been indexed, what sorts of outcomes they have assessed, and in which populations.’’ Mapping reviews require a rigorous searching process as well as detailed inclusion and exclusion criteria that are clearly defined in the research protocol and presented in the results report[4].

How long will it take?

The duration of a mapping review depends upon how much literature there is to be mapped and how much detail is to be included in the coding. Typically coding focuses around the PICOS (Population Intervention Comparison Outcome and Study Type) characteristics.[11] Detailed coding of subpopulations or coding of secondary outcomes can significantly increase the time taken. A mapping review may take between 1 and 4 months. It is often followed by more focused review activity.

Where Can I see an Example?

Harrison, M. B., Keeping-Burke, L., Godfrey, C. M., Ross-White, A., McVeety, J., Donaldson, V., ... & Doran, D. M. (2013). Safety in home care: a mapping review of the international literature. *International Journal of Evidence-Based Healthcare*, *11*(3), 148-160.

Jones, R., Everson-Hock, E. S., Papaioannou, D., Guillaume, L., Goyder, E., Chilcott, J., ... & Swann, C. (2011). Factors associated with outcomes for looked-after children and young people: a correlates review of the literature. *Child: care, health and development*, *37*(5), 613-622.

Where Do I find Out More?

Grant, M. J., & Booth, A. (2009). A typology of reviews: an analysis of 14 review types and associated methodologies. *Health Information & Libraries Journal*,*26*(2), 91-108.

Paré, G., Trudel, M. C., Jaana, M., & Kitsiou, S. (2014). Synthesizing information systems knowledge: A typology of literature reviews. *Information & Management*.

Petersen, K, Feldt R, Mujtaba S, & Mattsson M, Systematic mapping studies in software engineering, in: 12th Int. Conf. Eval. Assess. Softw. Eng., 2008, p. 1.

[4] D. Budgen, M. Turner, P. Brereton, B. Kitchenham, Using mapping studies in software engineering, in: Proc. PPIG, 2008, pp. 195–204.

Scoping Review

What is it?

Scoping reviews aim "to map rapidly the key concepts underpinning a research area and the main sources and types of evidence available, and can be undertaken as stand-alone projects in their own right, especially where an area is complex or has not been reviewed comprehensively before".[12] 'Scoping studies are concerned with contextualizing knowledge in terms of identifying the current state of understanding; identifying the sorts of things we know and do not know; and then setting this within policy and practice contexts'. Certain characteristics of scoping reviews differentiate them from other types of reviews:[8]

- Preliminary assessment of size and scope of available research literature
- Aims to identify nature and extent of research evidence (usually including ongoing research)
- Completeness of searching determined by time/scope constraints
- May include research in progress
- No formal quality assessment
- Typically tabular with some narrative commentary
- Characterizes quantity and quality of literature, perhaps by study design and other key features
- Attempts to specify a viable review

When should I use this Method?

The mention of "map" in the above definition may lead to potential confusion between a **scoping review** and a **mapping review**. In this compendium we use the two terms precisely. A **scoping review** seeks to establish the parameters for a planned review and to establish the likely quantity and quality of the evidence to be reviewed. It has both a conceptual and a pragmatic function as a preliminary to more intensive follow-up review activity. In contrast a **mapping review** within a broad topic area seeks to establish where opportunities for review lie and where subsequent review efforts, if any, might best be targeted. It can therefore be considered more exploratory and more speculative than a **scoping review** which is often about operationalising detailed plans for a proposed review. Typically, a **scoping review** does not seek to code and categorise the literature retrieved, beyond considering whether particular bodies of literature lie within, or outside, the scope of the proposed review. When conducting a scoping study a review team may sample selectively, but representatively, from the literature and then extrapolate actual numbers of studies to be included from the sample of studies that they have retrieved.

How is it done?

Levac[13] has extended Arksey & O'Malley's original **scoping review** methodology.[14] Levac proposes six stages for those undertaking a **scoping study**:[13]

1. clarifying and linking the purpose and research question
2. balancing feasibility with breadth and comprehensiveness of the scoping process
3. using an iterative team approach to selecting studies
4. extracting data;
5. incorporating a numerical summary and qualitative thematic analysis, reporting results and considering implications of study findings to policy, practice, or research;

6. incorporating consultation with stakeholders as a knowledge translation component of scoping.

Lastly, Levac proposes other considerations for scoping methodologies in order to support the further development of scoping studies within health research.[13] In 2013, Daudt[15] updated both the Arksey[14] and Levac[13] frameworks for scoping reviews.

How long will it take?

A **scoping review** may take six months to conduct.[14] Pham reports durations of between two weeks and 20 months across a sample of almost 350 scoping reviews.[16] In some cases a **scoping review** acts as a preliminary to a systematic review and so the time taken scoping the literature may be factored into the time taken to conduct the review (i.e. extending the duration more towards eighteen months as opposed to a "standard" 12 month systematic review duration). The UK Government identify a variant entitled **quick scoping review** which refers to a "quick overview of research undertaken on a (constrained) topic"[17] stating that it will typically take from 1 week to 2 months to complete in seeking to "determine the range of studies that are available on a specific topic"[5]. This 'map' of the existing literature is undertaken with limited resources (particularly time); constrained by all or some of the following:

- **Question:** a delimited narrow focus (if a broad question then a team will need to further limit search)
- **Search:** use few search sources (e.g. just one or two bibliographic database); use only key terms rather than extensive search of all variants; if there are many existing recent reviews, then a team should consider a map of research in those reviews
- **Screen:** use only electronically available abstracts and texts
- **Map:** use only easily available sources; provide only simple description with limited analysis

Where Can I see an Example?

Baylor C, Yorkston KM, Jensen MP, Truitt AR, Molton IR. Scoping review of common secondary conditions after stroke and their associations with age and time post stroke. Top Stroke Rehabil. 2014 Sep-Oct;21(5):371-82. doi: 10.1310/tsr2105-371.

Mitton, C., Smith, N., Peacock, S., Evoy, B., & Abelson, J. (2009). Public participation in health care priority setting: A scoping review. *Health Policy*, *91*(3), 219-228.

King JL, Pomeranz JL, Merten JW (2014). Nutrition interventions for people with disabilities: a scoping review. *Disabil Health J*. Apr;7(2):157-63. doi: 10.1016/j.dhjo.2013.12.003. Epub 2014 Jan 3.

Valaitis, R., Martin-Misener, R., Wong, S. T., MacDonald, M., Meagher-Stewart, D., Austin, P., & Kaczorowski, J. (2012). Methods, strategies and technologies used to conduct a scoping literature review of collaboration between primary care and public health. *Primary health care research & development*, *13*(03), 219-236.

[5] Government Social Research. Rapid Evidence Assessment Toolkit. www.gsr.gov.uk/professional_guidance/rea_toolkit/index.asp (last accessed 18 February 2015)

Where Do I find Out More?

Arksey, H., & O'Malley, L. (2005). Scoping studies: towards a methodological framework. *International Journal of social research methodology*, *8*(1), 19-32.

Armstrong, R., Hall, B. J., Doyle, J., & Waters, E. (2011). 'Scoping the scope'of a Cochrane review. *Journal of Public Health*, *33*(1), 147-150.

Daudt, H. M., Van Mossel, C., & Scott, S. J. (2013). Enhancing the scoping study methodology: a large, inter-professional team's experience with Arksey and O'Malley's framework. *BMC medical research methodology*, *13*(1), 48.

Davis, K., Drey, N., & Gould, D. (2009). What are scoping studies? A review of the nursing literature. *International journal of nursing studies*, *46*(10), 1386-1400.

Hidalgo Landa, A, Szabo, I, Le Brun, L, Owen, I and Fletcher, G. (2011) Evidence Based Scoping Reviews *The Electronic Journal Information Systems Evaluation* 14(1): 46-52, available online at www.ejise.com

Levac, D., Colquhoun, H., & O'Brien, K. K. (2010). Scoping studies: advancing the methodology. *Implement Sci*, 5(1), 1-9.

Pham, M. T., Rajić, A., Greig, J. D., Sargeant, J. M., Papadopoulos, A., & McEwen, S. A. (2014). A scoping review of scoping reviews: advancing the approach and enhancing the consistency. *Research Synthesis Methods*, *5*(4), 371-385.

Rumrill, PD., Fitzgerald, SM., & Merchant, WR. (*2010).* Using scoping literature reviews as a means of understanding and interpreting existing literature. *Work: A Journal of Prevention, Assessment and Rehabilitation*, 35(3), 399-404.

Review of Reviews

What is it?

The **review of reviews** (overview of reviews)[18] seeks to enhance existing reviews by providing an up-to-date synthesis of recent evidence and by evaluating the quality of the systematic reviews included. Systematic reviews of systematic reviews are useful in managing evidence across broad topics areas or in reviewing research intensive areas.[19, 20] The level of evidence is generally high in systematic reviews. For this reason, systematic reviews are used widely to inform healthcare policy and guidelines. However, systematic reviews, and the studies included in them, may be subject to publication bias.[21] A review team can only review what is published and available in the public domain. Furthermore, the delay in publication of primary studies and the further delay in their inclusion in systematic reviews may mean that more recent research or conflicting evidence has appeared since the review was published. In addition, reviews may provide information about the effectiveness of interventions. However other aspects of the intervention, including how feasible it is and how acceptable it is to users, may be equally important factors when making a decision.[21]

In view of acknowledged limitations of a review of reviews methodology, it is important to consider all aspects of the validity of a systematic review before moving to a value judgement on its usefulness.[21] Systematic reviews generate the highest level of evidence, as they synthesise eligible primary research studies, and therefore are useful to direct future practice. However, it is recognised that both expert opinion and original research also provide valuable evidence and may also be more current

When should I use this Method?

A **review of reviews** is used where there is good coverage of a topic by existing systematic reviews yet, in contrast to an **umbrella review**, the reviews are more typically heterogeneous in terms of their coverage of population-intervention pairs. For example the populations studied in included reviews may be markedly different to the population where the intervention is to be implemented or the context for the organisation of services may make comparability and applicability more problematic. Typically the ready availability of preformatted data permits supplementary data analysis; for example in assessing the methodological quality of the included studies or in mapping the geographical distribution of the studies included in the reviews. A review of reviews can be used where there has already been considerable research with numerous reviews available within a particular topic area. The most notable limitation of the **review of reviews** method is that, by definition, it will not pick up research outside of existing reviews[6].

How is it done?

The methodology for a review of reviews typically follows that for a conventional systematic review. However in this case the included studies are reviews, preferably systematic reviews, instead of primary studies. The quality of included studies is typically assessed using AMSTAR, a measurement tool for the assessment of multiple systematic reviews with good reliability and validity.[22] In some cases the reviews are simply used as a source of included studies and these studies are assessed using a single common approach to judging quality. A key step is therefore mapping the included studies across the full set of reviews. A tool such as Epistemonikos (**www.epistemonikos.org**) may

[6] Government Social Research. Rapid Evidence Assessment Toolkit. www.gsr.gov.uk/professional_guidance/rea_toolkit/index.asp (last accessed 18 February 2015)

be useful in this process.[23] Such an approach partially compensates for the fact that reviews are of variable quality and a review team may have little basis for confidence in the original judgements on the quality of included studies. Less judgementally, use of a common quality assessment instrument may help in integration. However, where these quality judgements are used to exclude studies it may result in a very different set of included studies from those in the original reviews.

How long will it take?

A review of reviews may be quicker than other types of full systematic review and so may take as little as three months. A key consideration is whether synthesis will take place at the level of the reviews themselves (which could be within a three-month period) or whether synthesis will use all the included primary studies (which could extend it to 6 months or more). A further issue is the extent to which primary studies, that have not previously been included in systematic reviews, perhaps because they have been published more recently, are to be identified from supplementary searches and then incorporated in the final overview.

Where Can I see an Example?

Greaves CJ, Sheppard KE, Abraham C, Hardeman W, Roden M, Evans PH, Schwarz P; IMAGE Study Group. Systematic review of reviews of intervention components associated with increased effectiveness in dietary and physical activity interventions. BMC Public Health. 2011 Feb 18;11:119. doi: 10.1186/1471-2458-11-119.

McNeill, J., Lynn, F., & Alderdice, F. (2010). Systematic review of reviews: the public health role of the midwife. *School of Nursing & Midwifery, Queen's University Belfast*. http://qub.ac.uk/schools/SchoolofNursingandMidwifery/Research/FileStore/Filetoupload,396468,en.pdf

Thangaratinam, S., & Jolly, K. (2010). Obesity in pregnancy: a review of reviews on the effectiveness of interventions. *BJOG: An International Journal of Obstetrics & Gynaecology*, *117*(11), 1309-1312.

Where Do I find Out More?

Lavis, J. N., Oxman, A. D., Grimshaw, J., Johansen, M., Boyko, J. A., Lewin, S., & Fretheim, A. (2009). SUPPORT Tools for evidence-informed health Policymaking (STP) 7: Finding systematic reviews. *Health Research Policy and Systems*, *7*(Suppl 1), S7.

Pieper, D., Antoine, S. L., Morfeld, J. C., Mathes, T., & Eikermann, M. (2014). Methodological approaches in conducting overviews: current state in HTA agencies. *Research Synthesis Methods*, *5*(3), 187-199.

Smith V, Devane D, Begley, CM, & Clarke M. (2011). Methodology in conducting a systematic review of systematic reviews of healthcare interventions. *BMC Medical Research Methodology*, *11*(1), 15.

White CM, Ip S, McPheeters M, et al. Using existing systematic reviews to replace de novo processes in conducting Comparative Effectiveness Reviews. In: Agency for Healthcare Research and Quality. *Methods Guide for Comparative Effectiveness Reviews* [posted September 2009]. Rockville, MD. Available at: http://effectivehealthcare.ahrq.gov/healthInfo.cfm?infotype=rr&ProcessID=60.

Whitlock, E. P., Lin, J. S., Chou, R., Shekelle, P., & Robinson, K. A. (2008). Using existing systematic reviews in complex systematic reviews. *Annals of internal medicine*, *148*(10), 776-782.

I need to know what my options are for a particular decision…

Evidence Briefing

What is it?

An **evidence briefing** (**evidence brief**/**policy brief**) "brings together global research evidence (from systematic reviews) and local evidence to inform deliberations about health policies and programmes".[24] [25] An **evidence briefing/policy brief** is distinguished most clearly from other evidence products in that it begins with "explicit identification of a high-priority issue".[26] The **evidence briefing** then "summarises the best available evidence to clarify the size and nature of the problem, describes the likely impacts of key options for addressing the problem, and informs considerations about potential barriers to implementing the options and strategies for addressing these barriers".[27] This focus on addressing a particular issue is further reflected in the way It helps to make clear "the trade-offs involved in selecting one option over others" together with any "benefits from combining particular elements of the different options".[26]

When should I use this Method?

The **evidence briefing** is an appropriate vehicle where you intend to explicitly signal one or more courses of action from a list of options. A more neutral descriptive evidence product, the **evidence summary**, highlights the relevant evidence to inform the question but in that product the course of action is typically implicit. Although distinctions between these two types of evidence product are by no means consistent within the literature for the purposes of this compendium we use "**evidence summary**" to describe a descriptive product that summarises best evidence for a particular **intervention** and "**evidence briefing**" to describe a multi-attribute document that summarises the pros and cons of options for a particular **decision.** By analogy an evidence summary functions like an administrator who neutrally gathers factual information to support the decision making process whereas an **evidence briefing** is more of an adviser who helps in considering different options and their consequences and in making the ultimate decision.

How is it done?

An **evidence briefing** addresses a high-priority issue and typically includes a concise, yet rich, description of the context being addressed. It follows this by outlining the problem, costs and consequences of options to address the issue, and key considerations relating to implementation. As with other evidence products the evidence briefing employs systematic and transparent methods to identify, select, and assess synthesised research evidence. However it typically expands its perspective to include such considerations as quality, local applicability, and equity alongside findings from the synthesised research evidence. One feature of the **evidence briefing** that reflects its end purpose is use of a "graded-entry format",[26, 28] that is the reader can drill down through various levels of detail as circumstances require. The **evidence briefing** seeks to optimise both rigour and relevance. It is fundamentally issue-led (demand-led)[29, 30] [31] rather than evidence led.

Fuller details on the evidence briefing method can be found at: http://global.evipnet.org/SURE-Guides/

Table 1 - Process for production of an evidence briefing

Task
Agree on team to prepare evidence briefing and policy for authorship
Problem description and diagnosis
• Outline problem and information needs
• Identify and appraise evidence and other information
• First draft describing problem
• Internal review and revision of problem description
Policy options
• Identify potential programmes or services to address problem and information needs (particularly systematic reviews)
• Identify and appraise evidence and other information
• Agree on options (single elements/bundles of relevant programs/services and health systems arrangements)
• First draft describing options
• Internal review and revision of options
Implementation strategies
• Identify barriers to implementing policy options, strategies to address these barriers, and information needs (particularly systematic reviews)
• Identification and appraisal of evidence and other information
• First draft describing implementation strategies
• Internal review and revision of implementation strategies
Completion of the full evidence briefing
Draft title, cover page, key messages, executive summary, references, description of methods, acknowledgements (including funders), conflicts of interests
External review of the draft evidence briefing
Revision of the full evidence briefing
Policy dialogue, informing and engaging stakeholders
Plan and run a policy dialogue
Agree on team to plan dialogue
Decide on the objectives of dialogue

Task
Decide when dialogue will take place
Inform and engage stakeholders
Agree on team to plan and monitor efforts to inform and engage stakeholders
Decide which key stakeholders should be informed and engaged in preparing and using evidence briefing
Evaluation and publication of the evidence briefing
Finalise and publish the evidence briefing

How long will it take?

Evidence briefings are typically produced in days and weeks rather than the months or years required to prepare a systematic review.[26]

Where Can I see an Example?

SURE evidence policy briefs
http://www.who.int/evidence/sure/policybriefs/en/

Where Do I find Out More?

Chambers, D., & Wilson, P. (2012). A framework for production of systematic review based briefings to support evidence-informed decision-making. *Systematic reviews*, *1*(1), 1-8.

Lavis, J. N., Permanand, G., Oxman, A. D., Lewin, S., & Fretheim, A. (2009). SUPPORT Tools for evidence-informed health Policymaking (STP) 13: Preparing and using policy briefs to support evidence-informed policymaking. *Health Research Policy and Systems*, *7*(Suppl 1), S13.

Moat, K. A., Lavis, J. N., Clancy, S. J., El-Jardali, F., & Pantoja, T. (2014). Evidence briefs and deliberative dialogues: perceptions and intentions to act on what was learnt. *Bulletin of the World Health Organization*, *92*(1), 20-28.

Rajabi, F. (2012). Evidence-informed health policy making: The role of Policy Brief. *International journal of preventive medicine*, *3*(9), 596.

Rosenbaum, S. E., Glenton, C., Wiysonge, C. S., Abalos, E., Mignini, L., Young, T., ... & Oxman, A. D. (2011). Evidence summaries tailored to health policy-makers in low-and middle-income countries. *Bulletin of the World Health Organization*, *89*(1), 54-61.

I need the evidence for a particular intervention fast…

Evidence Summary

What is it?

An evidence summary is "a short summary of the best available evidence on a defined question, with consideration of implications for further research. It aims to help policy makers use the best available evidence in their decision-making about interventions".[32]

NB. "Evidence summary" may also be used to refer to a brief outline of a single item of evidence, for example a single systematic review.

When should I use this Method?

An **evidence summary** offers a neutral presentation of the best available evidence for an intervention. Although an **evidence summary** may implicitly point towards a desired course of action it achieves this simply by highlighting the relevant evidence to inform the question. Where the intention is to explicitly signal one or more from a list of courses of action the **evidence briefing** (see above) is the more appropriate vehicle. Although distinctions between the two types of evidence product are by no means consistent within the literature for the purposes of this compendium we use "**evidence summary**" to describe a descriptive product that summarises best evidence for a particular **intervention** and "evidence brief" to describe more of a multi-attribute document that summarises the pros and cons of options for a particular **decision.** Potentially, therefore, information from a number of intervention-based evidence summaries could be incorporated into a single **evidence briefing** to assist in an option appraisal of how best to achieve a desired outcome.

By analogy an **evidence summary** functions like an honest broker who neutrally gathers factual information to support the decision making process whereas an **evidence briefing** is more of an adviser who helps in considering different options and their consequences and in making the ultimate decision.

How is it done?

An Evidence Summary basically follows a streamlined evidence production method (See Box 1)

Box 1 - Method for production of an Evidence Summary

1 Define the question.

2 Provide a justification for the evidence summary.

3 Specify the inclusion criteria.

4 Search for studies.

5 Review the studies.

6 Assess the intervention/s against the relevant criteria.

7 Consider the research gaps.

8 Find appropriate case studies.

How long will it take?

Evidence summaries are typically produced in days and weeks rather than the months or years required to prepare a systematic review from scratch.[26] For this reason they are typically best undertaken within a regular programme of evidence production.[31] Production is overseen by an advisory group who therefore deal with a variety of evidence summaries at different stages of completion at any one time. **Evidence summaries** typically target high-level evidence (e.g. summaries of systematic reviews)[33] and aim to identify the most significant and potentially influential items of evidence. This enables the review team to build up a rapid picture of an intervention and its likely effectiveness.

Where Can I see an Example?

The following template [Box 2] illustrates the essential features of an **evidence summary**.

Box 2 - Template for evidence summaries

Title [main heading]

An evidence summary [subheading]

<At beginning of summary, include statement:

This document summarises current evidence on [state the question], with implications for future research.>

1 Why change is needed [or] The case for action [heading 1]

Brief statements to show why change is needed. Use cost or burden of disease data to show the size of the problem and why it is important.

2 Review question(s) [heading 1]

State the review question(s).

3 Methods [heading 1]

Make it absolutely clear that you are using a "best available evidence" approach, not seeking comprehensive coverage of all evidence on a topic.

Inclusion criteria for studies [heading 2]

Specify inclusion criteria for studies in a table using the PICOS headings: population, interventions, comparisons, outcomes and study types.

Search strategy [heading 2]

Specify search strategy, resources searched and search terms. Specify date last searched (this allows updating of the summary).e.g. : Searches were current as at [month and year].

4 Results [heading 1]

Summarise number of studies used for the evidence summary (e.g. how many systematic reviews and how many economic evaluations, if any). Include references.

5 The evidence [heading 1]

Answer question. Start with a statement that shows level and quantity of evidence you found to answer the question. Cite all references meeting your inclusion criteria. Summarise the evidence of effectiveness and cost-effectiveness in dot points. Include the best available reference(s) for each point in terms of strength of evidence. Clearly state interventions that didn't work. Use a separate heading for this if relevant.

Consider splitting the evidence into sections according to population groups, settings, determinants, risk factors and/or intervention types – whatever works best for the evidence you have and the messages you wish to convey.

If possible, summarise what is involved in the intervention in terms of frequency, duration, delivery method, participants (including age) and so on <Consider using TiDiER framework to help in implementation>

6 Case studies [heading 1]

Case studies may help to show the effectiveness of the intervention and aspects of implementation. Link to resources for specific programmes where appropriate. Do not label them as "good practice" unless they have been formally, favourably and rigorously evaluated.

7 Research gaps [heading 1]

Summarise research gaps using bullet points.

8 References [heading 1]

References for studies meeting inclusion criteria and/or those cited in the text. The Vancouver system of referencing is more economical within the context of a short summary.

Acknowledgements: <List contributors other than the author(s), experts that have been consulted>

Date summary last updated: <insert date>

Suggested citation for this evidence summary:

<Author. Title: An evidence summary. Place: Department, Organisation; Date.>

For further information please contact:

<Address for further information with full contact details>

Example Evidence Summaries using the above format can be accessed from:

http://www.health.vic.gov.au/prevention/evidence/intervention-effectiveness.htm

Clark, R., Waters, E., Armstrong, R., Conning, R., Allender, S., & Swinburn, B. (2013). Evidence and obesity prevention: developing evidence summaries to support decision making. *Evidence & Policy: A Journal of Research, Debate and Practice*, *9*(4), 547-556.

Where Do I find Out More?

- Guidelines for evidence summaries for health promotion and disease prevention interventions (http://docs.health.vic.gov.au/docs/doc/Guidelines-for-evidence-summaries-for-health-promotion-and-disease-prevention).

The following format from the same team focuses on policy and practice recommendations. This therefore equates more closely with an Evidence Briefing (see above).

- Guidelines for evidence summaries for health promotion and disease prevention interventions - with implications for policy and practice. (http://docs.health.vic.gov.au/docs/doc/Guidelines-for-evidence-summaries-for-health-promotion-and-disease-prevention-interventions--with-implications-for-policy-and-practice)

Rapid Evidence Assessment

What is it?

Rapid Evidence Assessment (REA) is a "process that is faster and less rigorous than a full systematic review but more rigorous than ad hoc searching, it uses a combination of key informant interviews and targeted literature searches to produce a report in a few days or a few weeks"[7]. REAs provide a balanced assessment of what is already known about a policy or practice issue, by using systematic review methods to search and critically appraise existing research. REAs aim to be rigorous and explicit in method and thus systematic. However, necessarily, REAs make concessions to the breadth or depth of the process by limiting particular aspects of the systematic review process.[34] For example, the comprehensiveness of the search and other review stages may be limited. Increasingly, health policy makers, clinicians and clients cannot wait the year or so required for a full systematic review to deliver its findings. REAs can provide quick summaries of what is already known about a topic or intervention. The Government Social Research Unit has produced an REA toolkit which is recommended as a minimum standard for rapid evidence reviews.[8]

When should I use this Method?

Rapid Evidence Assessments can be undertaken in the following circumstances:[35]

- When there is uncertainty about the effectiveness of a policy or service and there has been some previous research.
- When a policy decision is required within months and policy makers/researchers want to make decisions based on the best available evidence within that time.
- During policy development, when evidence of the likely effects of an intervention is required.
- When a wide range of research exists on a topic but questions remain unanswered.
- When a map of evidence in a topic area is required to determine whether there is any existing evidence and to direct future research needs.
- As a starting point. Ideally, an REA is undertaken to answer a particularly pressing policy concern. Once the immediate question is answered the REA can form the basis of a more detailed full systematic review. In such cases, an REA is best described as an 'interim evidence assessment'[9].

In these situations an REA can provide a quick synthesis of the available evidence by shortening the conventional systematic review process.

By shortening conventional systematic review process REAs risk introducing bias.[36] Systematic reviews also suffer from biases but limiting the process increases the risk of them occurring. For example, limiting the search to published literature may introduce bias by excluding unpublished material. Therefore, the need for the evidence to be provided rapidly should outweigh the risk of

[7] *Better Evaluation Rapid Evidence Assessment* http://betterevaluation.org/evaluation-options/rapid_evidence_assessment

[8] *Government Social Research. Rapid Evidence Assessment Toolkit.* www.gsr.gov.uk/professional_guidance/rea_toolkit/index.asp (last accessed 18 February 2015)

[9] Evidence Based Approaches to Reducing Gang Violence A Rapid Evidence Assessment for Aston and Handsworth Operational Group July 2004 http://www.civilservice.gov.uk/wp-content/uploads/2011/09/rea_gang_violence_tcm6-7377.pdf

increased bias. REAs (along with all other review methods, especially those that use "rapid" approaches) should record how they have been less comprehensive than a full systematic review. They should also discuss the likely effect of bias that deviations from the conventional systematic review method have caused. This ensures that those taking decisions are aware of limitations of the evidence.

All review methods, including REAs, risk generating inconclusive findings that provide a weak answer to the original question.[17] For example, there may not be studies of sufficient methodological quality to address the question.

How is it done?

Several aspects of the systematic review process are limited in an REA to shorten the timescale. A review team will limit some, but by no means all, of the following stages:[17]

- The REA question – if the question is broad the search needs to be further limited.
- Searching – consider using less developed search strings rather than extensive search of all variants. Where there are many existing recent reviews, then consider a review of reviews rather than of primary studies.
- Screening stage – REAs can use 'grey' and print sources but less exhaustively than systematic reviews. An REA may use only electronically available abstracts and texts. However, this is unadvisable because of the increased risk of bias.
- Mapping stage – if included at all; often has to be limited in terms of the breadth of the initial evidence map.
- Data extract only on results and key data for simple quality assessment.
- Simple quality appraisal and/or synthesis of studies.

How long will it take?

Because an REA provides a quick overview of existing research on a (typically constrained) topic, and a synthesis of the evidence provided by these studies to answer the REA question, it may be completed within a 2 to 6 month timeframe. The speed at which the REA is undertaken depends on how quickly the evidence is needed, the available resource to carry out the REA and the extent to which reviewers are prepared to limit the systematic review process. Tight timescales in an REA mean that if findings are inconclusive there is less time than in a systematic review to go back and reformulate the question or inclusion criteria.

Where Can I see an Example?

Lambie-Mumford, H., Crossley, D., Jensen, E., Verbeke, M., & Dowler, E. (2014). Household food security in the UK: a review of food aid-final report. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/283071/household-food-security-uk-140219.pdf

Manley, J., Gitter, S., & Slavchevska, V. (2012). How effective are cash transfer programmes at improving nutritional status? A rapid evidence assessment of programmes' effects on anthropometric outcomes. London EPPI Centre. *Social Research Science Unit. Institute of Education. London: University of London*.

McMurran, M. (2012). Individual-level interventions for alcohol-related violence: A rapid evidence assessment. *Criminal Behaviour and Mental Health*, *22*(1), 14-28.

Underwood, L., Thomas, J., Williams, T., & Thieba, A. (2007). The effectiveness of interventions for people with common mental health problems on employment outcomes: a systematic rapid evidence assessment.
http://eprints.ioe.ac.uk/5264/3/Underwood2007TheeffectivenessofinterventionsReport.pdf

Where Do I find Out More?

Abrami, P. C., Borokhovski, E., Bernard, R. M., Wade, C. A., Tamim, R., Persson, T., ... & Surkes, M. A. (2010). Issues in conducting and disseminating brief reviews of evidence. *Evidence & Policy: A Journal of Research, Debate and Practice*, *6*(3), 371-389.

Ganann, R., Ciliska, D., & Thomas, H. (2010). Expediting systematic reviews: methods and implications of rapid reviews. *Implementation Science*, *5*(1), 56.

GSR, 2009. *Rapid evidence assessments toolkit* [online]. London: Government Social Research Unit.http://www.civilservice.gov.uk/networks/gsr/resources-and-guidance/rapid-evidence-assessment

Thomas, J., Newman, M., & Oliver, S. (2013). Rapid evidence assessments of research to inform social policy: taking stock and moving forward. *Evidence & Policy: A Journal of Research, Debate and Practice*, *9*(1), 5-27.

Rapid Review

What is it?

A rapid review is a brief synthesis and judgement of the available research evidence related to a specific question[10]. The research evidence is drawn primarily from existing systematic reviews, meta-analyses and economic evaluations. Therefore, more recent published trials, trials in progress and unpublished (grey) literature are generally not included in the review. Rapid reviews are usually conducted by senior researchers with expertise in the particular field of research. 'Rapid reviews' have emerged in response to the incompatibility between information needs of policy makers and the time requirements to complete systematic reviews.[37] Rapid reviews provide a way to generate similar types of knowledge synthesis as more comprehensive systematic reviews do. However they attempt to accomplish this within an accelerated time period. Some critics question the validity of **rapid reviews**.[36, 38, 39] Nevertheless rapid reviews simply represent an arbitrary point on a continuum between comprehensiveness and timeliness for policy-relevant decisions.[40]

Potential confusion exists between a **rapid review** as a product and rapid review as a process. For example, Khangura describes a rapid review process that results in the production of evidence summaries as a product.[41] For this reason we choose to define a **rapid review** solely in terms of being a type of evidence product. A **rapid review** is characterised either by (i) using pre-existing summaries and syntheses in order to accelerate the process of assimilating individual primary studies and/or (ii) explicitly sidestepping, or performing more superficially, one or more of the accepted processes used in a systematic review to allow a review team to deliver a product within a shortened timescale. Typically, **rapid review** processes might involve reducing the number of databases/sources searched, restricting the types of studies examined to only secondary sources, avoiding formal quality assessment or employing a light touch approach to assessment e.g. based only on study design, using more descriptive and less analytical approaches to data synthesis and presentation. Definitions of a rapid review that simply focus on the speed/timescale of the process independent of the implications for quality are to be avoided.[42] A **rapid review** may transfer much of the burden of interpretation of the synthesis from the review team to the reader. A review team may focus only on more evident patterns or trends in the data, couched in cautious interpretation of the data. They then leave the reader to come to a more nuanced understanding by paying detailed attention to the data that they have summarised.

Table 2 - General comparison of rapid review versus systematic review approaches[41]

	Rapid review	Systematic review
Timeframe	4-12 weeks	6 months to 2 years
Question	Question specified *a priori* (may include broad PICOS)	Often a focused clinical question (focused PICOS)
Sources and	Sources are limited. Sources/strategies	Comprehensive sources searched

[10] Rapid reviews. http://www.health.vic.gov.au/prevention/evidence/rapid-reviews.htm

searches	are made explicit	and explicit strategies
Selection	Criterion-based; uniformly applied	Criterion-based
Appraisal	Rigorous; critical appraisal (SRs only)	Rigorous; critical appraisal
Synthesis	Descriptive summary/categorization of the data	Qualitative summary +/- meta-analysis
Inferences	Limited/cautious interpretation of the findings	Evidence-based

When should I use this Method?

A rapid review is used when the speed of the answer, and thus the window of opportunity within which results are delivered, is prioritised over the rigour of the answer. However unless certain quality assurance measures are put in place this advantage is lost by producing an invalid answer. A rapid review should not simply focus on the speed within which it is delivered[42] – it must transparently report the process used to produce a quick answer and attempt to assess the implications of this process for confidence in the review findings.

How is it done?

A rapid review is accomplished by fast-tracking one or more of the standard stages of a systematic review e.g.;

- By searching a smaller selection of databases
- By restricting to a particular study type
- By reviewing reviews
- By data extracting direct into tables of results
- By limiting the number of outcomes being included
- By performing quality assessment at a study design level rather than appraising each individual study
- By limiting the amount of analysis and interpretation

How long will it take?

Generically a **rapid review** refers to any review that takes less time than a conventional systematic review (e.g. less than 12 months), depending on which of the review stages are accelerated. However typically a **rapid review** is conducted in a significantly shorter time scale (e.g. between four and twelve weeks).

Where Can I see an Example?

Chaiyachati, K. H., Ogbuoji, O., Price, M., Suthar, A. B., Negussie, E. K., & Bärnighausen, T. (2014). Interventions to improve adherence to antiretroviral therapy: a rapid systematic review. *Aids*, **28** (suppl 2), S187-204.

Loveday, H. P., Wilson, J. A., Kerr, K., Pitchers, R., Walker, J. T., & Browne, J. (2014). Association between healthcare water systems and Pseudomonas aeruginosa infections: a rapid systematic review. *Journal of Hospital Infection*,*86*(1), 7-15.

Riley, B., Norman, C. D., & Best, A. (2012). Knowledge integration in public health: a rapid review using systems thinking. *Evidence & Policy: A Journal of Research, Debate and Practice*, *8*(4), 417-431.

Where Do I find Out More?

Harker, J., & Kleijnen, J. (2012). What is a rapid review? A methodological exploration of rapid reviews in Health Technology Assessments. *International Journal of Evidence-Based Healthcare*, *10*(4), 397-410.

Khangura, S., Konnyu, K., Cushman, R., Grimshaw, J., & Moher, D. (2012). Evidence summaries: the evolution of a rapid review approach. *Systematic reviews*, *1*(1), 1-9.

Schünemann HJ, Moja L. Reviews: Rapid! Rapid! Rapid! …and systematic. Syst Rev. 2015 Jan 14;4(1):4.

Watt, A., Cameron, A., Sturm, L., Lathlean, T., Babidge, W., Blamey, S., ... & Maddern, G. (2008). Rapid reviews versus full systematic reviews: an inventory of current methods and practice in health technology assessment. *International Journal of Technology Assessment in Health Care*, *24*(02), 133-139.

Watt, A., Cameron, A., Sturm, L., Lathlean, T., Babidge, W., Blamey, S., ... & Maddern, G. (2008). Rapid versus full systematic reviews: validity in clinical practice?. *ANZ journal of surgery*, *78*(11), 1037-1040.

Rapid Realist Review

What is it?

Rapid realist review methodology (RRR) is "a tool for applying a realist approach to a knowledge synthesis process and producing a product that is useful to policy makers in responding to time-sensitive and/or emerging issues where there is limited time and resources".[37] Conventional 'realist reviews typically engage in a much longer exploration of the literature and 'testing' of theories. Often realist syntheses present their results within a framework of theory development. In contrast rapid realist reviews are located within the context of short-term evidence synthesis projects.[41] Specifically, the RRR methodology seeks to combine the theory specification of a realist review[43] with the clarification of boundaries typical of a scoping review.[14]

Applying the realist approach (asking what works for whom under what circumstances) when limited time and resources are available requires a methodology that can "generate a realist-based product that can incorporate research, theory, and practice knowledge and thus meet the demands of real-time policy developers/evaluators". Rapid realist reviews seek to remain consistent with the recently published RAMESES (Realist And MEta-narrative Evidence Syntheses: Evolving Standards) publication standards for realist syntheses, which note that realist reviews need to be focused based on the time and resources provided as well as the questions that need to be answered.[44]

Rapid realist reviews seek to meet demand from policy makers for "knowledge syntheses that highlight possible interventions (I) that could be implemented within a specific context (C) that in turn interact with various mechanisms (M) and produce outcomes (O) of interest".[37] This pragmatic focus has required a change of emphasis away from reviews that focus on producing transferable theories, to syntheses that focus on "identifying groups of interventions related to outcomes of interest for policy makers".[37] A review team is required to 'work backwards' from the desired outcome to "'families of interventions' (I) that can be implemented to produce those outcomes, supported by a theoretical understanding of the contexts (C) within, and mechanisms (M) by which such interventions operate".[37] In doing so, the RRR methodology focuses "less on the development of theory that is transferable across domains, than on the distillation of theory-driven, contextually relevant interventions that are likely to be associated with specific outcomes within a particular set of parameters".[37]

When should I use this Method?

Realist synthesis, specifically designed for use in complex systems, is considered ideal for investigating questions requiring depth of understanding. However the method lacks transparency and therefore may not be reproducible. Use of a rapid method is indicated where the answer to a pressing health concern is more important than the rigour with which the insights derived are gained.

How is it done?

A rapid realist review is conducted in the following iterative steps.[37]

1. Describe the initial hypotheses, or relevant candidate theories
2. Construct a theoretical framework
3. Undertake a more thorough search of the literature for pertinent papers
4. Extract and synthesise the data based on our theoretical framework.

'Conventional' realist reviews and RRRs have key differences that allow policy makers to ensure that an appropriate methodology is used to deliver the desired outcome. The RRR methodology is explicitly designed to engage knowledge users and review stakeholders to define the research questions, and thus to streamline the review process. Results focus on context-specific explanations for what works within a particular set of parameters rather than seeking explanations to transfer across contexts and populations. For policy makers faced with making difficult decisions in short time frames for which there is sufficient (if limited) published/research and practice-based evidence available, RRR is believed to offer a "practical, outcomes-focused knowledge synthesis method".[37]

How long will it take?

Based on a published series by the same team rapid realist syntheses were found to take between two and six months with the majority coming towards the top of this range.[37]

Where Can I see an Example?

Best, A., Greenhalgh, T., Lewis, S., Saul, J. E., Carroll, S., & Bitz, J. (2012). Large-system transformation in health care: a realist review. *Milbank Quarterly*,*90*(3), 421-456.

Durham, J., & Blondell, S. J. (2014). Research protocol: a realist synthesis of cross-border patient mobility from low-income and middle-income countries. *BMJ open*, *4*(11), e006514.

Willis, C. D., Saul, J. E., Bitz, J., Pompu, K., Best, A., & Jackson, B. (2014). Improving organizational capacity to address health literacy in public health: a rapid realist review. *Public health*, *128*(6), 515-524.

Where Do I find Out More?

Mijumbi, R. M., Oxman, A. D., Panisset, U., & Sewankambo, N. K. (2014). Feasibility of a rapid response mechanism to meet policymakers' urgent needs for research evidence about health systems in a low income country: a case study. *Implementation Science*, *9*(1), 114.

Pointing, S. B. (2014). Realist methodology in practice: translational findings from two realist syntheses. *Learning Communities: International Journal of Learning in Social Contexts*, *14*, 60-80.

Saul J, Willis C, Bitz J, *et al* A time-responsive tool for informing policy making: rapid realist review. Implement Sci 2013;8:103.

Wilson MG, Lavis JN, Gauvin FP. *Issue Brief: Developing a 'Rapid-response' Program for Health System Decision-Makers in Canada.* Hamilton, Canada: McMaster Health Forum, 7 March 2014. http://hdl.handle.net/11375/14877

I need to build up a picture from existing related reviews…

Umbrella Review

What is it?

The label "umbrella review" is a relatively recent addition to the review typology. The Cochrane Collaboration is currently seeking to assemble already existing reviews on the same topic, typically performed by the same Review Groups, under umbrella reviews.[45] Essentially an umbrella review is a cluster of existing systematic reviews on a shared topic. The objective of an 'umbrella' review is to build upon an area that is well-covered by existing systematic reviews by synthesizing the evidence from all relevant reviews to provide a single report which summarizes the current state of knowledge on the topic. Such an umbrella review may be populated exclusively from systematic review evidence or, alternatively, may also include randomised controlled trials that fall within the broad scope of the umbrella review but that are not covered within one of the component reviews.

The inherent advantage of an umbrella review is that it may bring together many treatment comparisons for the management of the same disease or condition.[45] Each comparison is considered separately. Where technically possible and appropriate, meta-analyses are performed. Ideally, given the breadth of scope and the desire to present coverage of a complete decision problem both benefits and harms should be placed side by side to enable the reviewer and the reader to determine trade-offs between risks and benefits.

When should I use this Method?

The Umbrella review is indicated when a particular topic area is already well-covered by systematic reviews and/or meta-analyses. Typically, the broad topic area will have been "split" into focused populations and/or interventions. The umbrella review seeks to impose an overall coherence by lumping these precise reviews together. Umbrella reviews are particularly valuable within health technology assessments that aim to consider all management options and yet may commission separate reviews of an individual treatment with specific outcomes. Within the Cochrane Collaboration umbrella reviews seek to serve as a 'friendly front end'[46] to the Cochrane Library, offering the reader a quick overview (and exhaustive list) of the Cochrane reviews relevant to a particular condition. An umbrella review is limited to only those interventions that have been evaluated within a review. Nevertheless, such an overview can illuminate treatments currently being used and the methods being used to provide much-needed evidence for health professionals, policy makers and researchers.

Umbrella reviews are limited by the amount, quality and comprehensiveness of available information in the primary studies.[47] Recently concern has been expressed that "patching together pre-existing reviews is limited by different eligibility criteria, evaluation methods and thoroughness of updating information across the merged reviews. Moreover, pre-existing reviews may not cover all of the possible management options".[45] It has been suggested that a more efficient method is to commission a series of reviews around a shared methodology thereby picking off individual topics and yet permitting relatively seamless integration. However the field is currently a long way away from such prospective commissioning.[45] For the moment umbrella reviews offer a mechanism by a review team is able to identify which methodological weaknesses make a component review vulnerable to bias and compromise their validity.[48]

How is it done?

An umbrella review requires some overall structure to enable included reviews to be handled in a common manner. An umbrella review is considerably quicker and easier if the component reviews share a common methodology (e.g. all Cochrane Reviews). A database of reviews (e.g. the Database of Abstracts of Reviews of Effects (DARE), Epistimonikos or PDQ) or a review study filter is typically be used to identify and harvest literature at a review level. Mapping may be performed at either a review or an individual study level.

How long will it take?

While no precise data is available on the typical duration of an umbrella review it is likely to take approximately the same time as a Review of Reviews. In some circumstances it may take considerably shorter (towards the 3 month timeframe) if the included reviews are easily comparable and/or share a common methodology and/or format

Where Can I see an Example?

Labre, M. P., Herman, E. J., Dumitru, G. G., Valenzuela, K. A., & Cechman, C. L. (2012). Public health interventions for asthma: an umbrella review, 1990–2010. *American journal of preventive medicine*, *42*(4), 403-410.

Safron, M., Cislak, A., Gaspar, T., & Luszczynska, A. (2011). Effects of school-based interventions targeting obesity-related behaviors and body weight change: a systematic umbrella review. *Behavioral Medicine*, *37*(1), 15-25.

Tsilidis, K. K., Kasimis, J. C., Lopez, D. S., Ntzani, E. E., & Ioannidis, J. P. (2015). Type 2 diabetes and cancer: umbrella review of meta-analyses of observational studies. *BMJ*, *350*, g7607.

Where Do I find Out More?

Ioannidis, J. P. (2009). Integration of evidence from multiple meta-analyses: a primer on umbrella reviews, treatment networks and multiple treatments meta-analyses. *Canadian Medical Association Journal*, *181*(8), 488-493.

Pieper, D., Buechter, R., Jerinic, P., & Eikermann, M. (2012). Overviews of reviews often have limited rigor: a systematic review. *Journal of clinical epidemiology*, *65*(12), 1267-1273.

I need to look at a specific topic in depth

Systematic Review of Quantitative Evidence

What is it?

A simple definition of a systematic literature review is "a means of identifying, evaluating and interpreting all available research relevant to a particular research question, or topic area, or phenomenon of interest".[49] However by focusing only on the cumulation and synthesis of evidence such a definition might be seen to downplay the intellectual endeavour that goes into the production of such a review. This analytical intent is better captured by "a systematic review is a summary of available research on a given topic that compares studies based on design and methods. It summarizes the findings of each, and points out flaws or potentially confounding variables that may have been overlooked. A critical analysis of each study is done in an effort to rate the value of its stated conclusions. The research findings are then summarized, and a conclusion is provided"[11]. A key part of the systematic review method is to take reasonable procedures to minimise the effects of bias in selecting and interpreting the included studies. A **systematic review of quantitative evidence** may or may not include a meta-analysis (statistical pooling) of data extracted from the included studies. The determining factor is the extent to which the data extracted from each study is comparable i.e. does the included study measure the same outcome (e.g. pain) in a similar-enough way.

When should I use this Method?

Reasons for undertaking a systematic review include:[49]

- To summarise the existing evidence concerning the effectiveness of an intervention, programme or policy
- To identify gaps in existing research to inform areas for further investigation.
- To provide a context within which to appropriately position new research activities
- To examine the extent to which empirical evidence supports/refutes a theoretical hypothesis
- To assist in the generation of new hypotheses

How is it done?

The **systematic review of quantitative evidence** addresses a research question by summarizing the results of quantitative studies. Formal stages of question formulation, searching the literature, developing inclusion and exclusion criteria, extracting data from included studies in a common format and synthesising data are followed according to a pre-specified protocol.[1] Findings from individual studies are aggregated to produce a 'bottom line' on the issue requiring evaluation. This aggregation of findings is called evidence synthesis. The type of evidence synthesis is chosen to fit the types(s) of data within the review. For example, a technique known as meta-analysis (see below) is used if homogenous quantitative evidence is assessed for clinical effectiveness. Narrative summaries are used if quantitative data are not homogenous. The purpose of a systematic review is to sum up the best available research on a specific question. This is done by synthesizing the results of several studies.

[11] Institute for Research and Innovation in Social Services Confidence through evidence toolkit http://toolkit.iriss.org.uk/glossary/systematic-review.html

A systematic review uses transparent procedures to find, evaluate and synthesize the results of relevant research.[50] Procedures are explicitly defined in advance, to allow a review team to ensure that the exercise is transparent and can be replicated.[51] This practice is also designed to minimize bias. Studies included in a review are screened for quality, so that the findings of a large number of studies can be combined. Peer review is a key part of the process; qualified independent researchers control the author's methods and results.[52]

A systematic review must have: [52]

- Clear inclusion/ exclusion criteria
- An explicit search strategy
- Systematic coding and analysis of included studies
- Meta-analysis (where possible)

How long will it take?

A conventional systematic review typically takes between 12 and 18 months.

Where Can I see an Example?

List of EPPI-Centre systematic reviews
http://eppi.ioe.ac.uk/cms/Default.aspx?tabid=62 . Includes:

2013 The views of young people in the UK about obesity, body size, shape and weight: a systematic review. http://eppi.ioe.ac.uk/cms/Default.aspx?tabid=3394

2012 Communities that cook: a systematic review of the effectiveness and appropriateness of interventions to introduce adults to home cooking http://eppi.ioe.ac.uk/cms/Default.aspx?tabid=3322

2011 Childhood obesity and educational attainment: a systematic review
http://eppi.ioe.ac.uk/cms/Default.aspx?tabid=2954

Where Do I find Out More?

Centre for Reviews & Dissemination (CRD). (2009). *Systematic reviews: CRD's guidance for undertaking reviews in health care*. Centre for Reviews and Dissemination.

Gough D, Oliver S, Thomas J (2012) *An Introduction to Systematic Reviews*. London: Sage

Hansen, H., & Trifkovic, N. (2013). *Systematic Reviews: Questions, Methods and Usage*. DANIDA, Udenrigsministeriet.

Hemingway, P., & Brereton, N. (2009). What is a systematic review. *What is Series. Bandolier, April*. http://www.medicine.ox.ac.uk/bandolier/painres/download/whatis/syst-review.pdf

Langer, L., & Stewart, R. (2014). What have we learned from the application of systematic review methodology in international development?–a thematic overview. *Journal of Development Effectiveness*, *6*(3), 236-248.

Mays, N., Pope, C., & Popay, J. (2005). Systematically reviewing qualitative and quantitative evidence to inform management and policy-making in the health field. *Journal of health services research & policy*, *10*(suppl 1), 6-20.

Sayers, A. (2007). Tips and tricks in performing a systematic review. *British Journal of General Practice*, *57*(538), 425-425.

Waddington, H., White, H., Snilstveit, B., Hombrados, J. G., Vojtkova, M., Davies, P., ... & Tugwell, P. (2012). How to do a good systematic review of effects in international development: a tool kit. *Journal of development effectiveness*, *4*(3), 359-387.

Webb, C., & Roe, B. H. (Eds.). (2007). *Reviewing research evidence for nursing practice: Systematic reviews*. Blackwell Pub..

Meta-Analysis

What is it?

Meta-analysis is a statistical technique for combining the findings from independent studies.[53] Good meta-analyses aim for complete coverage of all relevant studies, look for the presence of heterogeneity, and explore the robustness of the main findings using sensitivity analysis.[54]

When should I use this Method?

Meta-analysis is most often used to assess the clinical effectiveness of healthcare interventions; it does this by combining data from two or more randomised control trials.[53] To perform a meta-analysis you either need to have studies that are measuring the same outcome in the same way or for the ways of measuring outcomes to at least be similar enough to make such comparison meaningful. In some cases outcomes can be mapped across different outcome scales or tools e.g. pain measurement scores.

How is it done?

Meta-analysis of trials provides a precise estimate of treatment effect, giving due weight to the size of the different studies included.[53] The validity of the meta-analysis depends on the quality of the systematic review on which it is based.

How long will it take?

A meta-analysis typically takes the time taken to conduct a standard systematic review plus some additional time to conduct the analysis. Study outcomes are typically entered into a software package and graphical summaries (Forest Plots) are produced showing how the results from different studies lie in relation to each other. Interpretation of these plots may include an investigation of the differentness (homogeneity) of the included trials and also an estimation of whether publication bias is likely to have occurred. In this latter case the review team looks to see whether a particular type of studies e.g. studies with a small sample size and non-significant results is missing from the graphical display.

Where Can I see an Example?

The Cochrane Library publishes a large number of systematic reviews with accompanying meta-analyses. http://www.cochranelibrary.com/

Where Do I find Out More?

Borenstein, M., Hedges, L. V., Higgins, J. P., & Rothstein, H. R. (2011). *Introduction to meta-analysis*. John Wiley & Sons.

Crombie, I. K., & Davies, H. T. (2009). What is meta-analysis. *What is*, 1-8. http://www.medicine.ox.ac.uk/bandolier/painres/download/whatis/meta-an.pdf

Egger, M., Smith, G. D., & Phillips, A. N. (1997). Meta-analysis: principles and procedures. *Bmj*, *315*(7121), 1533-1537.

Rohwer, A., Garner, P., & Young, T. (2014). Reading systematic reviews to answer clinical questions. *Clinical Epidemiology and Global Health*, *2*(1), 39-46.

Systematic Review of Qualitative Evidence

What is it?

A systematic review of qualitative review (also known as qualitative evidence synthesis) is a method for integrating or comparing the findings from qualitative studies. It looks for 'themes' or 'constructs' that lie in or across individual qualitative studies. "A qualitative synthesis uses qualitative methods to synthesize existing qualitative studies to construct greater meaning through an interpretive process …. it involves using a rigorous and methodologically grounded approach for analysis that is filtered through an interpretive lens … deriving meaning from translation".[55]

When should I use this Method?

Reasons for undertaking a systematic review of qualitative research include:

- To complement existing evidence concerning the effectiveness of an intervention, programme or policy with an understanding of how it might be received by patients, practitioners or the wider community.
- To explain why an intervention, programme or policy does not work as well as might have been expected e.g. why adherence to a programme is poor or why practitioners deliver the programme with poor fidelity;
- To understand how contextual factors may interact with or interfere with the operation of an intervention, programme or policy
- To assist in the generation of new hypotheses

How is it done?

The stages of a qualitative evidence synthesis include:[56]

1. Formulate Research Question (and Protocol)

2. Search Databases (identify papers)

3. Screen Papers by title/abstract

4. Full text Review

5. Synthesis and Analysis of themes or findings from included papers

How long will it take?

Systematic reviews of qualitative evidence (qualitative evidence synthesis) typically take a similar time to conduct as systematic reviews of quantitative research. However, this similarity hides considerable variation between reviews that simply seek to aggregate qualitative information (e.g. themes) which may be accomplished much more speedily, and more interpretative approaches that seek to develop new insights.

Where Can I see an Example?

Glenton, C., Colvin, C. J., Carlsen, B., Swartz, A., Lewin, S., Noyes, J., & Rashidian, A. (2013). Barriers and facilitators to the implementation of lay health worker programmes to improve access to maternal and child health: qualitative evidence synthesis. *The Cochrane Library*.

Rehfuess, E. A., Puzzolo, E., Stanistreet, D., Pope, D., & Bruce, N. G. (2014). Enablers and barriers to large-scale uptake of improved solid fuel stoves: a systematic review. *Environmental health perspectives*, *122*(2), 120-130.

Johnson, M., Everson-Hock, E., Jones, R., Woods, H. B., Payne, N., & Goyder, E. (2011). What are the barriers to primary prevention of type 2 diabetes in black and minority ethnic groups in the UK? A qualitative evidence synthesis.*Diabetes research and clinical practice*, *93*(2), 150-158.

Stanistreet, D., Puzzolo, E., Bruce, N. G., Pope, D.,., & Rehfuess, E. A. (2014). Factors influencing household uptake of improved solid fuel stoves in low-and middle-income countries: a qualitative systematic review. *International journal of environmental research and public health*, *11*(8), 8228-8250.

Where Do I find Out More?

Gülmezoglu, A. M., Chandler, J., Shepperd, S., & Pantoja, T. (2013). Reviews of qualitative evidence: a new milestone for Cochrane. The Cochrane database of systematic reviews, 11, ED000073.

Hannes, K., & Macaitis, K. (2012). A move to more systematic and transparent approaches in qualitative evidence synthesis: update on a review of published papers. Qualitative Research, 12(4), 402-442.

Hannes, K., Booth, A., Harris, J., & Noyes, J. (2013). Celebrating methodological challenges and changes: reflecting on the emergence and importance of the role of qualitative evidence in Cochrane reviews. Syst Rev, 2, 84.

Lorenc, T., Pearson, M., Jamal, F., Cooper, C., & Garside, R. (2012). The role of systematic reviews of qualitative evidence in evaluating interventions: a case study. *Research Synthesis Methods*, *3*(1), 1-10.

Major, C. H., & Savin-Baden, M. (2010). An introduction to qualitative research synthesis: Managing the information explosion in social science research. Routledge.

Noyes J, Popay J, Pearson A, Hannes K, Booth A. Chapter 20: Qualitative research and Cochrane reviews. In: Higgins JPT, Green S (editors), Cochrane Handbook for Systematic Reviews of Interventions Version 5.1.0 (updated March 2011). The Cochrane Collaboration, 2011. Available from www.cochrane-handbook.org.

I need to understand how an intervention or programme works…

Systematic Review with Logic Model

What is it?

Logic models have an established place in seeking to understand complex healthcare programmes as a way of illustrating how a programme seeks to achieve its intended outcomes.[57] Logic models may also be used to examine correlates and to describe connections between determinants of outcomes. Recently the place of logic models has been recognised as a valuable contributor to the systematic review process. Logic models can be applied at different stages in a systematic review, from informing a definition of scope through to providing a structure for data extraction, analysis and interpretation.

When should I use this Method?

A systematic review with logic model can be used where you need to understand the conceptual underpinnings of a particular intervention or programme. In particular you can use them to explore causal links, effect mediators or moderators.[9] Logic models may also be used to direct the various stages of the review process. They can "help justify narrowing the scope of a review, identify the most relevant inclusion criteria, guide the literature search, and clarify interpretation of results when drawing policy- relevant conclusions about review findings".[57]

How is it done?

The logic model may be constructed *a priori* from an initial scoping of the literature and/or consultation with stakeholders in which case it may be used subsequently as a framework for data extraction and analysis. Alternatively, the logic model may emerge from the findings of the systematic review with new data being used to explore, test or modify the relationships depicted in a draft logic model.

How long will it take?

If you are going to use a logic model at the beginning of the systematic review process you may need an extra one to three months as a supplementary prequel to the review. Alternatively, if you are using a logic model to facilitate the review process, e.g. to determine the data extraction process, the existence of a logic model may accelerate the review. A key time factor is whether the logic model already exists, whether you create it from a supplementary review process or whether you generate the logic model through stakeholder involvement.

Where Can I see an Example?

Allmark, P., Baxter, S., Goyder, E., Guillaume, L., & Crofton-Martin, G. (2013). Assessing the health benefits of advice services: using research evidence and logic model methods to explore complex pathways. *Health & social care in the community*, *21*(1), 59-68.

Baxter, S. K., Blank, L., Woods, H. B., Payne, N., Melanie, R., & Goyder, E. (2014). Using logic model methods in systematic review synthesis: describing complex pathways in referral management interventions. *BMC medical research methodology*, *14*(1), 62.

Turley, R., Saith, R., Bhan, N., Rehfuess, E., & Carter, B. (2013). Slum upgrading strategies involving physical environment and infrastructure interventions and their effects on health and socio-economic outcomes. *The Cochrane Library*.

Where Do I find Out More?

Logic Models in General

W.K. Kellogg Foundation Logic Model Development Website

https://www.wkkf.org/resource-directory/resource/2006/02/wk-kellogg-foundation-logic-model-development-guide

W.K. Kellogg Foundation Logic Model Development Guide
http://www.smartgivers.org/uploads/logicmodelguidepdf.pdf

Funnell, S. C., & Rogers, P. J. (2011). *Purposeful program theory: effective use of theories of change and logic models* (Vol. 31). John Wiley & Sons.

Methods of Logic Models In Systematic Reviews

Anderson, L. M., Petticrew, M., Rehfuess, E., Armstrong, R., Ueffing, E., Baker, P., ... & Tugwell, P. (2011). Using logic models to capture complexity in systematic reviews. *Research synthesis methods*, *2*(1), 33-42.

Anderson, L. M., Oliver, S. R., Michie, S., Rehfuess, E., Noyes, J., & Shemilt, I. (2013). Investigating complexity in systematic reviews of interventions by using a spectrum of methods. *Journal of clinical epidemiology*, *66*(11), 1223-1229.

Baxter, S., Killoran, A., Kelly, M. P., & Goyder, E. (2010). Synthesizing diverse evidence: the use of primary qualitative data analysis methods and logic models in public health reviews. *Public health*, *124*(2), 99-106.

Realist Synthesis

What is it?

Realist Synthesis synthesises a wide range of evidence that seeks to identify underlying causal mechanisms and explore how they work under what conditions, answering the question "What works for whom under what circumstances?" rather than "What works?"[12]. Specifically, it seeks to 'unpack the mechanism' of how complex programmes work (or why they fail) in particular contexts and settings. Realism has roots in philosophy, the social sciences, and evaluation, but is a relatively new methodology for the synthesis of evidence in healthcare and other policy arenas.[58] Realist synthesis is a theoretically driven, qualitative approach to synthesising qualitative, quantitative and mixed-methods research evidence.[59] A realist review is theory driven. Most realist reviews focus on interventions or programmes. While systematic reviews provide evidence on outcomes, a realist review provides a method to understand what triggers particular behaviours, the consequences of such behaviours, and what contextual factors affect those behaviours. In realist terms, these are referred to as Context, Mechanisms and Outcomes (C-M-O configurations).[59]

Mechanisms refer to the variables in the decision-making process.[59] They include the beliefs, values, desires and cognitive processes that influence why people choose to do what they do. These mechanisms are influenced by the context. Context, in a realist review, generally refers to aspects of the background, people and research setting that lead to the outcomes. Context is similar to structure by incorporating social, cultural, historical or institutional aspects. Context either facilitates or constrains the operation of an intervention or programme. Outcomes refer to expected or unexpected intermediate (mediating) and final outcomes. Outcomes result from the interaction of mechanisms and context.[59] The C-M-O configurations help ensure external validity, as they allow the research team to extend their theory building to a level of abstraction for the theory/theories to be useful in other contexts. The iterative approach to theory building and C-M-O configuring enables a review team to confirm or refute their theories.[59]

When should I use this Method?

Realist synthesis is believed, by its creators, to fill "an important methodological need…for a synthesis method that can cope effectively with management and service delivery interventions".[58]In comparison with reviews of the effectiveness of clinical interventions, "the literature on service interventions is epistemologically complex and methodologically diverse. As such, it presents additional challenges for the reviewer".[58] Realist review methods are not without their difficulties. The iterative, flexible nature of realist reviews does not align well with protocol-driven, standardized processes common to established systematic review methods.[37] Results from a realist review are only generalisable if similar mechanisms work to generate outcomes of interest. Completion of a realist review requires a high level of training and experience. Given the novelty of the method such training and experience may not be found routinely in government or policy development agencies, academic institutions, or community-based organizations.[37] Realist reviews require considerable and sustained investment over time. This level of investment may not always suit the time-sensitive demands of many policy decisions. In addition, due to their expansive and exploratory nature, realist reviews can often suffer from 'scope creep'.[37]

[12] Better Evaluation. Realist synthesis. http://betterevaluation.org/evaluation-options/realistsynthesis

How is it done?

A realist synthesis follows similar stages to a conventional systematic review, but with some notable differences:[60]

1. The focus of the synthesis is derived from a negotiation between stakeholders and reviewers and therefore the extent of stakeholder involvement throughout the process is high.
2. The search and appraisal of evidence is purposive and theoretically driven with the aim of refining theory.
3. Multiple types of information and evidence can be included.
4. The process is iterative.
5. The findings from the synthesis focus on explaining to the reader why (or not) the intervention works and in what ways, to enable informed choices about further use and/or research

The realist approach involves identifying underlying causal mechanisms and exploring how they work under what conditions.[60] The stages of this review included: defining the scope of the review (concept mining and framework formulation); searching for and scrutinising the evidence; extracting and synthesising the evidence; and developing the narrative, including hypotheses. See Table 1 from Rycroft-Malone et al.[60]

Table 3 - Approach to realist review (from Rycroft-Malone[60], adapted from Pawson)

Stage	Action	Activity
Define the scope of the review	Identify the question	What is the nature and content of the intervention? What are the circumstances or context of its use? What are the policy intentions or objectives? What are the nature and form of its outcomes or impacts? Undertake exploratory searches to inform discussion with review stakeholders.
	Clarify the purpose(s) of the review	Theory integrity – does the intervention work as predicted? Theory adjudication – which theories around the intervention seem to fit best? Comparison – how does the intervention work in different settings, for different groups? Reality testing – how does the policy intent of the intervention translate into practice?
	Find and articulate the programme theories	Search for relevant 'theories' in the literature. Draw up list of programme theories. Group, categorise or synthesise theories. Design a theoretically based evaluative framework

Stage	Action	Activity
		to be 'populated' with evidence. Develop bespoke data extraction forms.
Search for and appraise the evidence	Search for the evidence	Decide and define purposive sampling strategy. Define search sources, terms and methods to be used (including cited reference searching). Set the thresholds for stopping searching at saturation.
	Test of relevance	Test relevance – does the research address the theory under test? Test rigour – does the research support the conclusions drawn from it by the researchers or the reviewers?
Extract and synthesise findings	Extract the results	Extract data to populate the evaluative framework with evidence.
	Synthesise findings	Compare and contrast findings from different studies. Use findings from studies to address purposes(s) of review. Seek both confirmatory and contradictory findings. Refine programme theories in the light of evidence including findings from analysis of study data.
Develop narrative		Involve commissioners/decision makers in review of findings. Disseminate review with findings, conclusions and recommendations.

How long will it take?

Because it is an interpretive process a realist synthesis typically takes longer than a systematic review on the same topic. This extra interpretive process may add as much as an additional six months to a review topic. A key consideration is whether the realist review will seek to review the entire body of literature related to a topic or whether, more typically, some selectivity is employed in the sampling. For this reason some propose that attention is focused on particularly rich clusters

of related quantitative and qualitative papers that share a common study.[61-65] Others have proposed a rapid realist review strategy (See above).[37]

Where Can I see an Example?

Best, A., Greenhalgh, T., Lewis, S., Saul, J. E., Carroll, S., & Bitz, J. (2012). Large-system transformation in health care: a realist review. *Milbank Quarterly*,*90*(3), 421-456.

Greenhalgh, T., Kristjansson, E., & Robinson, V. (2007). Realist review to understand the efficacy of school feeding programmes. *BMJ: British Medical Journal*, *335*(7625), 858.

Pointing, S. B. (2014). Realist methodology in practice: translational findings from two realist syntheses. *Learning Communities: International Journal of Learning in Social Contexts*, *14*, 60-80.

Willis, C. D., Saul, J. E., Bitz, J., Pompu, K., Best, A., & Jackson, B. (2014). Improving organizational capacity to address health literacy in public health: a rapid realist review. *Public health*, *128* (6), 515-524.

Where Do I find Out More?

Pawson, R., Greenhalgh, T., Harvey, G., & Walshe, K. (2005). Realist review–a new method of systematic review designed for complex policy interventions. *Journal of health services research & policy,* 10(suppl 1), 21-34.

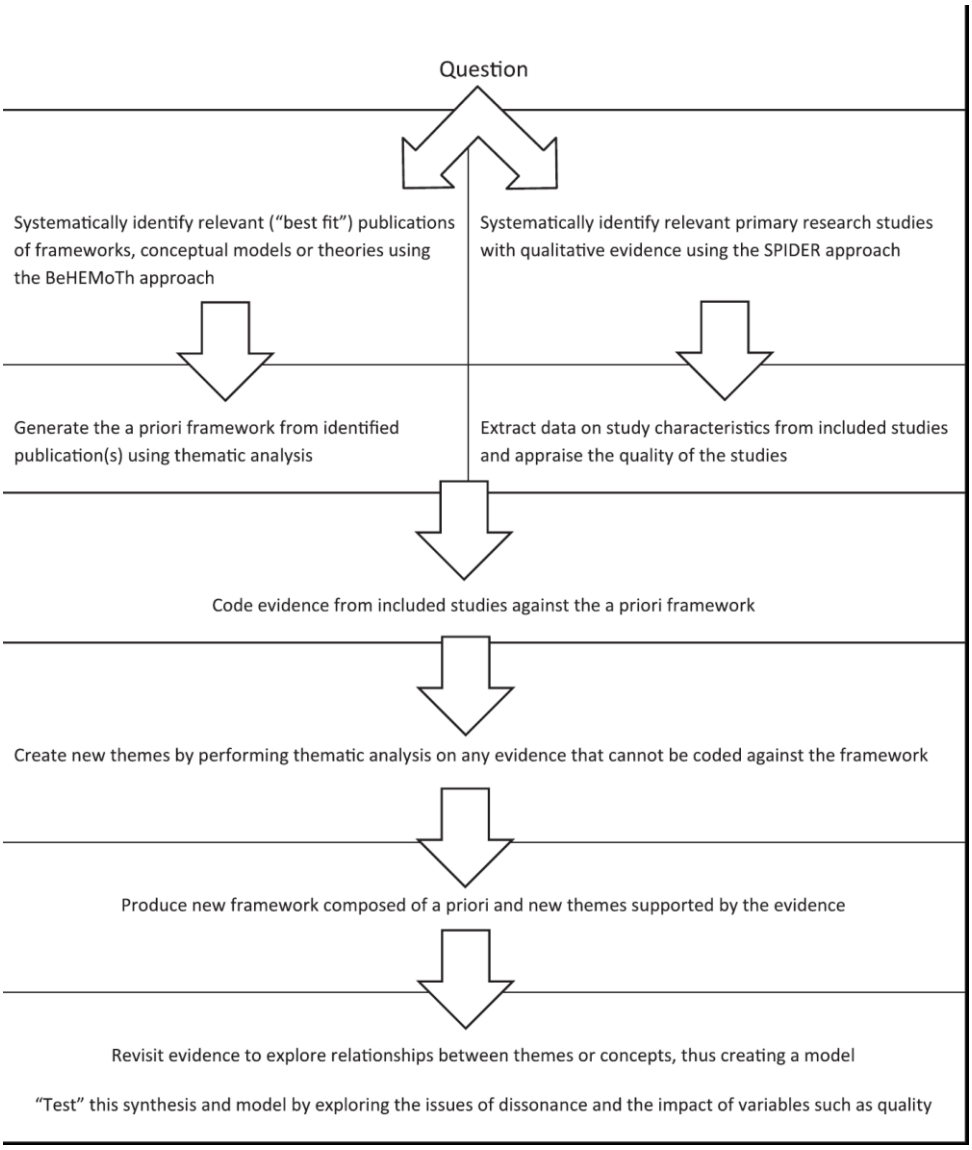
Saul, J. E., Willis, C. D., Bitz, J., & Best, A. (2013). A time-responsive tool for informing policy making: rapid realist review. *Implementation Science*, 8(1), 103.

What other choices are available?

Framework Synthesis

Framework-based synthesis is thought to offer promise in addressing applied policy questions.[66] It involves reviewers in choosing a conceptual model likely to be suitable for the question of the review, and using it as the basis of their initial coding framework. This framework is then modified in response to the evidence reported in the studies in the reviews. The final product is a revised framework that may include both modified factors and new factors not anticipated in the original model.

Figure 1 - Process of Best Fit Framework Synthesis[67]



'Best fit' framework-based synthesis may be especially suitable in addressing urgent policy questions where the need for a more fully developed synthesis is balanced by the need for a quick answer.[67]

Carroll, C., Booth, A., & Cooper, K. (2011). A worked example of" best fit" framework synthesis: A systematic review of views concerning the taking of some potential chemopreventive agents. *BMC Medical Research Methodology*,*11*(1), 1-9.

Carroll, C., Booth, A., Leaviss, J., & Rick, J. (2013). “Best fit” framework synthesis: refining the method. *BMC medical research methodology*, *13*(1), 37.

Carroll, C., Rick, J., Leaviss, J., Fishwick, D., & Booth, A. (2013). A qualitative evidence synthesis of employees’ views of workplace smoking reduction or cessation interventions. *BMC public health*, *13*(1), 1095.

Dixon-Woods, M. (2011). Using framework-based synthesis for conducting reviews of qualitative studies. *BMC medicine*, *9*(1), 39.

Dixon-Woods, M., McNicol, S., & Martin, G. (2012). Ten challenges in improving quality in healthcare: lessons from the Health Foundation's programme evaluations and relevant literature. *BMJ quality & safety*, bmjqs-2011.

Narrative Synthesis

‘Narrative’ synthesis’ refers to an approach to the systematic review and synthesis of findings from multiple studies that relies primarily on the use of words and text to summarise and explain the findings of the synthesis.[68] Whilst narrative synthesis can involve the manipulation of statistical data, the defining characteristic is that it adopts a textual approach to the process of synthesis to ‘tell the story’ of the findings from the included studies.[68] As used here ‘narrative synthesis’ refers to a process of synthesis that can be used in systematic reviews focusing on a wide range of questions, not only those relating to the effectiveness of a particular intervention. Narrative synthesis offers a general framework of selected narrative descriptions and ordering of primary evidence with commentary and interpretation. It combines this with specific tools and techniques that help to increase transparency and trustworthiness.[68] Narrative synthesis can be applied to reviews of quantitative and/or qualitative research

Arai, L., Britten, N., Popay, J., Roberts, H., Petticrew, M., Rodgers, M., & Sowden, A. (2007). Testing methodological developments in the conduct of narrative synthesis: a demonstration review of research on the implementation of smoke alarm interventions. *Evidence & Policy: A Journal of Research, Debate and Practice*, *3*(3), 361-383.

Barnett-Page, E., & Thomas, J. (2009). Methods for the synthesis of qualitative research: a critical review. *BMC medical research methodology*, *9*(1), 59.

Lucas, P. J., Baird, J., Arai, L., Law, C., & Roberts, H. M. (2007). Worked examples of alternative methods for the synthesis of qualitative and quantitative research in systematic reviews. *BMC medical research methodology*, *7*(1), 4.

Rodgers, M., Sowden, A., Petticrew, M., Arai, L., Roberts, H., Britten, N., & Popay, J. (2009). Testing methodological guidance on the conduct of narrative synthesis in systematic reviews effectiveness of interventions to promote smoke alarm ownership and function. *Evaluation*, *15*(1), 49-73.

Snilstveit, B., Oliver, S., & Vojtkova, M. (2012). Narrative approaches to systematic review and synthesis of evidence for international development policy and practice. *Journal of development effectiveness*, *4*(3), 409-429.

Qualitative Comparative Analysis

Qualitative comparative analysis method is a mixed synthesis method that analyzes complex causal connections using Boolean logic to explain pathways to a particular outcome based on a truth table.[69] The Boolean analysis of necessary and sufficient conditions for particular outcomes is based on the presence/absence of independent variables and outcomes in each primary study. Necessity and sufficiency are indicated when certain set relations exist: With necessity, the outcome is a subset of the causal condition; with sufficiency, the causal condition is a subset of the outcome.[70] Often there are too many “cases” for researchers to keep all the case knowledge “in their heads,” but too few cases or events for conventional statistical techniques (e.g. meta-analysis).[71]

Blackman, T., Wistow, J., & Byrne, D. (2013). Using Qualitative Comparative Analysis to understand complex policy problems. *Evaluation*, *19*(2), 126-140.

Onwuegbuzie, A. J., Leech, N. L., & Collins, K. M. (2012). Qualitative analysis techniques for the review of the literature. *The qualitative report*, *17*(28), 1-28.

Sager, F., & Andereggen, C. (2012). Dealing With Complex Causality in Realist Synthesis The Promise of Qualitative Comparative Analysis. *American Journal of Evaluation*, *33*(1), 60-78.

Thomas, J., O’Mara-Eves, A., & Brunton, G. (2014). Using qualitative comparative analysis (QCA) in systematic reviews of complex interventions: a worked example. *Systematic reviews*, *3*(1), 1-14.

Summary

As mentioned above your choice of evidence synthesis product is determined by:

1. The Type of Review Question you are asking
2. The Type and Quantity of Studies Available to Answer your Question
3. How your final Review will be used
4. The Skills, Resources and Expertise of Your Team

It should be noted that none of the methodologies are completely fixed in their duration and any of the suggested timeframes can be negotiated with corresponding implications for quality and resources. Nevertheless, the relative complexity and rigour of the different methods is indicated by the suggested timechart so it is not possible, for example, to take one of the methodologies located at the right hand side of the timeframe chart and then to conduct it within the time constraints indicated by the left hand side of the chart. Indeed, it is preferable to choose a different label by which to describe the resultant evidence product (cp. Rapid realist review and realist synthesis) than to wrongly imply that the work has been conducted to the level indicated by a label recognised by the evidence synthesis community.

Furthermore, many review teams consider the evidence synthesis products covered in this report to illustrate a much more continuous portfolio. Within such a context the individual methods used by a particular methodology can be considered simply a series of systematic approaches that constitute a toolbox from which to select judiciously. A review team and a commissioner of reviews can therefore use the options outlined in this compendium as a starting point for negotiation around a particular review, selecting certain deliverables that may be included within the overall evidence synthesis product.

A further consideration is that it is not uncommon for methods to be used in conjunction with each other so, for example, to conduct an evidence briefing within a time-limited window and then to follow this up with a more rigorous and considered systematic review product.

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