

Training materials for meta-narrative reviews

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1. Introduction

This document has been developed to provide practical methodological advice to reviewers who want to undertake a meta-narrative review (or synthesis – the terms are synonymous). We wrote this document for several reasons. As researchers in the field, we have noted rising demand for training in meta-narrative reviews, but as yet no ‘how to’ methodological manuals exist. When we and our colleagues have provided training in meta-narrative reviews, recurrent questions and training needs arise. We have been funded to develop training materials for meta-narrative reviews as part of the RAMESES project (<http://www.biomedcentral.com/1471-2288/11/115>). Finally, whilst developing the RAMESES publication standards for meta-narrative reviews (<http://www.biomedcentral.com/1741-7015/11/21>) and running the RAMESES JISCMail (<http://www.jiscmail.ac.uk/RAMESES>), our understanding of the training needs of our fellow meta-narrative review researchers has grown.

2. A brief overview of meta-narrative reviews

Meta-narrative review is a relatively new method of systematic review, designed for topics which have been *differently conceptualised and studied* by different groups of researchers. Here’s an example. Many groups have studied the building of dams in India. Some have conceptualised this dam-building as engineering; others as colonialism; others as a threat (or promise) to the local eco-system; others as inspiration for literature and drama, and so on. If we were to summarise this topic area in a way that was faithful to what each different group set out to do, we would have to start by asking how each of them approached the topic, what aspect of ‘dams in India’ they chose to study and how. In order to understand the many approaches, we would have to consciously and reflexively *step out of* our own world-view, learn some new vocabulary and methods, and try to view the topic of ‘dams in India’ through multiple different sets of eyes. When we had begun to understand the different perspectives, we could summarise them in an over-arching narrative, highlighting what the different research teams might learn from one another’s approaches.

Some reviewers might be interested only in summarising the findings of randomised controlled trials of ‘dam present’ versus ‘dam absent’ on a predefined outcome, and if that was the focus of the review, a Cochrane review with statistical meta-analysis would be the gold standard approach. The meta-narrative approach is intended for those reviews where the underlying research goal is to identify and explore the *diversity* of research approaches to a topic.

The methodology of meta-narrative review was developed by Trish Greenhalgh and her team in 2004 when reviewing the literature on diffusion of service-level innovations in healthcare (1). A methods paper was published in *Social Science and Medicine* in early 2005 (2). The inspiration for this method was Kuhn’s 1962 book *The Structure of Scientific Revolutions*, which argued that science progresses in paradigms (i.e. particular ways of viewing the world, including assumptions about how the world works) and that one scientific paradigm gives way to another as

scientific progress renders yesterday's assumptions and practices obsolete.[REF] Newton's theories and methods, for example, became less and less able to answer the emerging questions of particle physics, leading Einstein to develop his theory of relativity. Meta-narrative review looks historically at how particular research or epistemic traditions have unfolded over time and shaped the kind of questions being asked and the methods used to answer them. A research tradition is a series of linked studies, each building on what has gone before and taking place within a coherent paradigm (that is, within a shared set of assumptions and preferred methodological approach shared by a group of scientists).

Further reading

Researchers who are interested in finding out more about the meta-narrative review method should consult, 'Storylines of research in diffusion of innovation: a meta-narrative approach to systematic review' by Greenhalgh et al (2) and the RAMESES publication standards for meta-narrative reviews (3).

3. Training materials for meta-narrative reviews

In this section, we will focus on the specific areas in undertaking a meta-narrative review which we have noted have been the source of frequently encountered difficulties and misconceptions for meta-narrative reviewers. These are not the only ones that meta-narrative reviewers will find challenging, but we have identified these topics as particularly troubling through our past experiences in practice and training, the RAMESES JISCMail list, the literature and in preparing the RAMESES Publication standards for meta-narrative reviews.

We appreciate that the needs of each meta-narrative reviewer, from novice to relative expert, will be different. We felt that the greatest developmental need was in setting out what the main principles were for each of the challenging areas, oriented more towards the less experienced reviewer. We have done this by providing 'Quality standards' for each area we covered. We have used examples of published reviews from the literature to show how these standards have or have not been met – with a focus on illustrating the importance of ensuring the principles in the quality standards are met. Whilst learning needs differ, quality standards apply to meta-narrative reviewers of all levels. For each topic area, we have provided a series of questions to help novice reviewers to reflect on (and hopefully learn) how they might meet each of the quality standards set out for each topic. For the more experienced reviewer, we hope that the questions will still be of some use as an aide memoire or perhaps for use as training materials for fellow review team members?

Topics covered in this document include:

- Understanding and applying the underpinning principles of meta-narrative reviews
- Focussing reviews
- Finding the most relevant evidence

With each of the above topic areas, we will provide:

- Objectives
- An explanation on why the topic area is important to get right
- What would constitute high 'quality' for this topic area
- A worked example (drawn from the published literature) of how the topic area in a review might be improved.
- Example(s) from the published literature of how the topic area has been tackled successfully.
- Reflection activities

How a meta-narrative review is undertaken will vary greatly depending, for example, on the research question, resource available, funder's expectations, end users' needs and so on. As such it is impossible to be prescriptive and restrictive on what must be done. Our training materials should be thought of more as guidance than 'must-dos'. This is an important difference from Cochrane reviews, which tend to be undertaken according to very strict and standardised protocols.

Additional detail on the quality standards on each topic area can be found online at: http://www.ramesesproject.org/index.php?pr=Project_outputs#method

We draw our examples from published meta-narrative reviews, some of which are cited to illustrate our claim that the review did *not* meet the quality standard we propose. We appreciate that the authors of such examples may feel that we are being unfairly critical of their work. We wish to stress that meta-narrative review is an evolving field of secondary research and that since quality standards were not available when those reviews were undertaken, it is hardly surprising that different authors used different approaches. However, the methodology of meta-narrative review is now maturing and it is important to point out that not all early examples followed what were subsequently established by the RAMESES project as the key standards.

4. Understanding and applying the underpinning principles of meta-narrative reviews

4.1 Objectives

For this topic, we hope that when you have finished reading about it you will:

- Understand what the underpinning principles are of meta-narrative reviews
- Have read about examples of how meta-narrative reviews have been developed
- Know what constitutes good practice when developing meta-narratives
- Be aware of the steps you may need to take to ensure you apply the underpinning principles of meta-narrative reviews

4.2 The need to understand and apply the underpinning principles of meta-narrative reviews

Meta-narrative review (which is rooted in a constructivist philosophy of science) was inspired by the work of Thomas Kuhn, who observed that science progresses in paradigms. Meta-narrative reviews often look historically at how particular research traditions or epistemic traditions have unfolded over time and shaped the 'normal science' of a topic area.

The review seeks first to identify and understand as many as possible of the potentially important different research traditions that have a bearing on the topic. In the synthesis phase, by means of an over-arching narrative, the findings from these different traditions are compared and contrasted to build a rich picture of the topic area from multiple perspectives. The goal of meta-narrative review is sense-making of a complex (and perhaps contested) topic area. During analysis and synthesis, six guiding principles (pragmatism, pluralism, historicity, contestation, reflexivity and peer review) should be used and these are described in more detail below:

- Principle of pragmatism: what to include is not self-evident. The reviewer must be guided by what will be most useful to the intended audience(s), for example, what is likely to promote sense making.
- Principle of pluralism: the topic should be illuminated from multiple angles and perspectives, using the established quality criteria appropriate to each. For example, reviewers should avoid beginning with a single 'preferred' perspective or methodological hierarchy and proceed to judge work in other traditions using these external benchmarks. Research that lacks rigor must be rejected, but the grounds for rejection should be intrinsic to the relevant tradition, not imposed on it.
- Principle of historicity: research traditions are often best described as they unfolded over time, highlighting significant individual scientists, events and discoveries which shaped the tradition.
- Principle of contestation: 'conflicting data' from different research traditions should be examined to generate higher-order insights (for example, about how different research teams framed the issue differently or made different assumptions about the nature of reality).
- Principle of reflexivity: throughout the review, reviewers must continually reflect, individually and as a team, on the emerging findings.
- Principle of peer review: emerging findings should be presented to an external audience and their feedback used to guide further reflection and analysis.

4.3 Quality standards for understanding and applying the underpinning principles of meta-narrative reviews

For this topic area, we would expect quality to be defined as set out in Table 1.

Table 1: Quality standards for understanding and applying the underpinning principles of meta-narrative reviews

	Inadequate	Adequate	Good	Excellent
The review demonstrates understanding and application of the purpose and principles underpinning a meta-narrative review.	<p>Significant misunderstandings of purpose and principles underpinning a meta-narrative review.</p> <p>Common examples include:</p> <ul style="list-style-type: none"> Analysing only one paradigm / epistemic tradition No application of the six underlying principles 	<p>Some misunderstandings of purpose and principles underpinning a meta-narrative review, but the overall approach is consistent enough that a recognisable set of distinct meta-narratives together with a higher-order synthesis of the findings from this process.</p>	<p>The review's assumptions and analytic approach are consistent with the purpose and underpinning principles of a meta-narrative review.</p> <p>In particular, the philosophical position is explicitly constructivist. A sufficient range of paradigms/epistemic traditions has been included to make sense of an unfolding and complex topic area from multiple perspectives and to use contrasts between these as higher-order data.</p>	<p>Good plus: Review methods, strategies or innovations used to address problems or difficulties within the review are philosophically coherent and make a clear and illuminative contribution to the knowledge base on the topic area.</p>

4.4 Examples from the literature

Pragmatism

When applying the principle of pragmatism the reviewer must be guided by what will be most useful to the intended audience(s), for example, what is likely to promote sense making. This principle applies through out a meta-narrative review, from the focusing through to scoping the literature and then to analysis and, if needed, driving the need for further searching. As a 'rule of thumb' the goal is to make sense of the data and any leads or 'trails' that emerge during a meta-review's processes should be pursued.

An example of pragmatism (at the focusing and scoping stages of a meta-narrative review) can be seen in Collins et al.'s review (see section 5.4 as well) (4). Their review had the, "... objective ... to monitor thematic trends in this knowledge base over time, and to track scholarly prescriptions for municipal government intervention on local health inequities." Initially the reviewers were uncertain as to which bodies of evidence would need to be included in their review. Through scoping of the literature, they decided that four bodies of evidence would most likely contain the data they needed and so decided that it made sense to focus on these four bodies of literature.

Reflexivity and peer review

During their review, review teams need to continually reflect, individually and as a team, on the emerging findings. Addis et al.'s undertook a review, *“to provide baseline knowledge of the health, social care and housing needs of older LGBT people that could be used to inform policy and define research questions.”* They acknowledge the need for reflexivity through the use of the principle of peer review, as there are:

“... dangers of reviewers ‘flying solo’ in the literature that is poorly organised and presented and is not amenable to appraisal using standard tools. We sought to use additional measures to help protect against bias and the high level of agreement between researchers may appear to indicate that our conclusions were sound. However, high rates of agreement might simply indicate that we brought similar biases to understanding the relevance of the material and drawing conclusions from it. We therefore engaged the wider research team and policy leads in a process of testing the findings against their expectations and experience.”(5)

Peer review is also used by other reviewers. Peer review is the requirement to present emerging findings to an external audience and their feedback used to guide further reflection and analysis. Along with Addis et al. above, Kitson et al. invited researchers from other research traditions and a patient group to, *“... share experiences ...”* and, *“... to plan further work.”(6)*

Pluralism

A key principle in meta-narrative reviews is to develop an account of the topic area that is illuminated from multiple angles and perspectives. A meta-narrative review must analyse more than one paradigm and produce a recognisable set of distinct meta-narratives together with a higher-order synthesis of these results. Recognised problems with some published meta-narrative reviews are:

- they analyse sources from only one paradigm, as is the case in Kitson et al.'s review, where despite many other features of good practice in meta-narrative review, only a nursing perspective is taken (6)
- the analysis and synthesis lacks a meta-narrative dimension, as can be seen in Addis et al.'s review, where the results are reported as a thematic narrative summary but not teased out into separate research (or epistemic) traditions which are then compared and contrasted (5).

Collins et al. in their meta-narrative review scoped the literature and judged that to make sense of the literature at least four perspectives needed to be examined in detail:

“...[a] substantial proportion of the health inequities knowledge base present lifestyle- and healthcare- (referred to in this article as 'behavioural' and 'biomedical', respectively) oriented perspectives regarding solutions to health inequities. Meanwhile, the high number of abstracts with social and physical environment SDOH [social determinants of health] profiles likely reflects the fact that the 'local' or 'municipal' level was one of four overarching search themes employed in the search strategy.”(4)

Historicity

In a meta-narrative review, research traditions are often best described as they unfolded over time, highlighting significant individual scientists, events and discoveries which shaped the tradition. Collins et al. took this approach and reported that:

“The changes in publication activity in the four bodies of literature are displayed in Figure 3. ... Changes in the SDOH [social determinants of health] profile of the article abstracts are displayed in Figure 4, using five-year increments to simplify the analyses. ... Taken together, these findings suggest that broader, more critical perspectives on health inequities were prominent in the early stages of development of the knowledge base, but that over time these perspectives gave way to a focus on ‘behavioural’ and ‘biomedical’ explanations for, and solutions to, health inequities.”(4)

Contestation

During a meta-narrative review, 'conflicting data' from different research traditions should be examined to generate higher-order insights (for example, about how different research teams framed the issue differently or made different assumptions about the nature of reality). In the illustrative text below from the review by Collins et al., they point out that there was a geographical difference in how researchers envisaged the role of municipalities, which has implications on how research from different parts of the world needed to be interpreted differently:

“The seven categories of roles were emphasized to varying extents across the different geographical regions of origin. In abstracts of Canadian, European, and Australian & New Zealand origin, the most commonly prescribed role was to ‘join or build on existing local health networks’. Canadian abstracts also emphasized the need for greater ‘intra-municipal capacity building’ to tackle local health issues. ‘Improving the social, economic, and built environments’ was the most commonly prescribed role among abstracts of a global/transcontinental origin, and of a Mexican, South & Central American origin, while abstracts of American origin stressed the need for municipalities to ‘conduct health impacts assessments, and assess local needs’. The varying emphases placed on potential roles likely speak to the diverse jurisdictional responsibilities of municipal governments across and within countries, as well as the unique and highly specific health and social issues facing municipal governments within these countries. Accordingly, these differences signal the need for researchers to interpret these findings with caution by considering the applicability of these ‘roles’ within the context of a given municipal government’s jurisdictional powers, functions, and public policy priorities.”(4)

4.5 Reflection activity for understanding and applying the underpinning principles of meta-narrative reviews

It is essential that before and during a meta-narrative review, review teams ensure that they understand and apply the underlying principles of meta-narrative reviews. Box 1 contains questions that we hope will help a review team to undertake a rigorous meta-narrative review.

Box 1: Questions to assist the focussing process in meta-narrative reviews

- Does the review team understand the underpinning principles of meta-narrative reviews? Do they, for example, accept the Kuhnian notion of paradigm and recognise that the task is to surface, summarise and contrast different paradigms? Are they familiar with the difference between a 'technical' and an 'interpretive' approach to systematic review and with the six principles of pragmatism, pluralism, historicity, contestation, reflexivity and peer review? Could they defend the need for an interpretive approach and for following all six of the key principles?
- Does the review team know how to apply the underpinning principles of realist reviews during their meta-narrative reviews?
 - If 'no' to either question above, what steps are you taking to ensure you have sufficient methodological expertise? For example:
 - Recruiting meta-narrative review expertise
 - Organising training
 - Organising ongoing methodological support
- What opportunities have been built into the review process to enable the review team to:
 - reflect on, analyse and/or synthesise the data together?
 - enable peer review?

5. Focussing reviews

5.1 Objectives

For this topic, we hope that when you have finished reading about it you will:

- Understand the importance of the need to focus a meta-narrative review
- Have read about examples of how reviews have been focussed
- Know what constitutes good practice when focussing reviews
- Be aware of the steps you may need to take to focus your review

5.2 The need to focus reviews

A meta-narrative review asks some or all of the following questions: (1) Which research (or epistemic) traditions have considered this broad topic area?; (2) How has each tradition conceptualized the topic?; (3) What theoretical approaches and methods did they use?; (4) What are the main empirical findings?; and (5) What insights can be drawn by combining and comparing findings from different traditions?'

Because a meta-narrative review may generate a large number of avenues that might be explored and explained, and because resources and timescale are invariably finite, it is almost always necessary to 'contain' a review. Many different aspects (the 'what') of a meta-narrative review might need to be focussed, examples include:

- the question(s) to be answered (refining from broader to narrower)
- scale of review (e.g. focus on particular countries in international development reviews, or cultures, or timeframes),
- the extent to which the review aims to be comprehensive
 - rapid review – building and making sense of meta-narratives within a more limited literature set
 - systematic review – aiming to include all evidence on the topic

Focussing may also take place at different time points in the review process ('when'), and different aspects may be focussed at different times during the course of the review. Examples of time points when focussing may be needed include:

- when negotiating the research project or funding contract;
- while writing and negotiating the research protocol (where required for funding projects)
- when an Advisory Group is established and begins to meet
- when content experts are consulted
- when it becomes clear how much evidence is available for particular aspects of the question;
- when evidence suggests new pathways that could be explored

Focusing needs to be considered from the start and reviewed, perhaps iteratively, as it progresses. It is legitimate (indeed, expected) for the objectives, question and/or the breadth and depth of the review to evolve or be refined as the review progresses.

5.3 Quality standards for focussing reviews

For this topic area, we would expect quality to be defined as set out in Table 2.

Table 2: Quality standards for focussing the review

	Inadequate	Adequate	Good	Excellent
The review question is sufficiently and appropriately focussed.	<p>The review question is too broad to be answerable within the time and resources allocated.</p> <p>There is no evidence that progressive focussing occurred as the review was undertaken (indeed, the authors may inappropriately consider that the research question must be established at the outset and not change further).</p>	Attempts were made by the review team to progressively focus the review topic in a way that takes account of the priorities of the review and the realities of time and resource constraints.	<p>Adequate plus: There is evidence that the focussing process was iterative and reflexive.</p> <p>Commissioners of the review were involved in decision-making about focussing.</p> <p>Decisions made about which avenues were pursued and which left open for further inquiry are clearly documented and made available to users of the review.</p>	Good plus: The review team drew systematically on external stakeholder expertise to drive the focussing process in order to achieve maximal end-user relevance.

5.4 Examples from the literature

Focusing has been tackled in different ways by different researchers.

Kitson et al.'s meta-narrative review on 'Defining the fundamentals of care' which set out, *"... to try to establish what is considered to be the fundamental aspects of patient care and what research evidence there was in the literature that could inform nursing practice."* To help focus their review the review team drew on external stakeholder expertise to drive the focussing process in order to achieve maximal end-user relevance.

"... planning phase for the initiative commenced in 2008 with the inaugural meeting of the Oxford International Learning Collaborative (ILC). The purpose of this group has been on building research capacity in AHSCs [Academic Health Science Centres] around key areas of nursing interventions—called the fundamentals of care. The group has international membership and is diverse in its background and experience although the majority of members are from the nursing profession. We are adding to the diversity of this original group by inviting members of the Cochrane Nursing Care Field (CNCF) to be involved in the process and facilitate a joint seminar with a patient group in Oxford so they can share experiences with these aspects of care (<http://www.healthtalkonline.org>) and to plan further work." (6)

Collins et al. used a different strategy to help them narrow down the bodies of work that would form the focus of their meta-narrative review (4). Their review had the, *"... objective ... to monitor thematic trends in this knowledge base over time, and to track scholarly prescriptions for municipal government intervention on local health inequities."* To help them understand the literature they needed to focus on in their

review, they undertook and reported in their paper an overview of the current issues in local health inequalities.

"Four bodies of literature on health inequities - 'health promotion' (HP), 'Healthy Cities' (HC), 'population health' (PH), and 'urban health' (UH) - were examined for the meta-narrative mapping analysis. These four literature bodies were chosen because, as discussed earlier, they have made the most significant scholarly contributions to understanding patterns of health inequities, and identifying and describing interventions to reduce health inequities."

5.5 Reflection activity

Box 2: Questions to assist the focussing process in meta-narrative reviews

- Can you complete your review within the time and resources allocated?
- Have you discussed the need to focus your review with (where relevant):
 - your supervisor?
 - within your review team?
 - your funding body / commissioners of the review?
 - potential users of your review?
- What processes will you develop and put in place to focus your review?
For example:
 - 'What' will you focus?
 - 'When' will you do your focussing?

Note also that the task addressed in next section (scoping the literature to find the most relevant evidence) is closely linked in practice to the task of focusing (as the review is progressively scoped, it is also progressively focussed), hence these two aspects of the review should be considered together in practice even though we have separated them out analytically in this document.

6. Finding the most relevant evidence

Three specific process will help the meta-narrative reviewer find the most relevant evidence:

- Scoping the literature
- Developing and pursuing a search strategy
- Selecting and appraising the documents

These will be covered in turn below.

6.1 *Scoping the literature*

6.1.1 Objectives

For this topic, we hope that when you have finished reading about it you will:

- Understand the importance of the need to scope the literature
- Have read about examples of how scoping has been undertaken
- Know what constitutes good practice when scoping the literature
- Be aware of the steps you may need to take to scope the literature

6.1.2 The need for scoping the literature

An important process in a meta-narrative review is to identify a sufficiently diverse range of sources to build as comprehensive a map as possible of research undertaken on the topic. This step identifies in broad terms the different research traditions, situated in different literatures, which have addressed the topic of interest. Initial attempts (which may be iterative) to make sense of a topic area may involve not just informal 'browsing' of the literature but also consulting with experts and stakeholders. As noted above, the scoping process takes place in parallel with, and feeds into, the focussing of the review – though these processes may feel as if they are pulling in different directions ('scoping' tends to reveal numerous new avenues that seem to need exploring whereas 'focussing' tends to be a process of deciding *not* to pursue certain avenues).

6.1.3 Quality standards for scoping the literature

For this topic area, we would expect quality to be defined as set out in Table 3.

Table 3: Quality standards for scoping the literature

	Inadequate	Adequate	Good	Excellent
The scoping of the literature has been sufficiently and appropriately undertaken	The scoping of the literature has been limited and cursory (e.g. only a single source is used – perhaps the Medline database – and/or the review has inappropriately concentrated on a single research tradition – for example ‘evidence based medicine’)	Attempts made to utilise a broad range of relevant sources and to build as comprehensive a map as possible of the research traditions on the topic.	Adequate plus: A coherent and through search strategy, deliberately including exploratory methods such as browsing and modified in the light of emerging findings, is used to identify research traditions.	Good plus: Systematic use is made of experts and stakeholders in identifying research traditions.

6.1.4 Examples from the literature

A common strategy used to help work out what the scope of the literature is in meta-narrative review is to undertake informal searches, consult experts in the field and/or to track citations from the reference lists of relevant documents.

Collins et al. (see Section 5.4 above) predominately used the literature to help them both focus their review and identify the four bodies of literature on health inequalities which they thought would help them to make more sense of their topic (4). Some review teams included content experts; others combined an exploratory literature search and internal expertise (7). An alternative strategy has been to consult with external subject specific experts and to recruit such individuals into the review team (5). Greenhalgh et al. recruited Kyriakidou only after identifying the need for an organisational psychologist (1).

6.2 Developing and pursuing a search strategy

6.2.1 Objectives

For this topic, we hope that when you have finished reading about it you will:

- Understand the importance of developing a search strategy that meets your review questions’ needs and is faithful to the methodology of meta-narrative review.
- Have read about examples of how searches have been developed for meta-narrative reviews
- Know what constitutes good practice when developing searches for meta-narrative reviews
- Be aware of the steps you may need to take to develop and use a search strategy for meta-narrative reviews

6.2.2 The need for search strategies suitable for meta-narrative reviews

There are two phases of searching in meta-narrative reviews. Initially informal, iterative and exploratory searching is undertaken to build a broad overview of the different research traditions, situated in different literatures, which have addressed the topic of interest (as discussed in Section 6.1 Scoping the literature).

After scoping, the research or epistemic traditions identified from the literature need to be mapped and the more formal searching takes place. Searching in a meta-narrative review is guided by the objectives and focus of the review, and revised iteratively in the light of emerging data. Searching is directed at finding sufficient data to develop and make more sense of the relevant research traditions that have been identified from the scoping search phase. The data may lie in a broad range of sources that cross traditional disciplinary, programme and sector boundaries. This stage is likely to involve searching for different kinds of data in different ways.

6.2.3 Quality standards for search strategies

For this topic area, we would expect quality to be defined as set out in Table 4.

Table 4: Quality standards for search strategy

	Inadequate	Adequate	Good	Excellent
<p>The search process is such that it would identify data to enable the review team to develop and refine the map of seminal papers and primary research studies.</p>	<p>The search is incapable of supporting the development of a rigorous meta-narrative review. Errors may include:</p> <ul style="list-style-type: none"> • The search is driven by a methodological hierarchy of evidence (e.g. privileging RCTs) rather than the need to identify the range of research paradigms (concepts, theories, methods and instruments) that have been brought to bear on a topic • The search process is not informed by the objectives and focus of the review • The database(s) selected are narrow in the subject matter that they contain (e.g. limited to biomedical topics and approaches rather than extending to social science, psychology etc.) • Searching is undertaken once only at the outset of the review and there is no iterative component 	<p>Searches are driven by the objectives and focus of the review and are piloted and refined to check that they are fit for purpose.</p> <p>Documents are sought from wide range of sources likely to contain relevant data on research traditions.</p> <p>There is no predefined restriction on the study or documentation type that is searched for</p>	<p>Adequate plus: further searches are undertaken in light of greater understanding of the topic area, particularly through the use of citation-tracking of seminal papers. These searches are designed to find additional data that would allow greater sense to be made of component research traditions and/or draw higher order insights from contrasts between traditions.</p>	<p>Good plus: The search reflects a high degree of scholarly insight into the key research traditions of the review.</p>

6.2.4 Examples from the literature

Many of the published meta-narrative reviews had searches which were driven by the objectives and focus of the review, sought documents from wide range of sources which are likely to contain relevant data on research (or epistemic) traditions

and had no a priori restriction on the study or documentation type that is searched for.

The tension for reviewers was between specifying too many search terms and hence narrowing down too much and too early what might be found and using broad search terms and accepting that sensitivity and specificity would be limited (8). The disadvantage of the lower sensitivity and specificity found using conventional controlled terms or key word searching is that too many documents are found and an inordinate amount of reviewer resources would be needed to sift through them. This issue was clearly identified in Contandriopolous et al.'s meta-narrative review, "... focused on the *collective level of analysis* in order to understand *deliberate interventions* aimed at influencing behaviors or opinions through the *communication of information*." (9)

They realised that the broad focus of their topic area made it, "... *challenging to identify a coherent and precise set of keywords for the search process*." Moreover their knowledge of the field had identified another review in a closely related topic that had relied on a keyword approach. This review, "... *enabled the identification of 169 relevant documents out of 4,250 hits (before triaging on the basis of strength of evidence)*. We anticipated that in our case, a similar strategy would yield even more chaff and less wheat because the disciplinary traditions targeted are broader and each relies on distinct vocabulary and conceptualizations. ...we relied instead on a non-keyword-based reviewing process that we dubbed *double-sided systematic snowball*."

They go on to provide details on how they applied this method of searching: "Our starting point was to identify, through team consensus, some seminal papers ($n = 33$) that were considered to have shaped the evolution of the field. We started by identifying a heuristic list of seven 'traditions' ... Each tradition was exemplified by one or more publications. ... We then used the ISI Web of Science Citation Index to identify all documents ($n = 4,201$) that cited those seminal papers. The snowball process here was prospective, since it exclusively targeted documents published after the selected seminal paper. We then triaged the results using the titles and (if present) the abstracts ... This process identified 189 documents that we then retrieved and read for further selection according to the same criteria. At the end of this prospective snowballing, we selected 102 documents for detailed analysis. Next we used the bibliographies of those 102 documents as a basis for retrospective systematic snowball sampling."

The search strategy used in Contandriopolous et al.'s meta-narrative was based on that developed and used by Greenhalgh et al. (1;2). It illustrates that a different way of searching may be needed in meta-narrative reviews that is not only more likely to find relevant data, but also is possibly a more efficient use of time and resources.

6.3 Selecting and appraising the documents

6.3.1 Objectives

For this topic, we hope that when you have finished reading about it you will:

- Understand the how documents are selected and appraised for meta-narrative reviews
- Have read about examples of how selection and appraisal have been undertaken in meta-narrative reviews
- Know what constitutes good practice when selecting and appraising documents for meta-narrative reviews
- Be aware of the steps you may need to take when selecting and appraising documents for use in meta-narrative reviews

6.3.2 The need for selecting and appraising documents

Meta-narrative review is not a technical process (that is, it is not simply a matter of checking and categorising pieces of data against a checklist or set of criteria). Rather, it is an interpretive process of *sense-making of the literature*, selecting and combining data from primary sources to produce an account of how a research tradition unfolded and why, and then (in the synthesis phase) comparing and contrasting findings from these different traditions to build a rich picture of the topic area from multiple perspectives. This process requires a series of judgements about the unfolding of research in particular traditions, and about the relevance and robustness of particular data within that tradition.

Meta-narrative review takes its quality criteria from the traditions included in the review. Studies in these separate traditions should be appraised using the quality criteria that a competent peer-reviewer *within that tradition* would be required to use, as judged by scholars in that field.

6.3.3 Quality standards for selecting and appraising documents

For this topic area, we would expect quality to be defined as set out in Table 5.

Table 5: Quality standards for search strategy

	Inadequate	Adequate	Good	Excellent
The selection and appraisal process ensures that sources relevant to the review containing material likely to help identify, develop and refine understanding of research traditions are included.	<p>The selection and appraisal process does not support a rigorous and complete meta-narrative review. For example:</p> <ul style="list-style-type: none"> • Selection is overly driven by methodological hierarchies (in particular the restriction of the sources to RCTs to the exclusion of other forms of evidence) • Sources are appraised using a technical checklist focused on methodological procedure rather than by making a defensible judgement on the contribution that a source might make. • Selection and appraisal processes are overly restrictive and exclude materials that may help sense-making of research traditions. • Selection and appraisal processes are not sensitive enough to exclude irrelevant materials 	<p>Selection of a document for inclusion in the review is based on what it can contribute to making sense of research traditions.</p> <p>All the key high-quality sources identified are included in the review and the poor-quality ones accurately excluded.</p>	<p>Adequate plus: During the appraisal process studies in the separate traditions are appraised competently using quality criteria that scholars within that tradition would recognise.</p>	<p>Good plus: The judgements made when appraising papers are a model of good scholarship in each of the included traditions.</p>

6.3.4 Examples from the literature

Two separate processes take place in this stage. One is to decide if a document should be included into a meta-narrative review and the other is to appraise the included document using quality criteria acceptable to that tradition.

As mentioned in Table 5 above, inclusion should be based on relevance – how can a document contribute to sense-making? In published reviews, this is operationalised by reviewers by using broad inclusion criteria. For example, in Collins et al.’s review, they inclusion criteria were as follows:

“Abstracts had to mention, in some capacity [our emphasis], differences in health outcomes or well-being, and/or the SDOH [social determinants of health]. Abstracts that discussed policy implications were also of distinct interest for review, but this was not an explicit inclusion criterion. Abstracts that described health differences in a strictly clinical scope were excluded, as were abstracts that referred to inequalities or disparities in a different context (e.g., measurement disparities). Highly technical pieces that discussed new clinical technologies, or issues related to healthcare systems and/or delivery, were excluded. Abstracts were also excluded if they contained the words "National Population Health Survey" or "Ottawa Charter for Health Promotion", but lacked any other information relevant to the review.” (4)

A point worth noting from the example above is that the reviewers, quite rightly, did not exclude any documents based on any methodological hierarchy or technical checklist.

Once documents have been selected for inclusion, ‘quality’ appraisal takes place and how this is operationalised in a review is best illustrated in the methodological paper to Greenhalgh et al.’s review, ‘Diffusion of Innovations in Service Organizations: Systematic Review and Recommendations’. For each of the eight research traditions, different quality criteria were used to judge the data within each tradition.

“We judged primary studies in any one tradition according to the quality criteria set by experts within that tradition ... Reassuringly, we found that studies with comparable design tended to be judged similarly whatever the research tradition (for example, a survey of organisational attributes in the management literature would be judged by similar criteria and standards as a survey of consumer views in psychology, namely, appropriateness of sampling frame, validity of questionnaire items, completeness of response, and so on). Furthermore, whilst all traditions whose methodological toolkit included (say) the survey classified this as a high-quality method, those traditions whose toolkit did not include the survey were dismissive of any work based on this method, regardless of the research question being considered.”(2)

6.4 Reflection activity for finding the right evidence

To assist reviewers in developing a suitable search strategy and in selecting and appraising documents appropriately, we have developed a list of questions a reviewer / review team might like to ask themselves: These questions are based on the quality standards in Tables 3, 4 and 5 and are listed in Box 3. We suggest that a reviewer might like to go through the questions in Box 3 to work out if the questions are relevant to their review and then how each question might be addressed.

Box 3: Questions to assist developing a search strategy and selection and appraisal of documents

Developing a search Strategy

- How will you ensure that your search process is such that it would help you identify research (or epistemic) traditions and map them?
- Is the necessary searching expertise available to you? If not, what will you do to remedy this?
- Will your search be piloted and refined?
- Will further searching be undertaken if additional sources are judged to be needed?

Selection and appraisal of documents

- Is relevance being used to guide the selection process? If not, why not?
- Are selected documents going to be quality appraised using criteria accepted within each tradition? If not, why not?

Conclusion

Meta-narrative review is a relatively new method of systematic review, as such the method is likely to develop and evolve in time with use. In this document we have focussed on the specific areas in undertaking a meta-narrative review which we have noted have been the sources of frequently encountered difficulties and misconceptions for meta-narrative reviewers. We have deliberately focussed this document towards the needs of less experienced reviewers as we felt that this group had the greatest developmental. How a meta-narrative review is undertaken will vary greatly and so it is impossible to be prescriptive and restrictive on what must be done. Instead we see our training materials more as guidance than 'must-dos'. We anticipate that with the growing use of meta-narrative reviews, new challenges and learning needs will emerge. We do believe that our quality standards and training materials should evolve to take into account methodological develop. We would therefore welcome and invite interested researchers to join us in updating and developing meta-narrative review methodology. Please contact us by email or via the RAMESES JISCM@ail (www.jiscmail.ac.uk/RAMESES).

Glossary

Normal Science

Normal science is a paradigm along with the practices and empirical approaches which are taken for granted by scientists within a particular tradition.

Paradigm

A paradigm is a particular way of viewing the world, including assumptions about how the world works, what are the important questions in a particular topic area, and what study designs and methods are best for adding to the knowledge base.

Research or epistemic tradition

A research tradition comprises studies building on what has gone before, each building on what has gone before, usually situated within a coherent paradigm, though an interdisciplinary tradition may bridge more than one paradigm.

An epistemic tradition is the unfolding of the underpinning set of philosophical assumptions which drive the development of theory and method; scholarship may progress via debate around these assumptions even in the absence of new empirical studies.

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