**Scoping Review Methods for Producing Research Syntheses**

**Session 2:**

Originally Recorded on: May 25, 2016

Presenters:

 Chad Nye & Ginny Brunton

A workshop sponsored by the American Institutes for Research (AIR), Center on Knowledge Translation for Disability and Rehabilitation Research (KTDRR): [https://ktdrr.org/training/workshops/scoping/session2/index.html](http://ktdrr.org/training/workshops/scoping/session2/index.html)

Edited transcript of YouTube video: <https://www.youtube.com/watch?v=_I7zTJLa36w&feature=youtu.be>

>> Steven Boydston: My name is Steven Boydston, I'm from the Austin, Texas office of American Institutes for Research or AIR. I just want to thank everyone for joining us today for the second session of this two-part workshop on Scoping Review Methods for Producing Research Syntheses.

(Slide 1) This workshop is offered through the Center on Knowledge Translation for Disability and Rehabilitation Research or KTDRR which is funded by the National Institute on Disability, Independent Living and Rehabilitation Research or NIDILRR.

Last month was the first session and it provided an introduction to scoping reviews and synthesizing research. Our faculty, Dr. Chad Nye and Dr. Oliver Wendt, covered an overview and examples of current approaches for conducting scoping reviews and applying them to the literature in disability and rehabilitation.

So now I would like to introduce our faculty for this workshop today who have worked with us in the past on training related to systematic reviews, single subject designs and research

syntheses. First we have Dr. Chad Nye who is a former Executive Director of the Center for Autism and Related Disabilities, and professor at the University of Central Florida, College of Health and Public Affairs. He has many years of experience in area of meta-analysis, systematic review, intervention evidence, including in the area of disability. He is an author on several systematic reviews and has served as an editor and coordinator for the Campbell Collaboration Education Coordinating Group.

Today we also have Ms. Ginny Brunton, a senior research officer at the Evidence for Policy and Practice Information and Coordinating Centre or the EPPI-Centre, Department of Social Science, University College London in the United Kingdom. Originally a nurse and a midwife, Ms. Brunton has over 20 years of experience in the conduct and methodological development in a wide range of mixed methods, systematic reviews in public health and health promotion. Thank you, Chad and Ginny. Please feel free to begin.

 >> Ginny Brunton: Ok, well thanks for that, Steven. This is Ginny here.

(Slide 2) I would like to start off with this first slide, reflecting that I am based in London but a shout out to what looks like a lot of Canadians in the audience. Welcome, it's nice to know that you're out there and interested in scoping reviews. So what I'm going to start with is to remind you that this is just a refresher of your last session on scoping reviews and to set the stage for today's more detailed discussion of the message.

Probably a little bit of context about the work I do.

I've been, as Steven mentioned I've been doing systematic reviews in London for the EPPI-Centre for, gosh, the past 16 years and before that I was at McMaster University in Hamilton in Canada, doing systematic reviews as well.

The work I do in London is program of work that's been commissioned by the Department of Health for England, it's sort of like Health Canada. They have various policy teams who ask us to do systematic reviews on different topics in Public Health and health promotion. And generally, the scoping reviews that we do are part of a full systematic review that does meta‑analysis or some kind of qualitative synthesis, but we also do stand-alone scoping reviews as well.

(Slide 3) So, in talking about scoping reviews, it's important to mention that they are a useful product in their own right.

So, as I said, we've done scoping reviews on their own in relation to policy questions.

So, for example, last year we did a systematic review that was actually a scoping review, looking at what the breadth of literature was around sex selective abortion, but then we also do systematic reviews that go ‑‑ they're full systematic reviews that go through the full meta‑analysis and scoping reviews are part of that process.

So an example of that would be a review we did last year on Hepatitis C, where we were looking at all kinds of chronic conditions that were associated with Hepatitis C.

And from looking at the breadth of that literature we were able to narrow down to some specific conditions that were of interest, that we then put forward into meta‑analysis. So, they can be a product in their own right. They can be a stage in the review process.

So the Hepatitis C example, the way of demonstrating you can allow narrowing of a research question in criteria for studies included in synthesis. And scoping reviews in that case provide a context to assist the interpretation for a future synthesis.

So they're quite a useful little design to have.

(Slide 4) Probably you had some discussion about this last month in the workshop that Chad and Oliver ran, where there's a lot of different ways that scoping reviews are described.

The rate of development of new approaches to reviewing is very rapid. And there's overlap of approaches, and there's a lack of agreement about the terminology. Some people call them scoping reviews. We tend to call them mapping. Some people just call them brief evidence assessments. Other people call them rapid evidence assessments. But I think that's actually a different study design, review design.

So there's a lot of different terms floating around out there.

The task of developing a system for classifying or categorizing review types is at the moment rather challenging. It's probably more useful to try and identify the key dimensions on which reviews differ. So we can examine minute the ways in which reviews can be created with different combinations of those dimensions.

(Slide 5) And as a way of illustrating that, there are different ways in which reviews differ from each other, different types of reviews differ from each other.

So, the questions, the review questions that get asked and the conceptual framework on which those questions are built can differ between scoping reviews and full systematic reviews. The types of studies that get considered can differ. Whether or not you do a single component review or a multi‑component review. So multi‑component review for me would be, for example, combining evidence from experimental studies with evidence from qualitative research in a mixed-methods synthesis.

They might also differ on the breadth, the depth in which you want to look at the issue and the time that you have available.

That certainly impacts on what our reviews end up looking like.

Also, the methods of the review and whether or not you are trying to aggregate or sort of pile up findings like you would in a meta‑analysis, or whether you're trying to configure findings as in a qualitative synthesis.

And, you know, this ‑‑ a lot of these steps, the steps that follow these could easily apply to other types of review.

Knowledge about the nature and strength of different forms of review is important because it can help you to select the appropriate methods to suit your research question or to consider the importance of different issues of quality and reporting and accountability when interpreting the views.

The nature of a review question, the assumptions that underlie that question or the conceptual framework, might strongly suggest which methods of review are appropriate. Reviews might ask the same question, but because of differences in the ways that they have defined the elements of that question, like the population or the intervention or the setting, because the scope of reviews are slightly different, they include different studies and then come to different conclusions.

So there's a lot of different ways in which reviews can differ from each other in terms of their design.

(Slide 6) Okay. So reviews, in general, we think that what a review looks like will depend on the interplay of several factors. So that's what these triangles are on the right‑hand side of the screen.

They might depend on the extent of the work to be done. So, for example, what is likely to result from the question you're asking, whether you're asking a very broad question about -- I'll use teenage pregnancy as an example, or you're asking a very specific question about a particular type of treatment for a specific condition, looking at a specific outcome. So that's the top triangle, the extent of the work.

They might also differ in time and resources available to address the questions, which is the bottom right hand triangle. Reviews, in my experience, reviews can run where from two years in length to six weeks. Scoping reviews generally are at the six‑week mark, and full systematic reviews tend to be at the two‑year mark, but, again, every review is different, and you need to take that into consideration.

The breadth and depth in which the literature is being looked at is the left hand triangle at the bottom there, again, could be whether or not you are trying to explore all of the issues around a particular topic or you're just looking at a slice of it. And I'll talk a little bit more about that later.

And finally, the triangle in the middle they epistemology or the philosophical stance of the Research Team. Are you doing this to test an already existing theory of how things work or are you actually trying to generate that theory? That will depend on the design of review that you use. So those are the different dimensions on which reviews can differ.

(Slide 7) Steps in the review, the next slide, these are the steps that our Research Team generally undertakes when we're doing scoping reviews and full systematic reviews to some extent.

We do reviews for health and social policy. And we have a very close working relationship with national policy teams, so our experience might be quite different to your context but the steps can be applied across settings. We think it's important, and what I'll do now is just go through these different stages and talk about issues within each of them.

(Slide 8) The first stage is to consult stake‑holders.

(Slide 9) Who are stake‑holders, or they can actually be quite broad. We’d encourage you to think quite broadly about who your stake‑holders could be. These are all examples of the types of stake‑holders we've reviewed in our reviews in the past and often all at the same time. So they could be recipients of services. They could be employers, industry, unions, pressure groups, other members of the public. Practitioners, like teachers or health professionals, are often involved. Service managers, managers and policymakers from local organizations right through to central government. And, of course, other researchers who have a specific knowledge in the field.

(Slide 10) Why would you bother involving stake‑holders? Well, we put a lot of emphasis on the objectives transparent and accountable nature of reviews. But if we accept that the subjectivity that's present when we're framing the questions into the review methods and interpreting the findings, and we acknowledge that our own experience, knowledge and perspective might be limited, so it's always good to have more perspectives to bring to bear on those issues. By incorporating a range of perspectives and expertise, we can check our assumptions and ensure the relevance of the review to those people who are going to be affected by the findings, and possibly anticipate or fend off criticism at an early stage.

Researchers and stakeholders learn from each other to gain a full understanding of a review and its purpose. We can move from a push model, where researchers write about what they're interested in, towards an exchange model where the users and the stake‑holders provide information that shapes the scope of the review.

All of this, we think, improves the inclusiveness and the transparencies of processes, and it makes more effective use of feedback from the end‑users, to increase the likelihood that we're going to produce reviews that are relevant and useful. There's nothing worse than going through all that effort to do a piece of research and then it sits on a shelf someplace and doesn't get used.

(Slide 11) So it's good to involve stake‑holders. There's lots of different ways you can involve them. They can be involved in ‑‑ to different levels, I guess, they can be consulted on an issue. They can collaborate with you on making decisions, and actually undertaking the review process, or they can completely control the review process.

This can involve any of a range of active involvement activities. So they could be members of a review group, an advisory panel or a focus group. They could be brought in to help set the initial question and help influence the theoretical framework. They can identify studies. They can take part in day‑to‑day review activities, refine questions for the in depth review, and definitely communicate, interpret and apply the findings.

Just in terms of helping to set the initial question and influencing the theoretical framework, I think I'm going to talk about that in a few slides, so I'll just hold off.

Of course, there's other ways of accessing user or stakeholder perspectives. And that's to actually do systematic reviews on research about the public's views. And so we quite often integrate those kinds of qualitative research studies into our systematic reviews. And they're quite ‑‑ they're quite interesting to do.

(Slide 12) Of course, there's some ‑‑ the practicalities about stake‑holders consultation, you need to build in time to design a scoping review, particularly if you're working with stake‑holders. Because it can take time to come to a common language.

You need to think about when it should be brought in. We'd say early and throughout the review process, because they can inform different stages of review in so many different ways.

And you need to recognize that how you involve them and when you involve them will probably differ from one project to another.

So, for example, we did this review, looking at conditions that were associated with Hepatitis C. And that research question, or the review questions that we did were set, were set by the policy team before we started. So we didn't have a chance to undertake the kind of stakeholder consultation we would have liked, because when we subsequently went out and sought the views of stakeholder groups, they were a bit critical about why that particular question had been framed, and remarked that they would have liked to have been involved in shaping the research questions a bit more in order to get a product that was going to be more useful for them.

So, related to that, you need to be clear about the purpose of the map and its claims should not exceed its warrant. So, if you're clear about why a scoping review or a map is being undertaken, or systematic review for that matter, and that's communicated in the write‑up of the report, it's very clear to readers whether or not the findings that you come up with and the conclusions that you draw meet the purpose for which the review was done, and doesn't go beyond that.

So its claim should not exceed its warrant. It's just kind of an old‑fashioned way of saying: Don't go beyond what you've set out to do. And make sure that if you're involving stakeholders that is they know what the purpose of the scoping review is going to be and how the findings will feed into that.

And related to that you need to consider the amount of understanding or complexity that has to be integrated in the answer provided by the scoping review. So aim to fit the findings to the audience at need, in terms of the populations, the related concepts and the processes that are in the review.

(Slide 13) So that's quite a big step at the beginning. The next step is to actually set the review questions.

(14) In setting the review question, it's considered an investigative statement rather than a topic of interest.

So, it should be clear and answerable, and it's a driver for all review processes.

So you should set up a review question so that the analyses directly answer those questions, wherever possible.

And we also say that it's a dynamic interplay with theory and with inclusion and exclusion criteria. And what that means is we go back and forth between a conceptual framework, a research question and the inclusion and exclusion and exclusion criteria.

And the example I'll give you for that is this teenage pregnancy review that we did a few years ago, where the funders wanted us to do a systematic review with a scoping review at the beginning, to look at interventions that might prevent teenage pregnancy, and also promote teenage parenthood. And the problem with teenage pregnancy is that England has one of the highest rates in Europe of teenage pregnancy. It did at the time.

And when we started looking into the background literature, when we were writing the protocol we realized there was quite a bit of literature that you saying that actually for some teenagers, pregnancy was not a bad thing. They saw that as a normal life event and something that was appropriate for them to be doing at that age.

And so, the issue was not all teenage pregnancy, it was unintended teenage pregnancy. So in thinking about teenage pregnancy, we had to add that concept about unintended teenage pregnancy. Those were the things we were interested in, the outcomes that we were interested in. And that changed our research question. And it also changed our inclusion and exclusion criteria.

So we had to move back and forth between the conceptual framework, thinking about what the issues were around teenage pregnancy, and how that shaped the research question we asked, and then, of course, the inclusion and exclusion criteria we used.

(Slide 15) In identifying the research questions, you pick out the key domains that need to be explored.

We'll Tint and Weiss for example. So there was a review, I think, a scoping review that was provided as an example by Tint and Weiss that looked at family individuals with autism spectrum disorder and the domains they were looking at were conceptualizations and measurements of family well‑being in the ASD literature. So there is basically 1, 2, 3, 4 concepts in that question about conceptualizations, about measurements, about family well‑being and about ASD.

The boundaries, again, in the question, you need to set boundaries so that you don't ask such a broad question that you end up with too much literature to screen, or you end up with a lot of, are, a lot of topics to have to try and synthesize later on.

This is especially ‑‑ this is more important, I think, in systematic reviews, but in scoping reviews, you're trying to get a sense of the breadth of the literature. So you may, indeed, ask a broad question to start with, and then narrow it later on when you do a systematic review meta‑analysis, when you identify studies for meta‑analysis.

The wording is also a bit different on the scoping review.

Instead of asking directly: What is the effectiveness of, for example, this intervention on that outcome, you would tend to ask broader questions like: What is the nature, extent of research about an issue; or what research has been undertaken on an issue. So that it's a bit broader and it will give you an idea of the scope, the breadth of the literature that you're looking for.

And I think that Tint and Weiss example on the right‑hand side of the screen shows you some examples of these things, about the domains that are there, the boundaries, because they're saying they're interested in conceptualizations and measurements. They're not interested in interventions. And they're specific to family well‑being.

So that's also setting the boundaries that they're looking at, and they're not asking questions about the effectiveness of this on that. They're asking about the breadth of the literature and where there are gaps and limitations.

(Slide 16) So there's different ways you can structure your research questions, and this next slide, the way of demonstrating the ways that you could do that. And probably you've heard of these. PICOC is a way of structuring your research question according to population intervention comparator and context. Otherwise you can use ECLIPSE which looks at expectation, client group, location, impact, providers and service. Or SPIDER, which looks at sample phenomenon of interest, design, evaluation and research type.

Having that kind of structure in place makes it much easier to set up your analyses later on. If you ‑‑ if you go through the systematic review analysis or qualitative synthesis, but also it helps you with searching.

(Slide 17) Which is the next stage. And that picture is supposed to be a needle in a haystack, I'm not sure you can see that or not, but sometimes that's what searching feels like to me.

So common characteristics of searching, whether you're doing systematic reviews or scoping reviews, search strategies are intended to find studies that might be relevant for the review's question, so you're always going to look hopefully, well, yeah, hopefully more broadly. You're going to find more than you actually need. The search strategy should be derived from the review question and they need to be practically constrained. And what that means is by your database limitation, so maybe you don't have access to all the databases that are possible. Maybe you have a restricted time in which to do searching or you have restricted resources.

There's also a need to support your search strategy with a rationale, so that you consider and explain the choice of the sources that you search and the terms that you use.

And it needs to be explicitly reported so that other people can assess the quality of the search that you've undertaken to decide whether it fits the need or the purpose of the review.

So, if you're undertaking a scoping review, for example, you might consider searching in a wide variety of sources. And by publishing or making explicit your search strategy for other people to see, they can make a judgment on whether or not you did search widely enough to be able to identify all of the issues around that topic that you're studying.

And lastly, a search strategy should be iterative. So we spend a fair bit of time drafting and testing search strategies to get all of the terms, the correct terms in there. And all the limits in that we need to have before we actually implement a structured search plan. And some people call that a search strategy.

(Slide 19) There's lots of different sources that you can look, as you probably know the so there's bibliographic databases and there's loads of different types, general ones like ERIC, or Medline or EconLit. They tend to look across so they tend to be discipline‑specific but there's also specialized bibliographic databases, like open gray which is a source of gray literature. There's Internet search engines and gateways like Google Scholar or Policy Hub that are being increasingly used and there's issues around using those. There's hand searching journals and websites and scanning reference lists, forward citation searching and professional contacts and professional key authors or experts.

The thing to remember is that bibliographic are only one way to find literature or systematic reviews and you need to look at a variety of sources in order to locate the most relevant research.

That’s generally because it will be dependent on where you're searching, where you think the literature will be located but also where you think the hard to find literature is going to be located.

So, for example, if we were doing a qualitative synthesis where we were looking at people's views about what factors promoted successful teenage parenthood, we probably wouldn't look in Medline ‑‑ we would look in Medline but we wouldn't expect to find a whole lot of literature, of qualitative literature asking teenagers what they think about becoming a parent is like.

We'd be more inclined, and we were more inclined to find it in sociological databases, and also an awful lot were found on citation searching. And just website searching of key organizations.

So, it depends on what kind of question you're asking and the nature of ‑‑ the nature of the research you're looking at what you're likely to find it.

It's important when you're searching to balance the feasibility of searching lots of different sources with the breadth and comprehensiveness of the scoping process. So it depends on how much ‑‑ again, how much time you have. You might need to limit the sources rather than the search terms. You might want to limit by dates, especially if there's a key date at which practice changed that would justify limiting by that date, looking for research, because that change practice so much that everything after that date would look substantially different in the research literature by that date. You may limit by study designs where it's possible. It's not always possible to do that, if there isn't a whole lot of randomized controls on a topic, you may need to broaden what you look for. And maybe before or after studies are the best you're going to get. So you have to consider what kind of studies are likely to answer your question.

And like I said, don't rely on databases alone.

(Slide 20) Approaches to searching. There's a couple of different ways to do it. It used to be we did lots of comprehensive searching, so the idea is to find all of the studies that answer the review question. And that means searching exhaustive in multiple sources using really broad search terms to try to find every bit of possible literature.

If you can't search that broadly, or if you get too much literature back from doing that, especially with scoping reviews, where you may be asking broad question, an unbiased sample is the next best alternative.

So you might recall a review that I did a few years ago on women's experiences of becoming a mother. We found quite a lot of qualitative literature on experiences of motherhood, and we couldn't possibly synthesize all of it in time. So we ended up taking a random sample of a subset of studies and synthesizing them.

So, it is possible to do those kinds of things when you're short on time, as long as you communicate your rationale for doing it, to justify that decision. So that was kind of traditionally, that's what's been done in searching.

More recently, there's been an approach called purposive searching where you identify some main things in the literature and this can sometimes use saturation sampling. And you search on those particular main themes. And search plans in this case might develop as new evidence comes to light. So this is a much more iterative way to search. And it's it tends to be used when you're trying to look for, you're trying to develop theory as you go along so more in qualitative syntheses. And there is a professor up at University of Sheffield by the name of Andrew Booth, who's written quite a bit on this.

(Slide 21) So those are the two broad approaches to searching that you can undertake and to search, you also need to use a combination of control and free text terms when you're actually searching in databases. So most databases use some kind of standardized control terms to describe papers. So in Medline they're mesh terms, in ASSIA, they’re subject headers, in ERIC they're called Descriptors, but they're control terms that get applied to each study that gets put into those databases, and then you can search them.

The scope notes, generally define what the control terms mean for indexers, and then also for systematic reviewers. So we know which control terms to use for a particular concept. You need to use control terms for each concept of your review and check the control terms that are applied to known relevant studies. So, you know, in the abstracts, where they have key words at the bottom of the abstract, you can use those to help you identify what the control terms are in the databases but it's also important that you supplement this with non‑indexed free text terms, because sometimes new concepts haven't been made into control terms in these databases yet.

So, a recent phenomenon for example happened in maternity is a concept of free birthing. So women give birth at home without any healthcare provider present at all. And that hasn't been indexed yet as a control term.

So if you were doing that kind of a search, for example, you would want to use that kind of free text term to try and pick up that concept as part of your search strategy.

(Slide 22) So that's a taster of the kinds of things that you might consider in setting a research question involving stake‑holders and setting up your search strategy. And I'm going to turn you over to Chad now to talk a bit more about study selection and classification.

 >> Chad Nye: Thanks, Ginny. Welcome to all of you who have tuned in today.

So let's assume for a moment you've got a well prescribed, described, refined question to address an issue that's of importance to you. And you have done the search, using all of the terms and strategies that has generated a collection of potential sources that could be included in the review.

So, for the next few minutes, my section on this is: How do we deal with all of that data? How do we deal with the studies, sources, in terms of what goes in and to a review, and how do we organize and manage that information, that data?

(Slide 23) So, let me start with kind of what I call an initial level decision.

There are two stages which we typically do determination of whether or not a study is to be included. The first stage is at the title and abstract stage. That is, we have the title, we have the abstract from the search. And we can make some determination as to whether or not there if this study is a potential study for inclusion and at the same time we can also recognize studies that clearly are not part of the review process.

So, it helps at least in managing the time and effort and so forth. Unless you just really get a charge out of reading every single study that you've collected, this is at least a way to maximize some of the resources available.

So let's assume for a minute, I've just chosen a topic, somewhat based on earlier grant work that we've done, but what if you're interested in employment strategies for adults with autism. Now, in this case I'm treating strategies as an intervention. It could be parents' perception of employers who hire individuals with autism. The topic would not necessarily be intervention, but I'm using that here.

So I asked the first question: I have study number one on my list of 3,272 studies, and it says: I look at the ads, the title of it, and say: Does the title tell me that this is an intervention study? If the answer is yes, I'm going to go to question two. If the answer is no, it clearly shows in the abstract, that it's not an intervention study, then that study is not eligible for inclusion. At least not in this review.

You can also have an unclear category. That is, you're not quite sure. There's sort of an indication, if you please, that there might be ‑‑ this might work. So I use unclear as a ‑‑ a proceed-forward category. So I would simply circle one of the three and act accordingly. So let's assume for a moment that it's yes. It clearly is an intervention study. They even use that term in the title.

I would then go to number two and want to know ‑‑ want to try to define adults here. Are the participants at least 18 years of age? You may not find that in the title but you very well find it in the abstract.

And sure enough, I find that it's there. If it’s yes, I can move forward. If it's unclear, I move forward. If it's no, then it can be an intervention study, but it wasn't with 18‑year‑olds, it was intervention study, perhaps, with school transition, if you're not interested in school transition, then that would eliminate that study from inclusion.

This all depends on the criteria that you establish before you begin the process here. And I'm going to talk about that more in a few moments, but let's assume that it's yes here.

So now we go down to the third question, and does this sort of fit the aim of the study, the focus of the study, the intent? If the answer is yes, you go get the full study, and if it is at least a possible inclusion, if it's met at least two of the basic criteria for including it.

If it doesn't meet your criteria, at least in terms of the aim of the study, then that's a decision that you make, and it doesn't necessarily go for inclusion. Unclear, again, is: Get the full text.

So, that whole idea of unclear is a way that I kind of look at it and say, there's just something about it.

Now, the reality of it is, is that majority of the studies are ‑‑ that we might or sources would be yes or no. Unclear is not a huge number, but it does result in including some studies that you might otherwise exclude that do meet the criteria for inclusion. So, unclear is kind of a qualified yes, if you please.

(Slide 24) So, we're going to assume for a minute that this decision was accurate, that we've included the studies that really should be included.

We're now going to move to kind of a second level of inclusion that's going to involve the full text of the studies; that is, we're going to get the information from the actual studies.

(Slide 25) To do that, there's some kind of the principles of the criteria that we use here to determine inclusion and exclusion. Certainly, the relevance of the study is kind of based on these preselected criteria. And that's in part why that construction of the question at the outset is so important, because that guides ‑‑ is a major guide for ‑‑ which studies will be part of the review.

It's also important for these criteria to be defined in advance, in order that you have a consistency in what criteria were used to select the studies, which leads us to the ability to be able to justify selection when somebody complains that we just screwed it all up, and it really wasn't the case.

You can have the situation where somebody disagrees with your selection, but if the criteria are clearly implemented, then, okay, you can differ on the basis of that criteria that you implemented, but it wasn't an arbitrary decision that you made to select the study and include it in the process.

So it kind of aids in that reducing the bias in the selection process. Choosing a set of studies that proves your point of view is not what a scoping review is all about.

(Slide 26) It helps us specify which studies are in and which studies are out.

This can be modified, as Ginny explained about the selection process, as new information is acquired along the way. Perhaps an information you didn't know existed or hadn't thought about or hadn't been considered. It can be sort of integrated into the process here and into the procedures that you need to collect and manage the information.

So we're trying to get to a basic collection, collecting a rigorous, defensible set of data. It is the best organization of information that we can come up with.

(Slide 27) The broader ‑‑ this broad and narrow, and Ginny spoke about kind of from a resource point of view, I guess, if you have too strict a criteria; that is, it's so narrow, you don't get a lot of included studies, then you may not have generalizable to a population.

On the other hand, if it's so broad that you've included, you know, thousands of studies, then you may have less confidence in the results.

So there's a balance in there that, in part, is determined by your particular interest point of view, resources, and ultimately, the question as you designed it for purposes of the review.

(Slide 28) Okay. So, in terms of the characteristics of a study, these generally follow what go into what we see in a study.

These are categories. These are not necessarily the only issues or points of concern, consideration here. But this is at least sort of a general one that can be used in the PICO or ELIPSE outlines that Ginny provided to you a few minutes ago.

So we want to look at participant characteristics, intervention or focus characteristics, study methodological outcome measure and study design. Now, I'm not going to go through all of the characteristics here, but I want to give you a few examples just so you understand at least where we go with these categories.

This process of identifying these elements within the studies will in part determine about how we'll go about managing this data for the summary process later on.

(Slide 29) So, if we're looking at participant characteristics, these might be a basic set, some of which may be of some interest to you, specifically to your topic and subject. But I mean, there's nothing particularly earth‑shattering about it. We expect to see most of this in one form or another. We expect to see this in most studies.

I will say, while I expect to see it in most studies, I'm frequently ‑‑ I'm not surprised anymore, but I frequently find that some of the basic information isn't there. And there's some value in that, as well, and I'll talk about that in a bit.

(Slide 30) If we were looking at intervention characteristics we might want to identify what types of treatment were included either in some categorical classification name, it could be a treatment type, but identify a treatment type.

Dosage could be part of the catalogue here of information. Number of sessions, I'm using the word sessions in the case of employment, it could be number of workdays. Could be number of days per week. Could be number of weeks. A link of the program. How long did they follow and evaluate supported employment, for example. A study that would have a length of a year, 52 weeks, is, perhaps, has a specifically different outcome than one that lasted four weeks. So that may be of interest.

Treatment groupings, individual versus groups or combinations of them. You may not have these types of treatment for the area you're in as intervention characteristics, but the point being that there are in the characteristic category these are at least ones that are commonly found in the literature for intervention.

(Slide 31) If we're talking about study and methodological treatments, you may want to extract some of these or all of these.

You know, I see or have people say: Why would you care about the year of publication?

Well, if you're interested in looking at sort of the process of the development of an intervention type or of interventions, then that provides you sort of a coding mechanism to identify that.

If it's where outcome measures, are they standardized? Are they surveys? Are they focus groups? What's the measure that's used to collect the data from the study? If it's a study source? Is it published literature or unpublished? Some people have a real aversion to unpublished literature when it comes to summarizing in the data in the qualitative arenas as it were. Is it agency reports? Grant reports? Do focus groups fall into the category here? So, this is just another category of methodological consideration.

Study design is one that causes some folks at least apoplexy along the way, but the fact of the matter is that the design as a method logical issue can provide some useful information at least in terms of the nature of the research evident in a given area.

So, assuming we've got all of this material, how do we handle it?

(Slide 32) Well, I use what I call a coding form.

Now, I'm going to show you some sort of quick examples of 2 or 3 within those areas.

For those of you who may not be familiar with the coding form, for those of you who are have somebody wake you up when I get through the 2 or 3 slides here. The coding form is the tool for organizing the data that's going to be used in summarizing the studies. Is it required? No. It's a useful way of organizing information. I don't know about you, but the older I get the harder it is to remember where this stuff was and where it came from and who said it. So I put it in writing. It at least helps me to have some explanation of the information.

So, suppose your coding form, you wanted to know about SES.

(Slide 33) So I have a form and take each of those categories that I showed you there in that outline of what the characteristics are. And I simply identify what the categories are, and then note that. Circle it, if it ‑‑ if it's presented in the text.

You notice I have a little page thing at the top.

And then I know it sounds ‑‑ probably sounds extremely simplistic, but I can assure you at some point you're going to want to know where you ‑‑ somebody is going to say: Where did you see that? And you're going to spend ten minutes looking back through the study, trying to find that one paragraph to identify where you saw the notation that brought you to make the decision.

Every characteristic, whether it's participant or intervention or outcome, is sort of formatted along this way. You identify the topics, and then simple way of noting them.

(Slide 34) If it were intervention, perhaps in the treatment types, these are three types of treatment that you see here. There could be others. You might well find those sort of after the fact of making the determination about what included/excluded criteria you have set up at the beginning. So you simply add them to the catalogue here, to be able to note them.

(Slide 35) If it was methodological, if you're interested in the source, where did they get these participants from, that would be assigned to the interventions that were identified earlier. Another sort of mechanism for summarizing important features within the study, itself.

Let me also say that at least in some instances anyway, we go beyond just the coding form. One of the things that I have, over the years, developed, that I ‑‑ not developed, that I use regularly, is a code book. That is, I set up the coding sheet and identify those inclusion/exclusion criteria. And then I define what those terms mean.

So shelter/workshop would have a definition. There's going to be more than one person typically involved in this process. So it does help in the ‑‑ being able to coordinate and have some reliability between observers.

So... Also, in most reviews there are at least two reviewers.

So what do you do when somebody disagrees? When two people disagree? Well, at both the title and abstract stage and at the full text stage, we have two reviewers. We do the coding of a study, and then we sit down together and go through and compare. Did we come up with the same results? Did we circle the same numbers, if you please. And if we didn't, then we have to discuss this, go back to the studies, review it and convince one or the other that they were  right, or I was right, and they were wrong. And we come to a consensus agreement.

If we can't agree, if we really don't believe that the other person's point of view is accurate, we go to a third reviewer and whoever scores the most wins. And it at least allows us to have a justification for including or excluding a study on the basis of these criteria.

So all of those characteristics that we talked about for considering can be formatted in this coding form that would be the tool that you would use to extract data. This is data extraction process typically from the method section. Some of it comes from results as well.

Let me also talk about the quality of evidence.

(Slide 36) I mentioned in the last session, there is ‑‑ how should I say, there is a controversy issue among scoping review methodologists as to whether or not quality of evidence should be included. I said then and I’ll say it again, I'm including this as part of the review process. I just think it's important for to you realize that not everybody holds to that view.

It seems to me that as in the more recent years there's been an increasing presentation in the methodological literature for scoping reviews in support of the quality of evidence in some measure.

So what I'm suggesting here is that you think about that as an issue.

Here's the hierarchy of what the quantifiable reviewers will use and without getting into too deep a water, you know, we refer to the randomized trial as the gold standard which probably causes great anxiety to the single subject community, point being that at least it's a way of identifying quality of evidence for literature that we're trying to quantify; that is, the studies that present statistical analyses that is not qualitative in nature. That doesn't mean you can't use qualitative literature.

Though qualitative studies don't have quality of evidence, they do have strength of evidence.

So you just have to recognize and account for, if that is part of your scope of review, that in qualitative evidence, if you want to have some judgment about the hierarchy of evidence in that domain that you need to think of and look at the strength of evidence and the tools that are available for assessing that. One of these types of designs will allow you to do that.

My summary is I think quality of evidence is important and is worth considering in a scoping review at least to the extent that it does provide you with another way to organize the presentation or the summarizing of the literature that falls under your topic of interest.

(Slide 37) The most common that at least initially the data are presented to in scoping reviews is just simple charting of data.

This won't be earth‑shattering to anybody. We'll come up with a sample of it on screen in a couple of more slides.

If you were involved with something like the Joanna Briggs criteria or production of a scoping review you would do a protocol; that is, you would establish, before you ever started the review, now, the procedures that would be used. And that would be a place where you might present the plan for how you are going to extract or present the data in a chart or a table.

It is, as with the coding form, it's kind of a living document. It can be refined. And certainly, the closer you get to completion, where you have a more robust picture of the evidence that's being used, then you may be able to modify how you're going to present it based on that  kind of evidence. It's not as fixed a concept as in some of our other areas.

(Slide 38) Scoping reviews, charting is the data extraction summary point. You could, and you should, early on, code a few studies, reconcile with another reviewer, and then pilot that by trying to see how that information fits into a chart.

Now, I didn't say earlier, but the coding form is translated or transferred into a spreadsheet. So it's fairly easy to tabulate and get a descriptive summary of those characteristics and features within the studies that are potentially included.

And if the new data that comes along if you please that you haven't anticipated this is a place and point where it can also be modified.

(Slide 39) The presentation of the charts can be done in a form of maps. Can be diagrams, tabular forms, line charts, bar maps, a descriptive format that kind of lets you express what you have found in this literature without drawing conclusions of a statistical nature.

You remember, we're scoping, we're kind of doing the 30,000‑foot view, in a sense, of trying to organize what could be a fairly large number of studies. And we're trying to describe it. It's an instructive process rather than a definitive, this is the way it is, process.

(Slide 40) As Ginny mentioned earlier, P-C-C format can be used and the basic one can be used, the P-C-C distance concept context is kind of a beginning or starting point. Those are excellent tools for at least thinking about the kind of information that needs to be collected and extracted, and the information that might go into some sort of a summary form.

(Slide 41) These are potential categories that comes out of the characteristics for inclusion and exclusion. It's a similar across our ‑‑ these are some of the very characteristics I presented to you earlier.

(Slide 42) This is a sample chart.

Think of this in a horizontal here, the bottom half of this would extend out to the right. So you'd have a horizontal presentation.

As you can see, there's ‑‑ there is short summary narrative of major issues for a given study. And if all of the studies kind of are organized in this kind of format. We see this regularly in our literature. This is not particularly earth shattering by any stretch. But it is summarizing the findings in a non‑narrative form in a scoping review.

(Slide 43) So key differences at least between the scoping and the systematic review.

Scoping review is an overview of literature. It's synthesis, particularly from a quantifiable side of the ledger, it’s minimal, often. And it's more than minimal, and may not even exist. It tends to be narrative in summary. Whether or not you do a quality assessment is dependent on your point of view and the resources available, and so forth.

How that summarization takes place is determined by the scope of the review, the question, the focus of the question and how the data best fits into presentation in a way that summarizes the overarching information within the literature available on the subject.

And with that, I will turn it back to Ginny and talk about the summarizing of reports.

(Slide 44) >> Ginny Brunton: Okay.

Thanks for that.

Can you hear me okay?

 >> Steven Boydston: Yes, go ahead, Ginny.

 >> Ginny Brunton: Great, thanks, thanks, Steven.

So summarizing ‑‑ summarizing the findings needs to happen mostly because data is not information. Information isn't knowledge. And knowledge isn't wisdom.

You can have the files. It doesn't mean you have the answer.

So there are some steps that you have to go through to get to that answer, if you like.

(Slide 45) There's roughly three different ways of summarizing when you’re talking about scoping reviews certainly. The first way is numeric, and again, I use the Tint and Weiss scoping review that looked at Family Planning and ASD.

So you can have a numeric summary, where the quote being here was well used under changeable for adjustment and well‑being reported as a just: How many reported it in terms of physical health? How many reported it in terms of mental health, stress, and depression?

So it's just assuming up of your codes really that you may have used in your charting. And you see that you see that quite often, that descriptive analysis of just frequencies of codes that describe the research along those different characteristics that you looked at in the charting process.

You can also do a narrative approach. You can summarize by taking a narrative approach. And Tint and Weiss also did some of this and the particular quote that I used was, “Across studies, family well‑being was consistently viewed with positive connotations.”

So it's more like telling a story. You're looking at what the study said. And just kind of describing narratively what the different findings were or how generally the studies were reported.

(Slide 46) And then the third message is the schematic approach which to me is a little bit more detailed than a narrative approach. There, you're actually looking for patterns in the data and pulling them out as themes that occur across the set of studies.

And, again, Tint and Weiss handily provide a nice illustration of this. They talk about one approach was to view family well‑being as a subjective concept in itself that leads to physical and mental health outcomes. But a contrasting approach was to review well‑being as a collection of different constructs. In these situations, physical and mental health were seen as components of the overall well‑being composite.

So there, they're talking about family well‑being as a subjective concept and family well‑being as a collection of different constructs. So they pulled out two different themes from the studies that they looked at as part of scoping review.

So there's different ways of trying to pull together that data, to make some sense of the findings.

(Slide 47) Yeah, when you're synthesizing, once you've got some findings, that's great. But the next bit is that you need some help understanding them. And that goes back to what we were saying earlier about stakeholder engagement and how we have a particular perspective, but actually, the people who are ultimately hopefully going to be affected by the scoping review may have a different perspective. So it's always good to try and talk to them about what they think about the findings.

(Slide 48) You might consult with stake‑holders to sense‑check the findings against the original questions, and the implications of those findings against the reasons why the scoping review was commissioned in the first place.

So, that's a way of making sure that the findings that you got make sense to the people who are going to read the report, and also, to make sure that the findings don't go beyond why the review was commissioned in the first place.

Now, as I said earlier, typically, we tend to do scoping reviews within full systematic reviews, so this is the point at which we would present these findings to an advisory group of usually multi‑disciplinary stake‑holders. And they would help us to identify priority areas for in-depth synthesis, for example, meta‑analysis, or qualitative synthesis, depending on what the review design and question was all about.

So it's quite a useful exercise.

So, I gave that example of Hepatitis C, and conditions that are associated with Hepatitis C. And we scoped that literature and came up with 192 different conditions that might be associated with Hepatitis C. Far too many to do meta-analyses on, and so we did a lot of stakeholder consultation about what factors, what conditions influenced quality of life in people who had Hep C.

And the research literature was telling us it was things like, conditions like diabetes or leukemia or cardiovascular problems. And when we went and talked to the stakeholders, so these are actually people who were living with Hepatitis C and had experienced these conditions, they were saying actually for them what impacts their quality of life are things like depression, anxiety, pain, cognitive function.

So there was a big gap between what people who lived with the condition said affected their quality of life and what had actually been researched.

So those conditions, some of them had been researched fairly thoroughly, but they certainly weren't as researched as diabetes and, you know, conditions that can be more easily researched, really. So, it's good to consult, to get that perspective.

(Slide 49) Once you've interpreted the findings, you need to communicate them.

So you need to think about how you're going to tell the stories.

(Slide 50) And that might be considering who you're trying to communicate to, policymakers, practitioners, people who are experiencing the issue that you study, what kinds of things you're going to communicate to them. Are they interested in findings, or are they academics who are really interest the in the methods? How you structure your communication tool will depend on that.

Where you might communicate, journal articles, newsletters, the usual. Where are you going to communicate? Are you going to present findings at the beginning? So, for example, publish a protocol so that people can see what you're going to do. Whether you're going to publish something in the middle so that people can see interim findings, or at end of the process.

And why you're trying to communicate you know, what are you trying to achieve by communicating? Are you trying to influence policy? Are you trying to change practice? Are you ‑‑ well, yeah. We'll just go with those.

In doing this, you need to report your rationale for doing the scoping review. It's really important. Because, again, you need to make sure that the reason you undertook it, the findings, speak to that reason. And they don't go beyond that reason.

You need to report the research questions so that people understand exactly what asking so they can see that the analyses that you undertook or the summaries that you undertook actually addressed those questions.

And what purpose. The report or the research is ultimately meant to everybody is. And this prevents misuse of the report. So, there can be a worry that in doing a scoping review, so, especially if you're doing a scoping review to look at interventions, for example; that you could do a scoping review of interventions and you could say, look, this is the breadth of research on these interventions. And you haven't done any quality assessment, necessarily, of the literature, because you're only reporting on the extent of research. You're not reporting on how well it was done.

And then you produce that report, and it goes out to policymakers, and then they pick it up and say: Oh, great. We can implement these interventions. Except they can't, as you haven't actually presented them with that kind of product. You're just telling them what the extent of the research is. You're not saying how well it was done. You're not meta‑analyzing the findings, you're not considering what might be explaining the findings that you have.

So, again, it goes back to the purpose for which you undertook the scoping review in the first place. And you need to communicate that quite clearly.

(Slide 51) You can communicate it in lots of different ways.

Obviously, you can do a one‑page summary that, if it's tailored, can be effective. It tends to be more effective than one page summaries that aren't tailored to a particular audience. You can write a report which is actually a user‑friendly kind of summary. And generally, those ones, when we do those sorts of reports we tend to put the findings first and stick the message in the technical appendix at the end because policymakers aren't so interested in the methods, they're much more interested in the findings.

You can do a full technical report where the message section is the main part and it's detailed and it's right up front for anybody to use or to critique as they want. And you can also provide your data coding so that people can see how you characterized the studies and whether there were any concepts or codes that got missed that should have been put there.

So there's lots of different formats that are certainly possible when you're trying to communicate your findings.

(Slide 52) Now, don't forget too much about this, this particular model. This is just our way of conceptualizing what evidence in form policy and practices look like.

So evidence informs policy and practice is delineated by that blue oval, and inside that, you have the production of evidence.

So that's doing systematic reviews or scoping reviews and that's conducting the research that we do.

As you're probably aware research evidence may or may not be used in policy and practice for a variety of reasons. And this is represented by the blue two way arrow that's labeled mediation. Okay? Many factors can mediate whether research evidence gets used ultimately, including things like how tailored the research is to the policy or practice decision being made. For example, is the right population, is it the correct issues under study? Are the outcomes of relevance for that particular context.

The engagement of stake‑holders throughout production evidence and evidence use and that's demonstrated by that little green box and the arrows going back and forth, up and down across evidence production and evidence use. Stakeholder engagement throughout that process help to say make the research more relevant and hopefully more used.

We position systematic reviews as a mostly evidence production process, with some abilities to mediate between research studies and the use of those studies' findings in policy and practice. So we can use systematic reviews to mediate the use of evidence if that makes sense and of course there is the methodological literature that researches evidence production so it evaluates the effectiveness of various systematic review methods that we use and methodological literature that evaluates evidence use. So it evaluates how evidence gets used.

And this also, influences evidence in foreign policy and practice, too. So that's that blue box on the bottom that's got an arrow going up and down to the whole evidence and form process.

So that's kind of where we see systematic reviews and stakeholder engagement and ultimately the use of research evidence in policy and practice.

(Slide 53) Now, the last thing to say, I guess, is that research synthesis, we view that as part of knowledge accumulation. And it's a cycle.

So it's a cycle of knowledge accumulation and research synthesis is conducting systematic reviews or scoping reviews or rapid reviews or qualitative research syntheses, all of those are part of the cycle of knowledge accumulation.

So funders or other review users or researchers ask questions about what we know about a topic. So what findings are there, how we know it, which is what the strength or design of that evidence, and what we want to know, where the gaps are. And you could argue that that first bit is actually ‑‑ it can be considered a scoping review in itself.

Clarifying these into a review question allows us to conduct a systematic review, where we actually you know extract outcomes and we do a meta‑analysis or we do a thematic analysis and do qualitative synthesis.

This makes new findings on a topic, there is more that we want to know which is taken back into discussions with funders, other reviewers and researchers to begin the cycle again. So we see systematic reviewing as a process of knowledge accumulation. And it involves a lot of interaction with people who use the reviews, and then provide context that allow us to ask further questions that may be researched by systematic review or indeed by primary research.

(Slide 54) Chad, I have a question. Are you still there?

(No response.)

 >> Steven Boydston: Chad, are you still with us?

 >> Chad Nye: I'm here.

 >> Ginny Brunton: You're here.

 >> Chad Nye: Yeah.

 >> Ginny Brunton: I was going to get you to talk a little bit more about that idea of quality assessment because I think that's an interesting issue for people to get their heads around, where if you're doing a full systematic review where, of course you're going to do those assessments.

 >> Chad Nye: Right.

 >> Ginny Brunton: And you know, you were saying that you're a proponent of coding the quality of evidence on scoping reviews, and not everybody thinks it's necessary.

I'm certainly of the opinion that it should suit ‑‑ whether you do it or not suits the reason you're doing the scoping review in the first place.

 >> Steven Boydston: Chad, this ties into the question Lisa Engle has put into the chat box as well. So I'm happy to read that off for you if you'd like.

 >> Ginny Brunton: Sure.

 >> Steven Boydston: So she asks: Can you clarify between how you describe quality of evidence and the presentation as being levels of evidence versus doing methodological quality analysis? Is there danger in calling levels of evidence a quality analysis? For example, methodologically poor RTC adds nothing to our knowledge.

 >> Chad Nye: Yeah. That's what I was attempting to sort of distinguish. They're not the same. That's the point.

The quality of evidence is appropriately applied to typical studies that result in quantifiable evidence, that is, numbers, crunched; whereas, the quality of evidence, that's an inappropriate way to evaluate a qualitative review.

So, the tool that is sort of, I don't know if it's fair to say closely parallels in the quality of evidence has more to do with the strength of the evidence than it does ‑‑ not has to do with strength of evidence, not the quality in terms of quantifiable measurement.

So they're two different mechanisms, two different tools. Does that sound right, Ginny? I mean, am I articulating the distinction?

 >> Ginny Brunton: Yeah, I think so. There's a couple of issues tied up in Lisa's question. And then, you know, when you start talking about quantitative and qualitative research.

What’s shown on that slide is a hierarchy of evidence, where you would say, you know, a review design is actually the ‑‑ a good way of telling whether a study is robust or not. And as Lisa pointed out in her question, a methodologically poor RTC adds nothing to our knowledge. You could learn more from a really well conducted cohort observational study that adjusted for, you know, baseline imbalances and so on, and so forth.

So, hierarchy of evidence will tell you how many systematic reviews were done, how many randomized control trials but not how well they were done.

And you wouldn't necessarily be going in to do quality assessment of all of those different types of studies within a scoping review, particularly if the research question that's being asked is: What is the extent of research on a particular topic, not asking what the effectiveness, they're not asking a question that requires a careful assessment of how well the research has been done, because the findings of the review are going to inform a policy for practice decision, an instrument actual decision to actually, you know, implement that intervention.

In that case you would want full systematic review with the meta‑analysis and full quality assessment of that qualitative evidence.

So that's the one issue. I hope that answers Lisa's question.

The other issue is: What do you do when you have qualitative studies? So phenomenological studies or grounded studies or critical interpretive analysis, and you've got to try and pull those together in some way.

There isn't a hierarchy of evidence in qualitative research in the same way that there is on that slide for quantitative research. Okay? Because the qualitative research is undertaken for different reasons, for theory building or for conceptual understanding. No one design is any better than the other. The design should be adequate to answer the research question that's asked, so there isn't really a hierarchy as far as that goes.

In terms of determining the strength of the evidence ‑‑ sorry, let's go back to quality assessment.

You do still quality assess qualitative studies. People can't agree on what the appropriate quality assessment tools to use for qualitative studies. There's lots of different types of quality assessment tools out there for qualitative studies. And people can't decide on how you determine whether a study is methodologically strong, moderate, or weak in terms of how well it's been carried out. People don't agree on which factor influences the findings more than others. What they do agree on is that a qualitative study should be critically assessed in terms of how well the findings answer the research question that was originally posed in that qualitative study. So, there is still some kind of critical appraisal of qualitative studies that goes on.

And that's what we mean by assessing the strength of the evidence. How broad is the analysis of the study? How deep does the analysis go? How richness is it? How many different concepts does it bring up?

Those kind of things feed into the strengths of the evidence. And there are some tools that will help you to decide what the strength of the evidence is.

But in terms of method logic quality, as I say, it's a contested area within qualitative research. It does have to be done though if you're doing a full synthesis, a full systematic review, if you're doing a scoping review, arguably not. Depending on what your research question is and the original purpose of the scoping review.