**Webisode 5 – The Benefits and Challenges of Reviews of Reviews**

Presenters: Katy Sutcliffe, Ginny Brunton (EPPI-Centre, UCL)

EPPI-Centre Evidence Tools, Products, and Projects – A series of webisodes from the Evidence for Policy and Practice Information and Co-ordinating (EPPI) Centre. Hosted by AIR’s Center on Knowledge Translation for Disability and Rehabilitation Research (KTDRR).

YouTube video: <https://youtu.be/3PgzqWVLVuc>

JOANN STARKS: Welcome to another session from EPPI-Centre Evidence Tools, Products and Projects. This series of brief webisodes will introduce the audience to several tools, products, and projects of the Evidence for Policy and Practice Information and Co-ordinating Centre, or EPPI-Centre. Based at University College London's Institute of Education, the EPPI-Centre focuses on the development of systematic reviews and studies the use of research evidence.

I'm Joann Starks from the Center of Knowledge Translation for Disability and Rehabilitation Research, or KTDRR, at American Institutes for Research. The Center on KTDRR is sponsoring these webisodes with support received from the National Institute on Disability, Independent Living, and Rehabilitation Research, NIDILRR, and the US Department of Health and Human Services.

This session focuses on reviews of reviews--synthesizing systematic reviews. Our presenters are Katy Sutcliffe and Ginny Brunton. Katy Sutcliffe is a research officer at the EPPI-Centre and her interests include children's participation in their health care, approaches for integrating different types of research evidence and systematic reviews and approaches for supporting the implementation of review findings. Ginny Brunton is a senior research officer at the EPPI-Centre and her interests include maternal and child health, reproductive health, and development of mixed methods in systematic reviews. Welcome, Katy and Ginny. I'll now hand things over to you.

KATY SUTCLIFFE: Many thanks, Joann. So I'm going to talk you through, with Ginny. I'm going to introduce the idea of reviews of reviews and some of the benefits of that type of systematic review, as well as some of the challenges involved. And then I'm going to hand over to my colleague, Ginny, who's going to run through some examples that we've encountered in specific reviews to illustrate the points.

So a review of reviews is essentially, as it's name describes, they're often referred to also, as umbrella reviews, overviews of reviews, or meta-reviews. But in many ways, the methods of a review of reviews are similar to those for a systematic review. A key difference is the data used to populate our review are systematic reviews themselves. But much like a standard systematic review, they're aimed to address a specific research question. And they involve and take in a systematic search of some pre-specified eligibility criteria, as well as quality assessment, and synthesis of the results.

As I say, the really key difference is the data used are systematic reviews themselves. So the level of analysis could be considered to be tertiary-level research. When we talk about primary studies, so the individual studies included in the usual systematic review, with the systematic review itself being considered secondary research. When we get to the level of reviews of reviews, we're thinking perhaps on the level of tertiary research.

So in what situations might it be useful to use this review of reviews approach, rather than a standard systematic review? One situation is when the research question is particularly broad.

For example, research question may look at different types of interventions, the same condition. Or it may look at the same intervention, but for a range of different conditions. Or, perhaps, it could be looking at maybe a broad question, because it looks at the same intervention with the same population or condition, but it focuses on a range of outcomes. So that's one situation in which a review of reviews may be really useful

It can also be really useful because, as we know, in the world today, there are many, many systematic reviews conducted. So it's useful to take stock of those and bring together the already large body of systematic reviews on a particular topic. It can also be really useful when time or resources are constrained. And what are the benefits of conducting the review of reviews over a standard systematic review?

In some ways a review of review can speed up the review process, because it reduces the burden of results involved in searching and screening studies, especially when looking at a broad area of research. Searches for systematic reviews are much easier than for primary research. That's because there's a lot of effort in making them available on registers such as through the Cochrane Library. But secondly, because in broad areas of research-- when we're doing a really broad search-- we can go ahead with that in our search databases, but then apply a reviews filter onto that to narrow the search, to make it manageable and easier.

Another benefit is that reviews of reviews take advantage of comprehensive systematic searching already undertaken for the systematic reviews that populate the review of reviews. As I was saying on the last slide, there's a burgeoning body of systematic reviews that decision makers need to be abreast of. And it increases accessibility. All decision makers of those reviews. Where there are multiple reviews on the same issues, users may find it hard, often, to decide which to use. And review of reviews can distill that information.

Notwithstanding those benefits, reviews of reviews also can pose some significant challenges for researchers. And that's what we got to focus on in the next part of this session. And Ginny's going to run through some examples.

But we'd urge you, if you're interested in this area, to look at some of the several papers which have examined the challenges of reviews of reviews. And at the end of the session, we provide a slide with a list of some of those papers. But in those papers, some of the issues that authors who've considered this-- that they've already identified-- is the challenge of dealing with overlap between reviews. So for example, when a single study appears in more than one review, it will be overrepresented in the pooling of that evidence that's done in that review of reviews.

A second challenge is where, at the systematic review level, there's a lack of coverage-- particularly, for example, of certain populations or particular outcomes. Those outcomes may have been measured and examined at the primary level, but they just haven't been taken account of at the systematic review level. Therefore, it's not possible to take account of them at the review of review level.

The third problem is that when we get to this tertiary level of review of reviews, the distillation of evidence means that we get a lack of detail. And there's often insufficient detail on a particular area of interest.

Third challenge is quality assessment. As we know, a systematic review has to take account of potential bias, but within the papers-- the primary system that it includes, but also to take steps to avoid bias in the conduct of the review itself. When we get to the tertiary level, we have this extra layer of quality assessments to take account of. And we also are hindered by a lack of detail about the quality of studies at the primary and systematic review level themselves. And now we're going to hand over to my colleague Ginny to talk through some examples of how we've addressed these particular issues.

GINNY BRUNTON: Thanks, Katy. So for the first example about the overlap of studies that get included across systematic reviews, there's a variety of different techniques that you can use to manage that overlap.

The first, and probably most obvious thing, is to acknowledge that there is overlap. So when we've done reviews of reviews, we have gone through all of the included reviews and listed the primary studies that were included within each of those reviews in a table, and then noted where those primary studies were included in more than one review. So that we can-- at the end, we can discuss the extent of overlap of the primary studies, and what influence that might have on the conclusions that our authors have come to across the different reviews.

We can also examine the contributions that come in studies, so-- primary studies that are common across reviews-- the contribution that they make to each review. Another thing that you can do is avoid vote counting. So don't count up common findings across reviews without taking account of those commonly occurring studies.

And also, others have extracted information from one systematic review based on prespecified criteria. So for example, where there's a lot of systematic reviews in existence on a common topic, authors might choose to select one review that was the most recent in the area. Or perhaps it might be the highest quality review.

Or another example might be where there is the largest number of included studies. And finally, where there's the most complete data on effect size estimates, so that there isn't any guesswork about the actual effect. And it's important that those decisions are made before the literature is located and assessed, to try and reduce any kind of selection bias.

So the second challenge that you might run into with doing reviews of reviews is the issue about the lack of fit between the systematic reviews that you include and your actual review of reviews research question. So there are some ways that we've gotten around this or addressed this by, for example, paying very careful attention to whether the findings in the included reviews address all the possible concepts that could be an issue for that research question.

And an example of that is a review that we did several years ago now that looked at the emotional and behavioral outcomes of looked-after youth. And of course, that ignores wider societal-level influences that might also be influencing well-being. And also, that well-being might be conceptualized in very different ways. So economic well-being or other examples.

You might also take an analysis of similar reviews' divergent findings, so where you had two reviews that came to different findings, or different conclusions. You might have a look at the reasons why those reviews disagreed with each other. So, for example, the differences between those review findings might be due to different populations being under study.

You might also explain why reviews are not amenable to statistical synthesis. And finally, you could conduct a new review instead. If the reviews that you locate don't actually fit your review of reviews question, it may be that you need to actually conduct a systematic review instead.

There may be an issue around insufficient detail in systematic reviews. So an example of this might be where you didn't have information on important outcomes that were relevant to your review question. So you might retrieve the primary studies from all of the included reviews and re extract. OK?

Obviously, that's a huge job. And that is really conducting the re-analysis-- another systematic review. And we have done that, but that's a very big job. So you need to make sure that you have sufficient time to do that.

Another strategy you might try is to-- as well as looking at systematic reviews, you may have also searched for primary studies addressing that research question. And you may include those primary studies to supplement.

About four years ago, we did a systematic review that looked at the psychosocial predictors, risk factors, and outcomes of cosmetic surgery-- cosmetic interventions. And we found that there actually wasn't a lot of systematic review-level detail that we were able to include. And so where we had insufficient detail, we used primary studies to try and supplement. Again, that brings with it extra-- you need extra time. Because you need to quality assess, and to some extent, synthesize the detail from those primary studies.

You can simply note it as a caveat. The efficacy of interventions might be limited by the availability of primary research. So in effect, a lack of review-level evidence about interventions doesn't mean that those are ineffective. It just means that they haven't

been reviewed yet. And I think that's probably something that is very important for the readers of your review, because they tend to forget that you're doing a tertiary-level analysis of their research literature. And so they may assume that, because there hasn't been a review done on it, the intervention that you're looking at isn't effective-- when in fact, there's probably primary research available that could be synthesized. So that needs to be noted.

And finally, make sure that you discuss the implications of missing information on the findings of the overview. Whether that is to perhaps identify that there's gaps for future research synthesis that needs to be done, or for future primary research.

And the last challenge is how to manage quality assessment. So some of the ways that we and others have done it is to include only reviews, for example, that have detailed reporting on the quality of their primary studies. So you could set as an exclusion criteria anything that does not quality assess the included primary studies in those reviews.

You have to be aware that doing that comes at a cost because you lose information. There could be evidence syntheses on the topic that you're interested in, but they just didn't quality assess the primary research. So it's a bit of a trade-off in whether or not you have the time or the resources to be able to do the work that you need to do to account for those studies.

You also need to consider carefully whether the purpose of the review that you're doing, the review of reviews, is better served by comprehensiveness or by lessened uncertainty. So it may be important to do a review of reviews because you are trying to inform readers about the breadth of understanding on an issue, or the range of interventions-- for example, if it's a review of reviews of interventions. But in other cases, it may be that readers are decision makers who want an answer. So they may want studies that help them to lessen uncertainty in whether an intervention is effective or not.

So it's useful to think about those issues when you are developing the protocol for your review of reviews. Some possible compromises that you might undertake is, only limit your review of reviews by quality assessment if there's a large number of reviews available. And alternately, don't limit if the intent of the overview is to enlighten readers rather than to inform a decision.

So the strengths and limitations of doing a review of reviews-- they're good, because they allow you to undertake a very swift, accurate appraisal of a very broad area of research, within a short time scale and often using few researchers. That's good if you've got a customer, a policy or decision maker, who wants a fast answer-- and a fairly rigorous answer.

Of course, there are some limitations to doing them. There are issues of overlap of primary studies. There is sometimes a lack of fit with the research question that you're asking in your review of reviews. There is a potential for insufficient detail, and there is some thinking that has to be done around how to deal with the quality assessment of both the primary studies and the systematic reviews that you include.

And finally, just a listing of some key papers that informed this presentation, that talk about methods and challenges around doing reviews of reviews-- that hopefully you'll find interesting, and they provide some good examples and strategies themselves.

KATY SUTCLIFFE: Thank you. And we'll hand back to you now. That's the end of our presentation.

JOANN STARKS: Thank you very much, Katy and Ginny, for sharing the EPPI-Centre perspective on reviews of reviews--synthesizing systematic reviews, and how to deal with some of the limitations, and pointing out some of the strengths of this process. We also want to thank our funding agency, NIDILRR, for supporting this and other webcast activities. Please look for other sessions in this series on the EPPI-Centre evidence tools, products, and projects.