**KTDRR and Campbell Collaboration Research Evidence Training:**

**Management/Analysis Tools for Reviews - Covidence**

*Presenter: Nancy Owens*

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JOANN STARKS: Hello and welcome to today's webcast brought to you by the Center on Knowledge Translation for Disability & Rehabilitation Research or KTDRR at American Institutes for Research, in coordination with the Campbell Collaboration. The Center on KTDRR is funded by the National Institute on Disability, Independent Living, and Rehabilitation Research, known as NIDILRR in the US Department of Health and Human Services, Administration for Community Living. The Campbell Collaboration is an international organization that promotes positive change through the production and use of systematic reviews and other evidence synthesis for evidence‑based policy and practice. The Center on KTDRR partners with Campbell's Disability Coordinating Group to help increase the number of Campbell reviews in the disability field.

I am Joann Starks with the Austin office of American Institute for Research, or AIR, and I will be the moderator today. I want to thank my colleagues, Shoshana Rabinovsky and Ariana Hammersmith who are helping with the logistics. The KTDRR Center and Campbell Collaboration are working together to offer a 5‑part training course that focuses on high‑quality methods for synthesis of evidence, including the procedures and methods for conducting systematic reviews as well as software, tools and strategies for analyzing and reporting data.

The next presentation, covering Covidence, will be presented by Nancy Owens, who is head of community management at Covidence. She is responsible for a team providing support to a global community of enthusiastic and engaged users. She has more than two decades of various professional experience across the corporate, academic, and non‑profit sectors, primarily focused in evidence‑based health research, publication, and dissemination.

NANCY OWENS: Good afternoon, everyone, and thank you to the organizers for inviting Covidence to join the event. As Joann said, I am Nancy Owens, head of Community Management with Covidence. We have a worldwide community support team that provides resources to our users who are also based worldwide. Today I am going to give you an overview of the platform and the different access models we offer to individuals and institutions. If you have questions as we go ‑‑ we will be covering quite a bit of information, as has been happening, please feel free to be post those and we can answer them as we look at the relevant sections.

So, starting off with the slide which is a brief overview of how Covidence works. It is a production platform entirely web‑based so it doesn't require any software installation, IT authentication. It is accessible to anyone anywhere once they sign up for an account. It is closely linked with the Cochrane Collaboration and is the platform for Cochrane reviews and has methodological practices that Cochrane uses to do systematic reviews built into the structure of the program. It is a non‑profit missions‑driven organization built and developed by people who are interested in creating a culture of health decision making being supported by access to high‑quality research information and our goal is to constantly be evolving to keep up with the management review technology.

I am going to start by showing you what Covidence looks like when you have signed in. When you set up an account for yourself and you have signed in to start work at any time. Covidence is an individual users-based platform. So, it works through access on an individual basis. Each person signs up for an account themselves and they can use that to link to either review work and process to join teams and collaborate. Set up reviews themselves and to link to organizational descriptions where those are available. And, as you can see, when you are logged in, you will see a dashboard which shows you a running list of all of the projects that you are involved in that you set up yourself, that other people have set up and that you joined and that have been set up through any organizational accounts that you might have access to.

When you want to start a new review, you could do so simply click the button at the top of the page called Start a New Review. When you do that, you will be taken to a new screen that will allow you to make several decisions. As you can see, because Cochrane and Covidence are closely linked, the first question you will be asked is whether or not you are creating a Cochrane review, a special pathway built into Covidence for anyone working on a Cochrane review. Those of you affiliated with Campbell and who are working on Campbell reviews, there is a slightly different pathway that supports people who are working on Campbell reviews. And it's more linked to what you will see further down the screen. As you can see here, if your account is linked to other organizational accounts, as you can see on the screen, my account is linked to the Monash University account. Even if I have limited access to my individual account, it gives automatic interactive access to one review, if I am linked to organizational, I am allowed to get the links in that account and go to the pool provided there and have access to the Campbell pathway.

Any questions about that, feel free to get in touch and we can provide more information about that. I will provide contact information at the end for anyone who wants to get more information from us. So, at this stage what this is providing is basically the main question it is asking is naming your review and this can be a working title, as you can see in the open text box, and it can be changed at a later stage. Once you set up a review page, you will be taken to the dashboard and this is what you will see when you have a specific review open.

What I will do now is walk briefly through the different sections of this, what cover and allow the reviewers to do and collaborate with colleagues. Up at the top, you can see first we will look at the settings which allows you to set up and configure how the review will work.

Next, we will look at importing references and how that process works in Covidence. File menu abstract screening. Full text screening and extraction, the three more intense I have stages of evaluating information that is brought into the system. The decision making whether it will be included in a systematic review. Finally, when work is complete, a quick look at export process and how that works.

So usually the first stage that we recommend people when they start work is to go into the Settings section of the particular review and do any configuration that is necessary in terms of decision making that is going to affect how the review proceeds.

As I said, this will be dependent on how many people you have working on the review and what sorts of parameters you would like set up. There are multiple pages. I will highlight a couple but note at the top that you can see options for review settings, you can make decisions about how much people are going to be in the review team as well as team settings about what the people will be able to do. Then there are pages to the right that will help you set up features available and we will look at those when we look at the screening sections.

In the first page you will see the review title set up at the very beginning the point at which the review is started. As I said, that is a work title which can be changed. Some other key information can be recorded both when searches can be run, what search strategy was used. Review citation. This is an update of existing review and making decision about how many people are going to be in the screening process title and abstract screening and full text review.

Covidence is set up that people with subscription access to the platform are able to invite an unlimited number of reviewers to join each review and they can select a minimum of one person or max of it would be people to screen each reference. What that means that once either one or two people have reviewed a specific reference, then it will be moved from the screening section it is in to a number of other places depending upon decisions that are made. We will see how that looks and works in the screening section.

So, what that means in practice is that if a large number of people are involved in a review that two people assuming, that is the selection made, will screen each reference; but once they do that it will move. Therefore, not everyone involved in the review process will see each reference. Obviously, a review team of two, everyone will see everything. But beyond that, it will do a percentage of the work that is available at each screening stage.

This shows another feature of how work can be managed within Covidence. So, you can see here this is the Team Settings page. And, as I mentioned, you can invite a large number of team members. Again, that is not limited ‑‑ unlimited by location or authentication of any kind.

Anyone that the Review team chooses to include, all they will need to do is set up an individual account and they will be able to join. Once they have been set up and invited to join the review, the team will be able to get an overview of ongoing work in this Team Setting section.

So, as you can see it's possible to track progress on the number of references that are in each section overall as well as to monitor the contribution levels of each member of the review team. This is done in such a way as to maintain good review methodology throughout the process. As you can see, you can get an overview of how many references are in progress and the work that individuals have done. But no information will be visible about how people have been voting on specific references or what specific references have been voted on by particular members of the team.

It is also possible, as I mentioned. To set rules at this point. So the team can make decisions about whether or not they are going to allow everyone to do everything or whether there are going to be limitation in terms of designating one particular person to for example carry out conflict resolution in the event that two people have conflicting votes on a specific reference or if they are going to limit that one specific person has to see every reference at a particular round of screening.

One use case we have often see is in the case where a Senior Reviewer, for example, might have a team of junior people, they might make the decision to have that person screen every reference at the first stage. And in that case then, the other reviewers will divide the remaining among themselves while that person will have sight of every reference and similar conflicts, similar decisions can be made. Either have someone more senior or not involved in screening can come in and make decisions about conflict resolution when that time comes. So the next section we will cover is importing, once the Review team has refined their research question and developed a search strategy and run it and curated a list of references in a reference manager program, they will then be able to import that into Covidence and Covidence allows for multiple rounds of imports for any given review of a project in order to meet the specific needs the review.

There are limitations on a per import base, but all of that information can be imported in as many rounds as needed.

Once those imports have been brought in then reviewers can do import management in terms of the review project. They can review the list of imports and round of imports that have been done here in this import section. They can review information about references imported that might have been designated as duplicates. Covidence has a built‑in repeated algorithm that will duplicate references both within the batch of references imported into the project as well as against any previous batches that have been imported into that specific project. As you can see, it will identify when it has identified a duplicate reference and the Review team can use the Check Duplicate function to open that up and check them against each other and make decision whether they agree with the algorithm assignment duplicates and whether they want to designate them as duplicates in agreement with the algorithm or import them for further scrutiny. Once the import has been completed then the list of references is fully imported into the platform and a review team can begin accessing the list of references and begin File menu abstract screening.

References can be imported into any stage as we will see. The workload that people import into abstract screening in the first instance, this is the view that people will see when they open Title Abstract Screening: The information that has been imported, deployed in a list of references; and they will have the title and abstract information in front of them and can make at this point a straightforward Yes, No or Maybe decision about whether they think this information is valid for the research project they are trying to do.

Once they voted on the information, this reference will disappear from their screening list and depending upon how the review parameters have been set up and decisions made it will go to a number of other places. If they are the first person to vote on it will go to the other reviewers on the list. If they have voted No for the second time it will go to Irrelevant References and be removed from further consideration. Yes, as the second person, it will go to this section; and if it is in conflict with the previous vote it will go to the Resolve Conflicts for a conflict resolution decision.

When screeners are working ‑‑ these numbers will be . . . the list will update in real time so simultaneously members of the Review team can be screening and the references will be moving in real time, depending on the decisions getting made. There are also a couple of features which I will note here that you can see these buttons across the top will provide access to various features available. You can see here it's possible to set up lists in the Section that allows the team to look to support other inclusion or exclusion decisions. These are inclusion key words highlighted in green. Exclusion keywords will be highlighted in red to facilitate the screening process and help reviewers find the key information they need quickly.

You can also pre‑populate lists of inclusion and exclusion criteria which are then acceptable by clicking on the Show criteria button to allow reviewers to refresh their memories on what they are looking for as they work through the screening lists and make consistent decisions.

It's also possible to add tags to specific reviews or batches of reviews visible when previously applied here at the bottom of each individual reference. It is also possible to add batch tags to groups of references within the same category and you can see those.

It is also possible to add notes to individual references. These can only be done on a single reference basis, as opposed to tag, which can be done in groups; and that information will carry through along with the reference wherever it moved within the Covidence platform. It is also important to note that it will also be visible to anyone who sees that, so any teams working to maintain maximum blinding and minimum bias will need to bear that in mind that they are using that as a tool to support their cross‑teamwork.

So, references that have had two Yes votes on them, will be moved to Full Text Review. You can see this is fairly similar to what you will see in title and abstract screening. It is a more in‑depth decision making process, as most of you know.

At this point, the decision changes from Yes, No, Maybe to Include or Exclude. The key feature available in Covidence in this stage is that it is possible to import the full text of the relevant study PDFs that go with the relevant references and be imported here; that they are easily accessible for the reviewers to refer to in order to carry out full text screening and make inclusion or exclusion decision. One of the features of Covidence available with a full subscription to the platform is the bulk upload pdf, which facilitates for large numbers of references screened at this stage, facilitates the process of uploading pdf's in bulk from a reference manager program.

The third and most intensive level of screening that is available is the Extraction section. That provides screening possibilities for both quality assessments and data extraction. So, this screen that I am showing shows what the quality assessment looks like when screening is underway.

So you will see again the full text of the study in question that is accessible for reference and it's possible to toggle back and forth between then and assessment framework, you can see here. Covidence supports a built‑in Cochrane bias quality assessment or allows the review team to set up a custom risk bias assessment. They can then use this full access to study to make assessments about what the quality assessment and risk of bias is in this particular study.

They can also use this to complete data extraction. There is a built‑in data extraction framework as you can see here. With the pre‑set sections for identification methods, population, interventions and outcomes; all of which have some pre‑set sections for the information that's likely to be typically collected during the data extraction process and also allows for a good deal customization, allows the Review team to add multiple text boxes that they can designate and label as they need in order to meet specific needs of their review project as well as make customizations in terms of the kind of data they are extracting, covering numerical data and customized to gather qualitative can be anything from as I said, numbers percentages to free text to capture qualitative information as the review project dictates.

This stage will be completed by two reviewers at the final stage of the process. The other two stages allow for the choice of one or two. This will require two. And once consensus data has been agreed then those data can then be made ready to export. As with importing information and references can be exported at any stage of the process. They can select what they wish to do. If they have completed the full process of quality assessment and data extraction, then they can select to export that information and can export data. And as you can see they can choose from several different reference managers to support the work they are going to do next.

If they are exporting data they can export that as a CSV file for Excel and you can see there is a built‑in pathway for people who want to carry out the next stage of meta‑analysis if they are doing Cochrane style systematic reviews, there is a built‑in pathway to export from Covidence and import into Cochrane's review software to support the next stage of the meta‑analysis process.

When reviewers choose to export data, as I said, it will export as CSV file for Excel and they will have a list on the first sheet of included studies. All studies designated including those that went through the cleaning and extraction process and they will then have a sheet by sheet documentation of the consensus data that were agreed and documented for each the reference of the studies that were designated as included. As I said, for meta‑analysis program like Cochrane's review, this information will feed directly in to facilitate that next step, but reviewers can also take this information and use it in other meta‑analysis and interpretive processes that they might be using.

The features to let you know about: Covidence has an extensive knowledge base which has articles providing step‑by‑step information and instruction about most of the steps involved in completing screening using Covidence. Most of the articles which are accessible from this section also have embedded links to instructional videos that are available on our YouTube training channel. And as you can see at the top we also have a featured articles section which is kept up to date regularly with current information, including information about our regularly scheduled monthly training webinar which is geared toward people who are usually in the early stages of getting started with Covidence who would like a step by step walk through it, something like what you have seen today but more details about the mechanics of using the platform.

This screen takes you back into what things look like on the platform. I will note, since you can see this visual: When you are logged into the Covidence platform you can see the blue header anywhere inside the platform and be able to see this question mark icon. That is the way to access Covidence's knowledge base. It is a website but is accessible from clicking that button. I wanted to give a quick overview.

Covidence has a variety of access models. It is an individual user‑based system but one of the access models that has developed is that we have a number of academic institutions who have set up organizational accounts in order to facilitate their user’s community having access Covidence. In the event that happens, we then support setup of that account and this is how the information will look for someone who is acting as the account administrator for an academic organization, for example. They will be able to see one list of members of that university who are affiliated with the account; they will be able to invite people to join the account and be able to keep track of reviews set up.

I showed you earlier when an individual user is affiliated with an academic account, they are able to set up access to that account and when they do that that review will appear on this Reviews page so the organizational account develops as a repository and is able to see an overview of ongoing work that is being carried out by members of their user community.

This provides an overview of Covidence access model. Covidence is freely available on a trial basis, so anyone interested can sign up for an individual account that provides access to a free trial review. We have single end package subscriptions for individuals; and, for the institutional access model I mentioned, we will work with individual institutions to tailor a subscription that meets the needs and size of the institution.

So that covers how the platform works and how the user community accesses it. If you have further questions we encourage people to sign up, it's free. Just know there is no bar to signing up for an individual account and when you do that, as I said, you will have access to set up a trial review. You will also have access to a demo review which is built into Covidence's platform which provides a sandbox to work on actually moving references and practicing the screening processes, how they work. It is populated with live data so it's possible to try the variety of functions Covidence offers without worrying about real data you might want to use in a project.

I also provided a link here to our knowledge base you saw a few minutes ago, which is also freely accessible if you want to go have a look. The main email address for our support team, the community emergency team that I am part of is support@covidence.org and we are happy to answer questions at any time about anything you want to know about the program: How to access it, how to carry out a specific question how it might be used for the research you are doing and finally if anyone is interested in seeing the options for organizational accounts then our product team is happy to discuss that with anyone who is interested.

JOANN STARKS: I want to thank our presenters for taking time to prepare and to introduce these software tools to help manage and analyze data for systematic reviews. We hope you will take a few minutes to give us some feedback about the webcast by filling out a brief evaluation—the link is listed in the slides. You only need to respond once, after you have viewed all 4 videos. I also want to thank the AIR staff and representatives from the Campbell Collaboration who helped with planning and logistics, and of course, we want to thank NIDILRR for their support to offer these webcasts and other events.