# Governing Board Paper

**Agenda number:** 5.1 [2017-CT- 5.1-001]

**Agenda item:** A Content Strategy for Cochrane: the future Systematic Review

**Submitted for Governing Board meeting:** Cape Town, September 2017

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**Sponsored by:** Mark Wilson, Chief Executive Officer

**Access:** Open

**Decision or information:** Information

**Resolution for the minutes:** -

**Executive summary:** This paper outlines the work we are undertaking to develop the core content of Cochrane Reviews, which includes (1) the review types we produce; (2) the methods we use; (3) the data sources we use. Whilst there is always innovation ongoing in these areas wethink it is important that we begin to set out priorities for development in the content of Cochrane Reviews for the coming years to guide decision making in product development (both Cochrane Library and our production tools) and to ensure that we align this with the human and technological capacity development throughout the organization.

This is an essential area of work that has been singled out as one of the four key areas for 2018 in the *Strategy to 2020* targets planning document also submitted to the Governing Board, and it complements other work ongoing such as consideration of our future publishing arrangements, our open access strategy and implementation of the KT framework.

We are sharing this with the Board to present an introduction to work that is underway to build a sustainable future for Cochrane and, as such, it is for information rather than for approval. We are aware of the need to engage with all relevant stakeholders throughout this process and welcome any feedback that Board members have at this early stage.

**Consultation with Cochrane Council:** We will consult with the Council in due course. The representational structure of the Council will provide an effective way for us to consult on implementation challenges and judging the feasibility of innovations from the Groups’ perspective.

**Financial request:** -
1 Background

The sustainability of Cochrane ultimately relies upon the value of the content we produce and, in particular, our systematic reviews. In a separate paper we have outlined the challenges that we face as an organisation as a result of our open access strategy and how our success in maintaining subscription income in the short to medium term will rely on the value of the subscriber-only content. The value of the reviews we produce, measured through quality and relevance, are also a key factor for our funders, who want usable outputs from their investment that meet the needs of their healthcare systems. Fundamentally, creating valued content requires us to put the user at the centre of our decision-making, as outlined in our stated objective in Strategy to 2020 that we want to put the user at the heart of what we do. It is absolutely essential that we do this with regard to review content if we are both to meet our mission and be financially viable.

1.1 Cochrane Library strategy

When making choices, or identifying priorities we need a framework for decision-making based on an agreed Cochrane Library strategy. This provides an objective way to assess ideas or developments to ensure they fit with the overall vision for the Cochrane Library, the audiences we have prioritised and our core value propositions for the Library.

This strategy will not be the only criteria for assessing new developments, but it is a critical part of the process. Amongst other things, the strategy will need to cover:

- The vision for the Cochrane Library
- The core audiences (both current users and users we aspire to attract)
- Competitor analysis
- Primary value propositions for the Library

This process is essential because it provides us with a mechanism through which we can evaluate new ideas. So, whether it is a decision about incorporating a new database or whether it is a structural change to the presentation of reviews, we can, and should, always be referring back to our Cochrane Library strategy to ensure that each decision we make is aligned with the overall direction of travel for the Cochrane Library.

The Cochrane Library strategy needs to be developed in conjunction with, and supported by the new Editorial Board, once it is established.

Whilst we stress the importance of this strategy, its content is not entirely new. Many elements of the Cochrane Library strategy already exist or may simply need revising (e.g. we already have identified personas from user research that can inform our audiences); the important point is the way we bring this work together to provide a mechanism for evaluating ideas.

In addition to the Cochrane Library Strategy, we need to plan for the four different areas of Library development. Below we describe these four areas in brief. The first of these areas is the core focus of this paper.
1.2 Cochrane Review Content Development
To meet our users’ requirements our reviews must be high quality, relevant and usable. To ensure that is the case we need to develop the content of our reviews based on user research. In particular, we need to assess what types of reviews we produce, what data sources we use and what methods we employ in our reviews to ensure that we are set up appropriately to generate relevant reviews that our users will value.

This is the primary area addressed in the proposals section below.

1.3 Cochrane Review structure and presentation
Our content needs to be usable if it is to be useful. The Cochrane review format holds us back in many ways and some Groups have already made concrete suggestions for how we could change the format to improve usability and make review production more efficient. Here we provide here a few examples of the issues:

- The format is long and larger reviews can generate hundreds of tables which are hard to compare. The length and format of the review was identified as a key barrier to effective knowledge translation in the Cochrane Knowledge Translation Framework.
- Feedback from authors indicates that limitations of the review structure in RevMan are a barrier to review production and in some cases a disincentive to publish with Cochrane. This was further confirmed by feedback from the fast track pilot process which suggested that a major barrier for submission of articles from external authors producing high quality reviews was the need to prepare reviews in RevMan to the Cochrane structure.
- Following a successful pilot project that showed that targeted updates are valuable to our users, we are unable to publish them on the Library due to restrictions in our production and publishing structures.
- We know that the structure and format of reviews creates some of the problems with reporting that affect review quality, which is especially problematic in reviews with many studies.

We need to take action in this area and at a minimum add a degree of flexibility, both in our production tools and in our publishing platform. The completion of the new Cochrane Library platform at the end of 2017 and the release of RevMan Web are the first substantive steps in an ongoing program of work to tackle these issues.

This work is led by the product development team who work on the Cochrane Library, drawn from both the Cochrane Editorial Unit and IKMD. Whilst the initial launch of these two products is the primary focus of work currently, there is already work underway to plan post-launch developments of the new publishing platform and a more flexible RevMan structure. It is essential that this is planned and undertaken in a framework that involves all relevant internal stakeholders, so that as changes are made on the publishing side the relevant guidance, training or production tools are updated accordingly.

1.4 Other Databases that would add value to the Library
The Cochrane Library is a collection of databases and whilst the CDSR is the flagship database the other databases have value for our subscribers. We need a strategic approach to new content acquisition that is complementary to the CDSR and in line with our overall Cochrane Library vision and strategy.

We will introduce Epistemonikos1 to our core suite of databases as a replacement for the discontinued DARE (database of systematic reviews abstracts) in the new Cochrane Library platform, and we have in principle agreement to integrate Health Systems Evidence2. Once the new Cochrane Library platform is available we will have the capacity to include a federated search that can work across different database sources, which

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1 https://www.epistemonikos.org
2 https://www.healthsystemsevidence.org
will open up considerable opportunities in this area. This area of the Cochrane Library is particularly important in working towards our objective to be the home of evidence.

1.5 Other products and services that would add value to the Library

In addition to databases we can add value to the Library by integrating new products and services into the Library offering. An example of this is the incorporation of Cochrane Clinical Answers (CCAs) into the Library package. CCAs are explicitly targeted at one important user group – health professionals – in order to facilitate the use of evidence in everyday practice. As Cochrane Innovations develops the linked data offerings with IKMD it is possible that this technology could be one form of service enhancement for subscribers, e.g. PICO based searches.

The roll out of CCAs is a good example of an area of new content development as a new product on the Library and it highlights some of the challenges surrounding this, such as how is the content produced. We hope that in future we will be able to integrate the work of creating the content of such products into the new network structures.

Adding new products and services is part of the long-term strategy to increase the value proposition of the Library. It requires close collaboration with Cochrane Innovations where we have the skills and expertise to develop such ideas, but with an understanding that successful implementation may involve a broad range of internal stakeholders.

2 Proposal:

In the context of the background above, this proposal outlines what we are planning to do in relation to developing the substance of Cochrane Reviews to better meet user needs.

The world of evidence synthesis is constantly changing and developing, just as the needs of decision makers are becoming more complex and sophisticated. Furthermore, research over the past few years has consistently highlighted the risks to validity of conducting systematic reviews of interventions based on the published reports of randomised controlled trials, particularly in respect of selective outcome reporting bias. This represents a key challenge to Cochrane. In this project, we will consider how the content of Cochrane reviews might change in order to meet the needs of end users more effectively.

Cochrane currently produces five separate review types:

1. Intervention reviews
2. Diagnostic Test Accuracy Reviews
3. Overviews of Reviews
4. Qualitative reviews linked to intervention reviews
5. Methodology reviews

It has recently committed to produce prognosis reviews also.
To maintain its dominant position as the world’s largest producer of high quality systematic reviews that guide decision making, Cochrane needs to ensure that the reviews it produces utilise current best practice in research synthesis, and that they address the known priorities of decision makers. To achieve this, Cochrane needs to evaluate methodological enhancements as they arise – and many originate with individuals and groups affiliated to Cochrane and Cochrane Methods Groups – and to make choices about which amongst these to assimilate into its reviews.

The Cochrane Scientific Committee has now been established to determine those methods that should or could be incorporated into Cochrane, but there is also a need to ensure that methods selected address the needs of decision makers and can be implemented consistently, efficiently and reliably. The focus of the current paper is around making the strategic decisions on priorities and ensuring robust implementation takes place. Where appropriate we will use the expertise of the Methods Groups and the framework of the Scientific Committee for any decision-making around the suitability of methods or to resolve any outstanding methodological issues that may be a barrier to implementation.

Much is already known about methodological challenges and enhancements on our horizon that would add value to our reviews. This paper seeks to provide a framework for evaluating them, based on methodological excellence and impact on healthcare decision making, and incorporating them into the Cochrane community and Cochrane Library.

2.1 Different forms of enhancement
These can be divided into several distinct changes:

1. Different sources of evidence to be included within existing reviews
2. Methods developments within existing review types
3. New review types addressing different kinds of questions

2.2 Different sources of evidence within existing reviews
Empirical research has demonstrated that published reports of RCTs are limited and sometimes misleading, due to selective outcome reporting bias. This has led to activities that seek to identify more reliable sources of data from RCTs such as:

1. Summary data included within
   a. Clinical Study Reports
   b. Data provided to regulatory agencies
   c. Data held on trials repositories
2. Individual Patient Data

In addition, it is increasingly common for policy making bodies to request or expect data from non-randomised studies to be included in standard intervention reviews. This might be focussed on the need to evaluate specific harms that are unlikely to be detected by RCTs, but in some cases the request is broader and less specific and the request might be to include data from non-randomised studies for both benefits and harms, especially where the RCT data is sparse or flawed.

Looking further ahead, as the awareness and availability of ‘big’ or ‘diverse data’ increases, Cochrane will need to consider what influence this should have on its reviews. Currently the ‘evidence’ and ‘data’ worlds are acting separately, which must be confusing for the end users. It is therefore desirable for the two worlds to converge and potentially align. This has substantial ramifications for Cochrane and therefore is the focus of a
linked but distinct project, led by Julian Elliott. It seems likely that any solutions will be built on Cochrane developing partnerships in these areas, rather than seeking to work independently.

**When should these sources be used in Cochrane?**

Currently it is not clear when it is appropriate to include these additional sources of evidence into Cochrane intervention reviews. There is a Methods Innovation Fund project that seeks to throw some light onto this issue, but its report is not yet available. The decisions should also be considered at two levels: some sources may in time become standard sources for all Cochrane reviews, whereas others may only be appropriate for the specific context of a single review.

A decision framework would be very useful for CRGs and review authors. This is consistent with the Chalmers and Glasziou paper on research waste, which argued that a key element of measures to avoid waste was to ensure ‘appropriate’ methodological approaches. This may be taken to mean measures that are least likely to introduce bias, and therefore a driver for more rigorous approaches, but this may not be consistent with decision makers needs for rapid answers, or be cost effective. Put simply, some questions may not be worth the investment of a comprehensive analysis of clinical study reports e.g. where the review of summary data is clearly conclusive (whether for benefit or harm), or where the intervention is unlikely to achieve substantial positive or negative health impact e.g. aromatherapy. One essential aspect of this decision tree should be to consider the likely impact on the end user of the evidence.

In addition to the need for such a decision framework, there are some situations where it is not clear that there is agreement on the most appropriate methods to be used. In such cases the Scientific Committee should be involved in determining those methodological approaches that are appropriate.

**What are the implementation challenges?**

For the new data sources there are important training, guidance and technological challenges that need to be addressed if Cochrane plans to scale up activities from its current baseline, which tends to be driven by individual research teams. These apply to both review production, and our editorial and publication processes.

The proposed CRG networks may provide one means of focusing activities around groups that have a specific interest and need to acquire the skills, knowledge and capacity required to introduce the changes. In some cases, there might need to be initiatives that are explicitly cross-network.

**2.3 Methods development within existing reviews**

**Incremental changes**

Methods are continually developing, and many of these can be considered as incremental changes, such as currently proposed updates to Cochrane’s statistical methods for estimating heterogeneity in meta-analysis. Cochrane’s Methods Groups are the key driver for such incremental developments, and the Scientific Committee will be the body that determines the suitability of a given methodological enhancement.

Implementation challenges that should be addressed, including:

- Communication of required changes
- Determination of whether the change described should be compulsory or conditional
- Changes to guidance e.g. MECIR standards, Handbook, RevMan help files
- Changes to technology e.g. RevMan, Covidence
• Changes to learning programmes or introduction of new programmes, considering both authors and editorial teams.
• Determination of whether changes to publication processes (such as data structures) are required.

Network meta-analysis

Some changes to methods within existing reviews are qualitatively more substantial and novel, and their implementation has widespread implications, including for learning programmes, capacity development and our technology. A good example is network meta-analysis. As a method, this has developed rapidly over the past 10 years and it has gained credibility and visibility within both research and end user communities, because it enables the comparison of multiple intervention options, provides the potential to rank interventions in order, and enables the use of both direct and indirect comparisons. Currently, Cochrane produces a small number of network meta-analyses (NMAs), but there are strong arguments that it would be appropriate to scale this up dramatically, such that NMAs became increasingly commonplace.

Most of the challenges of scaling up would be implementation related, but before that there are questions about priority (when is a network meta-analysis adding sufficient value to be worth the investment?) and the need to reach consensus about the preferred methods to be recommended, which should be addressed by the Cochrane Scientific Committee.

Once these questions are satisfactorily addressed, the questions will relate to implementation and scaling up, and will be similar to those described in the previous section, relating to communications, guidance, standards, technology and learning.

Economic and qualitative evidence within an intervention review

Economic and qualitative evidence are each already approved for use in Cochrane intervention reviews. Each of these may add useful information and context for decision makers to complement the evidence on effectiveness or harm. As with the above, they require additional investment of time, resource and skills above that required for a standard review, so that there should be an explicit decision that this investment adds value sufficient to be warranted.

There may also be questions relating to appropriate methodological approaches. The relevant chapters in the Cochrane Handbook for Systematic Reviews of Interventions are currently in the process of being updated, led by the relevant Methods Groups. Should substantive changes in guidance be recommended the Scientific Committee may be asked to make a decision.

To date, only a minority of reviews include either economic or qualitative evidence and it is not clear whether there is substantial appetite, outside some specific advocates, to scale this up. However, some of the ongoing work amongst user groups may provide evidence that such interventions are underused currently. If so, a broader decision may be needed to use these methods more routinely in Cochrane reviews, with similar implications for implementation to the wider uptake of methods such as network meta-analysis above.

2.4 New review types addressing different kinds of questions

There are many different options in this area, including reviews of prognosis, rapid reviews, living systematic reviews, and different forms of qualitative reviews, including realist synthesis and so on.

Prognosis Reviews

Cochrane’s Steering Group gave the go ahead several years ago to begin preparatory work on exemplar reviews and guidance for the publication of prognosis reviews, and has provided substantial funding under the Methods Innovation Fund and the Strategic Methods Fund to move this work forward. Substantive
development of methods and tools, along with a programme of guidance and training, is in progress. There is strong support across the Cochrane community, and in particular from Cochrane Cancer, for reviews of risk as a core element of moves towards ‘personalised’ or ‘precision’ medicine.

Rapid Reviews

Rapid reviews are also becoming increasingly popular and are widely discussed, as speed to publication is seen by policy makers as being a major barrier to incorporation of synthesised evidence in policy decisions. There are uncertainties on the nature of the methodological differences employed in rapid reviews and the risk of introducing bias, and also on whether ‘rapid’ methodologies are indeed heterogeneous depending on the purpose of the review e.g. scoping reviews that are intended to map out the presence or absence of evidence but not necessarily to provide robust evidence of benefits or harms.

Qualitative Reviews

Many systematic reviews conducted and published outside Cochrane include analyses of qualitative research and data. These reviews are heterogeneous in their purpose and methods. Cochrane has not currently explored in significant detail whether such reviews could be incorporated into its work, or whether it would be most efficient to do so through partnerships with key stakeholders.

3 Recommendation:

The Cochrane Review of 2025 seems likely to be very different from its counterpart in 2017, from the selections of review questions, through its production and the use of emerging technologies, through conduct, to its presentation and delivery to end users.

While a great deal is known about the methodological issues likely to be on the horizon, and this paper outlines an indicative list, this project is a timely opportunity for us to assess the above areas of development in order to produce a clear blueprint for the content of the Cochrane review of the future so that it meets the needs of end users more effectively, and so that our resources can be most effectively directed.

We will identify priorities from each of the three avenues to be explored:

1. Different sources of evidence within existing reviews
2. Methods development in existing reviews
3. Different types of review types addressing different types of questions

These priorities will be established based on user research and consultation and will take account of factors such as:

- The extent to which the change or development addresses priorities of end users
- Whether the methodological approaches are agreed and backed by empirical evidence
- Who the audience is and whether that is a priority audience for Cochrane
- What additional skills and resources would be needed and whether that will be realistic as a standard Cochrane offering or whether it will necessarily be a specialist area.

Based on such assessments, we expect to be able to identify a core list of developments for Cochrane Reviews which can be graded as mainstream or specialist areas.
For those ideas that are prioritised and are expected to have a mainstream impact in Cochrane we will undertake comprehensive implementation planning to identify what would be required to implement this across Cochrane and how much it would cost. Amongst other things, this would involve consideration of:

- The methodological challenges and how these can be addressed in order to scale up production appropriately
- The editorial process implications
- The impact on training and learning programmes needed to scale up appropriately
- The impact on technology and in particular on Cochrane’s content management systems and its publishing platform
- The impact on guidance materials for the community, including the Handbooks and MECIR (and other) standards
- The likely costs of implementation

For those areas we consider important, but highly specialised, e.g. Cochrane Reviews based on clinical study reports, we will undertake a slightly different implementation planning exercise, as we would not expect to scale up capacity across all Groups. Instead we would be focusing on removing barriers by creating flexibility in our production tools and publishing platform and establishing criteria for assessing when such an approach is relevant and what expertise is required to undertake such a review given that there wouldn’t be a comprehensive support infrastructure in place.

We already have a strong indication that some of the areas identified in this paper are important priorities, in particular Prognosis Reviews and Rapid Reviews as new review types; IPD and CSR as data sources; and Network Meta-analysis as a method enhancement. Some of these we have already invested in, e.g. prognosis reviews, and so we must ensure that there is a robust implementation plan. Other areas will need to be prioritised against one another in order to allow us to prioritise our effort and investment in this project. It is also almost inevitable that issues and proposals not envisaged here will be identified through the process and will need to be fully considered and evaluated.

It is important to stress that this will be an iterative process, building on empirical evidence and our shared experience to date. We already have information on priorities from existing user research and strategic investment decisions to enable us to identify some of the early priorities, and we will take those forward in the short term rather than waiting for a complete blueprint before moving anything forward to implementation.

Conclusion

As we establish the Editorial Board to provide editorial leadership integrated within the CRG community we have a perfect opportunity to tackle this area of the content of Cochrane Reviews. Under the leadership of the Editor-in-Chief and the new Editorial Board we are confident that now is the right time not only to be setting out this blueprint for the future, but also it allows us to implement these innovations in ways that were previously not feasible.

To be successful we will need to build on our wide community, and the insights and experience that it brings. If strategy is about making choices, then Cochrane’s success will depend on its ability to engage relevant communities in the discussions that need to take place so that we make the right choices about our future Cochrane Review content.

The 2018 target planning outline includes content strategy and related product development processes as one of the four key areas of focus for the coming year, so we hope that this paper has given the Board a clear idea of what we will be doing in this area and we hope that this supports the other strategic discussions that the Board will be having in Cape Town. We would welcome feedback from the Board on what we are proposing here.
4 Appendix

A suggested approach to undertake this work

A three-phase approach

- Phase one: strategic choices (What, Why, When)
- Phase two: operational planning (How)
- Phase three: implementation

**Phase one: strategic choices**

**Task:** To establish which of the new data sources, methods and review types are appropriate for Cochrane and meet our stakeholder needs and under what circumstances they should be utilised.

**Key Deliverables:**
- A hierarchy of review types that should be: a) supported; b) partially supported; c) not supported
- A prioritised list of new methods that should be implemented
- A prioritised list of new data sources that we should use in Cochrane reviews
- A decision framework for how we decide what review type, methods and data sources are appropriate to best answer a given question

**Timelines:** Next 6 months

**Phase two: operational planning**

**Task:** To establish a costed implementation plan for each innovation area
**Key Deliverables:**

- An implementation plan for each area of change we plan to introduce, which covers:
  - Resource implications;
  - Plans for any necessary additional methodological research to be completed;
  - Plans for how methodological support will be provided;
  - Defined requirements for learning programmes, technology infrastructure and how the publishing infrastructure must change to support new area of work;
  - An editorial implementation plan; and
  - An engagement plan for how we scale up developments across the Cochrane community as required

**Timelines:**
The implementation planning stage will vary in timescale depending on complexity of the innovation.

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**Phase three: implementation**

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<th><strong>Task:</strong></th>
<th>To put into action the implementation plan defined for the innovation, including building the required technical and human infrastructure needed and working with Groups, authors and other stakeholders to roll out the change.</th>
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| **Key Deliverables** (will vary depending on innovation): | • Build technological infrastructure required  
• Build publishing infrastructure required  
• Create training resources  
• Produce documentation, guidance and policies  
• Put into practice the change management plan and support Groups in the transition |
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| **Timelines:** | TBC |