
**S**elec**T**ing **A**pproaches for **R**apid **R**eviews (STARR) Decision Tool

**USER GUIDE (May 2019)**

**Structure of this User Guide**

This user guide is structured as follows:

A. Overview of the STARR decision tool
B. How to use the STARR decision tool
C. Literature on rapid review methods relating to domains of STARR
D. Practical methods guides
E. References

## A. Overview of the STARR decision tool

**Aim of STARR:** The STARR decision tool aims to support those producing and commissioning rapid reviews in making decisions about which rapid review approaches to use. The overall aim is to guide users in tailoring their review scope to capture the most relevant information whilst ensuring the rapid review is manageable within the time available.

**Focus of STARR:** Broad approaches to speeding up the systematic review process include: a) adapting review processes, b) multiple reviewers working on the review in parallel, and c) using new technologies and automation. The STARR decision tool focusses on a) adapting review processes.

**Audience for STARR:** The STARR tool is intended as a basis for discussion within review teams, and with those commissioning reviews, about which rapid review approaches to select. The STARR tool assumes some familiarity with general systematic review methods, such as those in the Cochrane Handbook [1] and the Centre for Reviews and Dissemination's guidance for undertaking reviews in health care [2].

**When to use STARR:** The STARR tool may be used at the initial stages of planning a rapid review, and/or after initial scoping work, and during later stages of conducting the rapid review.

**Structure of STARR:** The STARR decision tool consists of four domains: 1) Interaction with commissioners; 2) Understanding the evidence base; 3) Data extraction and synthesis methods; and 4) Reporting of rapid review methods. There is overlap between the four domains of STARR, reflecting the iterative nature of the tool.

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## B. How to use the STARR decision tool

This section gives further guidance on each of the four domains of the STARR tool. Further literature is provided in Section C (relating to STARR domains) and Section D (practical methods guides).

### Domain 1: Interaction with commissioners

*Points to consider*

- Rapid review focus: It is important to have discussions between the review team and the review commissioner (the person or group requesting the rapid review) at each step of the review process. This ensures a common understanding as to the purpose of the rapid review, the questions to be answered, how the review will be used, and the trade-off between the time available and the scope of the rapid review. The review team may need to guide the commissioner in terms of which methods are most appropriate, which outcomes are most important, and what is feasible within the time available. Some rapid reviews may not involve external commissioners, in which case Domain 1 can be used within the review team to ensure a clear understanding of the review scope and purpose.

- Restricting the scope: Discussions about the review scope may be aided by the use of a structured framework such as PICO (i.e. which are the most important Population, Intervention, Comparator and Outcomes). The scope may also be restricted using other factors such as geographical context, setting, year of publication, or type of study for inclusion in the rapid review.

- Breadth versus depth: Sometimes there is a decision regarding breadth versus depth, i.e. whether to undertake a brief overview of a wide range of studies or a more in-depth analysis of a smaller selection of relevant studies.

*Other considerations*

- Review team and external experts: Many review teams include clinical or topic experts, and some include patients and consumers. It is useful to involve these experts when planning a review. This can be especially important for rapid reviews, in deciding which elements to focus on within the time available. It is also important to have members of the rapid review team who are experienced in standard systematic review methodology.

- Iterative process: Interaction with commissioners is an iterative process throughout the planning and conduct of the rapid review, therefore there is overlap between the four domains of STARR. Initial discussions about the review question (Domain 1) may be followed by

exploratory scoping work to understand the volume and nature of evidence available (Domain 2), which may inform further discussions to refine the review scope (Domain 1). Decisions about data extraction and synthesis approaches (Domain 3) may also be refined depending on the nature of the evidence (Domain 2) and which elements are most important to commissioners (Domain 1). Finally, discussions with commissioners should address what type of report format is most useful (Domains 3 and 4).

**Domain 2: Understanding the evidence base**

*Points to consider*

- Volume and type of evidence (scoping searches): It is useful to undertake scoping work when planning the review, to understand the volume and type of evidence available. This may include brief database or web searches, examination of existing reviews, and/or discussions with experts. This will help inform discussions about the scope, within the review team and with commissioners. Scoping the evidence is useful for most reviews, but may be particularly important for complex review questions. If the volume of evidence is large, it may be necessary to limit the review scope in terms of PICO, setting, year or study type (see Domain 1), or to limit how many outcomes to extract or how extensive the synthesis will be (see Domain 3). Discussion with review commissioners and topic experts is useful here in order to refine the scope and select the most important outcomes.

- Final rapid review searches: The scoping search also helps inform the final search strategy. If a large number of citations are obtained during scoping, it may be possible to restrict the final search by previously agreed parameters, so that fewer citations need to be screened. This may involve searching fewer databases, applying focussed search terms, or using search filters (e.g. for specific study designs, settings, language or publication dates), thus input from an experienced information specialist is essential. The review team and commissioners will need to consider the trade-off between volume of citations and impact on comprehensiveness.

**Domain 3: Data extraction and synthesis methods**

*Points to consider*

- Existing systematic reviews: A rapid review may make use of existing systematic reviews. One option is a review of reviews (umbrella review or overview of reviews; see Section D for methods guides). Another option is a review update; i.e. using existing reviews as a source of studies and data, supplemented by a search for recent studies. Updating existing reviews requires careful consideration of their inclusion criteria, search dates, sources and quality. Some flexibility may be required, since the inclusion criteria of existing reviews may not exactly

match those of the rapid review. In addition, evidence tables from existing reviews may be used as a starting point for the data extraction template.

- Most important outcomes: Prioritisation of key outcomes helps ensure the rapid review is feasible within the timescales. If the volume of evidence is large (informed by scoping in Domain 2), or if studies report several outcomes, it may be necessary to limit the number of outcomes to extract. Other decisions include: level of detail required for outcome data, which study characteristics to extract (e.g. population, intervention, setting), and whether the review needs to consider context, variability of the intervention, implementation and adoption. These decisions should be discussed with commissioners and topic experts, and again the review team may need to ensure there is agreement on expectations.

- Quality assessment: Many rapid reviews involve some level of quality assessment of the included studies and/or consideration of the overall strength of evidence. Decisions on whether to undertake quality assessment, and if so which method or tool to use, again depend on the nature of the evidence, the purpose of the review, and the time available. In the absence of quality assessment, the implications of introducing biased study results needs to be clearly reported.

- Synthesis approach: The synthesis approach is likely to depend on the types of data reported, the level of detail required by the commissioner, and the time available. Consideration should be given to whether the data and timescales support the use of quantitative synthesis such as meta-analysis. If not, other methods such as narrative synthesis may be useful, in order to highlight key findings and discuss reasons for any differences. Links to methods guidance for narrative synthesis are provided in Section D. Depending on the type of data, qualitative or mixed methods synthesis may also be considered.

- Data presentation: Data presentation and report format should also be discussed with commissioners. A brief initial summary to highlight key findings might be useful. Use of evidence tables and/or graphical representation may be beneficial. It is often important to highlight the implications of the findings for policy and practice, as well as gaps in the evidence to inform future research. The final report may be reviewed by commissioners, topic experts and/or consumers for relevance and clarity. Many of the practical guides in Section D discuss what to include in a rapid review report.

*Other considerations*

- One or two reviewers: Full systematic reviews typically use two reviewers to double-check processes (e.g. study selection and data extraction). An option within rapid reviews is to have only one reviewer undertake these processes, or to have a second reviewer double-check an agreed sample of studies or data. A further option for data extraction is to double-check quantitative data only (not descriptive study information). These decisions involve a trade-off between comprehensiveness/accuracy and time available, and may also depend on the experience of the reviewer, complexity of the topic and resource availability.

- Automation in systematic reviews: The main focus of the STARR tool is adapting review processes. However, a further option within both full systematic reviews and rapid reviews is the use of automation technologies to speed up review processes. Key references are provided in Section D.

**Domain 4: Reporting of rapid review methods**

*Points to consider*

- Description of methods: Clear reporting ensures that the reader understands which rapid review methods have been used, any differences from standard systematic review methodology, and the impact this may have on the findings. It also ensures that the review is transparent and reproducible, and therefore could be updated in the future if required.
- Discussion of limitations: The report should clearly acknowledge any potential limitations and biases of the chosen rapid review methods, and the impact this may have on the findings.

*Other considerations*

- Changes to methods: Rapid review methods may change during the review process due to their iterative nature. Any such changes should be described and justified (a diagram to outline the process may also be useful), especially where methods differ from the original review protocol.

## C. Literature on rapid review methods relating to domains of STARR

### Literature for Domain 1: Interaction with commissioners

The WHO Rapid Reviews Practical Guide [3] notes the importance of early and continuing engagement with commissioners to focus the rapid review to the most important questions and outcomes and to ensure it is appropriate to the needs of stakeholders, and notes that such methodological decisions are often iterative. Pluddemann et al. [4] suggest that rapid reviews should, where possible, involve policymakers, patients and the public in defining and/or refining the research question. The UK Government Report on Rapid Evidence Assessments [5] suggests establishing a Steering Group including end-users of the review such as policy and practice experts. The McMaster University Rapid Review Guidebook [6] notes the importance of identifying the review team and external partners and stakeholders, and of ensuring that all team members understand the purpose of the review. Many sources note that it is necessary to have members of the review team who are experienced in standard systematic review methods [3-5].

An overview of rapid review methods by Hartling et al. [7] noted that rapid reviews rely on close and ongoing communication with end users, and that restricting the scope and modifying standard review methods may be necessary to keep the review feasible. Abrami et al. [8] suggest that the review scope may be restricted by (for example) breadth of question, date limits, or national versus international studies.

### Literature for Domain 2: Understanding the evidence base

The WHO Rapid Reviews Practical Guide [3] notes that a preliminary or scoping search can inform conversations with review commissioners and assist in scoping the review. As the scale of a rapid review is not always obvious in advance, particularly for complex review questions, the WHO Guide [3] suggest a two-stage process: a scoping or mapping stage, followed by further decisions about the review scope and inclusion criteria, before undertaking the rapid review itself (second stage).

The McMaster University Rapid Review Guidebook [6] notes that a brief literature search may help inform the scope and determine whether the review is feasible in the time available. The McMaster Guidebook [6] also suggests that if initial searches retrieve a large number of citations, there may be a need to limit the final search approach, for example by searching fewer databases. Several sources suggest it may be necessary in rapid reviews to limit the final search in terms of number of databases, as well as filters for study design, publication years, and language [3, 4, 6, 9].

**Literature for Domain 3: Data extraction and synthesis methods**

Some rapid reviews make use of existing reviews. The McMaster University Rapid Review Guidebook [6] suggests considering the hierarchy of evidence, and whether to include primary studies or to instead provide a summary of existing reviews, if available. One option is a review of existing reviews (umbrella review or overview of reviews). The Cochrane Handbook [1] as well as other authors [10-12] have written guidance on undertaking a review of reviews (umbrella review). Several sources note the need to restrict data extraction to the most important study characteristics and outcomes, and that review commissioners and topic experts should be involved in these decisions [3-6, 13].

In terms of quality assessment, some rapid reviews undertake full quality assessment of included studies, while in others this is more limited, and some rapid reviews omit quality assessment altogether [3, 7, 15]. Users and producers of reviews have indicated that information on the quality or strength of evidence is important for decision-making [3, 16]. There is little consensus as to which quality assessment tools to use. Some rapid reviews use study design-specific tools for quality assessment, and may use a system such as GRADE to assess overall strength of evidence [3, 6]. Pluddemann et al. [4] suggest that simpler approaches may be used, such as the Oxford Centre for Evidence-Based Medicine Levels of Evidence [17].

In terms of a synthesis approach, the WHO Rapid Reviews Practical Guide [3] notes that rapid reviews commonly use narrative synthesis, while meta-analysis is less common. The WHO guide suggests that narrative synthesis should report the results of included studies and discuss reasons for differences. Abrami et al. [8] suggest that depending on timescales, there may be a need to restrict the depth and detail of analyses. The McMaster University Rapid Review Guidebook [6] provides suggestions about tabulating and grouping data according to (for example) population, intervention or outcomes. There are practical guidance documents for undertaking narrative synthesis [18, 19].

In relation to data presentation, end users of rapid reviews have indicated a strong preference for use of evidence tables, rating of study quality or strength of evidence, and summary tables of results and conclusions [3, 16]. Final reports often include implications, recommendations for policy, and discussion of research limitations [3].

Many sources discuss the use of one or two reviewers for study selection and data extraction. Options for rapid reviews include having a single reviewer perform these tasks, or use of partial verification in which a second reviewer double-checks an agreed sample of studies or data [3, 4, 6, 9]. A further option involves double-checking of quantitative data only (not descriptive study information) [3]. These decisions may depend on time/resources available, reviewer availability and complexity of the review question. Pluddemann et al. [4] note that some published studies have compared the results of using one

or two reviewers for study selection; some have shown that results did not substantially differ, while others have noted differences.

Automation in systematic reviews has been researched in recent years. The main focus of the STARR tool is adapting review processes. However, a further option within both full systematic reviews and rapid reviews is the use of automation technologies to assist with or speed up review processes. Key references on automation technologies in systematic reviews are provided in Section D [20-23].

A number of surveys have reported user perspectives on rapid review methods. A survey of decision makers suggested that there is a willingness to accept some trade-off in internal validity of rapid reviews in exchange for timeliness [24]. Furthermore, an international survey of rapid review producers found that some limitations to search methods, and use of a single reviewer for study selection & data extraction, were considered feasible with relatively low risk of bias [25]. Similarly, a report of interviews with end users of rapid reviews found that the most acceptable trade-offs were limiting the literature search and single-reviewer screening of studies [16].

**Literature for Domain 4: Reporting of rapid review methods**

The WHO Rapid Reviews Practical Guide [3] highlights the importance of being transparent about methodological choices. Reynen et al. [14] found that rapid reviews tend to provide limited details and fewer considerations than their corresponding systematic reviews. As a result, many sources highlight the importance of transparently reporting the rapid review methods used and discussing their limitations and potential biases and shortcomings, and how the conclusions might be affected [3, 4, 6, 7, 9]. The WHO Guide [3] also notes that information from rapid reviews may be useful to understand the evidence available and whether a full systematic review is required [4].

## D. Practical methods guides

### Guidance on rapid reviewing

The following resources and organisations provide practical guidance on undertaking rapid reviews:

- **Cochrane Rapid Reviews Methods Group [26, 27]**

  This group (https://methods.cochrane.org/rapidreviews/) aims to engage in rapid review methods research, development, and evaluation; lead rapid review methods guidance and handbooks; and produce standards for conduct and reporting of rapid reviews.

- **PRISMA-RR, a reporting guideline for rapid reviews of primary studies [28]**

  The PRISMA checklist (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) is an evidence-based minimum set of items for reporting in systematic reviews. PRISMA-RR is a similar checklist of items to report within rapid reviews.

- **Rapid Review Guidebook: Steps for conducting a rapid review. National Collaborating Centre for Methods and Tools, McMaster University, Canada, 2017 [6]**

  This guidebook provides practical guidance on the process of conducting rapid reviews to inform policy and program decision making. A specific process is outlined, together with suggestions for steps that could be reduced if timelines are short.

- **Rapid Reviews to Strengthen Health Policy and Systems: A Practical Guide: World Health Organisation (WHO) 2017 [3].**

  This WHO guide provides practical recommendations on how to conduct rapid reviews to inform health policy and decision-making. The guide also provides suggestions for speeding up review processes, and information on the balance between efficiency and comprehensiveness or accuracy.

- **The Production of Quick Scoping Reviews and Rapid Evidence Assessments: A How To Guide: UK Government Report 2015 [5]**

  This UK government guide provides practical recommendations for those intending to commission and/or produce quick scoping reviews or rapid evidence assessments. There is an emphasis on the value of close working with the review commissioner.

- **Flexible framework for restricted systematic reviews, Centre for Evidence-Based Medicine, University of Oxford: Pluddemann et al. [4]**

  This article outlines a framework for rapid reviews (which they term “restricted reviews”), including a suggested set of minimum requirements and some additional steps which may be incorporated to further reduce bias.

- **Brazilian consensus to develop guidelines for rapid reviews: Silva et al. [13]**

  This article reports a Delphi study among Health Technology Assessment experts in Brazil, resulting in a set of consensus-based recommended key steps for undertaking a rapid review.

**Guidance on general systematic review methods**

The following resources provide guidance on general systematic review methods:

- The Cochrane Handbook for Systematic Reviews of Interventions: Higgins & Green, 2011 [1]
- The Centre for Reviews and Dissemination (University of York): Systematic reviews: CRD's guidance for undertaking reviews in health care, 2009 [2].

**Guidance on undertaking umbrella reviews**

The following resources provide guidance on undertaking umbrella reviews:

- The Cochrane Handbook for Systematic Reviews of Interventions: Higgins & Green, 2011 [1]
- Peer-reviewed journal articles on umbrella review methods [10-12].

**Guidance on undertaking narrative synthesis**

The following resources provide guidance on narrative synthesis:

- Guidance on the Conduct of Narrative Synthesis in Systematic Reviews: Popay et al. 2006, ESRC Methods Programme [18]
- Narrative synthesis (chapter 1, section 1.3.5.2): The Centre for Reviews and Dissemination (University of York): Systematic reviews: CRD's guidance for undertaking reviews in health care, 2009 [2].
- Data Synthesis and Analysis: Ryan 2013, Cochrane Consumers and Communication Review Group [19]

**Guidance on automation technologies in systematic reviews**

The following resources provide guidance on automation technologies in systematic reviews:

- Systematic Review Toolbox: A searchable, web-based catalogue of software tools that support the systematic review process: http://systematicreviewtools.com/ [20]
- Peer-reviewed journal articles on automation technologies in systematic reviews [21-23].

## E. References


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