Rapid reviews: the pros and cons of an accelerated review process

Philip Moons 1,2,3*, Eva Goossens 1,4,5, and David R. Thompson 6,7,8

1KU Leuven Department of Public Health and Primary Care, KU Leuven, Kapucijnenvoer 35, Box 7001, B-3000 Leuven, Belgium; 2Institute of Health and Care Sciences, University of Gothenburg, Gothenburg, Sweden; 3Department of Paediatrics and Child Health, University of Cape Town, Cape Town, South Africa; 4Research Foundation Flanders (FWO), Brussels, Belgium; 5Centre for Research and Innovation, Division of Nursing and Midwifery, University of Antwerp, Antwerp, Belgium; 6School of Nursing and Midwifery, Queen’s University Belfast, Belfast, UK; 7Department of Psychiatry, University of Melbourne, Melbourne, Australia; and 8School of Public Health, Monash University, Melbourne, Australia

Received 27 March 2021; accepted 31 March 2021; online publish-ahead-of-print 19 May 2021

Although systematic reviews are the method of choice to synthesize scientific evidence, they can take years to complete and publish. Clinicians, managers, and policy-makers often need input from scientific evidence in a more timely and resource-efficient manner. For this purpose, rapid reviews are conducted. Rapid reviews are performed using an accelerated process. However, they should not be less systematic than standard systematic reviews, and the introduction of bias must be avoided. In this article, we describe what rapid reviews are, present their characteristics, give some examples, highlight potential pitfalls, and draw attention to the importance of evidence summaries in order to facilitate adoption in clinical decision-making.

Keywords
Research methods • Rapid reviews • Systematic reviews • Decision-making • Evidence-based healthcare • Evidence summaries

Learning objectives
• Knowing what rapid reviews are.
• Understanding the features and benefits of rapid reviews.
• Recognizing the limitations of rapid reviews and knowing when they are not the preferred choice.

The problem: what if you need a synthesis of the evidence now?

Researchers, clinicians, managers, and policy-makers are typical consumers of empirical work published in the scientific literature. For researchers, reviewing the literature is part of the empirical cycle, in order to generate new research questions and to discuss their own study findings. When the available evidence has to be searched for, collated, critiqued, and summarized, systematic reviews are the gold standard. Systematic reviews are rigorous in approach and transparent about how studies were searched, selected, and assessed. Doing so, they limit bias and random error, and hence, they yield the most valid and trustworthy evidence. Systematic reviews can be complemented by meta-analyses to compute an overall mean effect, proportion, or relationship. Systematic reviews and meta-analyses are seen as the pillars of evidence-based healthcare. The rigour in the methodology of a systematic review, however, also means that it often takes between 6 months and 2 years to undertake. Clinicians, managers, and policy-makers also use the literature for their decision-making. They often cannot afford to wait for 2 years to get the answer to their questions by means of a systematic review. The evidence must be synthesized without undue delays. Furthermore, the synthesis and reporting of systematic reviews often fail to address the needs of the users at the point of care and are considered to be too large and too complex. To facilitate the uptake of research findings in clinical practice, other types of reviews with a shorter lead time are needed, and alternative evidence summaries have to be developed.

* Corresponding author. Tel: +32 16 373315, Email: Philip.Moons@kuleuven.be
© The Author(s) 2021. Published by Oxford University Press on behalf of the European Society of Cardiology.
This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (http://creativecommons.org/licenses/by-nc/4.0/), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited. For commercial re-use, please contact journals.permissions@oup.com
A solution: rapid reviews

Rapid reviews have been proposed as a method to provide summaries of the literature in a timely and resource-efficient manner by using methods to accelerate or streamline traditional systematic review processes.\(^5\)\(^,\)\(^6\) It is argued that rapid reviews should be conducted in less than 8 weeks.\(^4\) The purpose of rapid reviews is to respond to urgent situations or political pressures, often in a rapidly changing field. The typical target audiences for rapid reviews are policy-makers, healthcare institutions, managers, professionals, and patient associations.\(^6\) The first rapid reviews were published in the 1960s and proliferated in the mid-2010s. Not surprisingly, the number of rapid reviews have boomed in 2020, in response to the global SARS-CoV-2/COVID-19 pandemic (see Figure 1). Indeed, this pandemic has had a huge impact on healthcare delivery,\(^7\)\(^–\)\(^9\) and triggered unprecedented clinical questions that needed a prompt answer.\(^10\) Healthcare research, also, has had to adapt swiftly to the drastically changed situation.\(^11\)

A rapid review is a ‘a form of knowledge synthesis that accelerates the process of conducting a traditional systematic review through streamlining or omitting various methods to produce evidence for stakeholders in a resource-efficient manner’.\(^12\) There is not a single-validated methodology in conducting rapid reviews.\(^13\) Therefore, variation in methodological quality of rapid reviews can be observed.\(^14\) When adopting the ‘Search, Appraisal, Synthesis and Analysis (SALSA) framework’ to rapid reviews, it is stipulated that the completeness of the search is determined by time constraints; the quality appraisal is time-limited, if performed at all; the synthesis is narrative and tabular; and the analysis pertains to the overall quality/direction of effect of literature.\(^15\) In Table 1, we describe the SALSA characteristics of rapid reviews and systematic reviews. Rapid reviews should not be less systematic, and they must adhere to the core principles of systematic reviews to avoid bias in the inclusion, assessment, and synthesis of studies.\(^4\) The typical characteristic of a rapid review is that it provides less in-depth information and detail in its recommendations.\(^6\) It is essential, however, that deviations from traditional systematic review methods are described well in the methods section. This can, for instance, be done by explicating where the PRISMA criteria were omitted or adapted.\(^4\) The speed with which a rapid review is conducted largely depends on the availability of human and financial resources.\(^4\) There is also often a close interaction between the commissioners and the reviewers because the review purports to guide decision-making.

Although rapid reviews do not meet the gold standard of systematic reviews, and therefore do have their limitations (see below), they frequently provide adequate advice on which to base clinical and policy decisions.\(^13\) A direct comparison of the findings from rapid and full systematic reviews showed that the essential conclusions did not differ extensively.\(^13\) Given the importance of rapid reviews, the Cochrane collaboration has established the Cochrane Rapid Reviews Methods Group, which recently developed actionable recommendations and minimum standards for rapid reviews (Table 2).\(^16\)

Examples of rapid reviews

To date, three rapid reviews have been published in the European Journal of Cardiovascular Nursing.\(^17\)–\(^19\) The first, published in 2017, assessed the efficacy of non-pharmacological interventions on psychological distress in patients undergoing cardiac catheterization.\(^17\) A second rapid review, published in 2020 amidst the first wave of the SARS-CoV-2/COVID-19 pandemic in Asia, Europe, and North America, looked at the evidence for remote healthcare during quarantine situations to support people living with cardiovascular diseases.\(^18\) Given the unprecedented global situation and the sense of Figure 1 Number of publications in the pubmed database (1960–2020) referring to ‘rapid review’ (search performed 16 March 2021).
urgency, this was a pre-eminent example for which a rapid review was appropriate. A third rapid review, published in 2021, investigated if participation in a support-based intervention exclusively for caregivers of people living with heart failure change their psychological and emotional wellbeing. The authors explicitly chose the streamlined method of a rapid review to inform the methodological approach of a future caregiver-based intervention.

**Limitations and pitfalls of rapid reviews**

Although rapid and systematic reviews have shown to yield similar conclusions, there are definitely some limitations or pitfalls to bear in mind. For instance, rapidity may lead to brevity. In such cases, the search may be restricted to one database; limited inclusion criteria by date or language; having one person screen and another verify studies; not conducting quality appraisal; or presenting results only as a narrative summary. If only one database is used, it is recommended to search Pubmed, because rapid reviews that did not use Pubmed as a database are more likely to obtain results that differ from systematic reviews. It is also recommended that a quality appraisal of the included studies is not skipped. For this purpose, appraisal tools that account for different methodologies are very suitable, such as the Mixed Methods Appraisal Tool (MMAT). It has also been observed that rapid reviews are often not explicitly defining the methodology that had been used. Consequently, the search cannot always be replicated and the reasons for the differences between the findings are difficult to comprehend. Further, it is not clear if the review was performed in a systematic fashion, which is also mandatory for rapid reviews. Otherwise, they may bear the risks of any other narrative review or poorly conducted systematic review. Rapid reviews should not be seen as a quick alternative to a full systematic review, and authors must avoid making shortcuts that could lead to bias. Therefore, a thorough evaluation of the appropriateness of a rapid review methodology, being the need for a summary of the evidence without delay, is imperative. If there is no urgent need to obtain the evidence for clinical practice or policy-making, a full systematic review would be more suitable. Furthermore, when there is a high need for accuracy, for instance for clinical guidelines or regulatory affairs, a systematic review is still the best option.

**Reporting**

Transparency in the description of the methods used is of critical importance to appraise the quality of the rapid review. A scoping review of rapid reviews found that the quality of reporting is generally poor. This may lead to the interpretation that rapid reviews are inherently inferior to full systematic reviews, whereas this is not the case if properly conducted and reported. It is also vital to acknowledge the potential limitations of rapidity.

Since the typical reports of systematic reviews are often too long and too complex for clinicians and decision-makers, new formats of evidence summaries have been developed. Evidence summaries are synopses that summarize existing international evidence on health-care interventions or activities. For rapid reviews, reporting the evidence in tabular format is indispensable to be used at the point of care. Such evidence summaries can be even integrated in electronic patient records, to provide recommendations for the care for that patient, based on their specific characteristics. An extensive database with evidence summaries has been developed by the Joanna Briggs Institute (https://www.wolterskluwer.com/en/know/jbi-resources/jb ebp-database, last accessed 27 March 2021).

**Conclusion**

Rapid reviews are meant to inform specific clinical or policy decisions in a timely and resource-efficient fashion. They are conducted within a timeframe of some weeks. The rapidity refers to the accelerated process but should not come at the cost of losing any of the important information that could be expected from full systematic reviews, and the introduction of biases that may jeopardize the validity of the conclusions must be avoided. The quality of rapid reviews is as important as for traditional systematic reviews. Rapid reviews need to be explicit in the methodology that has been used and clearly state how the review differs from a full systematic review. Sufficient attention ought to be given to the evidence summaries because the format

| Table 1 | Distinction between rapid and systematic reviews |
|---------|-----------------------------------------------|
| **Rapid reviews** | **Systematic reviews** |
| **Description** | Assessment of what is already known about a policy or practice issue, by using systematic review methods to search and critically appraise existing research | Seeks to systematically search for, appraise and synthesis research evidence, often adhering to guidelines on the conduct of a review |
| **Search** | Completeness of searching determined by time constraints | Aims for exhaustive, comprehensive searching |
| **Appraisal** | Time-limited formal quality assessment | Quality assessment may determine inclusion/exclusion |
| **Synthesis** | Typically narrative and tabular | Typically narrative with tabular accompaniment |
| **Analysis** | Quantities of literature and overall quality/direction of effect of literature | What is known; recommendations for practice. What remains unknown; uncertainty around findings, recommendations for future research |

Based on Grant and Booth.
Table 2  Cochrane rapid review methods recommendations

Setting the research question - topic refinement

- Involve key stakeholders (e.g., review users such as consumers, health professionals, policy-makers, and decision-makers) to set and refine the review question, eligibility criteria, and the outcomes of interest. Consult with stakeholders throughout the process to ensure the research question is fit for purpose, and regarding any ad hoc changes that may occur as the review progresses.
- Develop a protocol that includes review questions, PICOS, and inclusion and exclusion criteria.

Setting eligibility criteria

- Together with key stakeholders, clearly define the population, intervention, comparator, and outcomes.
- Limit the number of interventions and comparators.
- Limit the number of outcomes, with a focus on those most important for decision-making.
- Consider date restrictions with a clinical or methodological justification.
- Setting restrictions are appropriate with justification provided.
- Limit the publication language to English; add other languages only if justified.
- Systematic reviews should be considered a relevant study design for inclusion.
- Place emphasis on higher quality study designs (e.g., systematic reviews or randomized controlled trials); consider a stepwise approach to study design inclusion.

Searching

- Involve an information specialist.
- Limit main database searching to CENTRAL, MEDLINE (e.g., via PubMed), and Embase (if available access).
- Searching of specialized databases (e.g., PsycInfo and CINAHL) is recommended for certain topics but should be restricted to 1–2 additional sources, or omitted if time and resources are limited.
- Consider peer review of at least one search strategy (e.g., MEDLINE).
- Limit gray literature and supplemental searching. If justified, search study registries and scan the reference lists of other systematic reviews, or included studies after screening of the abstracts and full-texts.

Study selection

Title and abstract screening

- Using a standardized title and abstract form, conduct a pilot exercise using the same 30–50 abstracts for the entire screening team to calibrate and test the review form.
- Use two reviewers for dual screen of at least 20% (ideally more) of abstracts, with conflict resolution.
- Use one reviewer to screen the remaining abstracts and a second reviewer to screen all excluded abstracts, and if needed resolve conflicts.

Full-text screening

- Using a standardized full-text form, conduct a pilot exercise using the same 5–10 full-text articles for the entire screening team to calibrate, and test the review form.
- Use one reviewer to screen all included full-text articles and a second reviewer to screen all excluded full-text articles.

Data extraction

- Use a single reviewer to extract data using a piloted form. Use a second reviewer to check for correctness and completeness of extracted data.
- Limit data extraction to a minimal set of required data items.
- Consider using data from existing SRs to reduce time spent on data extraction.

Risk of bias assessment

- Use a valid risk of bias tool, if available for the included study designs.
- Use a single reviewer to rate risk of bias, with full verification of all judgments (and support statements) by a second reviewer.
- Limit risk of bias ratings to the most important outcomes, with a focus on those most important for decision-making.

Synthesis

- Synthesize evidence narratively.
- Consider a meta-analysis only if appropriate (i.e. studies are similar enough to pool). Standards for conducting a meta-analysis for a systematic review equally apply to a rapid review.
- Use a single reviewer to grade the certainty of evidence, with verification of all judgments (and footnoted rationales) by a second reviewer.

Continued
of these summaries will largely determine the adoption in clinical care or decision-making.

Data availability

The article is based on a review of the literature. No specific data sources have been used.

Conflict of interest

none declared.

References

1. Munn Z, Stern C, Aromataris E, Lockwood C, Jordan Z. What kind of systematic review should I conduct? A proposed typology and guidance for systematic reviewers in the medical and health sciences. BMC Med Res Methodol 2018;18:5.
2. Ruppert T. Meta-analysis: how to quantify and explain heterogeneity? Eur J Cardiovasc Nurs 2020;19:646–652.
3. Khangura S, Konnyu K, Cushman R, Grimshaw J, Moher D. Evidence summaries: the evolution of a rapid review approach. Syst Rev 2012;1:10.
4. Schünemann HJ, Moja L. Reviews: Rapid! Rapid! Rapid! Health Info Libr J 2009;26:91–108.
5. Munn Z, Lockwood C, Moola S. The development and use of evidence summaries for point of care information systems: a streamlined rapid review approach. Worldviews Evid Based Nurs 2015;12:131–138.
6. Ganann R, Ciliska D, Thomas H. Expediting systematic reviews: methods and implications of rapid reviews. Implement Sci 2010;5:56.
7. Khangura S, Konnyu K, Cushman R, Grimshaw J, Moher D. Evidence summaries: the evolution of a rapid review approach. Syst Rev 2012;1:10.
8. Schünemann HJ, Moja L. Reviews: Rapid! Rapid! Rapid! Health Info Libr J 2009;26:91–108.
9. Munn Z, Lockwood C, Moola S. The development and use of evidence summaries for point of care information systems: a streamlined rapid review approach. Worldviews Evid Based Nurs 2015;12:131–138.
10. Tricco AC, Garritty CM, Boulos L, Lockwood C, Wilson M, McGowan J, McCaul M, Hutton B, Thomas J. Rapid reviews may promote rapid uptake of evidence in routine clinical practice: a rapid review of the experience with the COVID-19 pandemic. J Clin Epidemiol 2020;126:177–183.
11. Van Bulcke L, Kovacs AH, Goossens E, Luycx K, Jaarsma T, Stromberg A, Moons P. Impact of the COVID-19 pandemic on ongoing cardiovascular research projects: considerations and adaptations. Eur J Cardiovasc Nurs 2020;19:465–468.
12. Harrel C, Michaud A, Thuku M, Skidmore B, Stevens A, Nussbaumer-Streit B, Garritty C. Defining rapid reviews: a systematic scoping review and thematic analysis of definitions and defining characteristics of rapid reviews. J Clin Epidemiol 2021;129:74–85.
13. Watt A, Cameron A, Sturm L, Lathlean T, Babidge W, Blamey S, Facey K, Hailey D, Norderhaug I, Maddern G. Rapid versus full systematic reviews: validity in clinical practice? ANZ J Surg 2008;78:1037–1040.
14. Tricco AC, Antony J, Zarin W, Strifler L, Ghassemi M, Ivory J, Perrier L, Hutton B, Moher D, Straus SE. A scoping review of rapid review methods. BMC Med 2015;13:224.
15. Grant MJ, Booth A. A typology of reviews: an analysis of 14 review types and associated methodologies. Health Info Libr J 2009;26:91–108.
16. Garritty C, Gardelcarner G, Nussbaumer-Streit B, King VJ, Harrel C, Kamel C, Affengruber L, Stevens A. Cochrane Rapid Reviews Methods Group offers evidence-informed guidance to conduct rapid reviews. J Clin Epidemiol 2021;130:13–22.
17. Carroll DL, Maledic-Kettleh A, Astin F. Non-pharmacological interventions to reduce psychological distress in patients undergoing diagnostic cardiac catheterization: a rapid review. Eur J Cardiovasc Nurs 2017;16:92–103.
18. Neubeck L, Hansen T, Jaarsma T, Klompstra L, Gallagher R. Delivering healthcare remotely to cardiovascular patients during COVID-19: a rapid review of the evidence. Eur J Cardiovasc Nurs 2020;19:486–494.
19. Carleton- Eagleton K, Walker I, Freene N, Gibson D, Semple S. Meeting support needs for informal caregivers of people with heart failure: a rapid review. Eur J Cardiovasc Nurs 2021.
20. Best L, Stevens A, Colín-Jones D. Rapid and responsive health technology assessment: the development and evaluation process in the South and West region of England. J Clin Eff 1997;2:51–56.
21. Marshall IJ, Marshall R, Wallace BC, Brassejy J, Thomas J. Rapid reviews may produce different results to systematic reviews: a meta-epidemiological study. J Clin Epidemiol 2019;109:30–41.
22. Hong QN, Gonzalez-Reyes A, Puyé P. Improving the usefulness of a tool for appraising the quality of qualitative, quantitative and mixed methods studies, the Mixed Methods Appraisal Tool (MMAT). J Eval Clin Pract 2018;24:459–467.