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How to produce a rapid systematic review – a review article

Jacob Rosenberg, Siv Fonnes, Stina Öberg & Kristoffer Andresen

Department of Surgery, Copenhagen University Hospital – Herlev Hospital, Denmark

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ABSTRACT

A rapid review is a synthesis of available evidence in which some components of the review process are modified slightly to shorten the process. This will require tight control as well as day-to-day scientific mentoring. The typical rapid review has a focused research question covering a narrow and well-defined clinical problem. With a continuous focus on some elements in the planning and production phases, it is realistic to produce a rapid scoping or systematic review with or without meta-analysis within three months without compromising on scientific quality.

KEY POINTS

- A rapid review is an expedited full systematic review with or without meta-analysis.
- It is realistic to produce a high-quality scoping or systematic review in three months from initial idea to manuscript submission.
- Important elements are optimised planning, a tight production scheme, a qualified team and a narrow research question.
- The writing process may be further optimised by using a detailed manuscript map and by dictating the manuscript to a smartphone using the mind-to-paper technique.

Systematic reviews are important for clinicians and serve to guide further research. Traditional systematic reviews typically take 12 months or more to produce [1], and this is often not acceptable in the clinical setting where we need fast answers to ensure evidence-based decision making. It is therefore relevant to optimise the production timeframe.

Various review types are available [2], the most common of which are the rapid review, scoping review, systematic review ± meta-analysis, Cochrane review and narrative review. A rapid review is "quick but not dirty", and quality may be ensured even though the time used is reduced [2]. Rapid reviews should strictly follow the steps in classic systematic reviews, but non-critical components may be simplified or omitted [3]. Typically, rapid reviews will have a focused research question, but substantial heterogeneity exists between rapid review methods [4-7]. In our experience, the most important tools are adjustments in the planning phase combined with the use of a manuscript map and dictation of the article using the mind-to-paper technique [8]. This enables production of a full systematic review with or without meta-analysis within three months without compromising

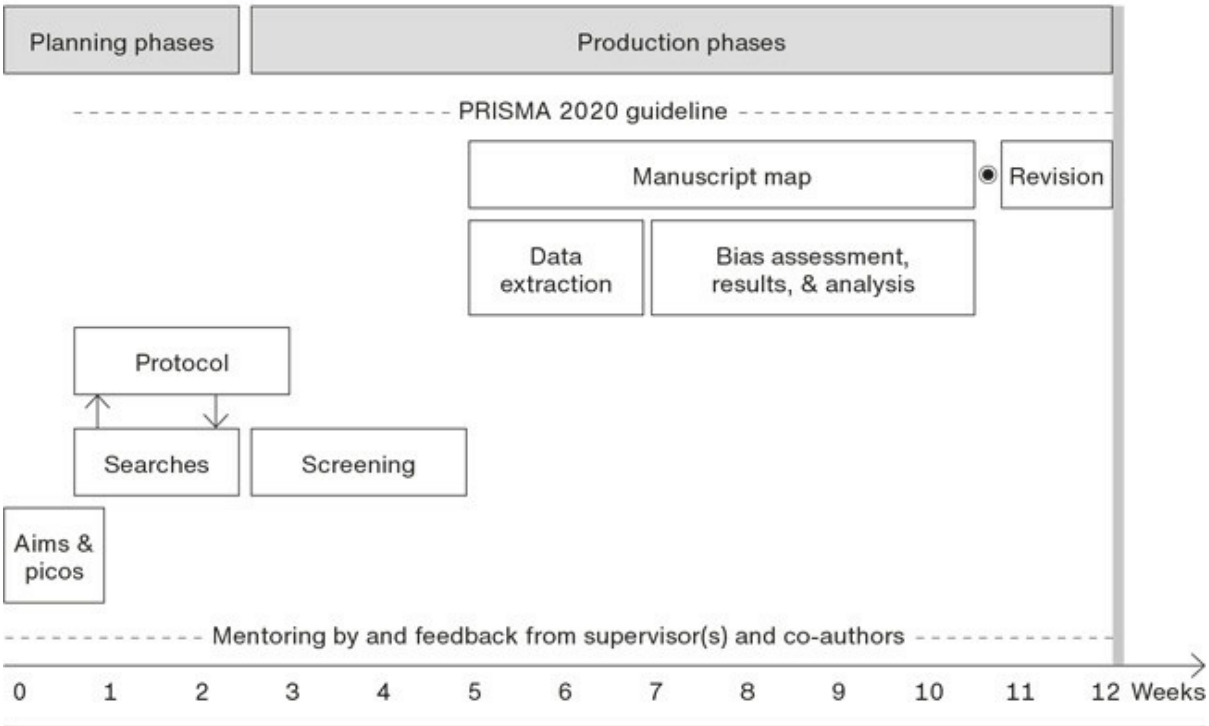
on scientific quality.

With this article, we want to demonstrate that high-quality systematic reviews may be produced within a substantially shortened production timeframe by making slight changes in the planning and production phases including a detailed manuscript map and dictation of the article using the mind-to-paper technique. Very rapid reviews, as used by government agencies to produce a fast recommendations within maybe a few weeks, is not what we call rapid review in the present paper. Rather, we describe changes in the planning and production phases with a firm focus on creating a final product that is as substantial and correct as a classic systematic review.

METHODS

The writing of a systematic review may be divided into planning phases and production phases. Continuous mentoring is of utmost importance and should be available daily and through all phases to give the lead author continuous feedback, thereby eliminating the need to wait for days or weeks for answers to simple research questions (**Figure 1**).

FIGURE 1 All planning and production phases of a rapid review. The symbol (◉) between manuscript map and revision illustrates dictation of the manuscript draft to a smartphone [8].



Planning phases

Setting the team

It is important to set a relevant team of people [3] with a primary lead who is responsible for all phases (Figure 1). The author team should comprise enough persons for screening and data extraction and one or more qualified mentors with substantial research experience and a clinical overview (content expert). The content expert has an important role when defining the review's aim and PICOS (Population, Intervention, Comparison,

Outcome and Study) by ensuring that the review is clinically relevant and focused on an answerable research question. Furthermore, we recommend including a statistician if the review has advanced statistics such as a network meta-analysis. As a minimum, the team should meet to formulate the aim, PICOS and protocol, discuss the results and communicate closely regarding the manuscript map (see below).

Research question

The research question should be focused, clear and answerable. This is probably the most important factor in the rapid review process and should be given close attention. A tight PICOS includes a narrow patient group, a specific intervention and few, well-defined outcomes. The most time-efficient reviews are those addressing simple questions, such as the effectiveness of one treatment compared with another, and only including randomized trials.

Protocol

A protocol will help the team to agree on the aim, PICOS, search strings and methods, which will minimise discussions during the conduct of the review and thereby speed up the process. Key elements of the review plan should be made public at the PROSPERO registry (systematic reviews) [9] or the Open Science Framework (scoping reviews) [10].

The protocol may be drafted based on the Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols (PRISMA-P) checklist [11]. All items on the checklist should be discussed and agreed between the review team, and the eligibility criteria, in particular, should be well defined since this will facilitate an efficient search string and be helpful during the screening process.

Languages and databases

An effective way to reduce time expenditure is to allow fewer languages, to narrow the publication interval and to limit the number of databases to be searched [1]. A systematic review found no evidence of bias from English language restrictions in meta-analyses [12], and only searching studies in English is often sufficient. However, if the intervention is commonly applied/used in countries where another language is used for reporting of studies, important literature might be missed if the search is limited to English.

A rapid review will typically not include grey and non-published literature since this may be time consuming. It is recommended to search several databases [13], and searching PubMed is mandatory. This may be supplemented by searches in, e.g., Embase and/or Cochrane CENTRAL. An information specialist may assist in selecting the relevant databases and developing a comprehensive, yet not overwhelming, search strategy [14]. A rule of thumb for a rapid review could be that the initial searches should not yield more than 3,000-4,000 papers for title/abstract screening, producing a maximum of 100-200 papers for full-text screening. This will serve to ensure that the review is produced in a timely manner.

Production phases

The various production phases are presented in Figure 1. The focus should be on avoiding empty days and allowing some of the production phases to run in parallel.

Screening

To ensure optimal quality, title/abstract and full-text screening should be performed independently by two authors [15] with a third (senior researcher) assisting to resolve conflicts. However, to speed up the process, more than two authors may screen the reports provided that a minimum of two persons have assessed each record. To simplify the screening process, we recommend using dedicated screening software such as Covidence [16] or Rayyan [17].

Data extraction

To save time, it is important that all relevant data are extracted initially. Therefore, one or two authors should first pilot a data extraction sheet by extracting data from a few studies [15]. Thereafter, all authors should discuss the pilot sheet to agree on its contents. The final data extraction should then be performed independently by two authors [15]. Another option is that one author extracts data twice and discusses any uncertainties with the co-authors. As for other systematic reviews, authors of full text studies should be contacted if data are unclearly described or missing.

Bias assessment, results, and analysis

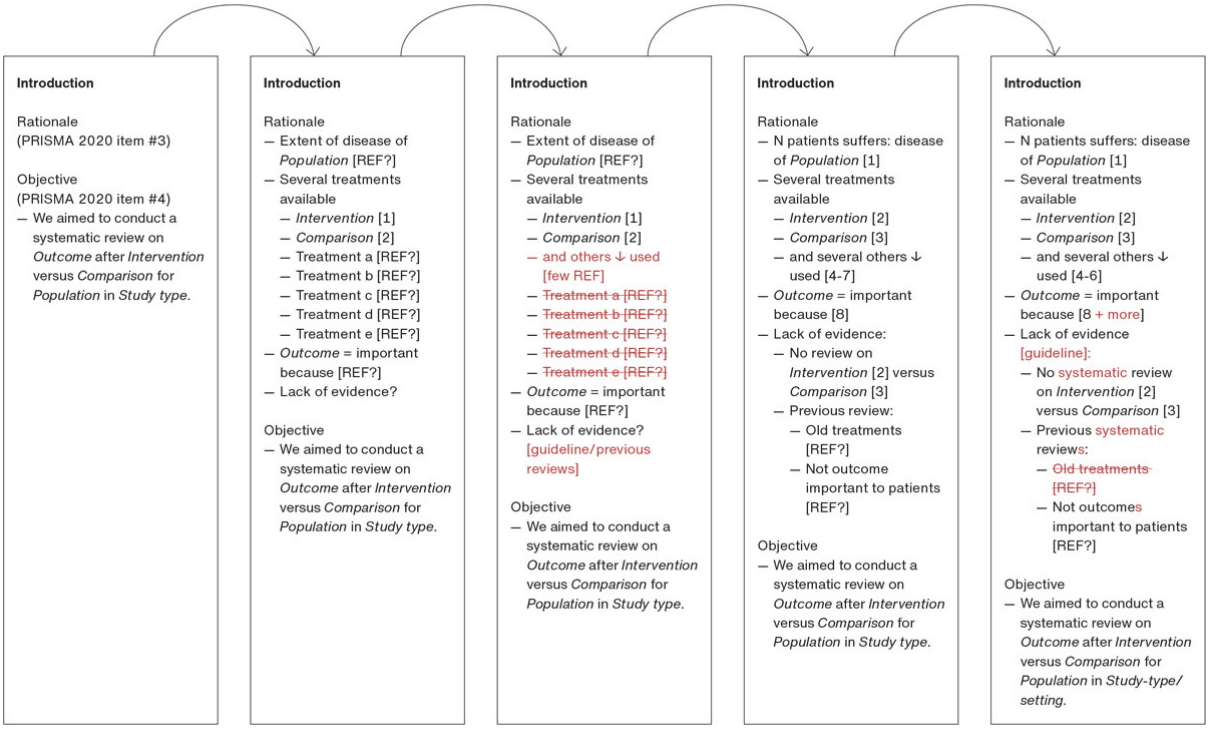
Bias assessment is cornerstone of systematic reviews, which should optimally be conducted by two authors to reduce errors. Two of the commonly used bias assessment tools are the Newcastle-Ottawa Scale for observational studies [18] and the Cochrane risk-of-bias tool version 1 for randomised controlled trials [19]. As for other types of reviews, meta-analyses should be performed only if studies are homogenous [20].

The certainty of the evidence from meta-analyses can be assessed using the Grading of Recommendations, Assessment, Development and Evaluation (GRADE) approach [15, 21]. In a rapid review, authors may consider only applying the GRADE approach to the primary outcome or even omitting the approach altogether, but the authors should, nevertheless, reflect on the certainty of the evidence by taking bias assessment, effect size and heterogeneity into account.

Manuscript map

Many researchers experience writer's block. This can be avoided in several ways, one is to use a manuscript map that serves as a detailed outline of the article. It is a time-efficient an uncomplicated method for drafting scientific manuscripts [8, 22]. A manuscript map of the rapid review follows the same structure as the final manuscript with the classic IMRAD (Introduction, Methods, Results, And Discussion) heading format. Under each heading, bullets for separate sections are inserted (**Figure 2**), and these are based on the items from the relevant reporting guideline. A reporting guideline guides the structure of the manuscript map. If the reporting guideline PRISMA 2020 is used, the introduction will include only two paragraphs describing the rationale and the objectives [23] (Figure 2).

FIGURE 2 An overview of the development of a manuscript map for the Introduction section from the first draft (left) to the second co-author revision (right). The text in italics refers to the PICOS of the rapid review. The text in red illustrates the revisions made by co-authors.



PICOS = Patients, Intervention, Comparison, Outcome, and Study; PRISMA 2020 = Preferred Reporting Items for Systematic reviews and Meta-Analyses 2020 [23]; REF = reference.

As depicted in Figure 1, the manuscript map is developed in parallel with other phases. Start by mapping the methods rather than the introduction and discussion. Methods are outlined around the protocol and are thus rather easy to complete. When results are finalised, the precise focus and direction of the introduction and the discussion will be clearer. The Discussion section in a rapid review should be short and precise, and we encourage that only three paragraphs are used: 1) summary of results, 2) strengths and limitations and 3) implications and conclusion.

The manuscript map requires repeated feedback from all co-authors, typically weekly. Keep the sentences short and simple, e.g. by using sub-bullets and symbols (Figure 2).

Dictation

Dictation may be a constructive method of writing rapid reviews. It is a supplementary method that serves to increase the speed at which the manuscript may be written. Dictation of the first full manuscript draft should be based on the final thoroughly revised manuscript map, and is an important tool to bypass writer's block and speed up the writing process. Thus, a full systematic review may be dictated on a smartphone [24] within 3-4 hours using the mind-to-paper technique [8]. Remove yourself from distractions and everyday life to maintain focused [22]. Disturbances should be minimised, e.g. by putting your phone on flight mode. Dictate the whole manuscript map from start to end in one single sequence. Avoid revising the dictate, i.e. do not rewind but simply start on a new line and try again. A feeling of flow while dictating often arises, even for first-time users [25]. The first dictated draft of the manuscript should be corrected for typos, and afterwards the manuscript will have a high readability and still be sufficiently complex [25].

Revision and publication

The final revision includes feedback from co-authors and a check of adherence to both the reporting guideline and "Instruction for Authors" of the target journal. Plan with your co-authors so that they can provide prompt feedback, i.e. a co-author should revise the full draft in 2-3 days. While awaiting feedback, you may initiate the submission process by identifying peer reviewers, preparing and uploading figures in the appropriate file format, etc. When the manuscript has been finalised, it is sent for final approval to all co-authors to ensure that the criteria for authorship are followed [26]. The manuscript, being a proper systematic review, may be published in any scientific journal that would publish a systematic review with a longer production timeframe.

DISCUSSION

It is possible to produce a rapid review in only three months. This requires tight control of all parts of the process, including close scientific mentoring. The typical difference from a classic systematic review is a narrower aim to include a reasonable amount of evidence while still achieving full coverage of the area. The writing phase is managed by a manuscript map and dictation of the first draft to a smartphone. This will limit writer's block and speed up the process. Thus, with few adjustments, it is possible to produce a high-quality paper within a short timeframe while maintaining methodological quality.

We have worked intensely with optimising the writing process for scientific articles. Thus, we have developed a method for dictating the scientific manuscripts on smartphones as described previously [8, 22, 24]. The rapid review methodology with focused research questions and slight changes to methodology is used by many stakeholders to produce systematic reviews, the results of which can be implemented quickly in the clinic. Furthermore, this approach fits perfectly into a strategy aiming to make the research and writing processes manageable for young researchers to ensure that the production of a systematic review becomes a successful experience for, e.g., short scholarship periods or PhD students.

Occasionally, a scoping review may be more relevant to conduct than a systematic review [27]. A scoping review can often be performed more rapidly than a systematic review, and the scoping review method is relevant when you want to map the literature and provide an overview of the evidence but typically without outcomes concerning feasibility and effectiveness [28] (**Table 1**). Thus, a scoping review could map which scoring systems are typically used for a certain clinical diagnosis but without reporting the accuracy of these systems. Furthermore, opposite to a systematic review, bias assessment is not mandatory in a scoping review [27]. The choice between a scoping- and a systematic review relies on the research question. As a researcher, it is therefore possible to modify the research question towards a scoping review, thereby shortening production time — but the research question should, of course, be relevant for researchers and stakeholders alike. Specific reporting guidelines exist for scoping [29] and systematic reviews [23].

TABLE 1 Review type characteristics.

Phase	Rapid review	Scoping review	Systematic review	Cochrane review	Narrative review
Aims and picos					
Research question	Narrow	Broad	Broad	Broad	Often broad
Protocol					
Publication	PROSPERO [9]/OSF [10]	OSF [10]	PROSPERO [9]	Cochrane Library [30]	Not relevant
Eligibility criteria	Narrow	Broad or narrow	Broad	Broad	Not relevant
Languages and databases					
Language restrictions	Yes	Maybe	Maybe	None	Not relevant
Time restrictions	Narrow	Maybe	Often broad	Often none	Not relevant
Databases, n	2-3	Several	Several	Several	Not relevant
Information specialist	Ideally	Ideally	Yes	Yes	Not relevant
Screening					
Reviewers, n	Customized	> 1 parallel	> 1 parallel	> 1 parallel	Not relevant
Data extraction					
Data extraction pilot	Tightly supervised	Tightly supervised	Tightly supervised	Tightly supervised	Not relevant
Data extraction final	Customised	> 1 parallel	> 1 parallel	> 1 parallel	Not relevant
Contact to study authors	If needed, expedited	If needed	If needed	If needed	Not relevant
Bias assessment, results and analysis					
Risk of bias assessment	Yes or no	Yes or no	Yes	Yes	Not relevant
Meta-analysis	Maybe	No	Maybe	Yes	Not relevant
Grade	Maybe	No	Maybe	Yes	Not relevant
Manuscript map					
Guideline	PRISMA-ScR [29]/ PRISMA 2020 [23]	PRISMA-ScR [29]	PRISMA 2020 [23]	Cochrane Handbook [15]	Not available
Discussion paragraph:					
1	Summary of results	Summary of results	Summary of results	Summary of results	Customised
2	Strengths and limitations	Limitations	Limitations, evidence	Completeness, evidence	-
3	Implications and conclusion	Conclusion	Limitations, review	Certainty, evidence	-
4	-	-	Implications	Biases, review	-
5	-	-	-	Versus other reviews	-
6	-	-	-	Conclusion	-

OSF = Open Science Framework; PRISMA = Preferred Reporting Items for Systematic reviews and Meta-Analyses; PRISMA-ScR = PRISMA extension for Scoping Reviews; PROSPERO = Prospective Register of Systematic Reviews.

In conclusion, it is possible to produce a systematic review in three months from the initial idea is proposed until the final manuscript is submitted to a journal. The product achieved can be of a high scientific quality comprising current up-to-date data. It may be coined a rapid review, although it is not a special type of review. Rather, we use the term for a systematic review in which a continuous focus is given to the work process in the planning and production phases including use of a detailed manuscript map and dictation of the manuscript to a smartphone using the mind-to-paper technique.

Correspondence *Jacob Rosenberg*. E-mail: jacob.rosenberg@regionh.dk

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