



Working regionally to drive change in nutrition

Transform Nutrition West Africa

Rapid Reviews: A Resource Bank

July 2021 – Version 1.0

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Transform Nutrition West Africa

Recent years have witnessed a growing political commitment to addressing the high rates of maternal and child malnutrition in the West Africa region. Such commitment needs to be effectively translated into appropriate policy choices and program action if it is to generate sustained change at scale. [Transform Nutrition West Africa](#) therefore aims to improve and support policy and program decisions and actions to accelerate reductions in maternal and child malnutrition through an inclusive process of knowledge generation and mobilization throughout the region.

Within the project, we produced various high-quality evidence notes that aim to inform policy and program decision-making. The topics are based on partner priorities and on current challenges and evidence gaps in the region. The underlying methodological approach to synthesizing the evidence is founded on rapid review methodology. We have developed and used templates that are a useful tool for researchers and decisionmakers to produce quality evidence reviews in a timely manner in low- and middle-income settings. The procedures to follow, the templates, and the relevant resources are compiled in this resource bank.

Context

Rapid review approaches: The why and how

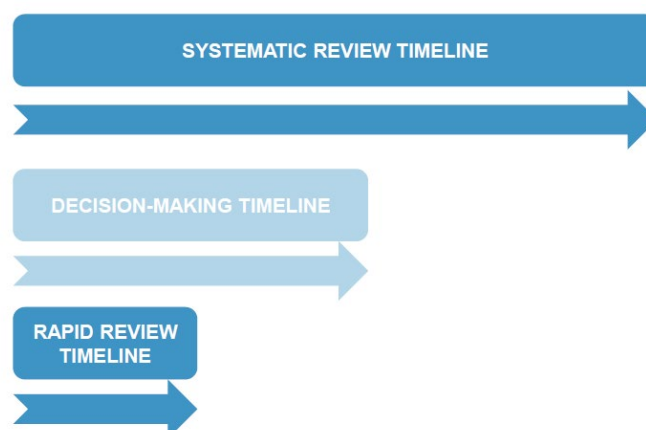
Rapid review: A definition

“A rapid review is 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” (Hamel et al. 2020).

Decisionmakers (including implementers, policymakers, technical agencies) require accurate and relevant evidence by which to plan, develop, and implement nutrition and health programs in a timely fashion. They need to know the effectiveness of interventions and policies, how and in what settings these interventions work, and their cost-effectiveness. Systematic reviews are increasingly used to inform policy decisions and produce guidance for health systems. Production of systematic reviews, however, is often

protracted, resource intensive, and incompatible with decision-making timelines; they can take one to two years to complete. Rapid reviews offer an alternative, rapid and timely approach to providing actionable and relevant evidence that can be used to inform decisions about health systems in both routine and emergency contexts (**Figure 1**). Rapid reviews are generated through a transparent, scientific, and reproducible method that preserves key principles of knowledge synthesis.

Figure 1. Timeline of different methodological approaches



Source: Tricco, Langlois, Straus 2017.

Rapid reviews lack consensus on a definition and common processes (Hamel et al. 2020), though the recently published Cochrane guidance is highly recommended (click [here](#) to show Garritty et al. 2021). Rapid reviews vary in scope and methodology and their timeline can vary from a few days to several months. High quality review products are achieved within such a short timeframe through one of two means: either more reviewers and/or technology are used (*accelerating* the process at an increased cost), and/or recognized shortcuts are used to adapt systematic review methods (*abbreviating* the process); in both cases, high quality is aimed for. Table 1, below, provides an overview of what can be altered in this process. To minimize potential bias, each step in this resource bank should be completed (**Figure 2**). There needs to be clear reporting of the final approach taken and its limitations, particularly in terms of potential bias and the shortcomings of the conclusions.

The most common types of rapid reviews include:

1. Rapid review of effectiveness
2. Rapid qualitative evidence synthesis
3. Rapid review of cost-effectiveness
4. Rapid mixed studies review
5. Rapid realist review
6. Mapping review
7. Scoping review
8. Review of reviews

Table 1. Dimensions of standard systematic reviews that may be altered in rapid products

Dimension	Options
Scope	Limit number of research questions
	Limit number of interventions and comparators or outcomes, with a focus on those most important for decision-making
Comprehensiveness	Limit the search strategy (for example, reduce the number of databases searched, omit grey literature, and limit dates, settings and languages when justifiable)
	Limit study types (systematic reviews only, randomized controlled trials only)
	Limit data extraction to a minimum set of required data items
Rigor/quality control	Limit dual study screening (for example, 20 percent of studies are dual screened)
	Limit dual data extraction (for example, only dual extract for outcomes)
	Limit or eliminate internal or external review of final output, for example, peer review (have an information specialist review the search syntax)
	Use a single reviewer to extract data using a piloted form; use a second reviewer to check for correctness and completeness of extracted data
Synthesis	Limit or eliminate risk of bias or quality assessment of individual studies
	Limit or eliminate strength/quality assessments of evidence synthesis (for example, by using GRADE or by using a single reviewer to grade the certainty of evidence, with verification of all judgments and footnoted rationales by a second reviewer)
Reporting	Use processes related to report production to minimize time investment (for example, use standard templates, software, and spreadsheets to prove charts and tables and to extract data directly into tables)

Source: Adapted by the research team from Hartling et al. 2015; Garritty et al. 2021.

Fit for purpose: When to consider a rapid review product instead of other types of evidence reviews

A rapid review should be driven by the need for timely evidence to inform decision-making; this can include urgent and emergent health issues and occasions when there is a need for a response to questions of high priority to decisionmakers (Garritty, Norris, Moher 2017). Pandor et al. (2019) provide a decision tool which allows for selection of the most appropriate rapid review approach. It asks the following questions:

- Is a rapid review the right fit for the end user's decision or need?
 - A rapid review approach can be used where trade-offs between benefits and harms are not known to be significant. For uses demanding high accuracy (for example,

national guidelines and drug licensing decisions), a more comprehensive approach is probably the best option (Marshall et al. 2019).

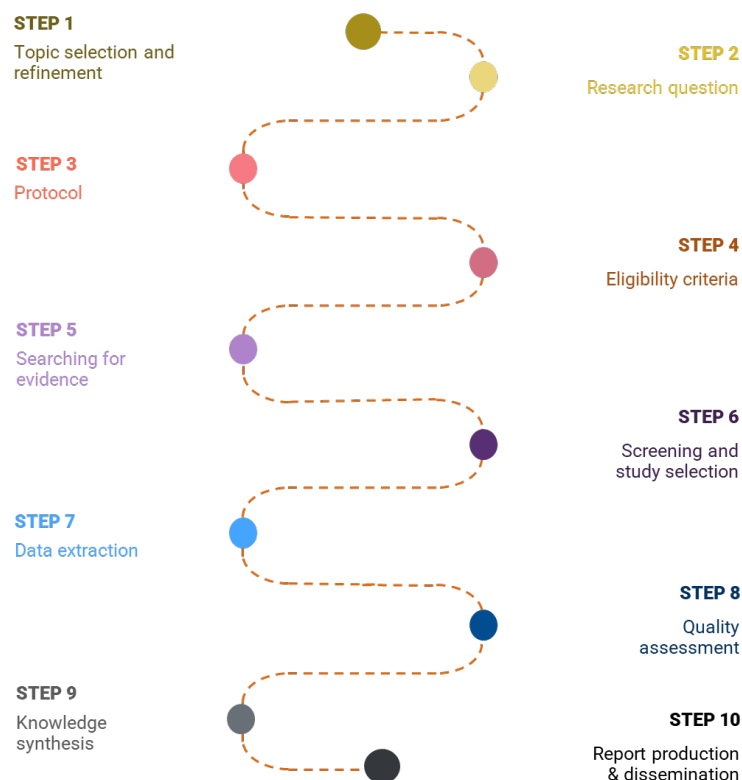
- A close relationship with end users needs to be established, as iterative feedback is essential.
- Is a rapid review the right fit for the available evidence base?
- Is a rapid review the right fit according to the available staff skillset and/or the capacity to quickly mobilize skilled and experienced staff?

A rapid review resource bank

Within [Transform Nutrition West Africa](#), we produced various high-quality evidence notes that aimed to inform policy and program decision-making. The topics were based on partner priorities and on current challenges and evidence gaps in the region. The underlying methodological approach to synthesizing the evidence was founded on rapid review methodology. Throughout the project, we developed and used procedures and templates to respond rapidly to requests from West African stakeholders.

This resource bank aims to share this experience and provides practical guidance on how to conduct a rapid review in response to stakeholders' requests. It offers a step-by-step guide to conducting a rapid review, complete with fillable templates for each step in the process, as applied in a low- and middle-income setting (**Figure 2**). It is designed as an accessible and useful tool for researchers and decisionmakers to produce high-quality evidence in a timely manner. As such, it helps fill a gap in the use of rapid reviews—created using rigorous and systematic methods—in low- and middle-income settings (Tricco, Langlois, Straus 2017).

Figure 2. Stepwise approach to conducting a rapid review



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Resources

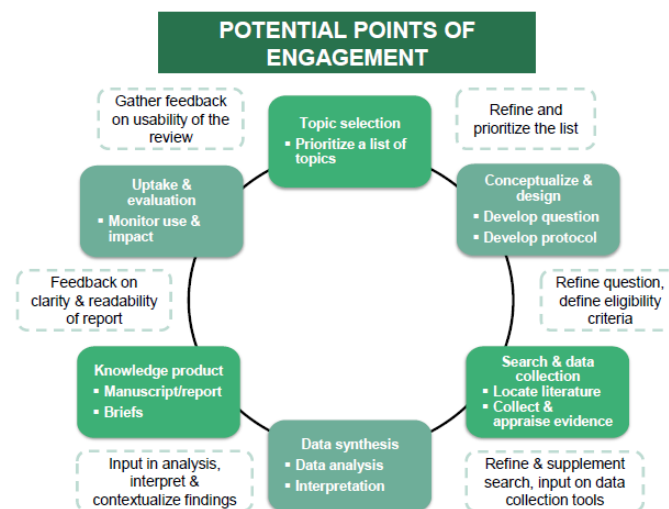
For an example of a rapid review used by international agencies to inform guideline recommendations in urgent and emergent public health settings, see <https://www.unicef.org/wca/reports/screening-acute-malnutrition-family-community-level>; for more on how policymakers can use rapid reviews to inform their decisions, see [https://www.thelancet.com/article/S0140-6736\(20\)30460-8/fulltext](https://www.thelancet.com/article/S0140-6736(20)30460-8/fulltext).

Step 1. Topic selection and refinement

Topic selection and refinement engages with both *technical processes* and *stakeholder values*. Technically, the review team must ensure that (1) the topic can be addressed by research evidence, (2) it is not already covered by existing systematic reviews, and (3) sufficient quantity and quality of evidence exists. Scoping literature searches are therefore essential in mapping existing coverage of the evidence. The aim is to identify an informative sample of systematic reviews and key primary research within the topic area. Information on the quantity and quality of the available evidence is required in order to discuss the feasibility of the topic with the main stakeholders. Stakeholder values are elicited to reveal whether the chosen topic (1) fits within the mandate and responds to the priorities of the commissioning organization, (2) is important and meaningful to the target population, and (3) holds potential for a significant impact on population health (Eder et al. 2012).

One of the biggest differences between rapid review products and conventional systematic reviews is the intensified involvement of stakeholders and end users throughout the rapid review process (Feldmann, Puhan, Mütsch 2019). Key review users such as policymakers, decisionmakers and health professionals, are involved in setting and refining the topic selection, translating it into a research question, and defining the outcomes of interest. They are usually consulted throughout the process to ensure that the rapid review remains fit for purpose and is relevant and applicable to decision-making processes (**Figure 3**). Critical aspects of any rapid review product are therefore the credibility of those producing the rapid reviews, the relevance of the topic and related research question, and the trusted relationship between those delivering the rapid review and those using it (Hartling et al. 2017).

Figure 3. Potential entry points for end-user engagement in the review process



Source: Tricco, Langlois, Straus 2017.

Although rapid reviews can be produced at a lower cost than systematic reviews, production of such reviews remains a resource-intensive process and intensive engagement with stakeholders may result in additional time and resource needs. Not only must the time and resources expended on a topic be considered, but that same time and those same resources could be equally targeted at an area of genuine need, constituting an “opportunity cost”. Inappropriate topic selection or a misalignment between a question and the conducting of the review to answer that question can result in ineffective decision support or in the production of research waste.

The process in detail

Topic selection: Prioritization

A review team should always seek to align its topic selection with the overall goals of the program. This requires that the team and stakeholders impartially and consistently apply predefined and explicit criteria to potential topics. It is important to involve stakeholders in the prioritization of topics, whether the competition for priority takes place within the stakeholders' area of interest or across program budget areas. At all times the prioritization process should remain transparent and accountable. Upon completion of each project, the team should continually evaluate and improve the review process, realigning modified review processes to new value statements as and when they are produced.

A research topic usually starts as a broad field of interest. It can begin with the formulation of what is typically known as a *background question*, which may start as just a population and a problem, or as a problem and some candidate interventions. Candidate topics are evaluated by a topic-prioritization group which represents both stakeholders and technical review perspectives; topics are reviewed for: appropriateness (does the topic fit within the program), importance, potential for duplication of existing research, and feasibility (does the topic call for a type and volume of research that is appropriate for a rapid review). Potential for duplication can be established using specialist review databases such as [Epistemonikos](#), [PDQ for Informed Health Policymaking](#), or [Health Systems Evidence](#).

Topic refinement

Once an initial scoping has been conducted, the team can formulate more detail. At that point, it can draw up a *foreground question* together with population, intervention and outcome elements, including a comparison where possible ([see STEP 2](#)). This level of specification includes topic refinement, in order to avoid the overlap that may occur with systematic and rapid reviews in similar topic areas. Stakeholders can then assess the potential value and impact of a rapid review.

Further considerations can include an assessment of the extent to which the rapid review intends to address a need for synthesized research, one which can remain unmet because of the potentially uncoordinated nature of national and international efforts in this area. The overall aim of topic selection and refinement is to engage diverse stakeholders in program decisions while also achieving efficiency and timeliness. For more information on how rapid reviews are used to connect researchers and policymakers, see the WHO's *Rapid Reviews to Strengthen Health Policy and Systems: A Practical Guide* (Tricco, Langlois, Straus 2017).

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Resources

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Step 2. Research question

After topic selection and refinement has produced a *foreground question*, a detailed *research question* must be developed.

Research question: Free text

The research question emerges from the topic to be explored and should be clearly articulated and answerable. **Quantitative** research generally answers questions related to interventions, harm, diagnosis, and economics, while **qualitative** research is used to explore questions related to meaning or lived experience. **Table 2** shows some sample phrasing of research questions in free text.

Table 2. Principal types of review question, with exemplars and indicative type of research

Types of review questions	Sample research questions	Research
Intervention	What is the effect of an intervention or program on one or more outcomes?	Quantitative
Harm/causation	What is the relationship between a risk factor and an outcome?	Quantitative
Diagnosis	What is the extent to which a tool accurately identifies the presence of a disease or health condition?	Quantitative
Economics	How do two or more interventions compare in relation to their relative cost for achievement of an expected outcome?	Quantitative
Meaning/lived experience	What is the lived experience of a process or phenomenon?	Qualitative

Source: Authors.

Research question: Question frameworks

Using a framework to structure the research question

Several tools and frameworks are available to help structure the research question. The use of a question framework helps infuse detail into the more general research question that has been formulated; it also helps identify whether it is to be addressed by quantitative and/or qualitative research. **Table 3** offers a generic template that can be used to explore the scope and elements of the chosen topic. Depending on the research question, other frameworks may be applicable; these can include the PICO(S) framework for quantitative reviews (see **Table 4**), SPIDER for qualitative and mixed methods (Cooke, Smith, and Booth 2012), SPICE for qualitative evidence (Booth 2006), or ECLIPSE for health services information (Wildridge and Bell 2002). Use this template to develop your own question framework: [Template – Question Frameworks](#)

Top Tip! Your question may not fit perfectly into a framework. Just using part of a framework can be sufficient.

Table 3. Topic domains to be addressed by quantitative and qualitative question components

Context		Person		Phenomenon of interest				Evaluation				
Setting	Environment	Population	Perspective		Interest	Interventions	Comparison(s)	Timing	Outcomes			
Qn + Ql	Ql	Qn + Ql	Primary	Secondary	Ql	Qn + Ql	Qn	Qn + Ql	Qn	Primary	Secondary	Findings/theses
			Ql	Ql	Ql	Qn + Ql	Qn	Qn + Ql	Qn	Qn	Qn	Ql

Source : Authors

Note: Qn = quantitative; Ql = qualitative.

Table 4. PICO(S) question framework

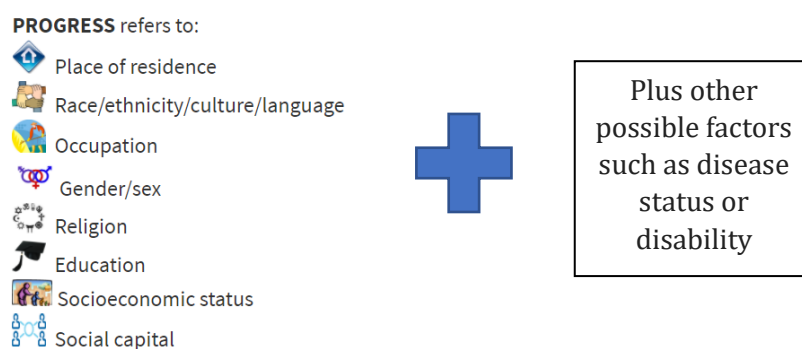
P	I	C	O	(S)
Population/ participants	Intervention/ exposure	Comparison/ control	Outcome	Study setting
Which populations are of interest?	What interventions/programs/risk factors will be included?	What intervention/exposure (risk or protective factor) is this being compared to (a comparison is not always necessary)?	What does the study hope to accomplish, improve, or affect?	Where is the study set, for example, in a specific country or community, or in a hospital?

Source: Authors

Equity considerations

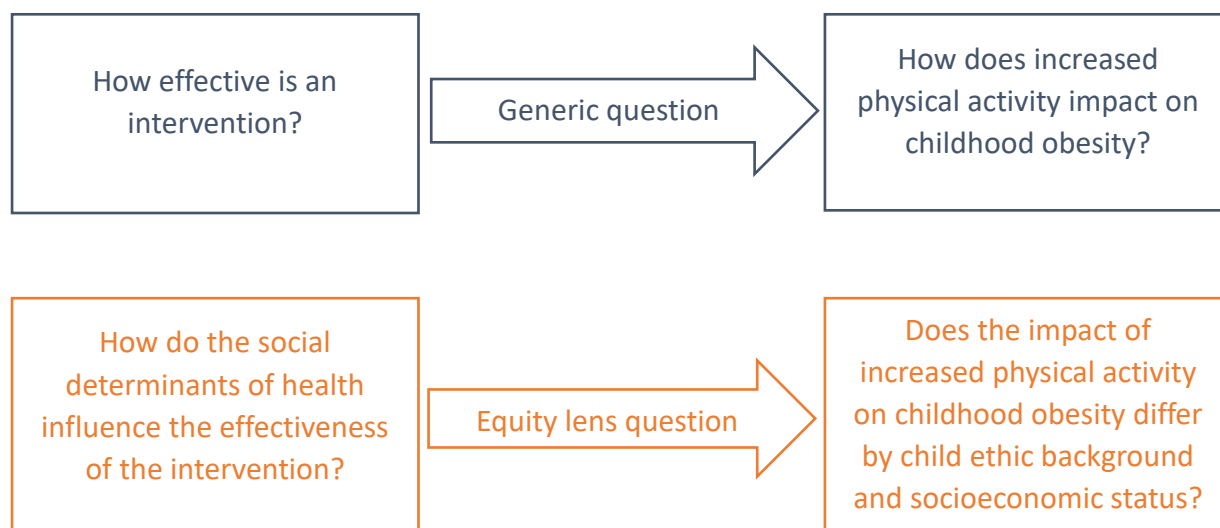
Question frameworks may need to consider the social determinants of health. Considerations may include how a policy or program addressed health inequities or how health outcomes differ across groups. A specific population therefore needs to be defined, as do factors related to inequity (Maden 2016; Maden et al. 2018). The PROGRESS-Plus criteria in **Figure 4** provides a framework for systematically considering the entry points for inequities that may be of concern in a given context (O'Neill et al. 2014). A worked example can be found in **Figure 5**, and more information on this tool can be accessed at: <https://methods.cochrane.org/equity/projects/evidence-equity/progress-plus>.

Figure 4. PROGRESS-Plus framework



Source: Cochrane Methods Equity (2021).

Figure 5. Sample equity lens research questions



References and Resources

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Step 3. Protocol development

Once the research question is finalized, the rapid review protocol can be developed. This protocol is essential for ensuring transparency, providing structure, defining the scope, and upholding rigorous standards for the rapid review process. It also enables clear communication with stakeholders about the key elements of the review. The protocol serves as a roadmap for the review process ahead and thus should be created at the beginning.

Best practice in systematic reviews requires following the PRISMA–P [checklist](#) (Preferred Reporting Items for Systematic Reviews and Meta-Analyses—Protocol) (Shamseer et al. 2015; Moher et al. 2015). A protocol checklist for rapid reviews (PRISMA–RR) is under [development](#). In anticipation of this protocol guidance, *Transform Nutrition West Africa* has developed a checklist for a rapid review protocol (Table 5). This includes the essential sections of the PRISMA–P in a condensed form, (adapted for our own rapid review protocols) and all the areas that need to be considered when conducting a rapid review. Once all the steps within this resource bank have been completed, then all the components for the protocol will have been compiled and the rapid review process can begin.

Table 5. Rapid review protocol checklist: Recommended items to include in a rapid review protocol

Checklist item	Step	Page number	Notes
Administrative information			
<i>Title:</i> Informative title indicating that this is a protocol			
<i>Registration:</i> Details of protocol availability Clear indication of protocol document status Identification of any updates/changes made to the protocol	Link to Step 3		
<i>Authors:</i> Identification of review team			
<i>Conflict of interest</i>			
Introduction			
<i>Topic selection and refinement</i> Details on stakeholders and stakeholder engagement Description of the background to the specific topic selected	Link to Step 1		
<i>Research question</i> Description of the research question (free text) Details of the research question using the questions framework elements Relevant definitions for the topic and/or the framework used for the rapid review (if applicable)	Link to Step 2		
Methods			
<i>Overall review typology</i> State the method applied to the rapid review			
<i>Eligibility criteria</i> List the eligibility criteria using the questions framework elements	Link to Step 4		
<i>Searching for evidence</i> State the search methods applied, including information sources and the search strategy	Link to Step 5		
<i>Screening and study selection</i> State the methods for screening and study selection including data management	Link to Step 6		

Data extraction State the data-extraction procedures, including the variables for which data will be extracted	Link to Step 7		
Quality assessment If applied in the rapid review, report the quality assessment (risk-of-bias) tools applied	Link to Step 8		
Knowledge synthesis Describe the methods of synthesis and analysis	Link to Step 9		
Dissemination			
Report production and dissemination Report plans for output and dissemination	Link to Step 10		

Protocol registration

Once your protocol is finalized, and ideally before the rapid review process begins, it is best practice to make it publicly available. Preregistration helps to limit the risk of potential bias. Any changes made throughout the process need to be recorded. [PROSPERO](#) is the preferred platform for registering protocols for systematic reviews; it now also accepts rapid reviews, as well as reviews of reviews (umbrella reviews). An example of a rapid review protocol developed and published in PROSPERO from Transform Nutrition West Africa can be found online: [The Evidence Mapping of Wasting Programmes and Their Impact Along the Continuum of Care for Wasting in Low- and Middle-income Countries: A Rapid Review Protocol](#).

The following routes offer alternative options for protocol registration:

- [Title registration with the Joanna Briggs Institute](#): This does not ensure rigor or that standards of acceptance will be met, but it does provide an audit trail of the protocol before completion.
- [Protocol registration with the Open Science Framework](#): Here are found many more scoping reviews than are found with PROSPERO, from both academic and international development communities.
- Publish your protocol as a journal manuscript. Suggestions for journals can be found with [JMIR Research Protocols](#); this offers the option of submitting systematic review protocols where no external peer reviews are available.
- Publish your protocol online on a project (or other) website. Institutional websites or open data repositories such as [Fig Share](#) are alternative options for giving your protocol an audit trail.

Top Tip! In order to minimise the chance that someone else is already undertaking similar work, it is a good idea to check these registries before commencing a review.

[Template - Protocol](#)

[Template - Checklist](#)

References and Resources

References

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Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42021246226

Step 4. Eligibility criteria

Eligibility criteria for the rapid review are determined in collaboration with key stakeholders. The question framework developed for the research question is a helpful tool for defining eligibility criteria. All aspects of this question framework should be clearly defined; for PICO, for example, the population, intervention, comparator, and outcomes would be defined. How these elements are prioritized will depend on the needs expressed by stakeholders. To prevent potential bias, eligibility criteria should be created prior to screening titles and abstracts for potential inclusion; this is usually done during the protocol development stage. Criteria should unambiguously outline what studies will and will not be included. To ensure the timeliness of the output and to keep rapid reviews manageable, additional restrictions may be applied to further limit the search (see Garritty et al. 2021). These additional limits can include:

1. **Setting:** Depending on the research question, the search could be limited to, for example, only low- and middle-income countries (see [LMIC EPOC filter](#)).
2. **Publication date:** Date restrictions should be carefully considered; they should be relevant to the research question, with a justification that is either clinical (introduction of a new intervention type), methodological (launch of global health targets), or historical (beginning of global economic recessions).
3. **Study design:** Depending on the research question, the study can include, for example, only randomized control trials or only qualitative research. Emphasis should be placed on higher-quality study designs.
4. **Language:** Publication language should be limited to English for conventional interventions (see Dobrescu et al. 2021). Other language should be added if relevant results are expected to be published in languages other than English and/or if target countries have a first language other than English (see Garritty et al. 2021).

[Template – Eligibility criteria](#)

References and Resources

References

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Step 5. Searching for evidence

Searching information sources for relevant evidence requires the development and application of a search strategy. A search strategy details the terms and phrases to be used in the selected databases; experienced reviewers recommend the involvement of an information specialist in developing the search strategy (Rethlefsen et al. 2015; Koffel 2015). Where such involvement is not possible, peer review of the search strategy by an information specialist or, in their absence, an experienced researcher should be considered (Garritty et al. 2021). Below we describe in detail how to build a search strategy; explicit examples of search syntaxes developed by Transform Nutrition West Africa can be found online on the topics of for example [World Health Assembly Targets](#) and [wasting programmes](#), in the region.

Various steps are required to build a search strategy:

1. Brainstorming

Terms, names, and synonyms that will make up the search syntax need to be brainstormed; these can be built around the already-defined question framework. The [PubReMiner tool](#) is useful for searching similar words and phrases related to the topic.

2. Building

Different Boolean operators (AND, OR, NOT, and AND NOT) can be used to build the syntax. As a simple rule, concepts that lie within the same element of the PICO (for example, interventions) are combined using the “OR” operator (used for equivalents, variations, or synonyms). In contrast, concepts that relate to different elements are combined together using the “AND” operator, requiring that concepts intersect. Different facets of the same element, however, for example age, gender and ethnicity, are also combined using AND (for example, “adolescent AND female AND Maasai”). The NOT operator is less frequently used, typically only to exclude on an arbitrary basis, such as, for example, “NOT French”; it should be used with caution because it excludes not only irrelevant concepts but also those where a relevant concept occurs alongside an irrelevant one. “NOT child”, for example, will exclude not only documents about children but also documents that are about both adults and children. The two most common approaches—the “building blocks approach” and the “dropping a concept approach”—are described by Booth (2008).

Top Tip! It is useful to build your search syntax in MEDLINE due to its comprehensive searching tool and vast collection of published materials.

Use the [MeSH \(Medical Subject Headings\)](#) feature within MEDLINE to search for useful subject terms related to your topic. It can also be useful to look for a published systematic review which has similar search criteria and to see which (MeSH) terms and/or databases were searched.

[Click here to see the search syntax and log template.](#)

3. Refining

The search can be further refined by creating limits in relation to eligibility criteria ([Step 4](#)). These are often “filters” that can be applied within the databases, such as publication type (for example, “systematic reviews only”), as well as date, setting, and language restrictions. A list of published and evaluated filters is available from the UK’s National Institute for Health and Care Excellence (NICE) Information Specialists: [ISSG Search Filters Resource](#).

4. Scoping

Scoping searches should be run in order to test the sensitivity and specificity of the search terms and the relevance of results (The search log template can also be used for scoping searches)

Top Tip! Keep a record of your scoping searches. Once you have completed multiple scoping searches it can become confusing to remember exactly why you dropped some terms from the syntax, or why a search was giving too many/too few results.

5. Database selection

The number of databases to which the search strategy is applied, and the selection of databases depends on time constraints and on the topic of the research question. The Cochrane guidelines recommend limiting the search to CENTRAL, MEDLINE (via PubMed), and Embase (if access is available), but this advice is specific to topics based on randomized controlled trials. Some databases can be used for free while others require an institutional subscription, however it is becoming more common for databases to offer free or reduced-fee access to researchers in low- and middle-income countries.

- [MEDLINE](#) is the most comprehensive database for public health and biomedical literature.
- Searching of specialized databases can be useful for specific topics; for example, for social science literature options include the [International Bibliography of Social Science](#), [Web of Science](#), and [Scopus](#); for specific geographic regions such as the African continent, use [AJOL](#) or [African Index Medicus](#); for psychology-related questions, use PsycInfo and CHINAHL.

Top Tip! Take some time to research which database(s) will give the most relevant results for your topic. Read the database descriptions and the disciplines on which they are focused. Investing time on this step may save you time later by allowing you to avoid searching an irrelevant database and having to screen irrelevant literature. (For a comprehensive list of bibliographic databases and indexes, see https://en.wikipedia.org/wiki/Category:Bibliographic_databases_and_indexes.)

6. Grey literature and supplemental searching (optional)

For some research questions, it may be useful to also search grey literature for additional materials that may not be peer reviewed but may still contain valuable evidence. These materials may include documents such as reports from international non-governmental organizations (INGOs), working papers, and government reports. It may be appropriate to simplify your search syntax and apply it to search engines such as Google, Google Scholar, or specific relevant websites such as those of INGOs, governments, or donor agencies. A comprehensive list of grey literature is available at https://www.cadth.ca/media/pdf/Grey-Matters_A-Practical-Search-Tool-for-Evidence-Based-Medicine.doc.

If justified, a search can be conducted of clinical trial registries (at, for example, clinicaltrials.org) or you can scan the bibliographic reference lists of included studies after screening is completed.

7. Decision log

A log should be kept of the search, from scoping to the final search approach. The decisions that are made should be logged in order to aid follow-up research, to help keep a record of the process, and to justify decisions. [Click here for an example of a search syntax and log.](#)

Top Tip! Most databases allow you to save your search strategy by creating a personal profile. This is useful as you may try several search strategies before deciding on the most suitable iteration. Alternatively, cut and paste the strategy into your search log or, if necessary, screen capture the complete strategy so you can retype it accurately offline.

References and Resources

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Step 6. Screening and study selection

Once the search is completed in the selected databases, results are brought together and identified references are systematically screened. In selecting studies, eligibility criteria will need to be applied in order to determine what will and will not be included in the review. Typically, this process is conducted in two stages; first, provisional decisions are made that are based on article titles and/or abstracts, and second, final decisions are taken which are based on full texts. Here we offer a practical walk-through of the five steps in screening and selecting studies.

1. Export results

Once the search has been completed, download the results into a program that will allow for easy screening. Information downloaded includes citation information such as author, date, journal, issue, volume, and abstract for literature found in databases, and similar identifying information for grey literature. Examples of programs include [Endnote](#) (\$), [Mendeley](#) (free), or [Zotero](#) (free). Study information can also be imported into Excel using the comma-separated values (CSV) format. Each export file format depends on both the database/search engine and the program that will be used to screen. Many videos are available online to describe this process, depending on which ones are selected.

2. Duplicates

When searching in multiple databases, duplicate references of a single study will likely be retrieved. These need to be removed before screening. Most bibliographic programs build in a feature that allows duplicates to be removed, this is also possible in [Excel](#).

Top Tip! Keep track of the numbers of retrieved studies/grey literature documents before and after duplicate removal, as this will feed into your flowchart of search results ([Template - flowchart](#)).

3. Title and/or abstract screening

Experts recommend that two reviewers independently screen at least 20 percent of titles/abstracts to reduce risk of discrepancy, with conflicts discussed and resolved. One reviewer then continues to screen the remaining titles/abstracts and a second reviewer screens all excluded titles/abstracts (Garritty et al. 2021); this is done because single screening of titles/abstracts likely misses out on relevant studies.

The following gives details on how to go about screening:

- Screening template: Develop a standardized title/abstract screening template. Pilot test the template using 20 percent (10 percent for large searches) of the titles/abstracts to validate the form. The template should include the reasons for exclusion, reflecting the information in the eligibility criteria. If the title/abstract screening is completed in Excel, it will be easier to keep track of the numbers and reasons for exclusion ([Template - screening](#)). Screening, in the first instance, can be based on title alone. A quick title screen can be performed to eliminate obviously irrelevant items or to search for obviously irrelevant words in article titles on the reference management database (for example, names of animals for reviews of human nutrition or the word “meta-analysis” when seeking qualitative research).
Remember: Title screen to rule out.
- If the title is ambiguous, then the abstract should also be read. For studies that remain ambiguous, the reference should be retained and then read fully before the decision is made to include or exclude the study. You should continue to include the reference and then read

the full text before deciding to include or exclude the study. **Remember: Abstract and full-text screen: To rule in.**

- When two researchers disagree at the title/abstract level regarding whether a study should be included/excluded, they can either look at the full text or involve a third researcher who acts as a tiebreaker.
- The direction of the study outcome should not be known when studies are being excluded (positive or negative), as this will introduce bias into the results.

4. Full-text screening

Experts recommend that one reviewer screens all included full-text articles and a second reviewer screens all excluded full-text articles (Garritty et al. 2021). Develop a standardized full-text screening template, which should include the reasons for exclusion such that they reflect your eligibility criteria. Recording your verdicts in Excel makes it easier to keep track of the numbers and reasons for exclusion ([Template - screening](#))

Top Tip! The more detailed and refined your eligibility criteria is, the faster screening will be. Keep your criteria to hand when screening! When there are high levels of ambiguity at the beginning, you will generally end up retaining many studies which you will likely exclude in the subsequent rounds. It can be hard to imagine all the potential details of retrieved literature, but if you have a clear and well-defined research question, and have completed satisfactory scoping searches, you should have a good idea of the literature and of what will be included or excluded.

5. Flowchart

Results of the search for all the above steps should be recorded in a flowchart. This will facilitate illustration of the volume of literature retrieved, screened, excluded, and included. Keeping accurate records improves transparency and gives a useful visual snapshot into the evidence base retrieved. The PRISMA flowchart is recommended for reporting results of any systematic approach to reviewing the literature, including scoping review, mapping review, systematic review, or qualitative evidence synthesis (QES).

[Template – Flowchart \(Word\)](#)

[Template – Flowchart \(PPT\)](#)

References and Resources

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Step 7. Data extraction

Data extraction is essential for translating the important information within studies into a format that is useful and comparable in the context of the research question. Data extraction usually, but not necessarily, involves reading the full text of included articles and the extracting required information using a standardized, predetermined extraction form. For some types of rapid reviews, such as a mapping review, it may be appropriate to extract information only from abstracts.

What to extract?

To accelerate the process, it is recommended that data extraction be limited to a minimal set of required data items. The Cochrane Collaboration recommends extracting data for participant, intervention, and comparator characteristics, and for assessed outcomes (Garritty et al. 2021). The broad categories for which data is extracted can include general study characteristics, data relevant to the question framework, and any other specific information related to the research question (**Table 6**). The decision on the type of data extracted depends on the research question.

Top Tip! You can use the data from existing systematic reviews to reduce time spent on data extraction (Garritty et al. 2021).

Table 6. Extraction categories: examples

Extraction category	Examples
General study and identifying information	Reviewer's name, date of extraction, author, date of publication, title, journal details, type of publication (journal article, report, abstract)
Study characteristics	Aims, design (observational, experimental), country/region
Data relevant to the research question and inclusion criteria	PICOS, SPICE, SPIDER, and other criteria
Other important information relevant to the research question	Results, limitations, conflicts of interest, citations to follow up, reviewer comments

Source: Authors

Note: PICOS (Participants, Intervention, Comparison, Outcome, setting); SPICE (Setting, Perspective, Intervention or Exposure or Interest, Comparison, Evaluation); SPIDER (Sample, Phenomenon of Interest, Design, Evaluation, Research type)

Forms and tools

Standardized extraction forms improve consistency and help reduce errors. Forms should reflect the review question and extract enough detail that the analysis can be conducted without needing to revisit the original article. The form needs to be pilot tested and, to minimize errors, data for outcomes should be extracted independently by two skilled extractors. Forms can be created in MS Word or MS Excel.

Here are some helpful tips on developing the data-extraction form and how to go about data extraction:

1. The data to be extracted (whether it be outcomes, study settings, population characteristics, or other information) may be reported differently across the included studies. As a first step, in order to remove any ambiguity, information should be extracted as it appears in the text. A taxonomy can then be created, that is, data can be organized or classified into groups or type; entries within categories can then be summarized as needed for analysis in the review.

2. Piloting the extraction form on a set of studies is key to ensuring that it is fit to capture all the required information.
3. [Using dropdown menus](#) (MS Excel), or tick boxes (MS Word) are ways to limit errors in extracting standardized information.
4. It is recommended that a single reviewer extract data using the piloted extraction form. A second reviewer should then check extractions for completeness and accuracy (Garritty et al. 2021).
5. Reviewers are encouraged to resolve discrepancies by discussing any differences. If this does not resolve differences, a third opinion should be sought.
6. In a separate column, make a note of all decisions. This removes ambiguity and reduces bias, as decisions can then easily be tracked.

Top Tip! Not all data is always present in a given article. It is important to record what is missing in the extraction form so that it is clear you did not just forget to extract this information. The time constraints of a rapid review typically mean that findings can only be based on the information as reported; it is not possible to contact study authors for missing information.

Table 7 shows an indicative set of standard data-extraction elements and an additional set of review-specific data elements. [Template - Extraction](#) is an example of how a PICO-orientated data-extraction form may look in Excel. We offer suggested categories, but in practice some will need to be added or removed (as required by each question). **Table 8** shows an overview of various review tools which help facilitate screening, data extraction, or other steps of the review process.

Table 7. Elements of a data-extraction form

Standard data-extraction elements	Review-specific data-extraction elements
Review title or ID	Theoretical basis (include key references)
Study ID (surname of the first author and the year the first full report of the study was published, for example, (Smith 2001))	Description (include sufficient detail for replication, such as content, dose, or components)
Date form completed (dd/mm/yyyy)	Duration of treatment period
Name/ID of person extracting data	Timing (for example, frequency or duration of each episode)
Participants	Delivery (such as mechanism, medium, intensity, or fidelity)
Types of intervention	Economic information (intervention cost, or changes in other costs as a result of the intervention)
Types of comparison	Resource requirements (such as staff numbers, cold chain, or equipment)
Types of outcome measures	Outcome name
Aim of study (such as efficacy, equivalence, or pragmatic reasons)	Time points measured (specify whether this is from the start or the end of the intervention)
Design (such as parallel, crossover, or non-randomized controlled trial)	Time points reported

Table 8. Review tools

Product name	Characteristics
Abstrackr, OpenMeta[Analyst] (open source, freely available)	Suite of products on the website of the Brown University School of Public Health Abstrackr is a semiautomated citation screening software program OpenMeta[Analyst] is software for performing meta-analyses of continuous, binary, or diagnostic test accuracy data
Covidence (first review free; subscription required for subsequent reviews)	Primary screening and data-extraction tool for Cochrane authors Full text can be highlighted and linked to prepare a risk-of-bias table Data can be exported into various analytic packages
DistillerSR (purchase of licence required)	Tool for citation import and tracking for inclusion and exclusion Customizable data-extraction tables Data can be exported into various analytic packages
EPPI-Reviewer (available to Cochrane authors free of charge; subscription fee for others)	Supports development of all types of systematic reviews, including complex reviews; includes reference management, screening, data extraction, and risk-of-bias assessments; contains quantitative and qualitative analysis functions; allows coding of text and generation of keywords
GRADEpro GDT (freely available)	Software for generating evidence profiles and summary-of-findings tables for systematic reviews and supporting development of guideline recommendations
Rayyan (freely available, web-based, includes mobile applications)	Software for semiautomated screening titles and abstracts
Review Manager (RevMan) (purchase of licence required for non-Cochrane review use)	Contains Cochrane review template, including tables of study characteristics, comparisons, charts for risk-of-bias assessment, and templates for graphical display of results; Integrates meta-analysis software
System for the Unified Management, Assessment and Review of Information (SUMARI) (free, but registration required)	Suite of modules for systematic reviews; this is produced by the Joanna Briggs Institute and is available to systematic review researchers; includes tools for data extraction and critical appraisal for multiple study designs; can import and manage citations

Source: Tricco, Langlois, Straus 2017.

References and Resources

References

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Step 8. Quality assessment

Quality assessment is important for establishing the extent of confidence in results and to ensure that no harm is caused (Tricco, Langlois, Straus 2017); however, it may not be needed when the purpose of the review is to scope the available literature rather than to evaluate specific effects. Quality can be assessed in different ways and will differ depending on the type of studies included in the rapid review; for example, a study design may be used as a marker of quality, but that does not distinguish a poor trial from a well-conducted trial.

Table 9 offers an overview of the most recommended tools for assessing study quality by study design, however, for a complete overview of tools see Ma et al., 2020. Grey literature (especially unpublished randomized controlled trials) should be appraised to the same standard as those used to evaluate peer-reviewed literature, using the same critical appraisal tools.

Table 9. Recommended tools for quality assessment

Systematic reviews	Randomized interventions	Nonrandomised interventions	Observational studies*	Qualitative studies	Mixed methods	Grey literature
AMSTAR and AMSTAR 2	Cochrane risk-of-bias (RoB 2.0)	ROBINS-I tool	Newcastle-Ottawa Scale (NOS)	CASP qualitative research checklist	Mixed Methods Appraisal Tool (MMAT)	AACODS checklist
	CASP checklist		JBI critical appraisal checklist	JBI critical appraisal checklist for qualitative research		

Source: based on Ma et al. 2020

Note: * Observational studies include cohort studies, case-control studies, cross-sectional studies, and case series

Quality assessment generally considers:

1. Appropriateness of the study design to the research question
2. Risk of bias (such as selection, performance, detection, attrition, or reporting bias)
3. Other items (such as choice of outcome measure, choice of statistical test, and generalizability of results)

Quality assessment often occurs alongside data extraction as part of the process of becoming sensitized to the details of each study. Below are some guiding questions for considering how quality assessment will be integrated within the review:

- Will quality assessment be used to determine inclusion/exclusion of studies? This poses a challenge as a poor risk-of-bias or poor-quality assessment scores does not always mean there is bias.
- Will quality assessment simply be used as a tick box exercise to confirm that quality has been assessed, without the assessment being incorporated into the analysis?
- Will quality assessment be used to inform how the evidence base is interpreted, either suppressing or amplifying results according to whether they possess lower or higher quality, respectively?
- Will graphical representations of quality assessment be used?

References and Resources

References

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Step 9. Knowledge synthesis

The best practice is to think through the analysis plan before synthesizing the extracted data. It should be decided at the protocol stage how data will be grouped and visualized based on the research question. This preplanning will ensure extraction of the data that will be required to address analysis questions throughout the review.

Different approaches to analyzing and synthesizing findings: Some recommendations

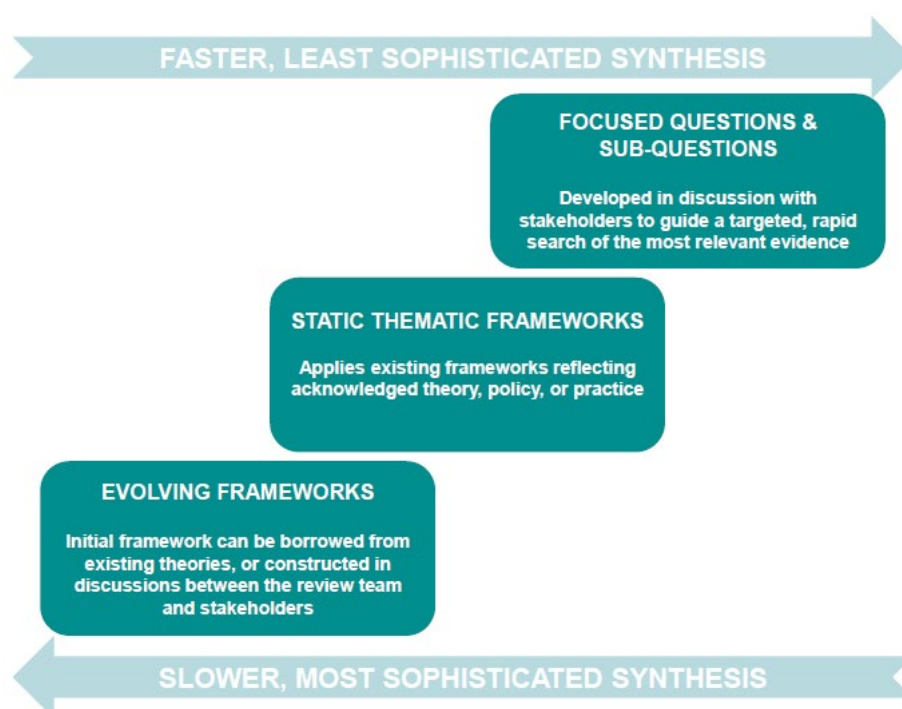
1. *Descriptive analysis*: Provide a descriptive summary of the included studies and their general characteristics. This helps to identify whether studies are similar and/or reliable and if any pooling of results is possible.
2. *Narrative synthesis* of findings to interpret the included evidence:
 - Organize synthesis around the PICO question framework elements; report results by interventions, then by comparisons, and then by outcomes.
 - Synthesize findings to determine the appropriateness of a meta-analysis.
3. *Meta-analysis*: this is optional for a rapid review; if feasible, aim to involve a statistician with experience in this type of analysis.
4. *Framework analysis*: Occasionally, a framework or logic model may offer a useful structure upon which to hang data, particularly if one is trying to integrate different types of data such as, for example, quantitative and qualitative (**Figure 6**). Frameworks can be taken from policy, from conceptual work, or from the program logic of an intervention or program. For an applied example see Trübswasser et al. (2020).
5. *Several strategies for synthesis* are identified by Snilstveit, Oliver, and Vojtkova (2012). Relevant tools include:
 - Textual description of studies, groupings, and clusters; tabulation; transforming data into a common rubric; vote counting as a descriptive tool; and thematic and content analysis for translating data.
 - Graphs, frequency distributions, funnel plots, forest plots, and L'Abbé plots; moderator variables and subgroup analyses; idea webbing and conceptual mapping; reciprocal and refutational translation; qualitative case descriptions; investigator/moderator triangulation; and conceptual triangulation.
 - Weight of evidence; best evidence synthesis; validity assessment; reflecting critically on the synthesis process; checking the synthesis with authors of primary studies.

Graphical and visualization tools for presenting findings

As rapid reviews need to provide a solid and condensed overview of the evidence, graphical representation and visualization tools are a useful and efficient way to transfer key results to stakeholders. Potential tools that can be used to visualize your results are [Datawrapper](#) (free); [Flourish](#) (free); and [Tableau](#) (\$).

Best known examples are the 3ie – [evidence gap maps](#); other examples are DataDent [Landscaping data visualisation tools for nutrition](#), and Transform Nutrition West Africa's [West Africa country data profiles](#).

Figure 6. Synthesis types



Source: Tricco, Langlois, Straus 2017.

References and Resources

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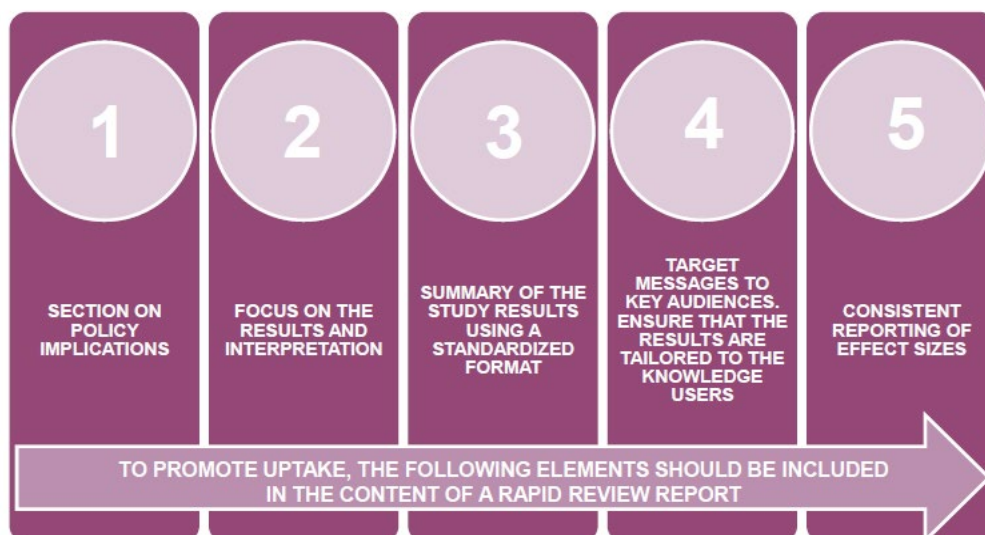
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Step 10. Report production and dissemination

When preparing the final rapid review report, it is important to consider who the end user is and the most appropriate channels for dissemination; for example, it may not be appropriate to go through a formal peer-review process to produce a journal article. End users may be decisionmakers (who have been involved from the beginning or throughout the process) who need the final report as quickly as possible to inform decision-making. The format and the communication of key findings may therefore be condensed compared to conventional systematic reviews in peer-reviewed journals. This may involve first and foremost highlighting key findings and key recommendations, with detailed methods reported in the appendix or in a separate technical note.

“Rapid reviews should prioritize the practical needs of the primary knowledge user over traditional or academic approaches to dissemination, by tailoring the message and methodological approach to the needs of knowledge users” Tricco, Langlois, Straus 2017; see **Figure 7**.

Figure 7. Content to promote uptake of rapid review



Source: Tricco, Langlois, Straus 2017.

This resource bank provides all elements needed for developing the rapid review report. The protocol developed serves as a guide for writing the report; all the ingredients necessary for completing each step (using the templates) are provided. Examples of rapid review reports include the evidence notes from Transform Nutrition West Africa’s “Adolescent Nutrition in West Africa” (where findings and recommendations were published in an [Evidence Note](#) and the technical details of the methods were published in a separate [Technical Note](#)) and one from Public Health England entitled “[Face Coverings in the Community and COVID-19: A Rapid Review](#)”.

References and Resources

References

Hartling, L., J. M. Guise, E. Kato, J. Anderson, N. Aronson, S. Belinson, E. Berliner, D. Dryden, R. Featherstone, M. Foisy, M. Mitchell, M. Motu'apuaka, H. Noorani, R. Paynter, K. A. Robinson, K. Schoelles, C. A. Umscheid, and E. Whitlock. 2015. "EPC Methods: An Exploration of Methods and Context for the Production of Rapid Reviews." [internet]. Rockville (MD): Agency for Healthcare Research and Quality (US). Available from: <https://www.ncbi.nlm.nih.gov/books/NBK274092/>

Resources

Polisena, J., C. Garritty, C. Kamel, A. Stevens, and A. M. Abou-Setta. 2015. "Rapid Review Programs to Support Health Care and Policy Decision Making: A Descriptive Analysis of Processes and Methods." *Systematic Reviews* 4: 26.

Appendices

Method for creating dropdown menus in Excel

METHOD 1: Enter menu options manually

- **Select the cells** you want to apply a dropdown menu to > Go to **Data tab > Data Validation > Allow: select List > Data: enter the values** (i.e. items in the list you want to create) **manually, separated by commas, into the “Source:” box.** e.g. nutrition, health, food security) > **click OK.**
- There are some dangers with this option (and the other methods will work around these risks) but it is the fastest/most common way to create a drop down menu.
- You will only be able to enter values that are in the specified list.
- [you can also create a customized error alert if values different from the ones specified are entered in the cells].
- Depending on what you want to do, you can allow/ignore blank values, and decide if you want to show/hide the in-cell dropdown.

METHOD 2: Refer to a data range

- This method involves entering the data somewhere else in the Excel workbook, and specifying that the dropdown menu available refers to the data range in the Data Validation settings.
- **Create list of values in table form** (instead of entering manually in Data Validation window) > **select cells** where you want to apply the dropdown menu > go to the **Data tab > Data Validation > Settings** screen > **Allow: List > Select range of cells that contain your list**
- In this case, in the ‘Source:’ box, instead of the actual list of items separated by a comma, you will see the range of cells that contain your list (e.g. A1-A10) > **click OK**
- If you change the items in the table, it updates the dropdown menu available for filling the cells (e.g. if Ministry of Agriculture changes name to Ministry of Agriculture and Rural Affairs), but it will still refer to the range of cells you had selected at the beginning.

METHOD 3: Update the dropdown menu whenever needed, without going into Data Validation every time

- With this method, you can both change items within the existing list AND add as many items as you like (helpful in our case, e.g. if you have different countries for which you want to extract data and each country has peculiarities – e.g. groupings of tasks under a particular ministry – e.g. Ministry of Agriculture and Rural Development in one country / Ministry of Agriculture, Forestry and Fisheries in another country; or if recurring items specific to a given country warrant for additional options in dropdown menu; or if the protocol keeps evolving over weeks/months and you want the changes to be reflected in the dropdown lists).
- **Create a list** of values that you want to be in your dropdown menu **in table form** (either on the same worksheet or on a different worksheet in the same Excel file – best to use the second option, then the worksheet with data ranges can be hidden, e.g. if you don’t want users to edit the list) and your worksheets will be neat. **Make sure you’ve entered a header for your list** (it will make things easier for you later).
- **Select the table/data range** you just entered (**including the header**), and create an Excel Table by going to **Insert > Table** from the Excel Ribbon (or by using the shortcut Ctrl + T). > **Click OK** when the dialog box appears. > **Tick box ‘my table has headers’.**
- (**optional** but useful because you will recognise it in Data Validation instead of just having Table1, Table2... - better to have e.g. Table_Sector or T_Sector, etc. – you will have these names as suggestions when you go to data validation later – also useful if you apply the same table/dropdown menu to different columns): You can **change the Table name on the top-left** under **File > Table tools > Table name > change name directly from the box below Table**

name > click Return (remember to click return or it won't apply the name!). [You can also do this last step through Name Manager > Define name etc. but it's easier and quicker this way].

- [note: Excel treats Tables differently – i.e. Tables for which you have told Excel that they are tables, as in this case. For this reason, you will be able to add and change items and it will still treat them as part of the table, whatever form and length it takes, as opposed to the method above where the list in table form was not officially a Table but a range of cells. Items within those cells would be changed / items beyond those cells would not be added, resulting in a partially updatable dropdown menu].

The tricky bit: apply formula

- Select the cells/column where you want to apply the dropdown menu (might be a different worksheet from the one where you have your tables) > Data > Data Validation > Allow: List > in the "Source:" box enter INDIRECT formula: =INDIRECT("TableName") > click OK. e.g. =INDIRECT("T_Sector")
- Done. Test your dropdown menu.
- [If it's not working, check spaces, inverted commas, parentheses, etc.].
- [If you make mistakes or you want to permanently delete a dropdown menu, you can easily click 'Clear All' in data validation and repeat the process].
- [optional: **To hide** the worksheet with all your dropdown menu tables, go to the worksheet's name tag at the bottom of Excel file > right-click > Hide. **To unhide**, go to nametag of other worksheet that is visible at the bottom of Excel file > right-click > Unhide].

Example of a data-extraction form

Data extraction form (template) from Duvendack, M, Mader, P. Impact of financial inclusion in low- and middle-income countries: A systematic review of reviews. *Campbell Systematic Reviews*. 2019; 15:e1012. <https://doi.org/10.4073/csr.2019.2>

Data extraction items	Details
1. Context	<ul style="list-style-type: none"> • Source • Author • Publication year • Geographical focus (e.g., continent, countries and regions) • Funding source
2. Type of intervention	<ul style="list-style-type: none"> • Details of the population as discussed in the reviews (e.g., household, individual, enterprise; type of finance user, i.e., multiple borrower/saver, repeat borrower/saver; gender or other person characteristics, e.g., women focus or youth focus) • Broad category—type of product/service offered, ensure intervention has at least one essential financial service element • Detailed sub-category of product (e.g., credit to existing businesses only, group savings account, etc.) • Comparator, i.e., comparing against nothing at all or against the next best alternative • Duration of intervention (e.g., length of exposure to intervention) • Modality of intervention—group vs individual • Location of intervention—urban/rural • Focus on women only (yes/no)
3. Type of review; design and methods	<ul style="list-style-type: none"> • Research question and review objectives—list actual question, plus clearly stated (yes/no) • Inclusion criteria—clearly stated (yes/no) • Search methods—e.g., number of databases, dates of search provided, search strategy/key words provided, additional search methods reported, any search restrictions (by language, timeframe?) • Study selection methods—clearly reported (yes/no), independent screening, full text review, consensus procedure for agreements • Number of included studies • Types of included studies • Types of data extraction methods—clearly reported (yes/no), independent screening • Types of data synthesis approaches (quantitative/qualitative) • Subgroup analysis conducted (yes/no) • Discussion of publication bias (yes/no)

Data extraction items	Details
4. Outcome measures	<ul style="list-style-type: none"> • Outcome definition, i.e., type of outcome measure to be grouped by social, economic, behavioural • Unit of measurement (e.g., at household or individual level, composition of empowerment indices)
5. Quality assessment	<ul style="list-style-type: none"> • Quality of review methods, their use and application—to be assessed using data extracted as part of “3. Type of review; design and methods” which will feed into AMSTAR rating • GRADE rating provided (yes/no) • Name of other quality assessment tools and their quality scores • Researcher bias/Conflict of interest
6. Study results and findings	<ul style="list-style-type: none"> • For each outcome: <ul style="list-style-type: none"> ◦ Sample size ◦ Type of effect size ◦ Magnitude and direction of effect size, if reported, to allow comparison across included studies

Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) Checklist - 20 essential reporting items and 2 optional items

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
TITLE			
Title	1	Identify the report as a scoping review.	Click here to enter text.
ABSTRACT			
Structured summary	2	Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives.	Click here to enter text.
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach.	Click here to enter text.
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives.	Click here to enter text.
METHODS			
Protocol and registration	5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number.	Click here to enter text.
Eligibility criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale.	Click here to enter text.
Information sources*	7	Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed.	Click here to enter text.
Search	8	Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	Click here to enter text.
Selection of sources of evidence†	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review.	Click here to enter text.
Data charting process‡	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators.	Click here to enter text.
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	Click here to enter text.
Critical appraisal of individual sources of evidence§	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate).	Click here to enter text.

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
Synthesis of results	13	Describe the methods of handling and summarizing the data that were charted.	Click here to enter text.
RESULTS			
Selection of sources of evidence	14	Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram.	Click here to enter text.
Characteristics of sources of evidence	15	For each source of evidence, present characteristics for which data were charted and provide the citations.	Click here to enter text.
Critical appraisal within sources of evidence	16	If done, present data on critical appraisal of included sources of evidence (see item 12).	Click here to enter text.
Results of individual sources of evidence	17	For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives.	Click here to enter text.
Synthesis of results	18	Summarize and/or present the charting results as they relate to the review questions and objectives.	Click here to enter text.
DISCUSSION			
Summary of evidence	19	Summarize the main results (including an overview of concepts, themes, and types of evidence available), link to the review questions and objectives, and consider the relevance to key groups.	Click here to enter text.
Limitations	20	Discuss the limitations of the scoping review process.	Click here to enter text.
Conclusions	21	Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps.	Click here to enter text.
FUNDING			
Funding	22	Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review.	Click here to enter text.

JBI = Joanna Briggs Institute; PRISMA-ScR = Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews.

* Where *sources of evidence* (see second footnote) are compiled from, such as bibliographic databases, social media platforms, and Web sites.

† A more inclusive/heterogeneous term used to account for the different types of evidence or data sources (e.g., quantitative and/or qualitative research, expert opinion, and policy documents) that may be eligible in a scoping review as opposed to only studies. This is not to be confused with *information sources* (see first footnote).

‡ The frameworks by Arksey and O'Malley (6) and Levac and colleagues (7) and the JBI guidance (4, 5) refer to the process of data extraction in a scoping review as data charting.

§ The process of systematically examining research evidence to assess its validity, results, and relevance before using it to inform a decision. This term is used for items 12 and 19 instead of "risk of bias" (which is more applicable to systematic reviews of interventions) to include and acknowledge the various sources of evidence that may be used in a scoping review (e.g., quantitative and/or qualitative research, expert opinion, and policy document).

From: Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. *Ann Intern Med*. 2018;169:467–473. doi: [10.7326/M18-0850](https://doi.org/10.7326/M18-0850).

PRISMA (PRISMA) Checklist and Flow chart

Preferred Reporting Items for Systematic reviews and Meta-Analyses [\(PRISMA\) Checklist](#) - 27 reporting items 7 (some with multiple elements a,b,c)

Section and Topic	Item #	Checklist item	Location where item is reported
TITLE			
Title	1	Identify the report as a systematic review.	
ABSTRACT			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	
METHODS			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	
Information sources	6	Specify all databases, registers, websites, organizations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data	

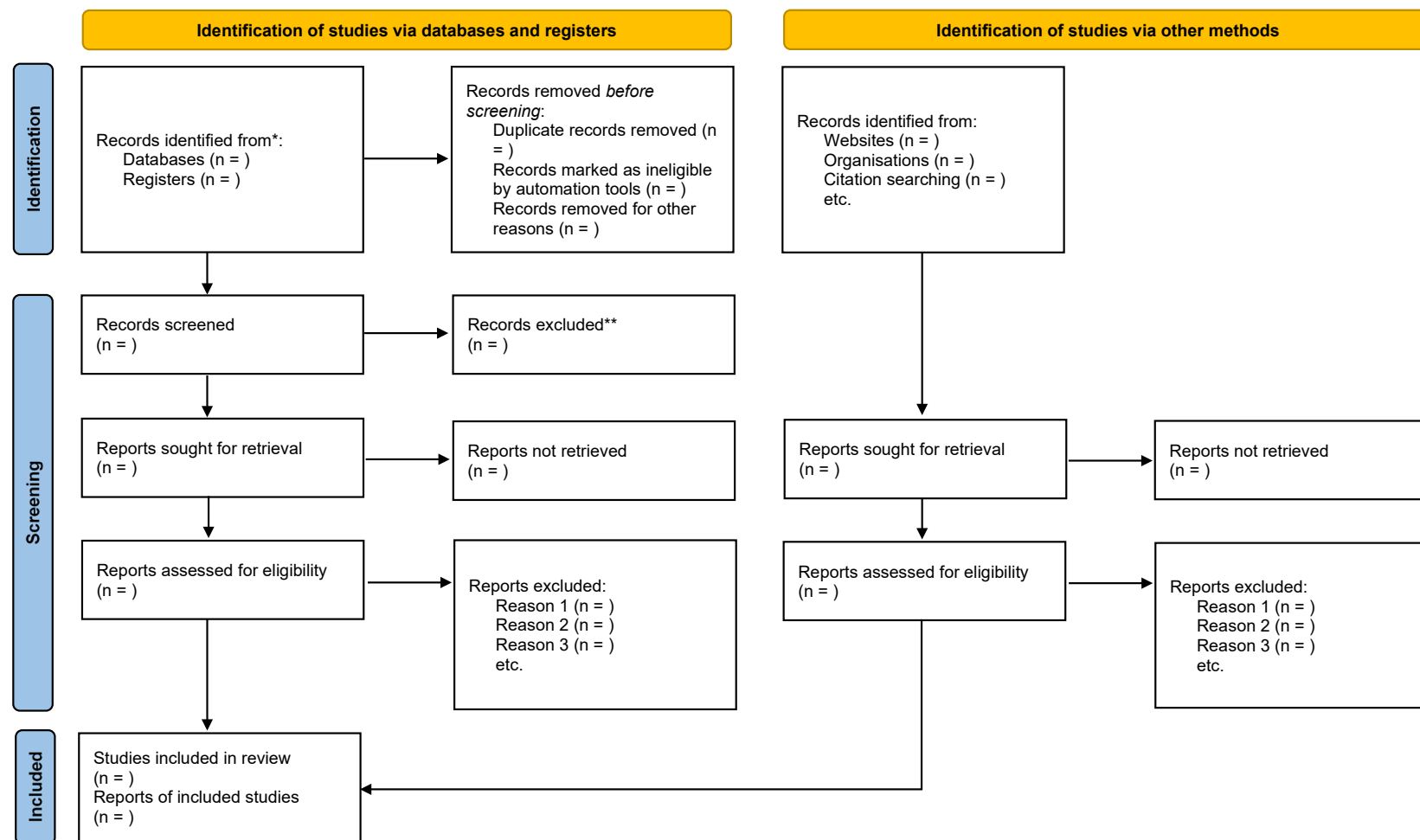
Section and Topic	Item #	Checklist item	Location where item is reported
		conversions.	
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	
RESULTS			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	
Study characteristics	17	Cite each included study and present its characteristics.	
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	
Results of syntheses	20a	For each synthesis, briefly summarize the characteristics and risk of bias among contributing studies.	
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	
DISCUSSION			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	
	23b	Discuss any limitations of the evidence included in the review.	

Section and Topic	Item #	Checklist item	Location where item is reported
	23c	Discuss any limitations of the review processes used.	
	23d	Discuss implications of the results for practice, policy, and future research.	
OTHER INFORMATION			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	
Competing interests	26	Declare any competing interests of review authors.	
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	

From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71

For more information, visit: <http://www.prisma-statement.org/>

Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) Flow Diagram



*Consider, if feasible to do so, reporting the number of records identified from each database or register searched (rather than the total number across all databases/registers).

**If automation tools were used, indicate how many records were excluded by a human and how many were excluded by automation tools.

From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71. For more information, visit: <http://www.prisma-statement.org/>

Toolbox - Published guidelines/guidance for different review types

Illustrative guidelines/guidance of common review types

	Procedure Manuals/ Papers	Protocols	Reporting Guideline	Quality Assessment Checklists	Published Audits
Systematic Review	Higgins et al. (2019)	Shamseer et al. (2015)	Page et al. (2020)	Shea et al. (2017)	Borges Migliavaca et al. (2020)
Mapping Review	James et al. (2016)	CEE (2018)	Tricco et al. (2018)	Available from Andrew Booth	Not known
Scoping Review	Arksey and O'Malley (2005)	Peters et al. (2020)	Tricco et al. (2018)	Available from Andrew Booth	Tricco et al. (2016)
Review of Reviews	Smith et al. (2011)	Aromataris et al. (2020)	Pollock et al. (2020)	Ballard and Montgomery (2017)	Lunny et al. (2017 , 2018)
Meta-analysis	Higgins et al. (2019)	Shamseer et al. (2015)	Page et al. (2020)	Shamseer et al. (2015)	Multiple, e.g. Plana et al. (2020)
Meta-ethnography	Campbell et al. (2011)	Not known	France et al. (2019)	SBU (n.d.)	France et al. 2014
Qualitative Evidence Synthesis	Noyes et al. (2019)	Glenton et al. (2020)	Tong et al. (2012)	SBU (n.d.)	Hannes and Macaitis (2012)
Rapid Review	Garritty et al. (2020)	Not known	Under development ¹	Not known	Marshall et al. (2019)
Rapid Qualitative Evidence Synthesis	Guide to conducting rapid QES for HTA	Glenton et al. (2020)	Tong et al. (2012)	SBU (n.d.)	Campbell et al. 2019
Realist Synthesis	RAMESES – Training Materials	Not known	RAMESES – realist synthesis	Quality standards	Berg and Nanavati. (2016).

HTA = Health Technology Assessment; QES = Qualitative Evidence Synthesis

¹ <https://www.equator-network.org/library/reporting-guidelines-under-development/reporting-guidelines-under-development-for-systematic-reviews/>

To cite this publication: Verstraeten R., L. Salm and A. Booth. 2021. *A Rapid Review Resource Bank*. Transform Nutrition West Africa (August). Dakar, Senegal: International Food Policy Research Institute.

This publication has not been peer reviewed. Any opinions stated in this publication are those of the author(s) and are not necessarily representative of or endorsed by IFPRI.

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Transform Nutrition West Africa is a regional platform to enable effective policy and programmatic action on nutrition. It is funded by the Bill & Melinda Gates Foundation from 2017–2021 and is led by the International Food Policy Research Institute.

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