

Systematic Reviews: Content Guidance

Version 3.0

Agency for Healthcare Research and Quality

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Structure and Use of the Content Guidance

This content guidance addresses the four chapters expected in an Evidence-based Practice Center (EPC) report of a systematic review (SR):

1. Introduction (why the research was conducted)
2. Methods (how the research was conducted)
3. Results (what you found)
4. Discussion (what this means)

Guidance for each chapter appears below, as does guidance on the contents of appendices.

We developed this document to support EPCs in creating reports that are: 1) transparent about the conduct of the review, 2) readable, and, most importantly, 3) useable by a target audience of health care practitioners, health system leaders, policymakers, or other health professionals. We aim to standardize what can be standardized, but we understand that the wide range of EPC review topics requires flexibility.

We mean this guidance to be fluid and adaptable to the needs and logic of diverse evidence reports. If any element of this guidance would create redundancy, illogic, or excess length in a given report, EPCs should work with their Task Order Officers (TOOs) to create a better solution. For example, if including studies by Key Question (KQ) (as outlined in this guidance) would produce repetition, EPCs should describe included studies in one place toward the beginning of the Results Chapter instead.

We hope that changes in protocol and other guidance will lead to reports with scopes more closely defined by specific decisional dilemmas; however, certain reports may cover broad topic areas. In such cases, dividing the review into multiple reports, for example, may lead to clearer key messages. Again, EPCs are encouraged to work with their TOOs to find specific, tailored solutions.

This guidance supports the goal of meaningful, readable reports. Obstacles to that goal, even elements of this guidance, should be removed. Readability and usability must be the ultimate guide.

**EPCs should use this content guidance in conjunction with the EPC report template,** which provides the specified font type, font size, and heading type consistent with the Agency for Healthcare Research and Quality (AHRQ) Publishing and Communications Guidelines and EPC Publishing Guide. (These materials can be found in the Resources folder on the secure site: <https://epc-src.ahrq.gov/src/>.)

Table 1. General guidance for reports

| Review Elements | General Guidance |
| --- | --- |
| **Report length** | Be as concise as possible. Excluding front matter, references, and appendices, small reviews should not exceed 40 pages; medium 60 pages; and large 80 pages. Without prior agreement from the TOO, draft reports outside of these limits will be returned to the EPCs for editing. |
| **Evidence Summary** | Include an Evidence Summary in all reports—even rapid products (see separate Evidence Summary content guidance). |
| **Methods** | Strictly limit Methods to what a reader needs to know to understand what analyses the EPC conducted; refer readers to the protocol, appendices, or methods guidance for all standard procedures and detailed explanations of methods. |
| **Tables and figures** | Be judicious; try to limit tables and figures in the body of the report to high-level summaries that can replace longer textual descriptions. Forest plots of key outcomes, for example, can effectively communicate complex information. |
| **Appendices** | Ideally, limit the appendices to one per report chapter, i.e., Methods Appendix, Results Appendix, etc. If dividing an appendix would make it easier to read, use, and understand, list the report chapter and section in its title, e.g., *Methods Appendix: Search Strategies*. |

Abbreviations: EPC= Evidence-based Practice Center; TOO= Task Order Officer.

Introduction

Table 2. Page length guidelines\*

| **Percent of Report Length** | **Small Report**  **(<40 pages)** | **Medium Report**  **(<60 pages)** | **Large Report**  **(<80 pages)** |
| --- | --- | --- | --- |
| **Introduction**  **(10% of report length)** | **~4 pages** | **~6 pages** | **~8 pages** |

\*The only important measure is the overall report length. Chapter guidelines provide a rough estimate of how these pages should be apportioned. Each report will differ. Introduction chapters, for example, may not vary greatly by size of report.

AHRQ funds evidence reviews to help stakeholders address questions of policy or practice for which the totality of the evidence is unknown or unclear. Accordingly, the Introduction should describe these decisional dilemmas (as outlined in your protocol) and the relevant policy or practice issues but avoid extraneous detail.

This chapter also forms the logical structure from which should flow the Key Questions and methods for the review. That is, the Key Questions and other methodological choices should transparently relate to the described decisional dilemmas. Finally, this chapter forms the basis for the Discussion; therefore, it should outline the context against which the findings should be measured.

**Somewhere in this introduction, note any important tips for readers, including where to find a complete list of abbreviations and acronyms or a glossary (alphabetical list of terms), or both.**

Background

Background information will vary according to the decisional dilemmas. Not all facts about a condition or intervention are relevant to the decisions at hand. This section is not intended to be a tutorial on the condition(s), interventions, or outcomes. Include the following when they are **important to understanding the decisional dilemmas and the purpose of the review:**

* Information on existing practice standards or guidelines and known practice variation or practice gaps.
* Policy or contextual issues that contribute to the decisional dilemma.
* Particular issues around patient population, subpopulations of interest, or variation or uncertainty around diagnosis.
* Interventions and pertinent comparisons of interest, and particular issues for individual component parts or grouping of intervention classes.
* Relevant issues related to availability, U.S. Food and Drug Administration (FDA) status, indications, and warnings for use of any drugs or devices covered in the systematic review; if extensive, include this information in an appendix.

Purpose and Scope of the Systematic Review

**Clearly state the primary intent and audience(s) for the report.** This should be a brief description of the purpose for the report (i.e., why the review is needed). Describe the review’s intended audience and reference the name of the nominator or partner (with their permission). Identify the funding source (if from a federal partner other than AHRQ). Note any significant issues the review will cover.

Methods

Table 3. Page length guidelines\*

| **Percent of Report Length** | **Small Report**  **(<40 pages)** | **Medium Report**  **(<60 pages)** | **Large Report**  **(<80 pages)** |
| --- | --- | --- | --- |
| **Methods**  **(10% of report length)** | **~4 pages** | **~6 pages** | **~8 pages** |

\*The only important measure is the overall report length. Chapter guidelines provide a rough estimate of how these pages should be apportioned. Each report will differ. Methods chapters, for example, may not vary greatly by size of report.

Guidance for this chapter differs significantly from previous report content guidance. The Methods Chapter should now very briefly discuss only important elements of how the EPC conducted the review. Much of the detail that previously appeared in a standard Methods Chapter can now appear in appendices. The goal is for readers to be able to quickly and easily assess the scientific foundation of the report.

The table below outlines topics that make up a Methods Chapter and indicates whether these items should generally be located in the report or the Methods Appendix. As with other areas of guidance, EPCs have flexibility in interpretation. These sections can be moved between the report and appendix as needed, assuming the full report does not exceed maximum page limits.

Generally, the report should contain methodological information specific to the review, and not to a general approach. For example, atypical and topic-specific elements of Data Synthesis and Analysis should be noted in the report while elements that are methodologically routine may be described in the appendix.

The Methods Chapter and appendix **combined** should meet the AMSTAR 2 criteria and other relevant reporting guidelines.1, 2

Table 4. Location and heading levels for sections in Methods

| Heading | Heading Level | Location |
| --- | --- | --- |
| Methods | Chapter Heading | Report |
| Review Approach | Level 1 | Report |
| Key Questions | Level 2 | Report |
| Analytic Framework | Level 2 | Report |
| Study Selection | Level 1 | Report |
| Data Extraction and Risk of Bias Assessment\* | Level 1 | Report |
| Data Synthesis and Analysis\* | Level 1 | Report |
| Grading the Strength of the Body of Evidence\* | Level 1 | Report |
| Methods Appendix | Chapter Heading | Appendix |
| Details of Study Selection | Level 1 | Appendix |
| Search Strategy (details) | Level 2 | Appendix |
| Inclusion and Exclusion Criteria (details) | Level 2 | Appendix |
| Data Extraction (details) | Level 1 | Appendix |
| Risk of Bias Assessment of Individual Studies (details) | Level 1 | Appendix |
| Data Synthesis and Analysis (details) | Level 1 | Appendix |
| Grading the Strength of the Body of Evidence (details) | Level 1 | Appendix |
| Peer Review and Public Commentary | Level 1 | Appendix |

\*Details should be in the appendix. Include only brief statement in full report and refer readers to the appendix.

Review Approach

* Give a one- or two-sentence introduction to the methodological approach, with relevant references (e.g., methods guidance, reporting guidelines).
* Describe any variations from the protocol and reasons for them. If the methods have many deviations, one or more subheads may be warranted. In cases where several technical terms are used, refer readers to a glossary.
* Mention **very** briefly that the EPC (and the Scientific Resource Center [SRC] if the SRC did the topic development) engaged in a public process to develop and refine the topic and its Key Questions and to develop a draft and final protocol for the entire systematic review process.

Language along the following lines may be helpful:

*The methods for this systematic review followed the AHRQ Methods Guide for Effectiveness and Comparative Effectiveness Reviews (available at* [*https://effectivehealthcare.ahrq.gov/topics/cer-methods-guide/overview*](https://effectivehealthcare.ahrq.gov/topics/cer-methods-guide/overview)*). This systematic review also reports in accordance with the Preferred Items for Reporting in Systematic Reviews and Meta-Analyses (PRISMA),2 A MeaSurement Tool to Assess systematic Reviews (AMSTAR 2),1 and any relevant extension statements.*

*AND*

**For topics nominated via the Effective Health Care (EHC) website without topic refinement:***The topic of this report and preliminary Key Questions arose through a process involving the public and AHRQ (or the Scientific Resource Center [SRC] for AHRQ’s EPC program if they did topic development) (*[*https://effectivehealthcare.ahrq.gov/about/epc/nomination/*](https://effectivehealthcare.ahrq.gov/about/epc/nomination/)*). The final protocol is posted on the EHC website at XXXX. The PROSPERO registration is XXX.*

*OR*

**For projects nominated via the EHC website with topic refinement:** *The topic of this report and preliminary Key Questions arose through a process involving the public, and AHRQ (or the Scientific Resource Center [SRC] for AHRQ’s EPC program if they did topic development) (*[*https://effectivehealthcare.ahrq.gov/about/epc/nomination/*](https://effectivehealthcare.ahrq.gov/about/epc/nomination/)*).*

*Initially a panel of Key Informants gave input on the Key Questions (KQs) to be examined; these KQs were posted on AHRQ’s EHC website for public comment in [month year] for 3 weeks and revised in response to comments. A panel of technical experts provided high-level content and methodological expertise throughout development of the review protocol. The final protocol is posted on the EHC website at XXXX. The PROSPERO registration is XXX.*

*OR*

**For topics funded through an Inter-Agency Agreement without topic refinement:** *The topic of this report was developed by [sponsor agency] in consultation with AHRQ. The final protocol is posted on the EHC website at XXXX. The PROSPERO registration is XXX.*

*OR*

**For topics funded through an Inter-Agency Agreement with topic refinement:** *The topic of this report was developed by [sponsor agency] in consultation with AHRQ.*

*Initially a panel of Key Informants gave input on the Key Questions (KQs) to be examined; these KQs were posted on AHRQ’s EHC website for public comment in [month year] for 3 weeks and revised in response to comments. A panel of technical experts provided high-level content and methodological expertise throughout development of the review protocol. The final protocol is posted on the EHC website at XXXX. The PROSPERO registration is XXX.*

Key Questions

* Give the full (exact) wording of each Key Question.
* Check that Key Questions here map to those in protocol to a reasonable degree. (Changes from originally posted Key Questions are acceptable and modifications of KQs in protocol may also be acceptable.)

Analytic Framework

* Include the analytic framework Figure.
* Label the analytic framework to depict where each Key Question falls. The AHRQ topic development and refinement guidance has an illustration,3 but the EPC should design and describe the analytic framework to help readers understand the logic of the analysis. Analytic framework should flow from populations to the important health (or other) outcomes, including patient-important outcomes, that the systematic review will cover.
* Develop alt text in a separate document for 508 compliance.

Study Selection

In the main body of the report, provide a high-level summary of study selection including search dates and inclusion and exclusion criteria. Provide enough detail about the Population, Intervention, Comparison, Outcome, Timing, Setting (PICOTS) to allow readers to place results into the applicable context. These details can be presented in a table, but if the resulting table is (or tables are) very large and detailed, consider summarizing in text and adding a link to the Methods Appendix for the full table(s). For reviews of complex interventions, consider defining the intervention in the main report. See Guise et al for a definition of complex interventions.4

Full details on the search strategy and inclusion and exclusion criteria should be included in the Methods Appendix (see separate Methods Appendix guidance below).

Data Extraction and Risk of Bias Assessment

In the body of the main report, briefly describe (in one to three sentences) the process for data extraction and risk of bias assessment. Refer readers to the Methods Appendix for full details.

Data Synthesis and Analysis

In the body of the main report, briefly describe key details of the data synthesis and analysis that help readers know what to expect in the results. Examples of details that may go in main report include:

* The approach to grouping studies and categorizing interventions (especially in the case of complex interventions).
* A high-level summary of critical and/or important outcomes, including outcome definitions and processes used for prioritizing outcomes.
* The general approach for data analysis (qualitative and/or quantitative), including specific models used.
* Key sensitivity analyses, stratified analyses, and/or meta-regression analyses (very brief in the main report; details should be saved for the Methods appendix).
* Key assumptions and/or methods for network meta-analyses.

Grading the Strength of the Body of Evidence

In the body of the main report, note any guidance used for grading individual domains or assessing the overall strength of evidence (SOE). Specify the high-priority outcomes that were graded. Details regarding the specific domains assessed, the processes for determining the grades, and the levels and definitions of each grade can be provided in the Methods Appendix.

Methods Appendix

**Note: The appendix should not appear within the main body of the report;   
the guidance is provided here for the convenience of EPC authors.**

Details of Study Selection

Search Strategy

Authors should include the elements below only when they are important to understanding the methodological approach. Not all elements will be needed for all reports

* Explain the literature search strategy (e.g., names of required and additional databases, inclusive dates [months/years], including any interim updates of searches).
* Specify details when different searches were done for different Key Questions.
* Mention role of librarian and/or information specialist and, if true, that searches were peer reviewed.
* Include exact search strings.
* Describe gray literature searches, if any.
* Mention hand searching reference lists, journal tables of contents, etc.
* Mention consulting or contacting content experts to help identify relevant literature, if that step was done.
* Describe acquisition and use of FDA documents, Supplemental Evidence and Data for Systematic Reviews (SEADS), Federal Register Notice, etc. (Include dates of portal or submission period.)
* Describe use of trial registries, if any.
* Justify any publication restrictions (e.g., language, search dates).

Inclusion and Exclusion Criteria

* Use one (or more) tables to document the inclusion and exclusion criteria overall or for specific Key Questions.
* Explain decisions. Examples may include using or not using various types of observational studies; setting a minimum sample size; inclusion or exclusion of non-English studies or geographic areas; limited search dates; and other considerations appropriate to the topic.
* If the EPC excluded studies based on risk of bias, note that here. If the EPC included studies at high risk of bias, mention whether the EPC conducted sensitivity analyses to examine the impact of these studies on the overall effect estimate.
* Describe (text or tables) any inclusion or exclusion criteria that vary by publication type (e.g., gray literature) or study design (e.g., existing systematic reviews).
* Describe your process for title and abstract review (or title review, then abstract review) and full-text review. Use descriptive language, rather than Phase 1/2 or Stage 1/2 terminology.
* Address artificial intelligence or natural language processing here if you used these techniques in the screening process.
* Explain whether and how you conducted dual review. For example, at least two reviewers independently agreed on selection of eligible studies and achieved consensus on which studies to include; two reviewers selected a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder selected by one reviewer.
* Mention any other quality control mechanisms in this process.

Data Extraction

* Describe the key elements of studies that were extracted.
* Indicate whether you contacted authors when information was missing or unclear.
* Describe the process for data extraction: for example, single reviewer; single reviewer with double checking by a second reviewer; dual, independent review. Also specify the program (such as Systematic Review Data Repository [SRDR], DistillerSR, Excel, or some other program), if any, into which data were abstracted.

Risk of Bias Assessment of Individual Studies

* Describe the methods (decision rules) you used to evaluate risk of bias in individual studies.
* Note the primary domains of risk of bias that you used; likely will need different explanations for different types of study designs.
* Give citations for any published tools or instruments used; cite the AHRQ Methods Guide if relevant.
* Be clear about whether (and how) risk of bias ratings apply to full studies or outcomes within studies.
* Give the terms and definitions of the final risk of bias ratings; mention where the study-specific ratings can be found.
* Say whether you used a dual rating procedure and how you settled disagreements.

Data Synthesis and Analysis

* If you provide solely narrative synthesis, explain the reasons and specify that you did no quantitative synthesis.
* If you used an existing systematic review in the analyses, specify that in the body of the main report.
* If you did various quantitative analyses, briefly cover the following steps as needed **(examples, and not a comprehensive list)**:
  + Explain the purpose for pooling – do you expect that this will give greater power and precision, or are you doing it to explore heterogeneity. If the latter, what sources of heterogeneity will you test or explore (date of study, risk of bias, length of follow-up, etc.)?
  + Explain approaches to pooling. Be explicit about statistical details and numbers of studies needed before undertaking any meta-analysis, how data may have been obtained (e.g., taken from graphs; imputed in some fashion when necessary), and what kinds of information you did not use in meta-analyses.
  + Specify what dependent variable measures you calculated and what outcome measures (e.g., quality of life instruments) you used.
  + Describe any transformation of continuous variables.
  + Describe or justify choices for presenting results (e.g., use of relative risk [RR] vs. odds ratios [OR]; baseline rates; random vs. fixed effects models).
  + Specify the assessments or tests used for heterogeneity.
  + Describe any decision rules for assessing subgroups, and specify which ones were identified a priori (e.g., in Key Questions). If you are imputing any data (e.g. for missing standard error), describe method you used.
  + Address any methods used to assess for publication or selective reporting bias.

**Note for structuring these subsections:**

Consider using third-level headings to break up these kinds of descriptions in this section, especially if they differ by Key Question, study design, or other factors. Examples include the following, but they are neither required nor comprehensive (others may be appropriate for a given review): Overall Approaches and Meta-Analyses for Direct Comparisons, Indirect Comparisons with Mixed Treatment Comparisons Techniques, Outcome Measures, Statistical Analyses, Numbers Needed to Treat (NNT) or Numbers Needed to Harm (NNH).

Grading the Strength of the Body of Evidence

Describe the elements of grading the strength of evidence—e.g., five main domains and the additional domains if used, and then overall score.

* Cite relevant guidance used to grade the strength of the evidence. If you used GRADEPro software to generate table, cite it.
* Describe how you assessed and scored domains —e.g., two independent graders; how they resolved conflict was resolved. Describe any EPC-specific decision rules for how authors assessed each domain.
* Describe how the EPC assessed publication bias and whether it conducted searches for gray literature, FDA information, or additional information from authors were used to help mitigate the problem.
* Describe how the EPC reached the overall strength of evidence grades—e.g., process, decision rules, etc.
* Use the table below to define the four levels of the overall strength of evidence grade.

Table 5. Definitions of the grades of overall strength of evidence5

| Grade | Definition |
| --- | --- |
| **High** | We are very confident that the estimate of effect lies close to the true effect for this outcome. The body of evidence has few or no deficiencies. We believe that the findings are stable (i.e., another study would not change the conclusions). |
| **Moderate** | We are moderately confident that the estimate of effect lies close to the true effect for this outcome. The body of evidence has some deficiencies. We believe that the findings are likely to be stable, but some doubt remains. |
| **Low** | We have limited confidence that the estimate of effect lies close to the true effect for this outcome. The body of evidence has major or numerous deficiencies (or both). We believe that additional evidence is needed before concluding either that the findings are stable or that the estimate of effect is close to the true effect. |
| **Insufficient** | We have no evidence, we are unable to estimate an effect, or we have no confidence in the estimate of effect for this outcome. No evidence is available, or the body of evidence has unacceptable deficiencies, precluding reaching a conclusion. |

Peer Review and Public Commentary

Succinctly describe the process used for this systematic review. Language along the following lines may be helpful (put in future tense for draft reports):

**For simultaneous peer review and public comment:** *Experts in [X, Y, and Z] fields and individuals representing stakeholder and user communities were invited to provide external peer review of this systematic review; AHRQ and an associate editor also provided comments. The draft report was posted on the AHRQ website for 4 weeks to elicit public comment (include day, month, and year). We addressed all reviewer comments, revising the text as appropriate. A disposition of comments table of peer and public comments will be posted on the EHC website 3 months after the Agency posts the final systematic review.*

**For sequential peer review and public comment:** *Experts in [X, Y, and Z] fields and individuals representing stakeholder and user communities were invited to provide external peer review of this systematic review; AHRQ and an associate editor also provided comments. The draft report was posted on the AHRQ website for 4 weeks to elicit public comment (include day month, and year). We addressed all reviewer comments, revising the text as appropriate. A disposition of comments table of public comments will be posted on the EHC website 3 months after the Agency posts the final systematic review.*

Results

Table 6. Page length guidelines\*

| **Percent of Report Length** | **Small Report**  **(<40 pages)** | **Medium Report**  **(<60 pages)** | **Large Report**  **(<80 pages)** |
| --- | --- | --- | --- |
| **Results**  **(50% of report length)** | **~20 pages** | **~30 pages** | **~40 pages** |

\*The only important measure is the overall report length. Chapter guidelines provide a rough estimate of how these pages should be apportioned. Each report will differ. Results chapters may provide the greatest challenge. Consider trimming the methods and introduction chapters in order to devote additional pages to results.

Provide a **brief** roadmap for the Results Chapter (i.e., explain succinctly what is in the chapter and how it is organized). Typically, but not always, results will be organized by Key Question. Ultimately, EPCs should organize this chapter however best supports brevity and understanding, **but they should concisely describe the organizational approach here**.

Present the final results of literature searches in this chapter. Provide the number and nature (design) of the included studies and the number of participants. For systematic reviews, include the number of studies in the review (refer to the literature flow diagram). Full description of the literature search, and a list of included studies should appear in the Results Appendix. A list of excluded studies and a description of their exclusion justification should appear in the Results Appendix.

Make the headings succinct but clear. When entire Key Questions are too long or complex for headings, shorten or abridge them. Remind readers that they can look back to the Methods Chapter for the full text of questions.

Briefly note what will appear in the report and what can be found in the Results Appendix. For example:

Below we provide the report results, including the Key Points for each Key Question, and describe the included evidence, as well as the data synthesis and a summary of the strength of evidence. Details on results of literature searches, included studies, and the strength of evidence can be found in the Results Appendix.

Table 7. Location and heading levels for sections in Results

| Heading | Heading Level | Location |
| --- | --- | --- |
| Results | Chapter Heading | Report |
| Description of Included Evidence | Level 1 | Report |
| Key Question N. “Abbreviated Question” | Level 1 | Report |
| Key Points | Level 2 | Report |
| Summary of Findings | Level 2 | Report |
| Results of Literature Searches | Level 1 | Appendix |
| Included Studies | Level 1 | Appendix |
| Details on Strength of Evidence | Level 1 | Appendix |
| Excluded Studies | Level 1 | Appendix |

Description of Included Evidence

**Focus on onlythe key characteristics** of the evidence base that shape the findings and are important for understanding the analyses and results. Focus on study, population, and intervention characteristics. Where possible, summarize the relevant key characteristics in tables or figures.

Examplesof what to present might include the following:

* Numbers of trials or other studies (and numbers of participants) by types of patient populations; types of interventions and comparators; range of outcomes measured; settings; geographic location; and study design features such as sample size, single center vs. multicenter, or whatever particularly relevant study characteristics are important for this systematic review.
* Numbers of studies with active or inactive comparators (placebo, waitlist, usual care, or sham).
* Issues related to dose, frequency, or intensity of the intervention.
* Issues related to population or setting that may affect generalizability and applicability.
* Fidelity to the intervention protocol, particularly for topics involving behavioral interventions, health systems, and complex interventions. See Guise et al for a definition of complex interventions.4
* Issues related to risk of bias of studies.
* Numbers of studies or trials that were efficacy trials or effectiveness trials, depending on the type of question.
* Specify study funding sources: Comment on funding sources of included studies (e.g., number and percentage with industry funding; number and percentage for which no funding source can be ascertained).

Key Question 1. “Abbreviated Question”

*OR*

Key Question 1: “Abbreviated Question: Specific Diagnosis, Intervention, Population or Outcome”

*OR*

Key Question 1A: “Abbreviated Question: Topic of [this part of the Key Question]”

Key Points

**(Note: Key Points for a given Key Question are different than the Main Points in the Evidence Summary)**

Key Points constitutes the first of the two **required elements** of the Results Chapter of a systematic review. (The other required element, Summary of Findings, is described later in this guidance.)

* Present **only**the critical analytic findings—not descriptions of the individual studies themselves. Therefore, do **not**give detailed, study-specific results (e.g., findings, statistical significance, etc.) here.
* **Not all results will be included here.** Focus on outcomes identified in the protocol as more important to the decisional dilemma.
* Present findings as bulleted points—e.g., one or two complete sentences for each bullet. Use approximately two to six bullets for each Key Question.
* If many outcomes have insufficient evidence, consider combining all insufficient outcomes into one bullet at the end. This might be done, for instance, as: “Evidence was insufficient for X, Y, Z” or even, “Evidence was insufficient for all other outcomes and subgroups.” However, some outcomes with insufficient evidence may be considered “pertinent negatives” (i.e., the fact that evidence is insufficient is important to decision makers); these might have their own Key Point.
* Indicate the number and type of studies and the number (N) of patients.
* Include the direction and strength of evidence pertaining to the findings in any bullet in this section. Do not include statistical data here (no p-values, RRs, ORs, or Confidence Intervals [CIs]). Consider language such as the following examples**of which the first is more direct and easier and may be more pertinent for readers):**

*Patients treated with [INTERVENTION X] showed [SMALL, MEDIUM, LARGE] improvements in [OUTCOME] compared with those treated with [INTERVENTION Y] based on three RCTs (n=XX) and five prospective cohort studies (n=XX) (moderate strength of evidence).*

*OR*

*High strength of evidence for [SMALL, MEDIUM, LARGE] benefit of [INTERVENTION X] vs. [INTERVENTION Y] based on four low risk of bias RCTs (n=XX) with consistent results*.

Summary of Findings

This is the second **required** element of each Key Question section in the Results Chapter of a systematic review.

* Focus on “synthesis” of the results; do not give extensive, study-by-study data in text. The goal of the summary of findings is to show the reader how the evidence leads to the conclusion.
* Focus on the combination of the components of the evidence that yields a clear picture of the “totality” of the evidence for each Key Question. Refer readers to tables in the main report, in “KQ-specific” appendices, or in evidence tables in another appendix.
* Each section should include a statement about the direction, magnitude, and strength of evidence (such as from the Key Points) and then describe the type of evidence that led to that summary for the relevant intervention-outcome pair (interventions with similar results can be grouped).
  + Present only information critical to readers’ understanding of the EPC’s analysis; make this section as easy to read as possible.
  + Focus on information necessary to document evidence for the bulleted Key Points, above.
* For meta-analyses or similar quantitative analyses, provide text and figures, such as forest plots, bar graphs, bubble charts, and others. If the systematic review has many such analyses, consider presenting only key ones graphically and refer readers to an appendix for others. Be judicious, as figures count toward the page limit. For brevity, summarize the point estimates (CIs, I-squared) for many outcomes and comparisons in a table.
* For qualitative/narrative synthesis, where pooled analysis methods cannot be used, provide text and tables (if helpful) that organize findings (direction and magnitude of effect) from included studies to describe patterns in results based on relationships between the characteristics of the individual studies, including the strength of evidence domains (study risk of bias/limitations, directness, consistency, and precision). Describe individual studies only to highlight considerations that might explain a pattern. Only describe individual studies to highlight variation that may explain a pattern.
* When details about individual studies (design; main findings; risk of bias rating) have not been covered elsewhere and when EPCs believe these details are needed to describe the results adequately (overall or just for specific Key Questions), provide no more than a high-level synthesis in text and present the details only in tables:
  + Consider using pairs of tables for critical studies and information: one presenting study characteristics and risk of bias rating, and one presenting study findings (combine with meta-analysis results where possible).
  + Whatever is not critical to understanding how the results speak to the decisional dilemmas, move to an appendix.
* Do not repeat detailed study-specific data in text if they appear in tables in the report. Instead, refer readers to the full evidence table in the appendix.
* An example design for required summary tables appears below.
  + If quantitative summary is possible, in addition to relative effects, present absolute effects and NNT where possible.
  + Keep such summary tables to a minimum.

Example Table: Summary of findings and strength of evidence for *intervention(s)* vs. *control(s)*

| Intervention and Comparison | Outcome | Number of Studies; Study Design; Participants (n) | Findings*(This cell should include such detail as magnitude and direction of effect, absolute effect, NNT, or NNH, depending on the nature of the report.)* | SOE\* |
| --- | --- | --- | --- | --- |
| Example Row  Patient navigation | Colorectal Cancer Screening | 2 RCTs (486) | Example text  Increased screening rates in 2 RCTs of Hispanic, African-American, and low-income patients | Low |

\*Define all abbreviations or acronyms in a footnote to the table, in alphabetical order.

Abbreviations: n= number; NNH= Number needed to harm; NNT= Number needed to treat; RCT= Randomized controlled trials; SOE= Strength of Evidence.

Results Appendix

**Note: The appendix should not appear within the body of the main report;   
the guidance is provided here for the convenience of EPC authors.**

Results of Literature Searches

* Document the searches and their yields.
* Present and call out the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) figure (flow diagram). Diagram may indicate at the bottom the numbers of final included studies for each key question.
* Consider citing the most recent PRISMA guideline and/or relevant extension, or other appropriate reporting guideline (e.g. qualitative reviews).
* Specify the total number of **studies** finally used. Not every reader will look at the flow diagram and this may be the number needed for the evidence summary.
* Note, **if true**, that the numbers of articles exceeded the numbers of studies (give the actual numbers), and describe how later text (or tables, or references) handles multiple articles on the same study. For some topics, the issue of multiple publications is a major complication, so be sure that readers are not confused between numbers of studies and numbers of articles.
* Note what appendix has the list of studies excluded at full-text review. Provide a list of studies excluded at full text review, including reasons for exclusion.
* If you conducted multiple searches for, say, different Key Questions or perhaps some sub-question, consider covering the above points in the sections devoted to each specific Key Question. However, this may call for more than one PRISMA diagram to separate out numbers of studies, so some overarching PRISMA diagram might work, with multiple Key Question diagrams relegated to this appendix.

Description of Included Studies

Briefly describe the important characteristics of the included studies. If the studies tend to be the same for most or all of the Key Questions, this can be done at the beginning of this section before getting into the individual topics. Usually, including this “overview” section will work better for each Key Question section separately (see below); then readers can connect the characteristics of the studies with the specific question they apply to. In either case:

* Give the citations for included studies.
* Indicate where the full evidence tables are located.
* Key properties of studies. Wherever this material appears, perhaps it is best done in tabular form. The description conveys some sense of the applicability, risk of bias, and perhaps strength of evidence of these studies.
* **Focus on only the key characteristics** of the evidence base that shape the findings and are important for readers to understand the analyses and results. **Examples** of what to note might include the following:
  + Numbers of studies by types of patient populations; types of interventions and comparators; range of outcomes measured; settings; geographic location; and study design factors such as sample size, single center vs. multicenter, or whatever particularly relevant study characteristics are important for this review.
  + For systematic reviews focused on pharmaceuticals or invasive procedures, how many studies had active comparators, placebo, sham, usual care, or waitlist controls?
  + For systematic reviews about behavioral interventions, issues related to fidelity to protocol.
  + Number of studies (trials) that were efficacy trials or effectiveness trials.
* Study funding sources: Comment on funding sources of included studies (e.g., number and percentage with industry funding; number and percentage with no known funding source).

Details on Strength of Evidence

Describe the ratings for strength of evidence rating by domain. If needed, give (in footnotes) the rationale for any downgrades on a domain. If you used GRADEPro software to generate table(s), cite it.

Excluded Studies

Provide a list of excluded studies and reasons for their exclusion in alphabetical order by first author last name.

Discussion

Table 8. Page length guidelines\*

| **Percent of Report Length** | **Small Report**  **(<40 pages)** | **Medium Report**  **(<60 pages)** | **Large Report**  **(<80 pages)** |
| --- | --- | --- | --- |
| **Discussion**  **(30% of report length)** | **~12 pages** | **~18 pages** | **~24 pages** |

\*The only important measure is the overall report length. Chapter guidelines provide a rough estimate of how these pages should be apportioned. Each report will differ. Discussion chapters, for example, may not vary greatly by size of report.

In this Discussion Chapter, emphasize the implications of the findings from the systematic review. **Do not simply repeat findings from the Results Chapter**, **but provide interpretation and context.**

Findings in Relation to the Decisional Dilemma(s)

This section should address the decisional dilemma(s) that underscore the review (as described in the Introduction). Results should be described in the context of current practice and what was already known prior to the review, as well as how this report answered the unknown questions. The goal for this section is to help readers understand the clinical or practical significance of the findings.

Limit the discussion to those findings most important to current practice. Naturally, this should reflect whatever main points will appear in the Evidence Summary. The discussion can include other findings, but the EPC need not discuss every finding.

Emphasize findings in comparison with existing practice or current guidelines. Avoid detailing differences with existing reviews, particularly when prior reviews are out of date, of different scope, or otherwise not comparable. If some results could be controversial, provide justification for accepting the new findings over the conclusions of past reports. If the review is an update, discuss how the new findings compare with the previous review.6

Strengths and Limitations

Assess the strengths and limitations of both the evidence and the review. Begin with the evidence, summarize the principal methodologic problems (e.g., narrow population or settings, limitations in comparisons or outcomes) with the bodies of evidence amassed for the review. Include any problems encountered in conducting the systematic review, how the EPC addressed them, and how they may have influenced the review. Highlighting strengths as well as weaknesses is appropriate recognizing that decisions often need to be made with limited evidence.

Applicability

The review protocol asks EPCs to specify key PICOTS elements that may affect applicability. Use these as starting points for a discussion of applicability. You need to cover only those PICOTS elements that are germane to applicability.

Implications for Clinical Practice, Education, Research, or Health Policy

This section should emphasize the implications of the report’s findings with regard to current clinical practice patterns, guidelines, educational programs, and health care policies (directly related to the decisional dilemmas outlined in the Background Chapter. Also describe any future research needs. Subheadings can be used (e.g., Considerations for Clinical Practice and Policy, or Research Recommendations).

When reporting research recommendations, limit the discussion to a paragraph or so, with or without a bulleted list.

Conclusions (optional)

This optional section should be brief and consistent with the conclusions in the Evidence Summary. One may duplicate the other.

Reference lists should be in compliance with the AHRQ style guide and be separate for the full report and appendices.

References

1. Shea BJ, Reeves BC, Wells G, et al. AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both. BMJ. 2017;358:j4008. doi: 10.1136/bmj.j4008.

2. Moher D, Liberati A, Tetzlaff J, et al. Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. Annals of Internal Medicine. 2009;151(4):264-9. doi: 10.7326/0003-4819-151-4-200908180-00135.

3. Whitlock EP, Lopez SA, Chang S, et al. AHRQ series paper 3: identifying, selecting, and refining topics for comparative effectiveness systematic reviews: AHRQ and the effective health-care program. Journal of clinical epidemiology. 2010;63(5):491-501.

4. Guise J-M, Chang C, Butler M, et al. AHRQ series on complex intervention systematic reviews—paper 1: an introduction to a series of articles that provide guidance and tools for reviews of complex interventions. Journal of clinical epidemiology. 2017;90:6-10.

5. Berkman ND, Lohr KN, Ansari MT, et al. Grading the strength of a body of evidence when assessing health care interventions: an EPC update. Journal of clinical epidemiology. 2015;68(11):1312-24.

6. Newberry SJ, Shekelle PG, Vaiana M, et al. Reporting the Findings of Updated Systematic Reviews of Comparative Effectiveness. 2013.