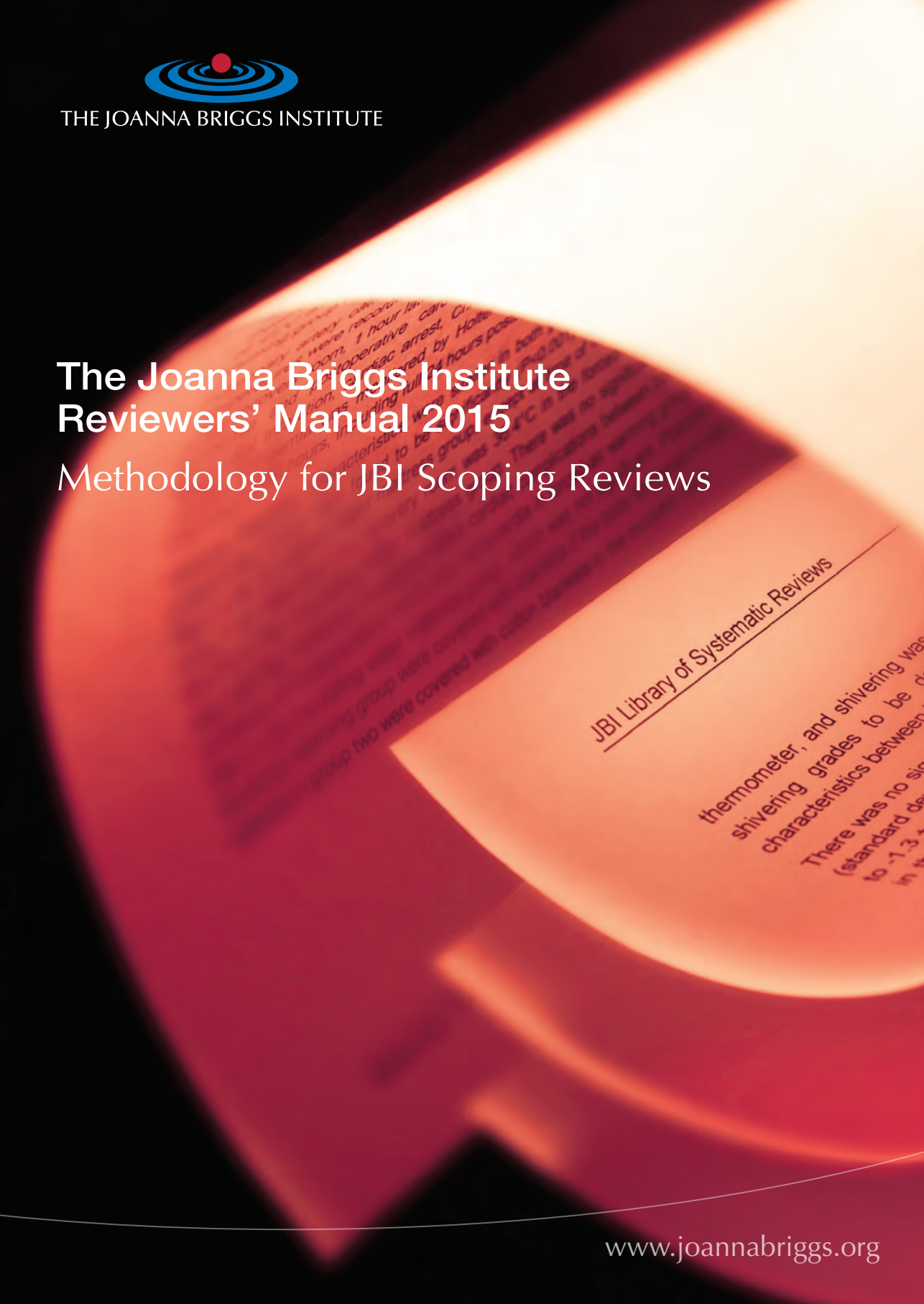
THE JOANNA BRIGGS INSTITUTE

The Joanna Briggs Institute Reviewers' Manual 2015

Methodology for JBI Scoping Reviews



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Joanna Briggs Institute Reviewers' Manual: 2015 edition/supplement

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Foreword

Every year the Joanna Briggs Institute publishes a Reviewers' Manual, which is designed to support individuals who are undertaking systematic reviews following JBI methodologies and methods. This chapter represents the latest work and methodological development of the Institute that was not ready for inclusion in the 2014 edition of the Reviewers' Manual that was published in January.

As with the Reviewers' Manual we recommend that this chapter be utilized in conjunction with the JBI SUMARI User Guide. Please note that this chapter makes reference to forthcoming analytical modules that do not currently exist in the JBI SUMARI software suite, but should be available in 2015. For advice on how to best apply the current software to accommodate this new methodology please contact the Synthesis Science Unit of the Institute at jbisynthesis@adelaide.edu.au

We hope that the information contained herewith provides further insight into how to analyze and synthesise different types of evidence to inform clinical and policy decisions to improve global health outcomes.

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1: Scoping reviews and evidence-based practice

Evidence-based practice is an expanding field and together with a rapid increase in the availability of primary research, the conduct of reviews has also escalated. Different forms of evidence and different kinds of review objectives and questions call for the development of new approaches that are designed to more effectively and rigorously synthesise the evidence. In 2009 Grant and Booth identified 14 different types of reviews.[1] Scoping reviews, also called "mapping" reviews,2, 3 are one of these and in 2005 Arksey and O'Malley proposed a framework for conducting them.[4]

1.1 Why a scoping review?

There are a number of reasons why a scoping review might be conducted. Unlike other reviews that address relatively precise questions, such as a systematic review of the effectiveness of a particular intervention based on a precise set of outcomes, scoping reviews can be used to map the key concepts underpinning a research area as well as to clarify working definitions, and/or the conceptual boundaries of a topic.[4] A scoping review may focus on one of these aims or all of them as a set.

Scoping reviews can usefully map evidence in a number of ways.[3] Scoping reviews undertaken with the objective of providing a map of the range of the available evidence can be undertaken as a preliminary exercise prior to the conduct of a systematic review. Scoping reviews are useful for examining emerging evidence when it is still unclear what other, more specific questions can be posed and valuably addressed. For example, a scoping review might seek to scope the range of adverse reactions reported following Human Papilloma Virus (HPV) vaccination. In this case, the scoping review can be used to provide direction for the ensuing systematic review or reviews, and may have value in helping the reviewers to identify and define more precise questions and suitable inclusion criteria such as the interventions, comparators and outcome/s of interest.

Beyond preceding systematic reviews, scoping reviews can also be conducted independently to examine broad areas to identify gaps in the evidence, clarify key concepts, and report on the types of evidence that address and inform practice in a topic area. Scoping reviews can be used to map evidence in relation to time (when it was published), location (country), source (peer reviewed or grey literature), and/or origin (healthcare or academic discipline).[3]

As useful tools for evidence reconnaissance, scoping reviews can be used to provide a broad overview of a topic.[5] For instance, a scoping review that seeks to develop a "concept map" may aim to explore how, by whom and for what purpose a particular term is used in a given field.[3] As an example, a scoping review might have the objective of developing a concept map for the use of the term "neurological reactions" in the area of adverse reactions following HPV vaccination. Such a review would aim to map how the term is used in the literature, what it refers to, and what it encompasses.

Similarly, "policy maps" may also be developed by scoping reviews that seek to identify and map evidence such as policy documents and reports that guide practice in a particular field.[3] For example, a scoping review might have the objective of mapping how policy documents provide advice and guidance around policies for screening people at risk of developing neurological reactions following HPV vaccination exposure.

The value of scoping reviews to evidence-based practice is the examination of a broader area to identify gaps in the research knowledge base,[6] clarify key concepts,[7] and report on the types of evidence that address and inform practice in the field.[8] Scoping reviews also may be carried out to determine not only the extent of the research available regarding a topic, but also the way the research has been conducted.[9] For example, a recent scoping review of scoping reviews aimed to provide an overview of how scoping reviews have been conducted. [10]

1.2 JBI scoping reviews

The synthesis of evidence in the form of the systematic review is at the center of evidence-based practice.[11] Systematic reviews traditionally bring together evidence from quantitative literature to answer questions on the effectiveness of a specific intervention for a particular condition. Beyond effectiveness, the Joanna Briggs Institute (JBI) is also interested in the context of care delivery, its cost-effectiveness, as well as patient, carer and healthcare provider preferences. These foci are explored in terms of the appropriateness, meaningfulness and feasibility of healthcare practices and delivery. These sorts of questions are most commonly answered by consideration of other forms of primary evidence found in qualitative and economic research. The results of well-designed research studies of any methodology are regarded by the JBI as potential sources of credible evidence. To match this broader and more inclusive view of evidence, the Institute has developed a number of methodologies and methods for the synthesis of evidence to support healthcare decision-making.

All JBI systematic reviews – including scoping reviews – begin with the development of an a-priori protocol with inclusion and exclusion criteria that relate clearly to the objective and review question. A typical systematic review aims to answer a specific question (or series of questions) based on very precise inclusion criteria, for example, a systematic review may pose the following precise question based upon the PICO (Population, Intervention, Comparator, and Outcome) elements of its inclusion criteria:

> "What is the effectiveness of the Gardasil vaccine compared with the Cervarix vaccine in preventing Human Papillomavirus infection in adolescent and young adult women?"

It is clear from this question that only certain types of quantitative evidence and data would be relevant and that the review will be very specific in terms of the population, intervention, comparator, and kinds of outcomes against which it will measure effectiveness.

A scoping review will have a broader "scope" with correspondingly less restrictive inclusion criteria. The following question based upon the PCC (Population, Concept and Context) elements of the inclusion criteria may be posed:

> "What types of neurological reactions to the Human Papillomavirus vaccination have been reported?"

This question leaves the population rather "open" and implies that both men and women of any age will be suitable for inclusion as long as they have received a HPV vaccination. The intervention in this example is also 'open' to any kind of HPV vaccine and does not stipulate that there will be any kind of measurement of outcomes or comparison involved. The "concept" of this scoping review (neurological reactions) is also broad, and could cover any kind of neurological outcome as long as it is a reaction to HPV vaccination. For this particular question, the 'context' has also been left open, so the evidence may come from any context (e.g. geographical, healthcare setting, sociocultural).

An especially important point is that the scoping review question may draw upon data from any type of evidence and research methodology, and is not restricted to quantitative studies (or any other study design) alone. This however is not prescriptive; reviewers may decide that particular study designs would be beyond the scope of their scoping review, or not be appropriate or useful for consideration . For example, in the protocol, this scoping review example may specify that text and opinion literature will not be included.

It is important to highlight the distinction between scoping reviews and "comprehensive" systematic reviews that also rely on evidence from a number of different study designs. While in a scoping review the goal is to determine what kind of evidence (quantitative and/or qualitative) is available on the topic and to represent this evidence by mapping or charting the data, comprehensive systematic reviews are designed to answer a series of related but still very specific questions. A systematic review is considered to be a comprehensive systematic review when it includes two or more types of evidence, such as both qualitative and quantitative, in order to address a particular review objective. For example:

> "What is the effectiveness, cost-effectiveness, and meaningfulness of the Gardasil vaccine compared with the Cervarix vaccine in preventing Human Papillomavirus infection in adolescent and young adult women?"

The goal of this comprehensive systematic review is to: i) report on a comparison of the effectiveness of both vaccines on HPV infection from quantitative evidence of effectiveness, ii) report on a comparison of the relative cost-effectives of both vaccines from economic evidence, and to iii) examine the experiences of adolescent and young adult women who have received either vaccine. In this example, the knowledge gained from the qualitative evidence could be used to enhance the knowledge gained from the quantitative and economic evidence.

Because of the broad nature of scoping reviews, they are particularly useful for bringing together evidence from disparate or heterogeneous sources. In the example scoping review question above, reports of neurological side effects such as syncope (fainting) from randomized controlled trials can be considered side by side with qualitative accounts of patients' experiences of paralysis following HPV vaccination.

Another important distinction between scoping reviews and systematic reviews is that, unlike systematic reviews, scoping reviews provide an overview of the existing evidence, regardless of quality. This is because scoping reviews aim to provide a map of what evidence has been produced as opposed to seeking only the best available evidence to answer a particular question related to policy and practice. Hence, unless otherwise specified, a formal assessment of methodological quality of the included studies of a scoping review is generally not performed.

While implications for research, including for other scoping or systematic reviews, may be made from the result of scoping reviews – especially those conducted with the objective of being precursors to systematic reviews, implications for practice are limited by the fact that a formal assessment of methodological quality of the included studies of a scoping review is generally not performed. If implications for practice are developed, it is expected that they will clearly flow from the objectives of the scoping review.

1.3 The scoping review framework

The framework proposed by Arksey and O'Malley has been influential in the conduct of scoping reviews for some time.[4] Their framework has been further enhanced by the work of Levac, Colquhoun and O'Brien (see Table 1).[12] Levac and colleagues provide more explicit detail regarding what occurs at each stage of the review process and this enhancement increases both the clarity and rigor of the review process.[12] Both of these frameworks have been drawn on in the development of the JBI approach to the conduct of scoping reviews.

Table 1: Scoping review frameworks

	Arksey and O'Malley framework[4] (p.22/-23)	Enhancements proposed by Levac, Colquhoun and O'Brien.[12] (p.4-8)
1.	Identifying the research question	Clarifying and linking the purpose and research question
2.	Identifying relevant studies	Balancing feasibility with breadth and comprehensiveness of the scoping process
3.	Study selection	Using an iterative team approach to selecting studies and extracting data
4.	Charting the data	Incorporating a numerical summary and qualitative thematic analysis
5.	Collating, summarizing and reporting the results	Identifying the implications of the study findings for policy, practice or research
6.	Consultation (optional)	Adopting consultation as a required component of scoping study methodology

2: Development of a JBI scoping review protocol

As with all JBI systematic reviews, an a-priori protocol must be developed before undertaking the scoping review. A scoping review protocol is important as it pre-defines the objectives and methods of the scoping review. It is a systematic approach to the conduct and reporting of the review and allows transparency of process. This in turn allows readers to see how the results of the scoping review were arrived at. The protocol should detail the criteria that the reviewers intend on using to include and exclude studies and to identify what data is relevant, and how the data will be extracted and mapped. The protocol provides the plan for the scoping review and is important in limiting the occurrence of reporting bias. Any deviations of the scoping review report from the protocol should be clearly addressed and explained in the scoping review report. It is also recommended that all JBI scoping reviews should contain the following sentence:

> "The objectives, inclusion criteria and methods for this scoping review were specified in advance and documented in a protocol."(citation)

The citation should be to the relevant protocol in the JBI Database of Systematic Reviews and Implementation Reports. Reviewers may also wish to provide the PROSPERO registration number (where applicable). In accordance with the recommendations for reporting of systematic reviews detailed in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, this sentence should appear as the final line of the background/introduction section of the review report.

2.1 Author information

All JBI reviews require at least two reviewers in order to minimize reporting bias. The names of all reviewers and the institutional affiliations for each author, including their JBI center affiliations, and email address for the corresponding author must be included.

2.2 Developing the title, objective, and question

Title of the scoping review protocol

The title should be informative and give a clear indication of the topic of the scoping review. The title of a JBI scoping review should always include the phrase "…: a scoping review" to allow easy identification of the type of document it represents. This is a simple example of a potential scoping review title:

> "Neurological reactions to the Human Papillomavirus vaccination: a scoping review"

Scoping review titles should not be phrased as questions. For example:

> "What types of neurological reactions to the Human Papillomavirus vaccination have been reported?"

The Joanna Briggs Institute uses a range of mnemonics for different types of review (and research) questions. It is suggested that the "PCC" mnemonic be used to construct a clear and meaningful title for a JBI scoping review. The PCC mnemonic stands for the Population, Concept, and Context. There is no need for explicit outcomes, interventions or phenomena of interest to be stated for a scoping review; however elements of each of these may be implicit in the Concept under examination.

The title of the protocol should be structured to reflect the core elements of the PCC. Using the PCC mnemonic helps to construct a title that provides potential readers with important information about the focus and scope of the review, and its applicability to their needs. For example, if the review aims to map a range of outcomes as part of the concept (such as neurological reactions) this should be stated in the title. Including the context in the title helps readers to position the review when they are searching for evidence related to their own particular information needs.

As discussed in further depth below, there should be congruency between the title, review objective/s, question/s and inclusion criteria.

Scoping review objective

The objective of a scoping review must be clearly stated and be congruent with the title. The objective of the scoping review should indicate what the scoping review project is trying to achieve. The objective may be broad and will guide the scope of the enquiry. For the title example above, the objective could be phrased:

> "The objective of this scoping review is to examine and map the range of neurological reactions following the administration of Human Papilloma Virus vaccines."

The objective should also clearly underpin the question posed by the scoping review and direct the development of the specific inclusion criteria based on clearly identifiable PCC.

Scoping review question

The scoping review question guides and directs the development of the specific inclusion criteria for the scoping review. Clarity in the review question assists in developing the protocol, facilitates effectiveness in the literature search, and provides a clear structure for the development of the scoping review report. As with the title, the question should incorporate the PCC elements. A scoping review will generally have one primary question, e.g.

> "What types of neurological reactions to the Human Papilloma Virus vaccination have been reported?"

If that question sufficiently addresses the PCC and adequately corresponds with the objective of the review, sub questions will not be needed. However, some scoping review questions benefit from one or more sub questions that delve into particular attributes of Context, Population or Concept. Sub questions can be useful in outlining how the evidence is likely to be mapped. For example, the primary question relates to the broad population; however, the sub questions delve into potential particular issues relate to males or particular age groups of females as distinct sub populations may be relevant. Likewise, a sub question may help to justify mapping the evidence by context, e.g.

> "What types of neurological reactions to the Human Papilloma Virus vaccination have been reported in low resource contexts?"

2.3 Background

The background section should be comprehensive and cover all the main elements of the topic under review. Due to scoping reviews being essentially exploratory, it is not expected that the background covers the extant knowledge in the area under review. The reason for undertaking the scoping review should be clearly stated together with what the scoping review is intended to inform.

The suggested length for the background section of the scoping review protocol is approximately 1000 words. The background should detail any definitions important to the topic of interest. The information in the background section must also be sufficient to put the inclusion criteria in context, including an indication of whether or not there are existing reviews, systematic reviews, research syntheses, and/or primary research papers available on the topic, hence supporting the rationale to conduct the scoping review.

The background section should conclude with a statement that a preliminary search for existing scoping reviews on the topic has been conducted. The databases searched or search platforms utilized must be stated, e.g. JBISRIR, Cochrane Database of Systematic Reviews, CINAHL, PubMed, EPPI, and Epistemonikos, where relevant. If there is an existing scoping review available on the topic, a justification that specifies how the proposed review will differ from that already conducted and identified should be detailed. The Vancouver style of referencing should be used throughout the protocol with superscript numbers without brackets, used for in-text citations.

A guide to the Vancouver style of referencing can be found at:

http://openjournals.net/files/Ref/VANCOUVER%20Reference%20guide.pdf

2.4 Inclusion criteria

The "inclusion criteria" of the protocol details the basis on which sources will be considered for inclusion in the scoping review and should be clearly defined. These criteria provide a guide for the reader to clearly understand what is proposed by the reviewers and, more importantly, a guide for the reviewers themselves on which to base decisions about the sources to be included in the scoping review. As explained above, as for other review types, there must be clear congruency between the tile, objectives, question/s, and inclusion criteria of a scoping review.

Types of participants

Important characteristics of participants should be detailed, including age and other qualifying criteria that make them appropriate for the objectives of the scoping review and for the review question. In the example question above these characteristics include people who have received the HPV vaccine, regardless of sex or age. Justification for the inclusion or exclusion of participants should be explained. Confounding population factors, e.g. co-morbidities or co-existing states (e.g. pregnancy), can also be detailed here as exclusion criteria.

Concept

The core concept examined by the scoping review should be clearly articulated to guide the scope and breadth of the inquiry. This may include details that pertain to elements that would be detailed in a standard systematic review, such as the "interventions" and/or "phenomena of interest". For example, the HPV vaccination – an intervention – is part of the concept of a scoping review designed to map the neurological reactions to the Human Papillomavirus vaccination. It would then be necessary to explain any relevant details pertaining to the intervention that may be important for the review, for example, whether only particular vaccinations are to be investigated or whether any/all vaccination types are eligible for inclusion.

Outcomes may also be a component of a scoping review's "Concept". If outcomes of interest are to be explained, they should be linked closely to the objective and purpose for undertaking the scoping review. For example, "neurological reactions" are also a part of the "Concept" of the exemplar scoping review. Details of what a neurological reaction is and whether any particular features about them must be reported (e.g. neurological reactions diagnosed by healthcare professionals using standard diagnostic criteria [as opposed to self-reported]) should also be detailed here.

Context

The "Context" element of a scoping review of will vary depending on the objective and question(s) of the review. The context should be clearly defined and may include, but is not limited to, consideration of cultural factors such as geographic location and/or specific racial or gender-based interests. In some cases, context may also encompass details about the specific setting (such as acute care, primary health care or the community). Reviewers may choose to limit the context of their review to a particular country or health system or healthcare setting, depending on the topic and objectives.

In the scoping review example above, neurological reactions are sought from within the context of having HPV inoculations in any care setting (e.g. in-patient and community).

Types of sources

For the purposes of a scoping review, the "source" of information can include any existing literature, e.g. primary research studies, systematic reviews, meta-analyses, letters, guidelines, etc. Reviewers may wish to leave the source of information "open" to allow for the inclusion of any and all sources. Otherwise, the reviewers may wish to impose limits on the types of sources they wish to include. This may be done on the basis of having some knowledge of the types of sources that would be most useful and appropriate for a particular topic. For example, it could be justified for the scoping review example on neurological reactions to the Human Papillomavirus vaccination that sources such as text and opinion papers and letters would not be particularly appropriate or useful to meet the objectives of the review.

2.5 Search strategy

The search strategy for a scoping review should aim to be comprehensive in order to identify both published and unpublished (grey literature) primary studies as well as reviews. As recommended in all JBI types of reviews, a three-step search strategy is to be utilized. Each step must be clearly stated in this section of the protocol. The first step is an initial limited search of at least two online databases relevant to the topic. The databases MEDLINE and CINAHL would be appropriate for a scoping review on neurological reactions following HPV vaccination. This initial search is then followed by an analysis of the text words contained in the title and abstract of retrieved papers, and of the index terms used to describe the articles. A second search using all identified keywords and index terms will then be undertaken across all included databases. Thirdly, the reference list of all identified reports and articles will be searched for additional studies. A statement should be included of the reviewers' intent to contact authors of primary studies or reviews for further information, if this is relevant.

Reviewers should include the languages that will be considered for inclusion in the review as well as the timeframe, with an appropriate and clear justification for choices.

As the review question might be broad, authors may find that it is appropriate to search for all sources of evidence (e.g. primary studies and text/opinion articles) simultaneously with the one search strategy. This also depends on the relevance of the evidence sources to the topic under review and its objectives. This approach will lead to a greater sensitivity in the search, which is desirable for scoping reviews.

The search for a scoping review may be quite iterative as reviewers become more familiar with the evidence base, additional keywords and sources, and potentially useful search terms may be discovered and incorporated into the search strategy. The input of a research librarian or information scientist can be invaluable in designing and refining the search.

2.6 Extraction of the results

In scoping reviews, the data extraction process is referred to as charting the results. This process provides the reader with a logical and descriptive summary of the results that aligns with the objective and question/s of the scoping review.

A draft charting table or form should be developed at the protocol stage to record the key information of the source, such as author, reference, and results or findings relevant to the review question/s. This may be further refined at the review stage and the charting table updated accordingly. Some key information that reviewers might choose to chart are:

a. Author(s)
b. Year of publication
c. Origin/country of origin (where the study was published or conducted)
d. Aims/purpose
e. Study population and sample size (if applicable)
f. Methodology/methods
g. Intervention type, comparator and details of these (e.g. duration of the intervention) (if applicable)
h. Duration of the intervention (if applicable)
i. Outcomes and details of these (e.g. how measures) (if applicable)
j. Key findings that relate to the scoping review question/s.

For ease of reference and tracking, it is suggested that reviewers keep careful records to identity each source. As reviewers chart each study, it may become apparent that additional unforeseen data can be usefully charted. Charting the results can therefore be an iterative process whereby the charting table is continually updated. It is suggested that the review team become familiar with the source results and trial the extraction form on two or three studies to ensure all relevant results are extracted. This approach is favored by other experts on the conduct of scoping reviews.[4, 13, 14]

2.7 Presentation of the results

At the time of protocol development, the reviewers should provide some plan for the presentation of results – for example, a draft chart or table. This would be expected to be further refined toward the end of the review when the reviewers have the greatest awareness of the contents of their included studies.

The results of a scoping may be presented as a map of the data extracted from the included papers in a diagrammatic or tabular form, and/or in a descriptive format that aligns with the objective/s and scope of the review. The elements of the PCC inclusion criteria may be useful to guide how the data should be mapped most appropriately. For example, in the scoping review example, because the objective is to map the range of neurological reactions following the administration of HPV vaccines, the data may be usefully mapped by a tabular presentation of the different neurological reactions reported across each included paper in relation to type of reaction (e.g. diagnosis) or intervention (type of vaccination).

The tables and charts may also show results as: distribution of studies by year or period of publication (depends on each case), countries of origin, area of intervention (clinical, policy, educational, etc.) and research methods. A narrative summary should accompany the tabulated and/or charted results and should describe how the results relate to the review objective and question/s.

The results can also be classified under main conceptual categories, such as: “intervention type”, “study population” (and sample size, if it is the case), “duration of intervention”, “aims”, “methodology adopted”, “key findings” (evidence established), and “gaps in the research”. For each category reported, a clear explanation should be provided.

3: The scoping review and summary of the evidence

This section provides further guidance on the components that should comprize the final report of a scoping review and the information that each component should contain. It illustrates how each component of the review is to be managed in the scoping reviews analytical module and the elements that can be expected in future versions of JBI's System for the Unified Management, Assessment and Review of Information (SUMARI) software. This section also provides a brief outline of how the scoping review should be formatted and the stylistic conventions that should be followed to ensure the review meets the criteria for publication in the JBI Database of Systematic Reviews and Implementation Reports (JBISRIR). For further information please refer to the Author Guidelines of the journal:

http://www.joannabriggslibrary.org/jbilibrary/index.php/jbisrir/about/submissions#authorGuidelines

Specifically, guidance is provided on the following components: outline of the report, inclusion criteria (i.e. PCC), search strategy, extraction, presenting and summarizing the results, and any potential implications for research and practice. All scoping reviews published in the JBISRIR must be based on a peer reviewed, scoping review protocol that has been accepted for publication in the JBISRIR. For a traditional systematic review, while deviations from a published review protocol are rare, due to the more iterative nature of a scoping review, some changes may be necessary. These must still be clearly detailed and justified in the methods section of the scoping review report if and when they occur.

3.1 Title of the scoping review

The title should be clear, explicit and reflect the core elements of the review. Titles should not be phrased as questions or conclusions and there should be congruence between the title, review objective/question/s, and inclusion criteria. The title should include the phrase: "….: a scoping review". The title should not be more than 12-14 words for ease of understanding (see example above in Section 2).

3.2 Review authors

Affiliations for each author need to be stated, including the JBI affiliation of each reviewer. A valid email address must be provided as contact details for the corresponding author.

3.3 Executive summary

This section is a structured abstract of the main features of the scoping review. It should be no longer than 500 words and should contain no abbreviations or references. The executive summary must accurately reflect and summarize the review for the reader, in particular the results of the review. The executive summary includes the following required headings:

3.3.1 Background

This section briefly describes the issue under review. Much of the detail in the background section of the scoping review report may be adapted from the background of the protocol. It is also recommended that all scoping reviews should contain the following sentence:

> 'The objectives, inclusion criteria and methods for this scoping review were specified in advance and documented in a protocol.'(citation)

3.3.2 Objective

The review objective should be stated in full, as described in the protocol section.

3.3.3 Inclusion criteria

Types of participants

Important characteristics of participants should be detailed, including age and other qualifying criteria that make them appropriate for the objectives of the scoping review and match the review question.

Concept

The core concept examined by the scoping review should be clearly articulated to guide the scope and breadth of the inquiry should be explained.

Context

The context should be clearly defined and explained.

Types of sources

The source of information can include any existing literature e.g. primary research studies, systematic reviews, meta-analyses, letters, guidelines, etc. should be explained.

3.3.4 Search Strategy

Details of the approach to searching as well as the sources searched should be detailed. Any limits on the search such as dates or languages should also be included.

3.3.5 Extraction of results

The methods/tools used to extract results from the included sources should be described in brief (see section 4.1 for an example).

3.3.6 Presentation of results

Details of results should be described in brief as well as how they have been organized in relation to the objective and question/s of the scoping review. This should be the principle focus of the Executive Summary. Important details of the results, including the number of studies located and included. The results extracted from the literature should be clearly detailed as well as an explanation of how the data has been charted.

3.3.7 Conclusions

Brief overall conclusions based on the scoping review results should be articulated, including a clear answer to the question(s)/objective(s) of the scoping review.

Implications for research

Succinctly detail the key implications for research and further need for primary research and or systematic reviews in the field.

Implications for practice

Succinctly detail the key results that can be used to inform practice. There may be significant limitations on the kinds of implications for practice able to be developed from the results of a scoping review as no methodological appraisal of the quality of included studies takes place. This section may be left out if no implications for practice are made.

3.4 Main body of the report

3.4.1 Background

The background section should be comprehensive and cover all of the main elements of the topic under review, as well as appropriate information important to the review and why the topic or question of interest lends itself to a scoping review. The primary objective of the scoping review should be evident in the background as the background situates the justification and importance of the question(s) posed. While many of these details will already have been addressed in the "Background" section of the protocol, reviewers may often find that the background provided with the protocol needs modification or extension following the conduct of the scoping review itself. The background section should conclude with a statement that a preliminary search for previous scoping reviews on the topic aligning to the same concept was conducted (state the sources searched e.g. JBISRIR, The Cochrane Database of Systematic Reviews, Campbell Collection, etc.). The background section must include a citation of the original protocol and the following sentence: The objectives, inclusion criteria and methods of analysis for this review were specified in advance and documented in a protocol.

Vancouver style referencing must be used throughout the review with superscript numbers without brackets used for in-text citations.

3.4.2 Objectives

The primary objective of the scoping review should be stated. It can be followed by specific objectives that relate to differing conceptual foci contained in the scoping review, such as, participant groups, interventions or outcome measures or a more in depth understanding of a particular phenomenon of interest or concept. (See example above in Section 2.)

3.4.3 Inclusion criteria

This section of the scoping review specifies the basis upon which sources were considered for inclusion in the scoping review. This section should necessarily be as transparent and unambiguous as possible. The inclusion criteria for a scoping review will be contingent on the question(s) asked. The PCC should be stipulated (Population, Concept, and Context).

Types of participants

The types of participants in the papers specified sought for inclusion should be related to the objectives of the scoping review. The reasons for the inclusion or exclusion of particular participants detailed in this section should be explained clearly in the background section of the scoping review report.

Concept

The core concept examined by the scoping review should be clearly articulated to guide the scope and breadth of the inquiry. This may include details that pertain to the "interventions" and/or "phenomena of interest" that would be explained in greater detail in a systematic review.

Outcomes may also be a component of a scoping review's "Concept". If outcomes of interest are to be explained, they should be linked closely to the objective and the purpose for undertaking the scoping review.

Context

Context will vary depending on the objective(s)/question(s) of the review. The context should be clearly defined and may include, but is not limited to, consideration of cultural factors, such as geographic location and/or specific racial or gender-based interests. In some cases, context may also encompass details about the specific setting (such as acute care, primary health care or the community).

Types of sources

The sources of information for the scoping review should be explained. Sources can include any existing literature, e.g. primary research studies, systematic reviews, meta-analyses, letters, guidelines, etc. The source of information may be left "open" to allow for the inclusion of any, and all sources and rationale for this should be provided. Otherwise, any limits imposed on the types of sources should be detailed and explained. For example, some sources such as text and opinion papers and letters would not be particularly appropriate or useful in order to meet the objectives of particular scoping reviews.

3.4.4 Search strategy

This section documents how the reviewers search for relevant sources of information for inclusion in the scoping review. The search strategy must be comprehensively reported and the detailed search strategy for a minimum of three major bibliographic citation databases that have been searched should be appended to the review. Ideally the individual search strategies for every database searched should be presented in sequence and in a consistent format in an appendix. Clear documentation of the search strategy is a vital component of the scientific validity of any scoping review. A scoping review should consider papers (primary studies, textual papers and reviews) both published and unpublished (grey literature). The timeframe (start and end dates) chosen for the search should be clearly justified and any language restrictions specified (e.g. "only studies published in English were considered for inclusion"). Any hand searching of particular relevant journals should be detailed with the journal names and years examined. Author contact, for example, to request access to known but unavailable articles should also be included along with the outcomes of that contact.

3.5 Method of the report

3.5.1 Extraction of results

Extraction of results for a scoping review should include extraction of all data relevant to inform the scoping review objective and question/s. Charting table or forms may be used (see section 4.1 for an example). A descriptive summary of the main results organized based on the theoretical concept underpinning the review must be included. Examples of extraction fields are identified below.

Author/year

Citation details should be consistent throughout the document. The citation details include the name of the first author (Vancouver referencing style) and year of publication.

Objective(s)

A clear description of the objective of the paper should be stated.

Participants (characteristics/total number)

The defining characteristics of the participants in included sources should be provided. This includes demographic details and total numbers.

Concept

The concept examined by the scoping review will vary depending on the review, and should be clearly articulated to guide the scope and breadth of the inquiry. This may include details that pertain to the "interventions" and/or "phenomena of interest" that would be explained in greater detail in a systematic review. Outcomes may also be a component of a scoping review's "Concept". If outcomes of interest are to be explained, they should be linked closely to the objective and the purpose for undertaking the scoping review.

Context

Details of the context, such as location of care (acute, primary health care, community, long term care, etc.) or a particular geographical location, should be described. Cultural, racial or gender factors may be relevant.

3.6 Presenting the results

3.6.1 Results

The presentation of results section should identify how many studies were identified and selected. There should be a narrative description of the search decision process accompanied by the search decision flowchart (see Figure 1). The flow chart should clearly detail the review decision process, indicating the results from the search, removal of duplicate citations, study selection, full retrieval and additions from a third search, and final summary presentation.

The narrative summary should logically describe the aims or purposes of the reviewed sources, concepts adopted and results that relate to the review question/s.

The results may be classified under main conceptual categories such as: "intervention type", "study population" (and sample size, if it is the case), "duration of intervention", "aims", "methodology adopted", "key findings" (evidence established) and "gaps in the research". For each category, a clear explanation should be provided.

This section should include an overall description of the included sources with reference to the detailed Table of Included Source Characteristics in the appendices (see section 4.1 for an example). The aim of this section is to provide detail to support the inclusion of each source (paper, study, report, etc.) in the scoping review. For each source, identify the relevance to the scoping review objective and evidence for the review question. Specific results from sources may be highlighted. A summary table of included sources should be provided in the appendices.

Presentation of the results of a JBI scoping review may map out the reviewed material in logical, diagrammatic or tabular form, and/or in a descriptive format that aligns with the objective and scope of the review. The tables and charts may show results as: distribution of studies by year or period of publication (depends on each case), countries of origin, area of intervention (clinical, policy, educational, etc.), and research methods.

The results section should identify how many studies were identified and selected. There should be a narrative description of the search decision process accompanied by the search decision flowchart (see Figure 1).

The flowchart should clearly detail the review decision process, indicating the results from the search, removal of duplicate citations, study selection, full retrieval and additions from a third search, and final summary presentation.

The results summary should logically describe the aims or purposes of the reviewed sources, the concepts adopted and results that relate to the review question/s.

The results may be classified under main conceptual categories such as: "intervention type", "study population" (and sample size, if it is the case), "duration of intervention", "aims", "methodology adopted", "key findings" (evidence established), and "gaps in the research".

For each category, a clear explanation should be provided.

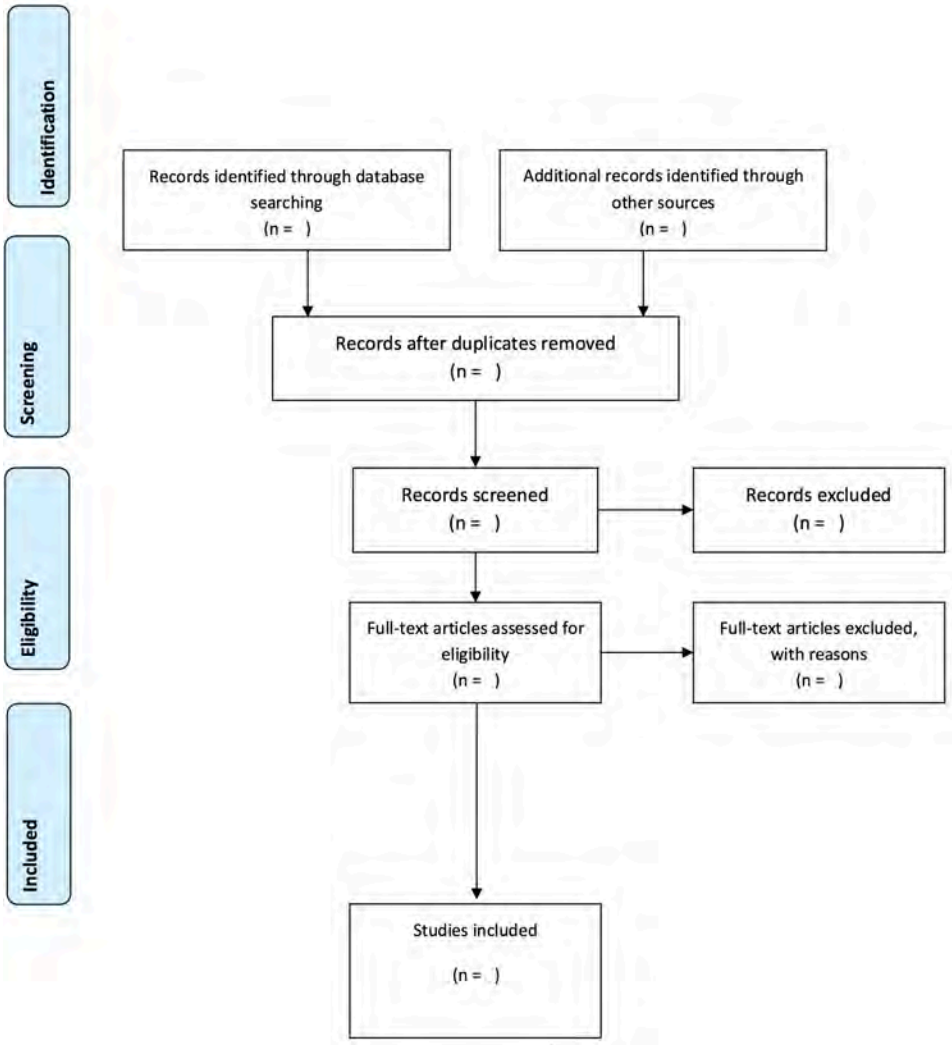

Figure 1: PRISMA Flow Diagram for the scoping review process.[15]

3.7 Discussion, Conclusion, and Implications for research and practice

3.7.1 Discussion

This section should discuss the results of the review as well as any limitations of the sources included in the scoping review. Results should be discussed in the context of current literature, practice and policy. Scoping reviews are subject to the limitations of any review, relevant sources of information may be omitted and the review is dependent on information on the review question being available. In a scoping review no rating of quality or level of evidence is provided, therefore recommendations for practice cannot be graded.

3.7.2 Conclusions

This section should begin with an overall conclusion based on the results. The conclusions drawn should match the review objective/question.

3.7.3 Implications for research

This section should include clear, specific recommendations for future research based on gaps in knowledge identified from the results of the review. Authors may be able to make comments about the future conduct of systematic reviews that may be appropriate, or primary research in the area of interest.

3.7.4 Implications for practice

This section should include clear results from the scoping review that can be used to inform practice. It may not be possible to develop recommendations for practice from the results of a scoping review as no assessment of methodological quality takes place as part of a scoping review. As such this section may be left out. If implications for practice are included, the JBI Grades of Recommendation must be used.16

3.8 End matter

3.8.1 Conflicts of interest

A statement which either declares the absence of any conflicts of interest or which describes a specified or potential conflict of interest should be made by the reviewers in this section.

3.8.2 Acknowledgments

Any acknowledgments should be made in this section, such as sources of external funding or the contribution of colleagues or institutions. If the review will count toward the award of a degree, this should be noted.

3.9 References

All references should be listed in full using the Vancouver referencing style, in the order in which they appear in the review. Abbreviated journal titles must be used in accordance with Index Medicus.

4: Appendices

4.1 Appendix I: Template study details and characteristics and results extraction instrument

Review title: Neurological reactions to the HPV vaccine: a scoping review

Review question: What types of neurological reactions to HPV vaccination have been reported?

Inclusion criteria (PCC):

Population – Individuals vaccinated with a HPV vaccination only who have experienced a neurological reaction.

Any age

Any sex

Concept – Any neurological reactions to HPV.

Notes: Reported by specific neurological diagnostic criteria and by symptom e.g. headache.

Context – The HPV vaccines administered in any setting.

Exclusion criteria

Studies with 'no concept of interest' e.g. review articles that do not foreground neurological effects – e.g. reviews of clinical trials reporting basic results around "safety and tolerability".

Confounding population factors e.g. Population has co-morbidities (e.g. HIV). Population has co-existing state (e.g. pregnancy).

HPV vaccination administered in combination with other vaccinations.

Study details and characteristics extraction:

Number of participants

Age

Sex

Year

Location/country

Source of result (e.g. case report, letters, type of study, methods)

Results extraction (Level 2):

Notes: Extract diagnosis where available; extract symptoms where no diagnosis available.

Type of vaccination

Type of neurological condition post vaccine

Pre-vaccine health status (if provided)

How condition assessed

How long post vaccine? (e.g. days, weeks, months, years)

References

1 Grant MJ, Booth A. A typology of reviews: an analysis of 14 review types and associated methodologies. Health information and libraries journal. 2009;26(2):91-108.

2 Ehrich K, Freeman GK, Richards SC, Robinson IC, Shepperd S. How to do a scoping exercise: continuity of care. Res Pol Plan. 2002;20(1):25-9.

3 Anderson S, Allen P, Peckham S, Goodwin N. Asking the right questions: scoping studies in the commissioning of research on the organisation and delivery of health services. Health Res Policy Syst. 2008;6(7):12.

4 Arksey H, O'Malley L. Scoping studies: towards a methodological framework. Int J Soc Res Methodol. 2005;8(1):19-32.

5 Davis K, Drey N, Gould D. What are scoping studies? A review of the nursing literature. Int J Nurs Stud. 2009;46(10):1386-400.

6 Crilly T, Jashapara A, Ferlie E. Research utilisation and knowledge mobilisation: a scoping review of the literature. London: Department of Management, King's College London; 2010.

7 de Chavez AC, Backett-Milburn K, Parry O, Platt S. Understanding and researching wellbeing: Its usage in different disciplines and potential for health research and health promotion. Health Educ J. 2005;64(1):70-87.

8 Decaria J, Sharp C, Petrella R. Scoping review report: obesity in older adults. Int J Obesity. 2012;36(9):1141-50.

9 Callary SA, Solomon LB, Holubowycz OT, Campbell DG, Munn Z, Howie DW. Wear of highly crosslinked polyethylene acetabular components. Acta orthopaedica. 2014:1-10.

10 Pham MT, Rajić A, Greig JD, Sargeant JM, Papadopoulos A, McEwen SA. A scoping review of scoping reviews: advancing the approach and enhancing the consistency. Res Synth Methods. 2014;5(4):371-85.

11 Pearson A, Wiechula R, Court A, Lockwood C. The JBI model of evidence–based healthcare. Int J Evid Based Healthc. 2005;3(8):207-15.

12 Levac D, Colquhoun H, O'Brien KK. Scoping studies: advancing the methodology. Implement Sci. 2010;5(1):1-9.

13 Armstrong R, Hall BJ, Doyle J, Waters E. 'Scoping the scope'of a cochrane review. J Public Health. 2011;33(1):147-50.

14 Valaitis R, Martin-Misener R, Wong ST et al. Methods, strategies and technologies used to conduct a scoping literature review of collaboration between primary care and public health. Prim Health Care Res Dev. 2012;13(03):219-36.

15 Moher D, Liberati A, Tetzlaff J, Altman DG. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. Ann Intern Med. 2009;151(4):264-9.

16 The Joanna Briggs Institute Levels of Evidence and Grades of Recommendation Working, Party. Supporting Document for the Joanna Briggs Institute Levels of Evidence and Grades of Recommendation: The Joanna Briggs Institute; 2014.