

Conducting Systematic & Scoping Reviews: An Overview

Updated: Dec. 9, 2021

Overview

- Differences between scoping and systematic reviews
- Selecting a review (indicators)
- The review process
- Reporting guidelines and protocol development

GalterGuides

- [Systematic Reviews](#)
- [Scoping Reviews](#)
- [Reporting Research and Evaluating Studies](#)
- [Rayyan](#)

Classes

- [Conducting a Systematic Review: Part 1 - Planning the Process](#)
- [Conducting a Systematic Review: Part 2 - Tools & Resources](#)
- [Conducting a Scoping Review](#)
- [EndNote](#)

Systematic Reviews vs Scoping Reviews

What are the differences?

Systematic Review

Attempts to **identify, appraise** and **synthesize** all the empirical evidence to answer a **specific [and focused] research question.**

Scoping Review

Follows a systematic approach to **map** evidence on a topic and **identify main concepts, theories, sources, and knowledge gaps."**

Scoping Reviews vs Systematic Reviews

What are the differences?

	Scoping Reviews	Systematic Reviews
Authors	One or more authors	Team-based (multiple authors)
Research question	Focus or broad question(s)	Focused question
Eligibility criteria	Flexible	Set/Fixed/Developed a priori
Search strategy	Iterative, revisions acceptable	Set/Fixed/Developed a priori
Results	“Larger” result sets	“Fewer” results
Appraisal	Optional	Required
Protocol & reporting guideline	PRISMA-ScR	PRISMA-P PRISMA 2020
Analysis	Overview and thematic	Critically appraised formal synthesis

When to Consider a Systematic Review

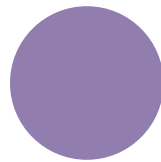
What are key indicators that a systematic review might be right for you?

Aim is to answer a *focused*, clinical question

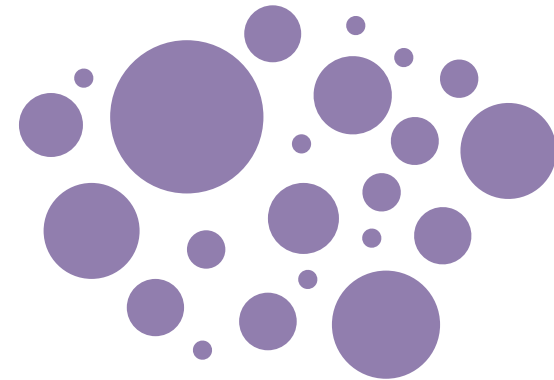


Too specific

Insufficient literature



Just right



Too broad

Over-abundance
of literature

When to Consider a Systematic Review

What are key indicators that a systematic review might be right for you?

Consider conducting a systematic review if you hope to achieve any of the following goals:

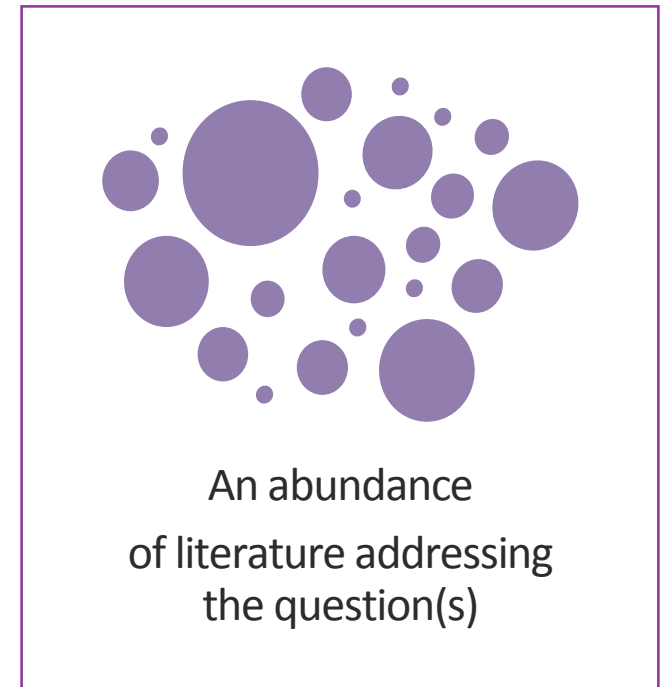
- Confirm current practice/ address any variation/ identify new practices
- Address the **feasibility, appropriateness, meaningfulness or effectiveness of a certain treatment or practice**
- Identify and investigate conflicting results
- Produce statements to guide decision-making

Source: Munn, Zachary, et al. "Systematic review or scoping review? Guidance for authors when choosing between a systematic or scoping review approach." BMC medical research methodology 18.1 (2018): 1-7.

When to Consider a Scoping Review

What are indicators that a scoping review might be right for you?

- Research question
 - Broad research question or topic
 - Multiple (broad) research questions
 - Multi-part research question
- Clarify or examine key concepts, topics or areas
- Conduct a landscape/environmental scan
- Identify knowledge gaps



When to Consider a Scoping Review

What are indicators that a scoping review might be right for you?

- A precursor to a systematic review
- Impractical to conduct risk of bias assessments
- Incorporate multiple study designs

The Review Process

Key sources

Cochrane handbook for systematic reviews of interventions

Hoboken, NJ : Wiley-Blackwell; [2019]; Second edition.

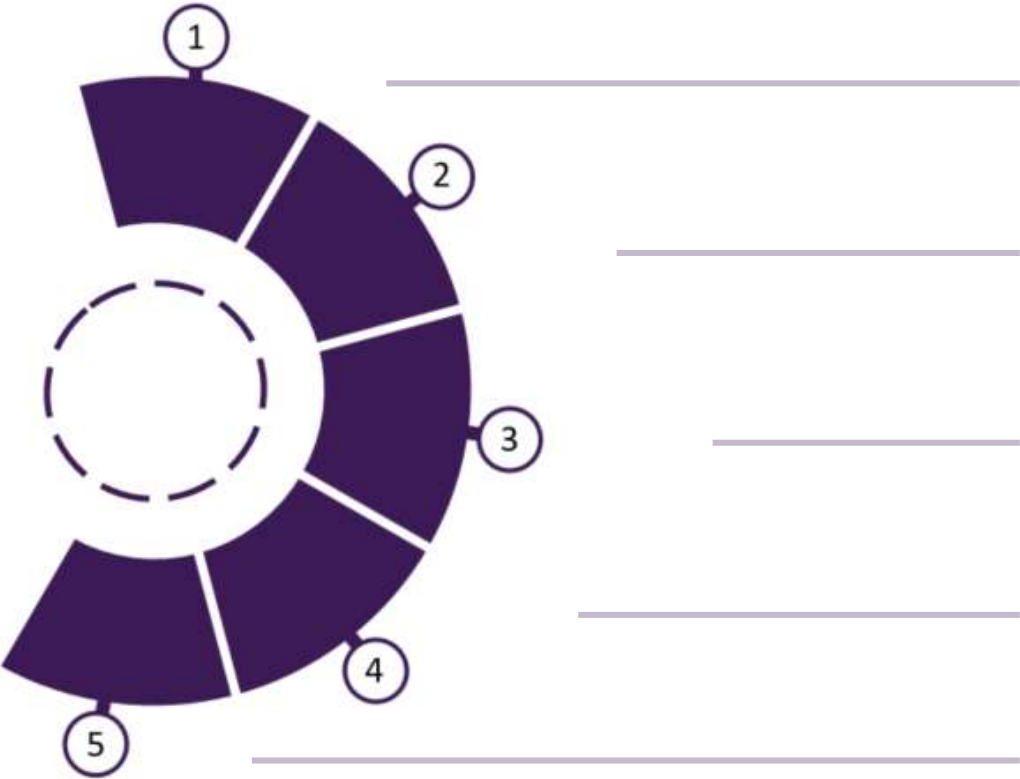
Scoping studies: towards a methodological framework

Arksey H, O'Malley L. International journal of social research methodology. 2005;8(1):19-32.

JBIM Manual for Evidence Synthesis

Aromataris E, Munn Z (Editors). JBIM, 2020. Available at <https://synthesismanual.jbi.global>. <https://doi.org/10.46658/JBIMES-20-01>

The Review Process



- 1 Identify the research question
- 2 Identify relevant studies
- 3 Study selection
- 4 Extract/chart the data
- 5 Collate, summarize and report results

Step 1 – Identifying the Research Question

The research question(s) shapes all aspects of the review

PICO

- **P**atient, population, problem,
- **I**ntervention or exposure
- **C**omparator,
- **O**utcome(s)

Framework commonly used for systematic reviews

PCC

- **P**atient, population, problem
- **C**oncept
- **C**ontext

“PCC is recommended as a guide to construct a clear and meaningful title and inclusion criteria for a scoping review” -JBI

Look for Existing Reviews

Are there already published or in progress reviews on your topic?

- Search these databases:
 - [Cochrane Database of Systematic Reviews](#)
 - [PubMed](#)
 - [PROSPERO](#)

Step 2 – Identifying Relevant Studies

Identify relevant studies with a comprehensive search strategy

Review Search Strategy

- Comprehensive
- Consider multiple databases
- Consider various types of evidence
- Iterative
 - revisions accepted for scoping reviews
- Document

See Galter's Information Sources page for more databases.



Step 3 – Study Selection

Select relevant studies based on your eligibility criteria

Screening tools

- [Covidence](#)
- [Rayyan](#)

Sample PICO	Eligibility criteria
P: Adults with acute pancreatitis	<ul style="list-style-type: none">• Adults > 18 years of age• Hospitalized with mild, moderate or severe acute pancreatitis
I: Early feeding	<ul style="list-style-type: none">• Enteral nutrition can be described as oral, nasogastric or post-pyloric nasojejunal feeding• Feeding initiated promptly (within 48 hours) without regard for laboratory features.
C: Delayed feeding (standard procedure)	<ul style="list-style-type: none">• Enteral feeding... instituted after a predefined time (>48 hours) or laboratory parameter is met.
O: Hospital length of stay, healthcare costs, symptoms, clinical outcomes	<ul style="list-style-type: none">• Main outcome(s): Length of hospital stay, readmissions and mortality• Secondary outcomes may include, but are not limited to, the following:<ol style="list-style-type: none">1. Time to feeding. This is defined as the time from hospitalization to tolerance of oral feeding.2. Gastrointestinal symptoms. This must be defined by the authors and may include nausea, vomiting, transitional (or worsening) abdominal distention, or transitional (or worsening) abdominal pain....

2019-11-19: Conducting a Systematic Review: Digital Mental Health Interventions

Showing 1 to 7 of 941 unique entries

Search:

Date	Title	Authors	Rating
2014-01-01	Abstracts of Papers and Posters to be Presente...		
2015-01-01	'Next-generation psychiatric assessment: Using...		
2017-01-01	2017 International Conference on Medical Com...		
2018-01-01	Corrigendum		
2018-01-01	Abstracts for the Australian College of Midwive...		
2019-01-01	AAAP Abstracts		
2014-01-01	The 4th Schizophrenia International Research S...	Abayomi, Olukaunde; Amato	

Abstracts of Papers and Posters to be Presented at the 62nd Annual Clinical Meeting of the American College of Obstetricians and Gynecologists

The proceedings contain 400 papers. The topics discussed include: analysis of the efficacy of sodium hyaluronate-carboxycellulose barrier in repeat cesarean deliveries; computational model for determination of optimal timing of delivery in an obese population; patient satisfaction and cosmetic outcome in a **randomized** study of cesarean skin closure; subcutaneous venous-access device removal; mifepristone and misoprostol **compared with** osmotic dilator insertion before surgical abortion at 15-18weeks; maternal mental health outcomes after perinatal death; trends and correlates of monozygotic twinning after assisted reproductive technology; emergency contraception provision barriers among emergency medicine residents; and influencing medical students' attitudes toward intrauterine contraception in the third-year obstetrics and gynecology clerkship.

Journal: Obstetrics and Gynecology - Volume 123, Issue 0, pp. - published 2014-01-01

Publication Types: Journal Article

Topics: oxidized cellulose | mifepristone | hyaluronic acid | cosmetic | misoprostol | human | obstetrician | gynecologist

Screening in Rayyan

Rayyan GalterGuide

Rayyan is not supported by Galter Library or NU

Step 4 – Charting/Extracting the Data

- Data extraction process
- No standardized chart or form
 - [Data Extraction Form adapted from the Cochrane Collaboration](#) (Opens to a PDF)
- Forms should be individualized
- Pilot the form
- Refine as needed

JBI template source of evidence details, characteristics and results extraction instrument [scoping reviews]	
Scoping Review Details	
Scoping Review title:	
Review objective/s:	
Review question/s:	
Inclusion/Exclusion Criteria	
Population	
Concept	
Context	
Types of evidence source	
Evidence source Details and Characteristics	
Citation details (e.g. author/s, date, title, journal, volume, issue, pages)	
Country	
Context	
Participants (details e.g. age/sex and number)	
Details/Results extracted from source of evidence (in relation to the concept of the scoping review)	
E.g. Quality of Life Domains assessed	
E.g. Number of items in tool	
E.g. details of psychometric validation of tool	

Risk of Bias Assessment

If done, describe anticipated methods for assessing risk of bias of individual studies, including whether this will be done at the outcome or study level, or both; state how this information will be used in data synthesis

- Risk of bias checklists
 - No standardized form for collection
 - The Cochrane Collaboration's [tool](#) for assessing risk of bias

See [Tools for Reviewers](#) page on the Reporting Research GalterGuide

Step 5 – Collate, Summarize, and Report Results

Synthesize the data extracted during the charting process to present an overview of the literature

What to include:

- Report extracted data and analyses
 - Data that align with the objective(s)
 - Data that address research questions(s)
 - Includes the PCC or PICO elements
- Confidence in cumulative estimate report [systematic reviews]
 - Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach ([BMJ Clinical Evidence. \(2015\). What is GRADE?.](#))

Step 5 – Collate, Summarize, and Report Results

Synthesize the data extracted during the charting process to present an overview of the literature

About the searches:

- Search results
- Results of the selection process

About the sources:

- Description of included sources with references
- The PCC/PICO may be helpful in guiding the format

Presentation options:

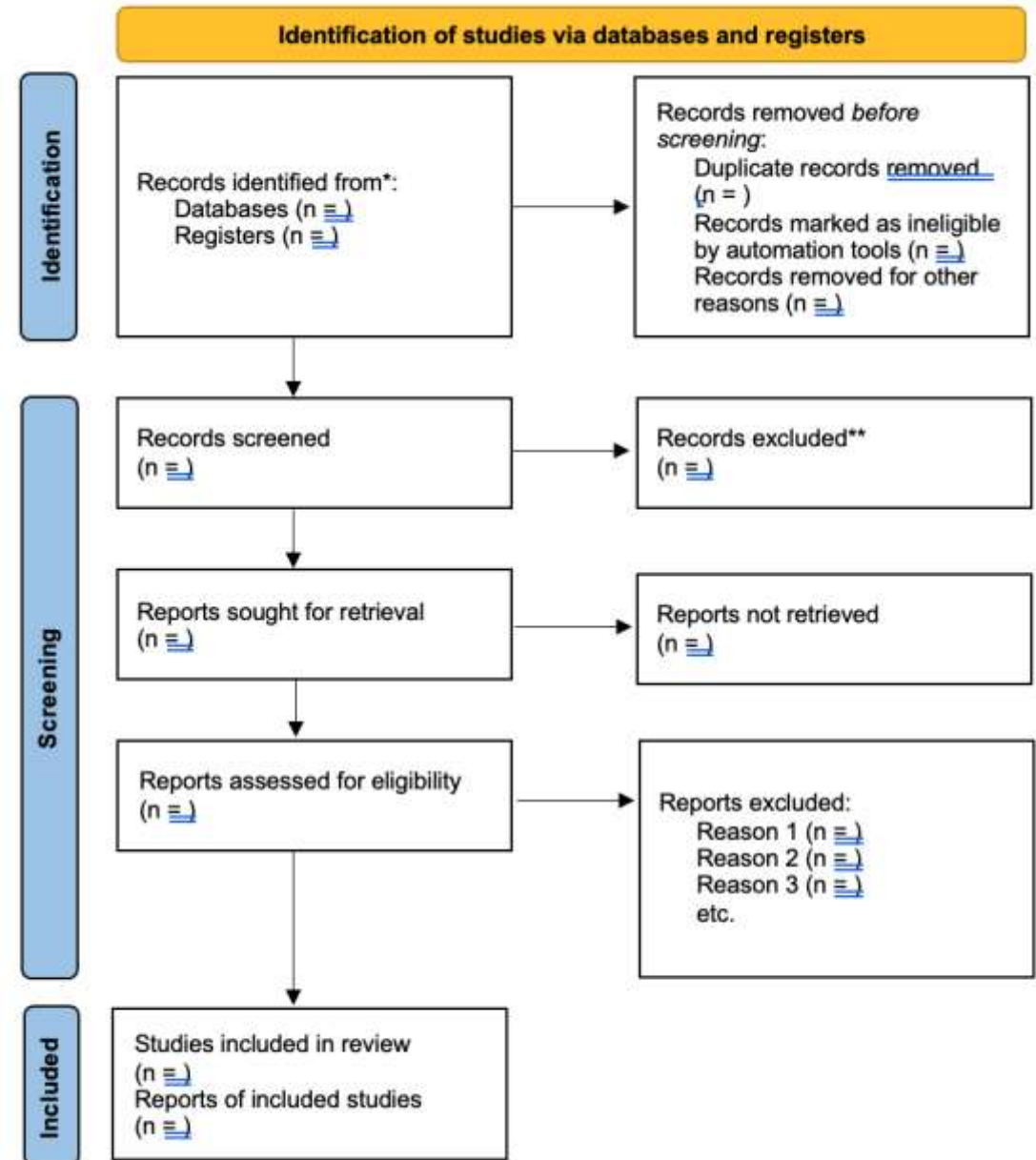
- Descriptive text
- Diagrams
- Tables
 - Table of Included Source of Evidence Characteristics

Step 5 – Collate, Summarize, and Report Results

PRISMA Flow Diagram

Depicts the **flow of information through the different phases** of a systematic review.

<http://www.prisma-statement.org/PRISMAStatement/FlowDiagram>



Step 5 – Collate, Summarize, and Report Results

Table 1: Characteristics of included interventional studies

Excerpt from: [Post-stroke fatigue: a scoping review](#)

Study name	Country	Design	No. of participants	Stroke type	Time after stroke	Interventions	Duration of intervention	Delivered by	Delivery mode
Chen et al., 2016	Taiwan	RCT	41	With CHF	64.95±53.0 7 D	Inspiratory Muscle Training + TAU v. TAU	10 W (5 D/W)	Respiratory Therapist	NR
Chen et al., 2019	Taiwan	RCT	72	Ischemic	NR	Mind-Body Exercise (Qigong) + TAU v. TAU	10 D	Researchers	Individual
Delva 2019	Ukraine	CCT	39	Ischemic/TIA	≥3 M	Acetylsalicylic Acid (Low Dose v. High Dose)	3 M	NR	NR

PRISMA 2020 [Systematic Reviews]

Title	1	Title				
Abstract	2	Structured summary				
Introduction	3	Rationale	Results	16	Study selection	
	4	Objectives		17	Study characteristics	
Methods	5	Eligibility criteria		18	Risk of bias in studies	
	6	Information sources		19	Results of individual studies	
	7	Search strategy		20	Results of syntheses	
	8	Selection process		21	Reporting biases	
	9	Data collection process		22	Certainty of evidence	
	10	Data items		Discussion	23	Discussion
	11	Study risk of bias assessment		Other Information	24	Registration and protocol
	12	Effect measures			25	Support
	13	Synthesis methods	26		Competing interests	
	14	Reporting bias assessment	27		Availability of data, code and other materials	
	15	Certainty assessment				

Develop your protocol using the PRISMA-P checklist!!!

<http://www.prisma-statement.org/Extensions/Protocols.aspx>

PRISMA for Scoping Reviews (PRISMA-ScR)

- 22-item checklist
- Captures key elements of a scoping review
- Use to develop a protocol
 - Report Items 1, 3-13

See the [statement paper](#) and [tip sheets](#) for descriptions and examples of each item.

Title	1	Title
Abstract	2	Structured summary
Introduction	3	Rationale
	4	Objectives
Methods	5	Protocol and registration
	6	Eligibility criteria
	7	Information sources
	8	Search
	9	Selection of sources of evidence
	10	Data charting process
	11	Data items
	12	Critical appraisal of individual sources of evidence (if appropriate)
	13	Synthesis of results
	Results	14
15		Characteristics of sources of evidence
16		Critical appraisal within sources of evidence
17		Results of individual sources of evidence
18		Synthesis of results
Discussion	19	Summary of evidence
	20	Limitations
	21	Conclusions
Funding	22	Funding

Registering Your Protocol

Why register?

- Transparency
- “Claim” your topic
- Prevent competing reviews
- Item on the PRISMA checklists

Places to register includes:

- Northwestern’s [DigitalHub](#)
- [PROSPERO](#)
- [Open Science Framework](#)
- [Systematic Reviews](#)
- [BMJ Open](#)
- [JBI Evidence Synthesis](#)

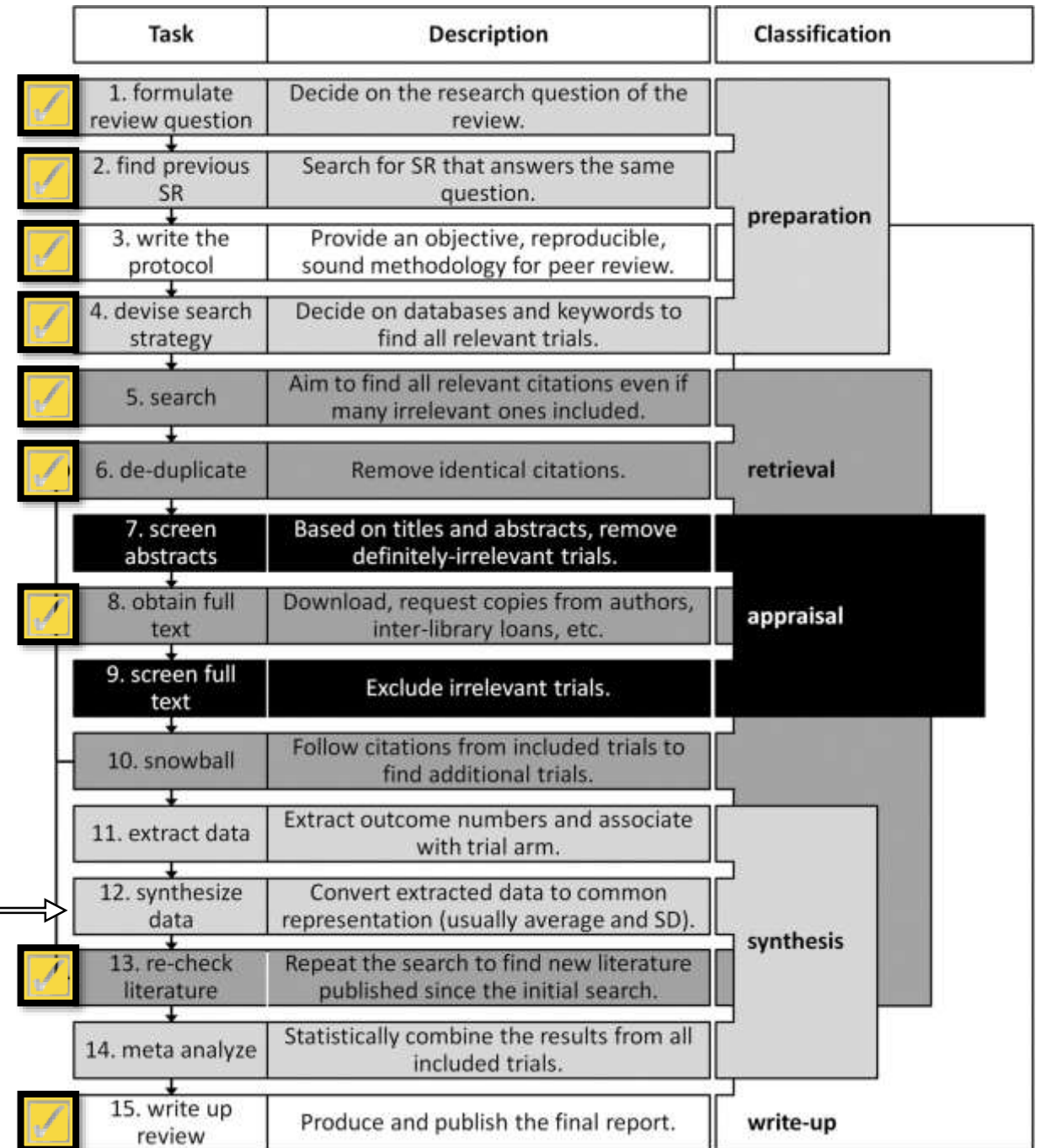
Note: PROSPERO does not accept protocols for scoping review

Steps in the Process and Library Support

Librarian as co-author/full-collaboration model

As co-author, your librarian can assist your review team with many tasks in the process.

12.5. quality assessment	Assess the overall body of evidence.
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Thank You
Questions?