

COFFEE



LECTURE

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12 Steps to a Successful Systematic Review: From Research Question to Evidence

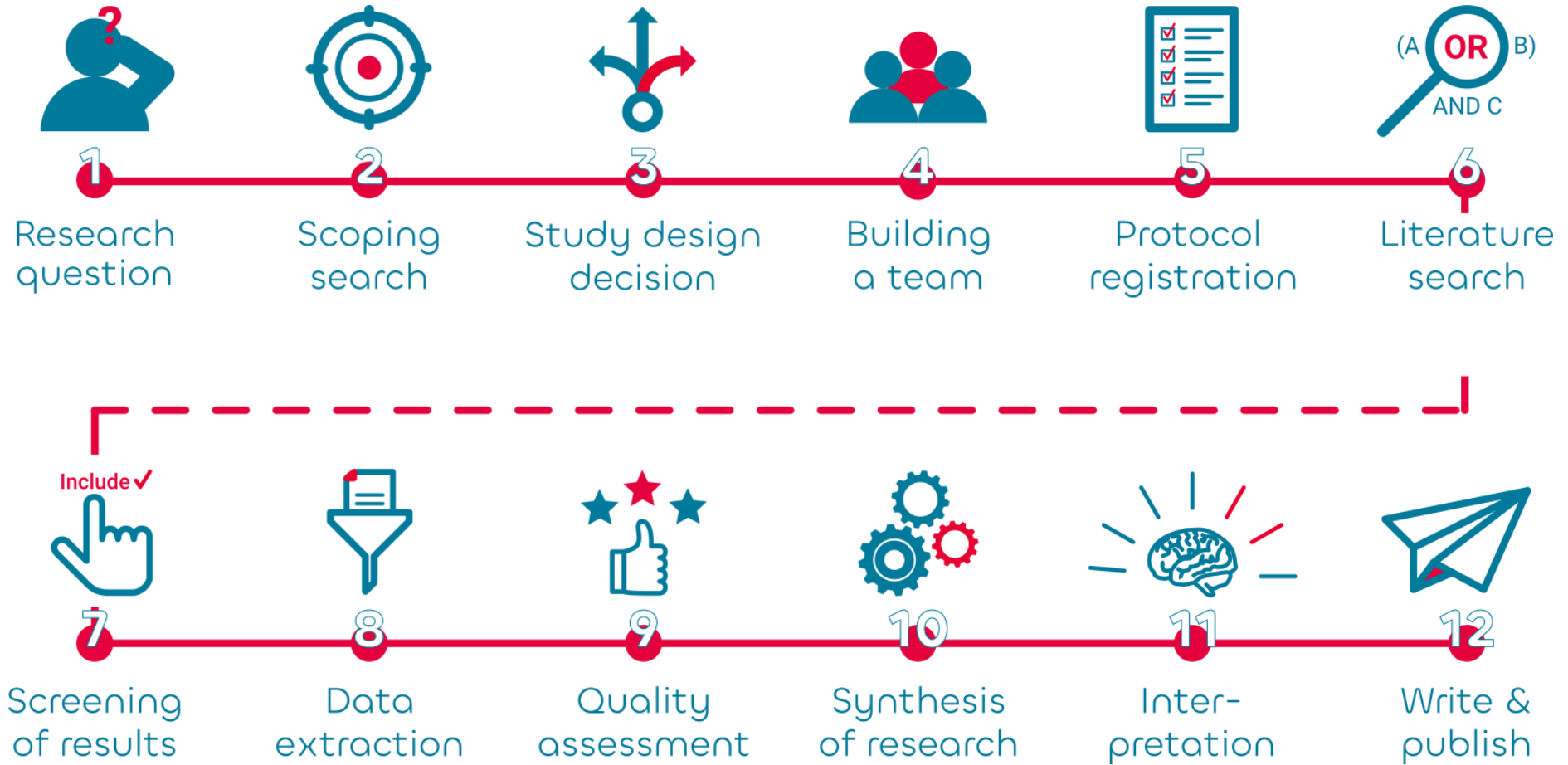


Tanya Karrer
Research Support Services
Team, Medical Library

**Wednesday,
Nov 8, 2023
13:00, Zoom**

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12 Steps in a Systematic Review




1 Research Question

What makes a good research question?

- **The 5 Ws:** Who, What, When, Where, Why
- **FINER:** Feasible, Interesting, Novel, Ethical, Relevant

A systematic review asks for a **precise** research question

Have in mind **question formats** like PICO(T), PICo, PEO, PECO, PIRT, SPIDER, SPICE, CLIP, ECLIPSE, or others

Think like a database  (i.e. in database fields and concepts)

Ask yourself: How do authors write about your topic in scientific articles

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2 Scoping Search

Explore your topic

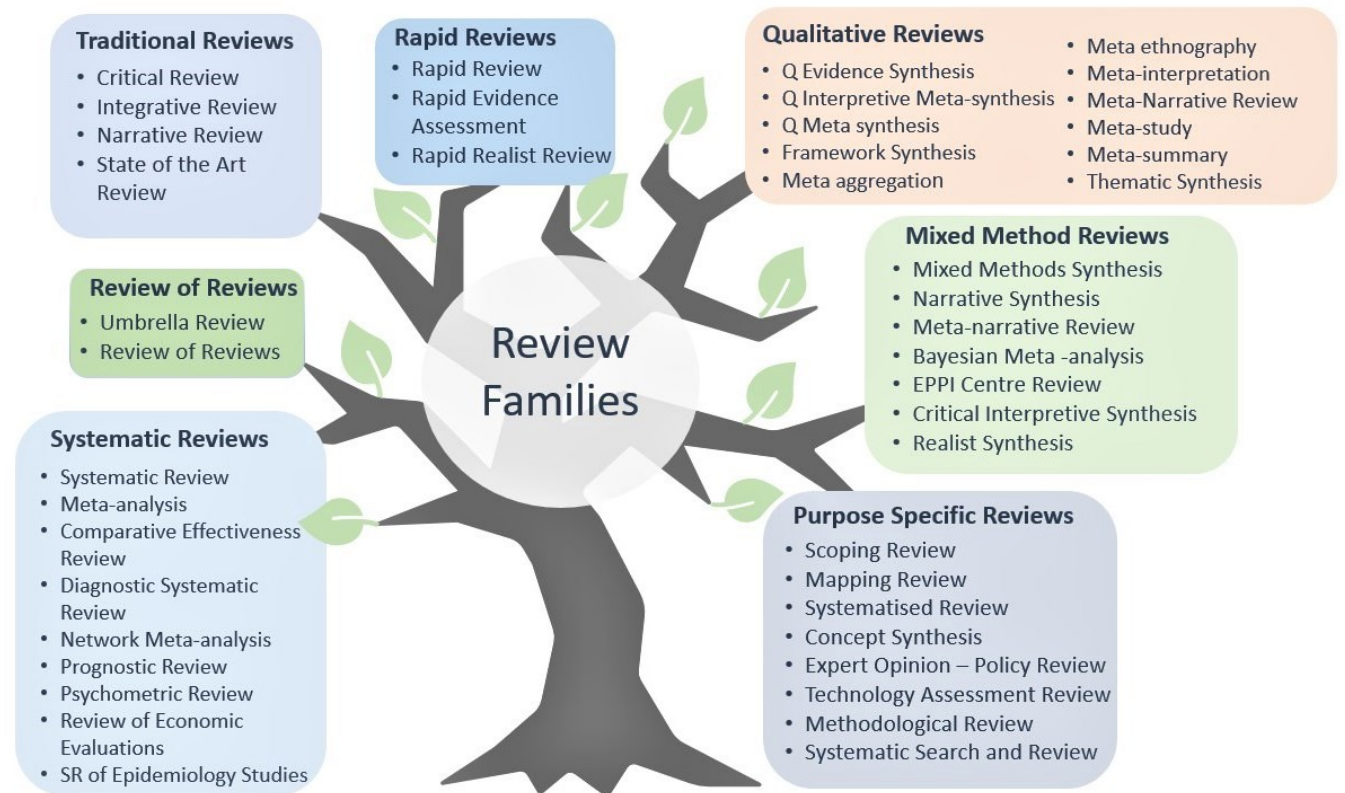
- **Quick and dirty searches** in PubMed or Google Scholar
- **Ask AI Tools** like litmaps.com, researchrabbit.app, elicit.org, consensus.app
(→ [BibMed's choice of AI tools](#))
- **Check registers** for systematic reviews on the same topic:
[PROSPERO](#), [OSF](#), [Research Registry](#), [Inplasy](#), [protocols.io](#), [JBI](#)

3 Study Design Decision

It's not always a systematic review that best answers your research question

Choose the type of review based on your research question:

- Scoping Review
- Narrative Review
- Rapid Review
- Realist Review
- Umbrella Review
- Evidence (Gap) Map
- And many more



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4 Building a Team

Systematic Reviews should be done by more than 1 person

- Reducing bias
- Subject experts
- Methods experts
- Information specialists
- Statistician (Meta analysis)
- Writing/editing experts

Tips for successfully leading your team
in a systematic review

Click for slides or video



5 Protocol Registration

Plan your review and let others know what you are working on

A protocol is a research plan

[BibMed's template for PROSPERO](#) (SciFlow)

[BibMed's template for PRISMA-P](#) (SciFlow)

Contact support_med.ub@unibe.ch
if you wish a Word document

Registers for protocols

[PROSPERO](#), [OSF](#), [Research Registry](#) (\$),

<https://inplasy.com> (\$), [protocols.io](#) (0-\$)

Register for Scoping Review protocols

[JBI](#)

PRISMA for Systematic Review Projects Click for slides or video



6 Literature Search

Find all the relevant literature for your research question

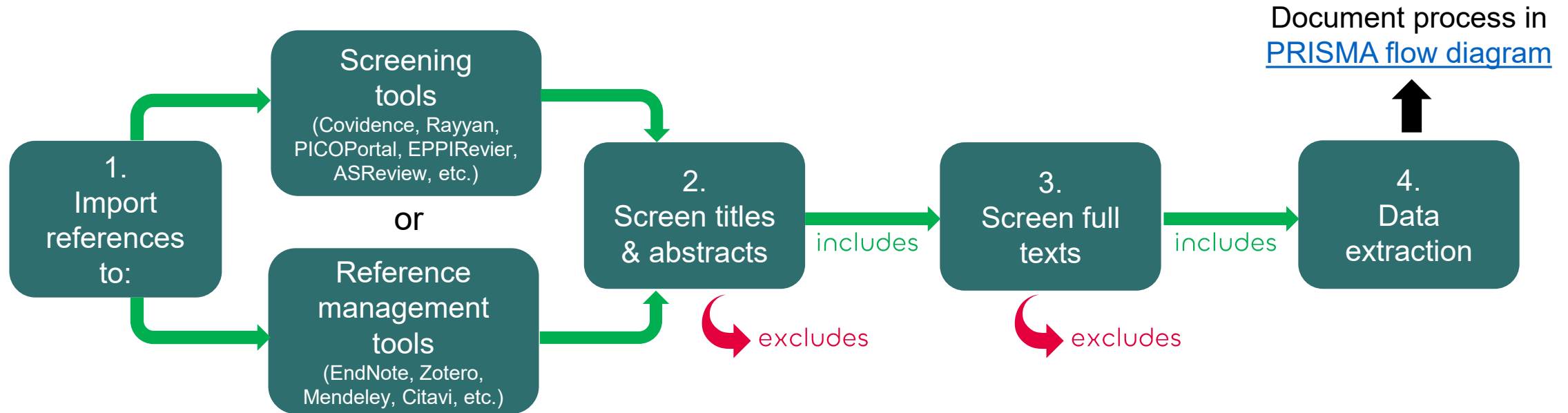
- In **databases** like PubMed, Medline, Embase, Cochrane Library, PsycInfo, Scopus, Web of Science, etc.
 - In **trial registers** like clinicaltrials.gov, [ICTRP](https://www.ictcp.com/) and many more
 - **Gray literature** (e.g. theses, booklets)
-
- Your search has to be **systematic, transparent and reproducible**
 - For a "real" systematic review search in **at least 3 databases**
 - **Deduplicate records**
 - If required: **update your search before publishing**


Don't worry!
We do this for you:



u^b 7 Screening the records

Go through all the records. Based on your criteria: exclude or include them for your study



Software tools to support the Systematic Review process [Click for slides](#) 

Citation Management Systems [Click for slides](#) 

Work smarter not harder: The PICOportal [Click for slides](#) 

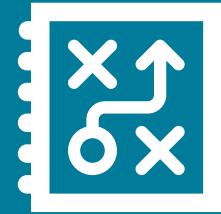
8 Data Extraction

Extract the data and/or information

- Quantitative: Data and numbers (are they comparable?)
- Qualitative: Information

- Sources (Study ID, author ID)
- Outcomes
- Study design
- Number of participants (and their characteristics)
- Results
- Etc.

- Excel, Word ([Template from Cochrane](#)), Covidence



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<https://training.cochrane.org/interactivelearning>

9 Quality Assessment / Appraisal

How reliable are the investigated studies?

- **Risk of Bias** (Randomization of participants, outcome data, knowledge of assessor)
- **Relevance of studies** and data in relation to populations, interventions, outcome
- **Fidelity** of the implementation of interventions

Tools & checklists:

[RoB 2](#), [AMSTAR](#), [CATMAKER](#), [BMJ Checklist](#), [CASP](#), [CEBM](#), [GRADE](#), [ICAHE](#), [ROBINS-I](#), [SIGN](#)



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10 Synthesis (Analyzing the data)

What new findings did you discover?

- By evaluating the data and quality of studies
- Ev. with a meta-analysis

"Synthesis is a process of bringing together data from a set of included studies with the aim of drawing conclusions about a body of evidence. This will include synthesis of study characteristics and, potentially, statistical synthesis of study findings."

Useful frameworks: PICO (and other question schemes)

[Cochrane Handbook Chapter 9](#)



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11 Interpretation

What do the results mean?

- Are they applicable, generalizable, valid and transferable?
- What are the conclusions?

[Cochrane Handbook Chapter 15](#)



12 Write/Report the Review

- Background
- Methods
- Results
- Discussion
- Conclusion
- Summary of Findings
- Tables




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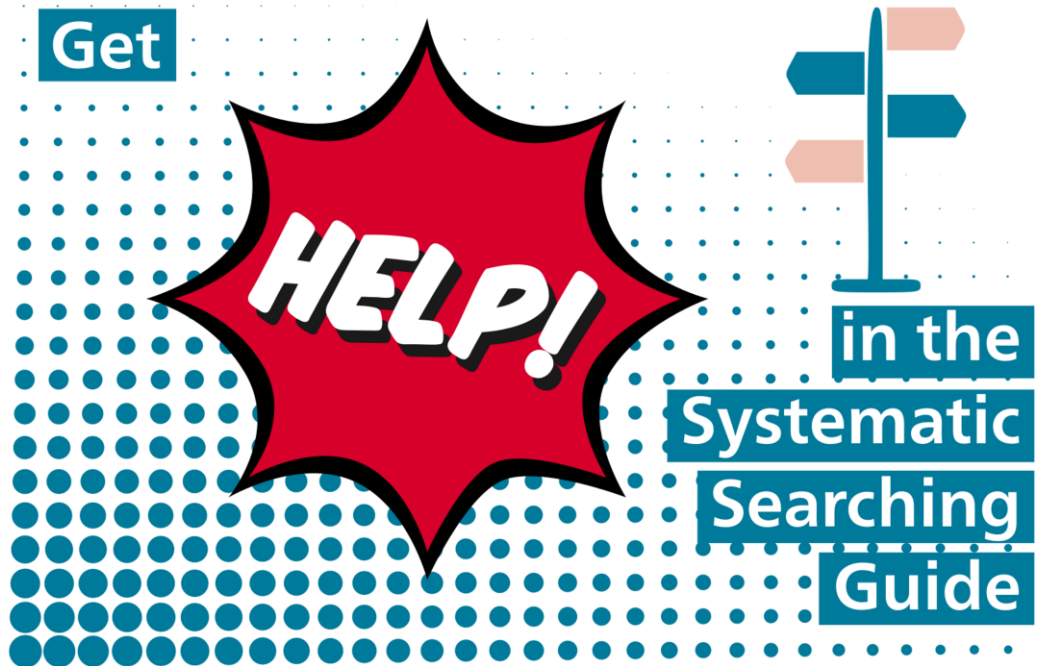
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When 12 Steps Are not Enough

Do it in 24

Muka T, et al. **A 24-step guide on how to design, conduct, and successfully publish a systematic review and meta-analysis in medical research.** Eur J Epidemiol. 2020 Jan;35(1):49-60. doi: [10.1007/s10654-019-00576-5](https://doi.org/10.1007/s10654-019-00576-5).



Thanks



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Next Coffee Lectures, slides and screencasts:



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Now is the time for...

Questions & Discussion

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