

What are systematic reviews & meta-analyses?

Systematic Review

A systematic review answers a defined research question by collecting and summarizing all empirical evidence that fits pre-specified eligibility criteria.

- Systematic review = study of studies
- Systematic reviews collect and summarize the literature surrounding a topic
- Systematic reviews evaluate individual studies and analyze the findings
- Systematic reviews are useful for learning about general topics and relevant research

Meta-analysis

A meta-analysis uses statistical methods to summarize the results of a systematic review.

- Meta-analysis = study of studies
- Meta-analyses use statistical methods to analyze the findings in multiple studies
- Meta-analyses can include a pooled estimate and confidence interval for the treatment effect after combining all the studies; test for whether the treatment or risk factor effect is statistically significant and test for heterogeneity between the studies

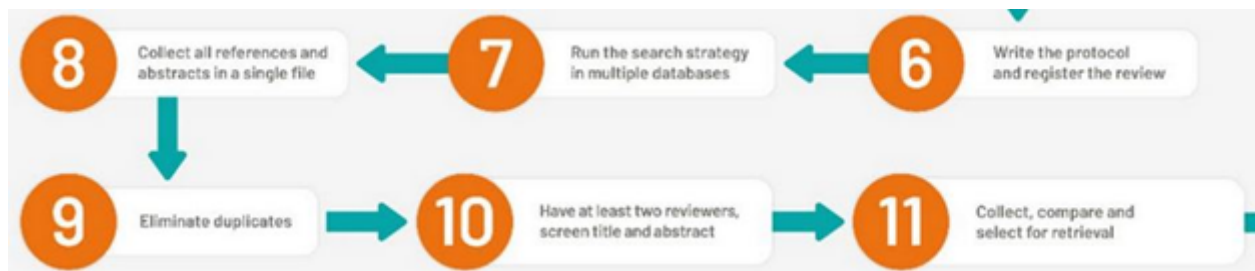
How are systematic reviews & meta-analyses conducted?

A great way to approach the development of systematic reviews and meta-analyses is to break them down into smaller and more simple executable tasks. [A 24-step guide on how to design, conduct, and successfully publish a systematic review and meta-analysis in medical research](https://wiki.nested-knowledge.com/) is a helpful tool that provides authors with concrete steps to follow when starting the systematic review and/or meta-analysis process. These steps can be placed into the following general categories:

Define and design



Search and collect



Extract, evaluate, and consult “experts in the field” of interest



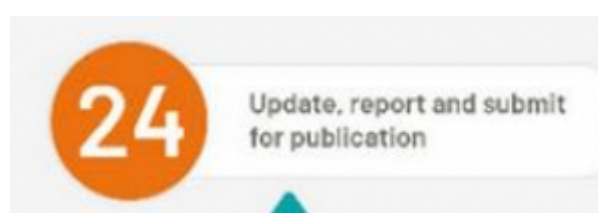
“Summarize and explain findings”

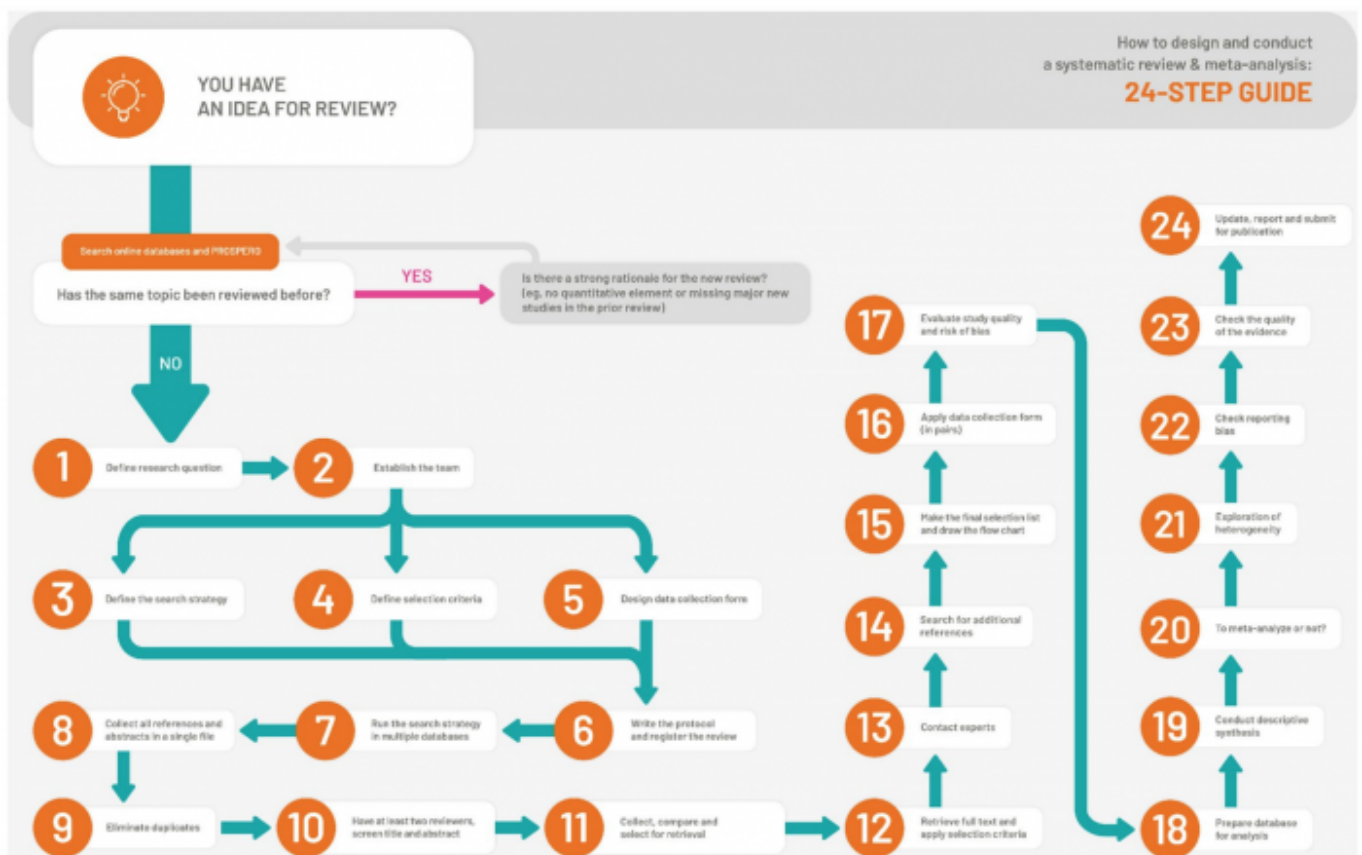


Check publication bias and evidence quality



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References

Muka, T., Glisic, M., Milic, J. *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***35**, 49-60 (2020). <https://doi.org/10.1007/s10654-019-00576-5>

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