

Conducting a Search

“A comprehensive search forms the foundation of any systematic review and consists of writing specific search strategies in different online databases to retrieve eligible studies.”¹

Selecting Databases

Selecting several databases ensures that your search is comprehensive. A well-cited guide on how to conduct a systematic review in medical research suggests, at a minimum, a combination of Embase, MEDLINE, Web of Science, and Google Scholar. Cochrane and Scopus are also common databases for biomedical systematic reviews.

- [PubMed](#) is the most common database to use. It is “a free resource supporting the search and retrieval of biomedical and life sciences literature”³ PubMed includes citations indexed in Medline, uploaded by journals, and archived in PubMed Central. The distinctions between PubMed, Medline, and PubMed Central are explained [here](#).
- [Embase](#) is a subscription database maintained by Elsevier. It has comprehensive indexing and tagging of the biomedical literature.
- [Web of Science](#) is a subscription service run by Clarivate that indexes citations in several different science disciplines.
- [Google Scholar](#) allows the use of Google search techniques but restricts results to academic literature, including journal pages, PubMed, university pages, and pre-print archives. The comprehensive nature of sources Google draws from means that searches often return thousands of results, many of which are duplicates, making comprehensive screening of Google Scholar results difficult. Most sources are available in more structured databases, but Google Scholar can be advantageous to find pre-prints for new topics that have few published papers or for topics that fall outside of typical science disciplines.
- [Cochrane](#) contains many clinical trials, including some publications that are not indexed in PubMed. Cochrane can be searched without a subscription, but a subscription is necessary to download complete search results.
- [Scopus](#) is the largest abstract and citation database of peer-reviewed literature. It includes scientific journals, books, and conference proceedings.
- Psychology databases
 - [PsycINFO](#) and [CINAHL](#) can be used “if the research question is related to the field of psychiatry, psychology and/or to nursing and allied health”.¹
 - [PsycNet](#) can also be used to search for “social and behavioral science content”²
- Consider consulting with a librarian for further help with your search.

Creating Search Terms

Tips for building effective search terms can be found [here](#). The best place to start when creating

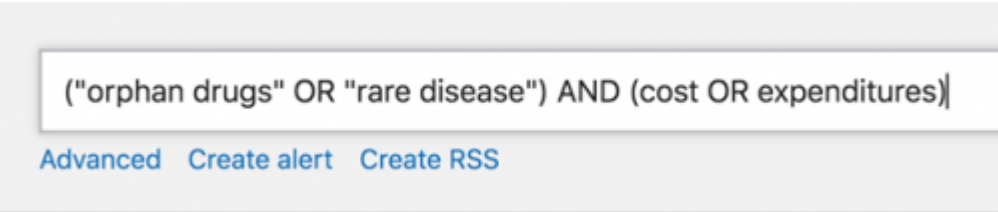
search terms is with the PICO (**P**opulation, **I**ntervention, **C**ontrol, and **O**utcome) elements identified during search [planning](#). Common search terms include the condition of interest (ex. the disease)

PICO Element	Search Term Examples
Population	Disease, medical condition, type of fracture, age, sex
Intervention	Device class or name, drug class or name, surgical or medical
Control	Comparator interventions, comparative study type
Outcome*	Scoring systems, pain, mortality

Other search terms to consider include restrictions on publication date and language.

Boolean operators AND, OR, NOT can be used to specify the search further

- **AND** can be used to “narrow your results”¹ and “tell the database that ALL search terms must be present in the resulting records”⁵
- **OR** can be used to “connect two or more similar concepts”¹ and “broaden your results, telling the database that ANY of your search terms can be present in the resulting records”⁵
- **NOT** can be used to “exclude words from your search”¹ and “narrow your search, telling the database to ignore concepts that may be implied by your search terms”⁵



As you review your search results, take note of additional terminology and abbreviations used in these studies that could be included in the search terms to ensure relevant studies aren’t missed.

Searching Grey Literature

[Finding Grey Literature](#)

Collecting Metadata

Metadata collected should include identifying information, such as DOI or PubMed ID, URL, author, and year, as well as information necessary for screening, such as title and abstract. If you are not using AutoLit, a system for removing duplicates and indicating screening status (i.e. included, excluded, or unscreened), exclusion reasons (ex. not relevant to the review topic, preclinical), and collecting full texts should be implemented.

References

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