University of South Australia | Library

Systematic reviews: finding the evidence

A few tips

- ☐ Systematic reviews must be comprehensive, transparent, reproducible and unbiased
- ☐ Don't use the Library Catalogue ('Library Collection' search) as one of your reportable databases - the content fluctuates
- ☐ Don't limit yourself by using any 'full text only' limits available in databases - staff and research degree students have access to the literature of the world via interlibrary loan (access for Honours students available with supervisorial approval)
- ☐ Search databases one at a time - e.g. do not search MEDLINE and Embase simultaneously on the Ovid interface
- ☐ Use a combination of Subject Headings (where available) and free text terms ('keywords'). A comprehensive set of relevant keywords for each search set/element is the foundation of your search. If subject headings are available for a database, also use the best available headings from that specific thesaurus
- ☐ Build your search one concept at a time, then combine these 'search sets' together
- ☐ If you search for Intervention AND Comparison and find few (or no!) results, try combining these with an OR. This expands your search to find articles including either or both. You could then undertake the data comparison yourself
- ☐ Ensure you are using the right Subject Headings for that database - e.g. MeSH for MEDLINE and Cochrane Library, Emtree for Embase and Emcare, APA Thesaurus terms for PsycInfo
- ☐ Typically few limits are applied in systematic review searches and always with justification e.g. publication date limit from the date a specific policy was introduced
- ☐ Apply any limits as the final part of the search, after searching for and combining concepts
- ☐ Keep your search as consistent across the different databases as possible
- ☐ Save your search history for each database
- ☐ Save your search as an alert to be notified when new material meeting your search criteria is added to the database
- ☐ For reporting purposes, it's advisable to run and export you search results from all databases on the same day
- ☐ It's important to allow enough time to develop your final search. You will need to undertake several cycles of revision, making multiple amendments to achieve the best balance of comprehensiveness and precision
- ☐ Use a 'test set' of relevant articles you have already located to test the sensitivity of your search strategy in databases where these articles are indexed

Key search techniques – using search syntax to best effect

For more detail and the most current information refer to database help and user guides. **This information is subject to change.** Techniques apply to all databases on the listed interface/platform unless otherwise noted.

Hyphenation

For most databases, enter the hyphenated term with a space instead of a hyphen and it will find both variations e.g. well being will find all instances of well being and well-being. If the term might also be used as one word, **OR** this out e.g. well being OR wellbeing.

Capitalisation

Most databases ignore case, but a few require the connecting terms **AND** and **OR** (and some other elements, such as field codes and adjacency operators) to be entered in UPPERCASE (capitalised). If you are not sure, you can enter all of these elements in uppercase regardless of database (across all interfaces/platforms).

Phrase searching

Many databases require the use of double quotation marks **""** to find exact phrases. Use straight quotes, not curly quotes/'smart' quotes “” or errors can occur when copying and pasting searches into databases.

Cochrane Library	Defaults to combining terms with AND. To find two or more terms next to each other in the specified order enclose these in double quotation marks e.g. "higher education" Exception - to find two or more terms next to each other in the specified order where a wildcard - * or ? – is included – use the proximity operator NEXT e.g. south NEXT australia*
EBSCOhost	Defaults to combining terms with the proximity operator **N5** e.g. higher education will find either of those terms in any order within five words of one another To find two or more terms next to each other in the specified order enclose these in double quotation marks e.g. "higher education"
Informit	Defaults to combining terms with **AND**. To find two or more terms next to each other in the specified order enclose these in double quotation marks e.g. "higher education" Exception – cannot use wildcards - ***** or **?** – within double quotation marks
Ovid	Defaults to phrase searching. Use double quotes to force a literal search (terms as entered) when any of these are included - *and, or, not, use, adj, add, sub, scope* e.g. "risks and benefits"
ProQuest	Defaults to combining terms with **AND**. To find two or more terms next to each other in the specified order enclose these in double quotation marks e.g. "higher education"
Scopus	Defaults to combining terms with **AND**. Use double quotation marks for 'approximate' phrases (automatic stemming e.g. US and UK variations still applies). Use curly brackets (braces **{}**) to search for exact (literal) phrases including stop words, spaces, and punctuation as entered (caution: using braces will potentially miss relevant records which due to various reasons such as punctuation are not detected by this 'exact' search – **""** are more inclusive)
Web of Science	Defaults to combining terms with **AND**. To find two or more terms next to each other in the specified order enclose these in double quotation marks e.g. "higher education". Using double quotation marks will prevent automated lemmatisation (variants) and inclusion of synonyms (or alternatively toggle 'Exact search' on from Advanced Search)

Stopwords

Databases vary in how common words such as 'the', 'as' and 'of' in your search terms are interpreted. These are called 'stop words' or 'stopwords'.

Cochrane Library	Does not have a list of ignored stopwords e.g. "standard of care" finds standard of care

Stopwords contd	
EBSCOhost	Common words such as *the, for, of* and *after* are ignored. Stopwords used in CINAHL. Any single word will be found in place of any single stopword. E.g. "standard of care" finds standard of care, standard patient care, standard antenatal care etc. No syntax is available to force EBSCOhost to include stopwords as entered.
Informit	Does not have a list of ignored stopwords e.g. "standard of care" finds standard of care
Ovid	The following words are ignored in word-indexed fields such as title and abstract. No word or any single word will be found in their place: *and, as, for, from, is, of, that, the, this, to, was, were*. E.g. standard of care finds standard of care, standard care, standard antenatal care etc. No syntax is available to force Ovid to include stopwords as entered.
ProQuest	Does not have a list of ignored stopwords e.g. "standard of care" finds standard of care
Scopus	Scopus' list of stopwords is available from 'What words are not used in a Scopus search?'. Enter terms in double quotation marks or braces to find stopwords as entered e.g. "standard of care" finds standard of care; between finds no results but "between" or {between} will. Caution: using braces will potentially miss relevant records which due to various reasons such as punctuation are not detected by this 'exact' search – double quotation marks are more inclusive
Web of Science	Does not have a list of ignored stopwords e.g. "standard of care" finds standard of care

Truncation and wildcards

If translating your search across several databases where these symbols are interpreted in different ways, it may be quicker and lead to fewer mistakes if you use only the more common symbols (e.g. ***** for truncation) and enter some alternatives in full e.g. fetal OR foetal rather than f?etal.

Some databases automatically look for variants of terms. For systematic searches there are advantages to switching this off - so that you can specify exactly what terms are included, and for transparency in reporting.

Cochrane Library	Automatically includes 'common variants' of terms. This can be switched off from Search Limits ***** - unlimited truncation at the end, beginning or within a term e.g. behav*, *glycemia Defined (also known as 'limited') truncation not available **?** represents zero or one characters at the end, beginning or within a term e.g. f?etal Word root must be at least 3 characters
EBSCOhost	Automatically includes 'equivalent subjects' and 'related words'. Advanced Search > Search Options offers option to toggle off but unreliable. According to database help: ***** - represents one or more characters at the end or within a term Left-hand-side truncation not available Defined (also known as 'limited') truncation not available **#** - represents zero or one characters **?** - represents one character within a word **#?** – represents one character at the end of a word
Informit	Automatically includes 'plurals and stemming'. Enclose terms in "" to disable ***** represents unlimited truncation at the end or within a term Left-hand-side truncation not available Defined (also known as 'limited') truncation not available **?** - represents one character within a word or at the end of a word Cannot use wildcards - ***** or **?** – in double quotation marks
Ovid	***** or **$** - unlimited right-hand truncation e.g. behav* finds behave, behaviour, behavioral etc. ******n* or **$***n* - limited right-hand truncation e.g. behav*2 finds behave and behaves but not behaviour Left-hand-side truncation not available **#** represents one character within a word or at the end of a word e.g. sociali#ation **?** represents zero or one characters within a word or at the end of a word e.g. f?etal

Truncation and wildcards contd	
ProQuest	Automatically includes 'spelling' and 'form' variants. This can be switched off from Advanced Search > Result Page Options ***** - represents up to five characters within or at the end of a word **[*n]** - limited right-hand truncation e.g. metro[*10] finds metro, metropolitan etc. Left-hand-side truncation not available **?** – represents zero or one characters within a word or at the end of a word **Caution:** for longer searches, only a limited number of truncation symbols can be used. If your search times out with an error message, remove some truncation symbols, writing out likely variants in full, until the search will run
Scopus	Automatically locates most singular, plural and possessive forms, and some word variants. However ***** can be used as a multi-character wildcard and **?** in place of one character
Web of Science	Automatically includes variants using lemmatization and stemming. This can be switched off by toggling on 'Exact search' from Advanced Search or enclosing terms in **""**. It switches off automatically where searches include wildcards and for longer searches (unspecified) ***** represents unlimited characters at the end, beginning or within a term Defined (also known as 'limited') truncation not available **?** - represents one character **$** - represents zero or one character Word root must be at least 3 characters

Adjacency

Cochrane Library	**near/***n* finds terms when they are within *n* words of each other where *n* = the maximum number of words between search terms. E.g. cancer near/3 lung finds lung cancer, cancer of the lung. ankle* near/3 (trauma OR injur*) finds the same results as (ankle* near/3 trauma) OR (ankle* near/3 injur*) **next** finds terms next to each other in the specified order. **next/***n* not available
EBSCOhost	**n***n* - *n* indicates maximum distance between words, any order. E.g. cancer n3 lung **w***n* – finds terms in the specified order up to *n* words apart. E.g. home w2 nursing
Informit	**""~***n* - finds terms when they are within *n* words of each other where *n* = the maximum number of words between search terms, any order. E.g. "cancer lung"~3 finds lung cancer, cancer of the lung Specified order adjacency unavailable
Ovid	**adj***n* - **adj1** finds two terms next to each other in any order. **adj2** finds terms in any order and with one word (or none) between them… This pattern continues. E.g. cancer adj3 lung finds cancer of the lung but not cancer metastasis to the lung **adj** finds terms next to each other in the specified order. Specified order adjacency up to *n* words apart unavailable
ProQuest	**n/***n* - *n* indicates maximum distance between words, any order. E.g. cancer n/3 lung **p/***n* – finds terms in the specified order up to *n* words apart. E.g. home p/2 nursing finds home nursing, home care nursing but not nursing home
Scopus	**w/***n* – *n* indicates maximum distance between words, any order. E.g. cancer w/3 lung **pre/***n* - finds terms in the specified order up to *n* words apart. E.g. home pre/2 nursing
Web of Science	**near/**n - n indicates maximum distance between words, any order. E.g. cancer near/3 lung Specified order adjacency unavailable

Field choices – options for keywords ('free text' terms)

Database records are organised into separate categories of data (e.g. title, abstract, publication type) termed 'fields' that can be searched in a targeted fashion. These vary between databases.

For databases with consistently applied subject headings (aka 'thesaurus terms', 'controlled vocabulary' such as MeSH), the recommended approach is to use both the subject headings field and keywords (aka 'free text' terms) searched across additional fields (typically including title and abstract; the author-supplied keywords field may also be added where available). The exact fields selected will depend on your question and criteria.

For databases without formal thesauri, an approximate equivalent is to search across title, abstract and any available subject term fields (these may be termed 'author supplied keywords', 'subject', 'keywords') fields.

Other specific fields (such as publication type) may be targeted as part of a strategy; for more detail on all available fields see individual database 'help' and guides.

For very small databases with minimal or inconsistent descriptive information, it may be useful to search across all available fields.

	Options for keywords ('free text' terms) – title, abstract, 'subject' (aka 'keywords')
Cochrane Library	Cochrane Database of Systematic Reviews is indexed with MeSH within 6 months of publication. Cochrane Central Register of Controlled Trials records have partial MeSH indexing (PubMed records). Use Advanced Search > Search Manager to build a search using MeSH and free text terms **():ti,ab** – e.g. ("higher education"):ti,ab The kw 'Keywords' field in Cochrane can include MeSH and Emtree headings. **():ti,ab,kw** – also includes available subject headings (without explosion)
EBSCOhost	Business Source Complete, CINAHL and SPORTDiscus have thesauri Business Source Complete and SPORTDiscus - **TI OR AB OR KW** - e.g. TI "higher education" OR AB "higher education" OR KW "higher education" TI (universit* OR "higher education") OR AB (universit* OR "higher education") OR KW (universit* OR "higher education") **KW** - author-supplied keywords CINAHL – **TI OR AB** (KW not available) **Note**: records in EBSCOhost database are enriched with subject headings from other thesauri when the specific thesaurus for that database does not have a suitable heading. It can be useful to use these in your search. Locate them by running a simple keyword search, and then looking under 'Subject' (not 'Subject: Thesaurus Term') on the results page, then add with DE as usual. E.g. many records in SPORTDiscus have been enriched with the headings 'NURSING care facilities', 'NURSING home patients' and 'NURSING homes' – the Sports Thesaurus has no suitable headings for the concept.
Informit	**All fields** is recommended for the relatively small databases on Informit. A limited number of fields including Title, Abstract and Subjects are accessible via Advanced Search, but searches cannot be combined from the history. Field codes can be used for some fields but need to be repeated for every term e.g. (title:universit* OR title:"higher education" OR abstract:universit* OR abstract:"higher education") and there are character limits, making this an impractical approach. It is unclear whether subject headings are consistently applied and these cannot be browsed.
Ovid	Most Ovid databases have thesauri Embase - **.ti,ab,kf** – e.g. higher education.ti,ab,kf, (higher education OR universit*).ti,ab,kf Emcare - **.ti,ab,kf** MEDLINE - **.ti,ab,kf** PsycINFO - **.ti,ab** however **.tw** is recommended instead - includes Table of Contents, Title, Abstract, and Key Concepts (supplementary subject headings) – useful extra fields JBI EBP Database – .**ti,ab** however either **.mp** or **.tw** (same effect) are recommended instead – this is a small database with inconsistent information across a variety of possible fields in the records (and no consistent subject headings). This will find terms across a wide variety of useful fields For more information see Ovid database field guides (via the **i** information symbol next to database name and above the search box)

Field choices contd	
ProQuest	Thesauri available for some databases **TI,AB()** – e.g. TI,AB("higher education" OR universit*) Some databases also have an Identifiers/keywords field – **IF** – e.g. TI,AB,IF()
Scopus	Does not have consistently applied controlled vocabulary **TITLE-ABS-KEY ()** - e.g. TITLE-ABS-KEY ("higher education") KEY covers several fields including among others author supplied keywords and thesaurus terms drawn from various thesauri including MeSH and Emtree
Web of Science	Does not have consistently applied controlled vocabulary **TS=()** – e.g. TS=("higher education") may also appear as "higher education" (topic) Topic field includes four fields, TI Title, AB Abstract, AK Author Keywords, KP Keyword Plus

Subject headings

Most databases offer the option to either use the interface to add headings, or to type/paste these in directly. If you add headings manually it's best to copy/paste from the thesaurus to avoid typos. Use the following to instruct the database to search the terms entered as subject headings.

Qualifiers (aka subheadings) may be available to specify the context. These are rarely used in systematic searching, to maximise potentially relevant results, but are valuable on occasion to increase precision.

Cochrane Library	**[mh ^]** – unqualified search for one heading e.g. [mh ^"Nursing Homes"] **[mh]** – unqualified and exploded search e.g. [mh "Nursing Homes"] finds records with one or more of the following headings: Nursing Homes, Intermediate Care Facilities, Skilled Nursing Facilities (in MeSH 2023) **[mh ^/XX]** - search for one heading with a qualifier e.g. [mh ^"Nursing Homes"/ST] finds records with a context of 'standards'
EBSCOhost	SPORTDiscus, Business Source Complete (with examples from SPORTDiscus) **DE –** search for one heading e.g. DE "OLDER people" No syntax available to automatically explode headings. Select 'explode' in the thesaurus to add narrower headings to the search box from which they can easily be copied. Note: unlike most databases, 'explode' in the Sports and Business Thesauri only finds the first layer of narrower terms. You will need to repeat for each layer of terms. E.g. ticking 'explode' for OLDER people will add SPORTS for older people to your search but not SWIMMING for older people CINAHL **MH** – unqualified search for one heading e.g. MH "Nursing Homes" **MH +** - exploded search e.g. MH "Nursing Homes+" finds Nursing Homes and all narrower terms **MH /XX** – qualified search e.g. MH "Nursing Homes/ST" finds records with context 'standards'
Informit	Not applicable – thesauri not available for search/browse
Ovid	**/** – use a forward slash at the end of the term to run an unqualified search e.g. Nursing Homes/ **exp** – add this to the start of the heading to find all records with the heading as well as all records with headings below this in the hierarchy (narrower headings) e.g. exp Nursing Homes/ finds records with one or more of the following headings: Nursing Homes, Intermediate Care Facilities, Skilled Nursing Facilities (in MeSH 2023)
ProQuest	**MAINSUBJECT.EXACT()** – search for one heading e.g. MAINSUBJECT.EXACT("Allied Health Occupations Education") **MAINSUBJECT.EXACT.EXPLODE()** – exploded search e.g. MAINSUBJECT.EXACT.EXPLODE("Higher Education")

Subject headings contd

Scopus	Not applicable – inconsistently applied headings, thesauri not available for search/browse
Web of Science	Not applicable – inconsistently applied headings, thesauri not available for search/browse

Combining search lines

Most database interfaces allow you to combine search lines from your search history manually using search syntax. Some provide shortcuts called 'range searching'.

Cochrane Library	**#***n* **OR #***n* e.g. #1 OR #2 **#***n* **AND #***n* e.g. #1 AND #2 **#***n* **NOT #***n* e.g. #1 NOT #2 **(#***n* **OR #***n***) AND #***n* e.g. (#1 OR #2) AND #3 **{OR #***n*-**#***n***}** e.g. {OR #1-#9} – curly brackets (braces) required when range searching **{OR #***n*-**#***n*,**#***n***}** e.g. {OR #1-#9,#15}
EBSCOhost	**s***n* **OR s***n* e.g. s1 OR s2 **s***n* **AND s***n* e.g. s1 AND s2 **s***n* **NOT s***n* e.g. s1 NOT s2 **(s***n* **OR s***n***) AND s***n* e.g. (s1 OR s2) AND s3 Range searching unavailable
Informit	Unavailable
Ovid	*n* **OR** *n* e.g. 1 OR 2 *n* **AND** *n* e.g. 1 AND 2 *n* **NOT** *n* e.g. 1 NOT 2 **(***n* **OR** *n***) AND** *n* e.g. (1 OR 2) AND 3 **OR/***n*-*n* e.g. OR/1-9 **OR/***n*-*n*,*n* e.g. OR/1-9,15
ProQuest	*Changed Aug. 2023 – mandated one option only as below, with square brackets* [s*n*] **OR** [s*n*] e.g. [s1] OR [s2] [s*n*] **AND** [s*n*] e.g. [s1] AND [s2] [s*n*] **NOT** [s*n*] e.g. [s1] NOT [s2] **(**[s*n*] **OR** [s*n*]**) AND** [s*n*] e.g. ([s1] OR [s2]) AND [s3] Range searching unavailable
Scopus	**#***n* **OR #***n* e.g. #1 OR #2 **#***n* **AND #***n* e.g. #1 AND #2 **#***n* **AND NOT #***n* e.g. #1 AND NOT #2 **(#***n* **OR #***n***) AND #***n* e.g. (#1 OR #2) AND #3 Range searching unavailable
Web of Science	**#***n* **OR #***n* e.g. #1 OR #2 **#***n* **AND #***n* e.g. #1 AND #2 **#***n* **NOT #***n* e.g. #1 NOT #2 **(#***n* **OR #***n***) AND #***n* e.g. (#1 OR #2) AND #3 Range searching unavailable