

How to develop a search strategy for an intervention review

Based on the Peer Review of Electronic Search Strategies (PRESS) criteria*

PRESS		Guide	Examples
1	Translation Is the search question translated well into search concepts?	If possible, structure the search strategy into search concepts (groups of words) according to relevant elements from PICOS : <ul style="list-style-type: none"> • Patient/Population/Problem • Intervention • Comparator • Outcome • Study design (methods filter) 	<ol style="list-style-type: none"> 1. Index term(s) for Patient/Population/Problem 2. Text word(s) for Patient/Population/Problem 3. 1 OR 2 (P) 4. Index term(s) for Intervention(s) 5. Text word(s) for Intervention(s) 6. 4 OR 5 (I) 7. Publication type(s) 8. Index term(s) for Study design(s) 9. Text word(s) for Study design(s) 10. 7 OR 8 OR 9 (S) 11. 3 AND 6 AND 10 (P AND I AND S)
		You might want to omit the Comparator and the Outcome elements as they are not often described adequately in the title, abstract or indexing.	
2	Operators Are there any mistakes in the use of Boolean or proximity operators?	See the database's help file to find available operators used to combine individual terms and search concepts	
		AND, OR, NOT, NEXT, NEAR/n, adj/n are common operators	
		AND between terms or concepts narrows the search	
		OR between terms or concepts broaden the	

		search	
		Use the NOT operator with caution – you might ‘NOT-out’ terms you want to keep	A search for: private health NOT public health will exclude papers that are about private health <u>and</u> <u>also about</u> public health
3	Subject headings/index terms Are any important subject headings missing or have any irrelevant ones been included?	Subject headings or index terms (like MeSH used in MEDLINE for example) are terms that describe the content of an article – what it is about	<ul style="list-style-type: none"> • Vaccination • Guidelines as Topic • Randomized Controlled Trials as Topic
		Publication type terms describe what kind of publication the article is	<ul style="list-style-type: none"> • Guideline • Randomized Controlled Trial
		Check all relevant index terms for each of the databases you will search	
		Some index terms cover the P and also the I in PICOS, like for example: Legislation, Drug where legislation is I and drug is P	<ol style="list-style-type: none"> 1. Legislation, Drug (I &P) 2. Index term for drug 3. Text word for drug 4. 2 OR 3 (P) 5. Index term for legislation/regulation 6. Text word for legislation/regulation 7. 5 OR 6 (I) 8. Publication type 9. Index term for Study design 10. Text word for Study design 11. 8 OR 9 OR 10 (S) 12. 1 AND 11 13. 4 AND 7 AND 11 14. 12 OR 13 (P AND I AND S)
		An (assumed) index term (in MeSH for example) that retrieves no records is likely misspelled or is not an index term. It’s best to search one term per	PubMed: Counselling[Mesh] [no records retrieved] Counseling[Mesh] [thousands of records retrieved]

	line so errors such as this show up.	
	Use the index terms according to how indexers have described and used the terms for indexing - see description/scope notes and entry terms/used for terms where provided	<p>Scope Note for: Health Manpower The availability of HEALTH PERSONNEL - It includes the demand and recruitment of both professional and allied health personnel, their present and future supply and distribution, and their assignment and utilization.</p> <p>Health Manpower is Used For:</p> <ul style="list-style-type: none"> • health occupations manpower • workforce health • manpower health occupations • health manpower • health workforce • manpower health
	See how known relevant studies have been indexed in the databases you will search. Use those index terms to build your search strategy	
	<p>In some databases, broad index terms can be exploded. An exploded index term will retrieve records with the index term and also records with narrower index term(s)</p> <p>PubMed explodes index terms automatically, but can be turned off, so that narrower terms are not being search for</p>	<ul style="list-style-type: none"> • Education, Continuing (Broad) <ul style="list-style-type: none"> - Education, Dental, Continuing (Narrower) - Education, Medical, Continuing (Narrower) - Education, Nursing, Continuing (Narrower) - Education, Pharmacy, Continuing (Narrower) - Education, Professional, Retraining (Narrower)
	In some databases, index terms can be linked to a subheading , a specific aspect of an index term – this is best used by advanced search specialists	See an example under Limits, criteria 7
	Use the OR operator to combine index terms with text words to find all kinds of records: indexed; not (yet) indexed; with abstract; without abstract;	<ol style="list-style-type: none"> 1. Antimalarials/ 2. antimalarials.ti,ab. 3. anti malarials.ti,ab.

		with creative/uninformative title; with informative title	4. 1 OR 2 OR 3
4	Natural language Are any natural language terms or spelling variants missing, or have any irrelevant ones been included?	Natural language terms is the same as text words , usually words in record title or abstract	
		Phrases, or text words that contain more than one word, might or might not need to be enclosed in brackets, or the individual words can be combined with an appropriate proximity operator	Depending on the database provider, the phrase health care can be searched as: <ul style="list-style-type: none"> • health care • "health care" • health NEXT care • health adj care • health NEAR/0 care • health P/0 care
		Some text words can be spelled in more than one way	<ul style="list-style-type: none"> • behavior OR behaviour • health care OR healthcare
		To find relevant text words: <ul style="list-style-type: none"> ○ use words found in title, abstract and author keywords of known relevant papers ○ consult search strategies used in reviews related to yours ○ use dictionaries and text books ○ see databases scope notes and “Used for” terms/Entry terms, if provided 	
		Use the OR operator to combine index terms with text words (and use truncation as appropriate - see point 5 below) to find all kinds of records: indexed; not (yet) indexed; with abstract; without abstract; with creative/uninformative title; with informative title	<ol style="list-style-type: none"> 1. Antimalarials/ 2. antimalarial*.ti,ab,kw. 3. anti malarial*.ti,ab,kw. 4. 1 OR 2 OR 3

5	Natural language Is truncation used optimally?	Using a truncation sign at the end of a word will either replace or add characters to the truncated word	Usually, in databases that use an asterisk (*) as truncation sign, a search for antimalaria* will retrieve records with antimalaria, antimalarial or antimalarials
		Only text words (not index terms) can be truncated	
		Common truncation signs are: asterisk (*) and question mark (?) See the database's help file to learn which truncation sign can be used and how to use it	
		Depending on the database, a truncation sign can add none, one or more characters	A text word search for: consumer? might find consumer and also consumers OR – depending on the database provider A text word search for: consumer? might only find consumers
		Make sure the truncation sign is ' correctly ' placed	A search for: pharmac* will (depending on the database provider) retrieve: pharmacy; pharmacies; pharmacist; pharmacists; pharmaceutical; pharmaceuticals A search for: pharmaceutical* will (depending on the database provider) retrieve pharmaceutical; pharmaceuticals
6	Spelling & syntax Does the search strategy have any spelling mistakes, system syntax errors, or wrong line numbers?	Misspelled text word will likely retrieve some, but far from all relevant records. In some (rare) cases, decide whether it's worth to also search for misspelled terms	A search for the misspelled text word: midwifes will miss records on midwives A search for the correct text word: midwives will miss records misspelled as midwifes
		When using brackets make sure they are ' correctly ' used. On some databases it is not possible to use the "nested" brackets shown in the	(private OR (public AND health care)) will retrieve all records on private and also all records on public and health care

		example for searching so check the help file if the search does not appear to be working correctly.	vs ((private OR public) AND health care) will retrieve all records on private and health care and also all records on public and health care
		Make sure individual search lines are correctly grouped, and grouped in accordance with the database searched	A five line search relating to the same concept can (depending on the database provider) be grouped into a sixth line: 1. ... 2. ... 3. ... 4. ... 5. ... 6. 1 OR 2 OR 3 OR 4 OR 5 (Ovid) 6. OR/1-5 (Ovid) 6. {or #1-#5} (Cochrane Library) 7. #1 or #2 or #3 or #4 or #5 (Cochrane Library) 6. S1 OR S2 OR S3 OR S4 OR S5 (EbscoHost) 6. S1 OR S2 OR S3 OR S4 OR S5 (ProQuest)
7	Limits Do any of the limits used seem unwarranted or are any potentially helpful limits missing?	Some databases index records with Subheadings in addition to Subject headings/Index terms . Subheadings are terms that limit an index term to a specific aspect. Subheadings should be used with caution. A strategy that includes an index term limited with a subheading should preferably, and when possible, combine the index term with subheading (line 1 in the example) with the index term AND'ed with an index term that describes the subheading aspect (line 4 in the example), using OR (line 5 in the	1. Inservice Training/ og [Organization & Administration] 2. Inservice Training/ 3. "Organization and Administration"/ 4. 2 AND 3 5. 1 OR 4

	example)	
	Time limits should normally be omitted (MECIR C35)	
	Language limits should normally be omitted (MECIR C35)	
	Low and middle income countries (LMIC) Do not limit a search to LMIC if studies from high income countries or about high income countries can inform your topic or be eligible for inclusion	See: The LMIC Filters document
	Method filters vary according to databases	A MEDLINE, Ovid filter-example for EPOC reviews: 1. randomized controlled trial.pt. 2. controlled clinical trial.pt. 3. pragmatic clinical trial.pt. 4. multicenter study.pt. 5. non-randomized controlled trials as topic/ 6. interrupted time series analysis/ 7. controlled before-after studies/ 8. (randomis* or randomiz* or randomly).ti,ab. 9. groups.ab. 10. (trial or multicenter or multi center or multicentre or multi centre).ti. 11. (intervention? or effect? or impact? or controlled or control group? or (before adj5 after) or (pre adj5 post) or ((pretest or pre test) and (posttest or post test)) or quasiexperiment* or quasi experiment* or evaluat* or time series or time point? or repeated measur*).ti,ab. 12. or/1-11 13. exp Animals/ 14. Humans/

			<p>15. 13 not (13 and 14)</p> <p>16. review.pt.</p> <p>17. meta analysis.pt.</p> <p>18.news.pt.</p> <p>19. comment.pt.</p> <p>20. editorial.pt.</p> <p>21. cochrane database of systematic reviews.jn.</p> <p>22. comment on.cm.</p> <p>23. (systematic review or literature review).ti.</p> <p>24. or/15-23</p> <p>25. 12 not 24</p>
8	<p>Adapted for databases</p> <p>Has the search strategy been adapted for each database to be searched?</p>	<p>Databases</p> <p>(1 and 2 are a minimum according to MECIR C24)</p> <ol style="list-style-type: none"> 1. Cochrane Central Register of Controlled Trials (CENTRAL part of <i>The Cochrane Library</i>. www.cochranelibrary.com) 2. MEDLINE 3. Embase (if available) 4. Topic specific databases (Highly desirable according to MECIR C25) 	<p>See:</p> <p>The LMIC Databases document</p> <p>(might also be relevant for none LMIC reviews)</p>
		<p>Grey literature (database examples)</p> <p>(Mandatory according to MECIR C28)</p> <ul style="list-style-type: none"> • OpenGrey: www.opengrey.eu/ • Grey Literature Report: www.nyam.org/library/online-resources/grey-literature-report/ • Relevant websites 	
		<p>Trials Registries/Ongoing trials</p> <p>(Mandatory according to MECIR C27)</p> <ul style="list-style-type: none"> • International Clinical Trials Registry Platform (ICTRP), World Health Organization (WHO) http://www.who.int/ictcp/en/ 	

		<ul style="list-style-type: none"> ClinicalTrials.gov, US National Institutes of Health (NIH) http://clinicaltrials.gov/ 	
		<p>Citation search</p> <p>Conduct a cited reference searches for all included studies, and other key papers, for example using ISI Web of Science; Google Scholar or other</p>	
9	Search log	<p>Keep a search log while searching to help inform the reporting of the search process.</p> <p>The log should include:</p> <ul style="list-style-type: none"> Database name Database provider/host Database time span Date searched Records retrieved All strategies, if possible, as run with number of records retrieved per line <p>This information is required in the search methods / search strategy appendix. Also make a note of web searches including date searched and terms used.</p>	<p>See:</p> <p>The Search Log Template document</p>
10	Reporting the search process		<p>See:</p> <p>The How to report the search process in EPOC protocols, reviews, and updates document</p>

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