### How to develop a search strategy

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

<table>
<thead>
<tr>
<th>PRESS</th>
<th>Guide</th>
<th>Examples</th>
</tr>
</thead>
</table>
| 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:**  
- Patient/Population/Problem  
- Intervention  
- Comparator  
- Outcome  
- Study design (methods filter) | 1. Index term for Patient/Population/Problem  
2. Text word for Patient/Population/Problem  
3. **1 OR 2 (P)**  
4. Index term for Intervention  
5. Text word for Intervention  
6. **4 OR 5 (I)**  
7. Publication type  
8. Index term for Study design  
9. Text word for study design  
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 |
| 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 |

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| 3 | **Subject headings/index terms**  
Are any important subject headings missing or have any irrelevant ones been included? | Subject headings or **index terms** are terms that describe the **content** of an article – what it is about  
• Vaccination  
• Guidelines as Topic  
• Randomized Controlled Trials as Topic  
**Publication type terms** describe what kind of publication the article is  
• Guideline  
• Randomized Controlled Trial  
Check all relevant index terms for each of the databases you will search  
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 index term that retrieves no records is likely misspelled or is not an index term  
Use the index terms according to how indexers have described and used the terms for indexing - if provided, see **scope notes** and **used for terms** | will exclude papers that are about private health services and also about public health services  
| **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 |
Index terms that seem irrelevant might be relevant after all

See how known relevant studies have been indexed in the databases you will search and use those index terms to build your search strategy

In some databases, broad index terms can be exploded, that is, to search the index term and also all or some narrower index term(s)

In some databases, index terms can be linked to a subheading, a specific aspect of an index term

To find records without abstract and/or with "creative", but uninformative titles, use the OR operator to combine index terms with text words

Natural language terms is the same as text words, usually words in record title (ti) or abstract (ab)

Text words that contain more than one word might or might not need to be enclosed in

<table>
<thead>
<tr>
<th>Natural language</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Are any natural language terms or spelling variants missing, or have any</td>
<td>Natural language terms is the same as text words, usually words in record title (ti) or abstract (ab)</td>
</tr>
</tbody>
</table>

1. Antimalarials/  
2. antimalarial*.ti,ab.  
3. anti malarial*.ti,ab.  
4. 1 OR 2 OR 3

Depending on the database or database provider, the phrase health care can be searched as:
| irrelevant ones been included? | brackets, or the individual words can be combined with an appropriate operator | 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 | | behavior OR behaviour  
  health care OR healthcare |
| **To find relevant text words:** | | |
| o use words found in title and abstract of known relevant papers  
  o consult search strategies used in reviews related to yours  
  o use dictionaries and text books  
  o see databases scope notes and Used for terms/Entry terms, if provided | | |
| To find records that have not been indexed, or not appropriately indexed, use the OR operator to combine text words with index terms | 1. Antimalarials/  
  2. antimalarial*.ti,ab.  
  3. anti malarial*.ti,ab.  
  4. 1 OR 2 OR 3 |
| **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 | |
<p>| Only text words (not index terms) can be truncated | | |
| Common truncation signs are: asterisk (*) and question mark (?) | | |</p>
<table>
<thead>
<tr>
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<th></th>
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<tbody>
<tr>
<td><strong>Spelling &amp; syntax</strong></td>
<td>Does the search strategy have any spelling mistakes, system syntax errors, or wrong line numbers?</td>
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<tr>
<td></td>
<td>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 <strong>misspelled</strong> terms</td>
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<tr>
<td></td>
<td>Make sure brackets are correctly used</td>
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<tr>
<td></td>
<td>Make sure individual search lines are correctly grouped and grouped in accordance with the database searched</td>
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<tr>
<td>6</td>
<td><strong>Limits</strong></td>
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<tr>
<td></td>
<td>Some databases use <strong>subheadings</strong> to index records. Subheadings are terms that limit an index term to a specific aspect. Subheadings should be used with caution. A search using Subheadings</td>
</tr>
<tr>
<td></td>
<td>A five line search can be grouped into a sixth line:</td>
</tr>
<tr>
<td></td>
<td>1. Inservice Training/og [Organization &amp; Administration]</td>
</tr>
<tr>
<td></td>
<td>2. Inservice Training/</td>
</tr>
<tr>
<td></td>
<td>3. &quot;Organization and Administration&quot;/</td>
</tr>
<tr>
<td>Any potentially helpful limits missing?</td>
<td>Should preferably be used in combination with a search that combine the index term AND the aspect as index term.</td>
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<tr>
<td>----------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
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<tr>
<td><strong>Time</strong> limits should be omitted</td>
<td></td>
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<tr>
<td><strong>Language</strong> limits should be omitted</td>
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<tr>
<td><strong>Low and middle income countries (LMIC)</strong></td>
<td>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</td>
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<tr>
<td><strong>Methods filters</strong></td>
<td></td>
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<tr>
<td>8 <strong>Adapted for databases</strong></td>
<td><strong>Databases</strong></td>
</tr>
</tbody>
</table>
| Has the search strategy been adapted for each database to be searched? | • Cochrane Central Register of Controlled Trials (CENTRAL)part of The Cochrane Library. www.thecochranelibrary.com  
• MEDLINE  
• Embase (if available)  
• Topic specific databases | See: The LMIC Databases document (might also be relevant for none LMIC reviews) |
| **Grey literature**                     | **OpenGrey** http://www.opengrey.eu/  
• Grey Literature Report (New York Academy of Medicine) |                  |

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### Relevant websites

- **Trials Registries/Ongoing trials**
  - International Clinical Trials Registry Platform (ICTRP), World Health Organization (WHO) [http://www.who.int/ictrp/en/](http://www.who.int/ictrp/en/)

### Citation search

Conduct a cited reference searches for all included studies, and other key papers, for example using ISI Web of Science

### Search log

Keep a **search log** while searching to help inform the reporting of the search process. The log should include:

- Database name
- Database provider/host
- Database time span
- Records retrieved
- Date searched
- All strategies, if possible as run with number of records retrieved

*See: [The Search Log Template document](http://www.nyam.org/library/online-resources/grey-literature-report/)*

### Reporting the search process

*See: [The How to report the search process in EPOC protocols, reviews, and updates document](http://www.nyam.org/library/online-resources/grey-literature-report/)*

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