Understanding Systematic Review
Search Strategies

The Cochrane Library Search Strategies

Systematic reviews which have been recently published in the Cochrane Library will normally provide full details of the search strategies for the different databases which they used to search for studies to include in their review. It is useful to be able to understand exactly what the reviewers were searching for - in particular if you wish to replicate the search.

Different databases will have different functionality and use different symbols to indicate what is being searched. You will need to adapt your search for each database you choose to search as subject headings may well be different.

Example Medline (OvidSP) Search Strategy:
Xylitol for preventing acute otitis media in children up to 12 years of age

1 exp Otitis Media/
2 otitis media.tw.
3 (middle ear adj3 (infect* or inflam*)).tw.
4 (aom or ome).tw.
5 or/1-4
6 Xylitol/
7 xylitol.tw.
8 Chewing Gum/
9 chewing gum.tw.
10 birch sugar*tw.
11 or/6-10
12 11 and 5

*asterisk after a search term instructs the database to search for anything with the stem of the search term e.g. infect* to retrieve infection; infectious; infects etc.

exp indicates the Subject Heading has been exploded to include all narrower terms e.g. Mastoiditis

adj adjacency searching on Ovidsp finds search terms within a specified number of words of each other (in any order). In this example (adj3) the phrase middle ear will be searched for within 3 words of either infect* or inflam*.

Ovid operators include:
Use # inside or at the end of a word to replace exactly one character e.g. wom#n for women and woman.
Use ? inside or at the end of a word to replace zero or one character e.g. robot? for robot O R robots, but not robotic;
flavo?r for flavor OR flavour, but not flavours.

Operators can be combined e.g. an?emi* for anaemia OR anemia OR anaemic OR anemic
Note that $ can be used as alternative to * to indicate truncation in Ovid.

Example CINAHL (Ebsco) Search Strategy:
Xylitol for preventing acute otitis media in children up to 12 years of age

S14 S6 and S12
S13 S6 and S12
S12 S7 or S8 or S9 or S10 or S11
S11 TI birch sugar or AB birch sugar
S10 TI chewing gum or AB chewing gum
S9 (MH “Chewing Gum”)
S8 TI xylitol or AB xylitol
S7 (MH “Xylitol”)
S6 S1 or S2 or S3 or S4 or S5
S5 TI (aom or ome) or AB (aom or ome)
S4 TI middle ear N3 inflam* or AB middle ear N3 inflam*
S3 TI middle ear N3 infect* or AB middle ear N3 infect*
S2 TI otitis media or AB otitis media
S1 (MH “Otitis Media”)

N adjacency or near searching. In this instance N3 the search term middle ear will be found within three words of inflam*

MH indicates a Subject Heading search

TI Search term searched for in the title of the article

AB Search term searched for in the abstract of the article

[ Cinahl orders its search strategy from the bottom up]

Taken from Azarpazhooh A, Limeback H, Lawrence HP, Shah PS. Xylitol for preventing acute otitis media in children up to 12 years of age. Cochrane Database of Systematic Reviews 2011, Issue 11. Art. No.: CD007095. DOI: 10.1002/14651858.CD007095.pub2
Search filters

Search filters are search strategies that are designed to retrieve specific types of records, such as those of a particular methodological design. Research has shown that relying solely on the publication type filters in specific databases e.g. RCT (randomised controlled trial) [pt] (publication type) in Medline, can lead to relevant records being missed (see BMJ 2012;344:d7501. Filters exist for most types of experimental design, and are comprised of index terms relating to study type and also specific terms associated with the methodological description of good experimental design.

The Cochrane Handbook provides two types of search filters for identifying reports of randomized trials in MEDLINE
- Cochrane Highly Sensitive Search Strategy (sensitivity-maximizing version)
- Cochrane Highly Sensitive Search Strategy (sensitivity- and precision-maximizing version)

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>randomized controlled trial pt.</td>
<td>1 randomized controlled trial pt.</td>
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<tr>
<td>controlled clinical trial pt.</td>
<td>2 controlled clinical trial pt.</td>
</tr>
<tr>
<td>randomized ab.</td>
<td>3 randomized ab.</td>
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<tr>
<td>placebo ab.</td>
<td>4 placebo ab.</td>
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<tr>
<td>drug therapy ab.</td>
<td>5 drug therapy ab.</td>
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<tr>
<td>randomly ab.</td>
<td>6 randomly ab.</td>
</tr>
<tr>
<td>trial ab.</td>
<td>7 trial ab.</td>
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<tr>
<td>groups ab.</td>
<td>8 groups ab.</td>
</tr>
<tr>
<td>1 or 2 or 3 or 4 or 5 or 6 or 7 a</td>
<td>9 1 or 2 or 3 or 4 or 5 or 6 or 7 a</td>
</tr>
<tr>
<td>1 or 2 or 3 or 4 or 5 or 6 or 7 b</td>
<td>10 1 or 2 or 3 or 4 or 5 or 6 or 7 b</td>
</tr>
<tr>
<td>exp animals/ not humans ab.</td>
<td>11 exp animals/ not humans ab.</td>
</tr>
<tr>
<td>10 not 9</td>
<td>12 10 not 9</td>
</tr>
</tbody>
</table>

Ovid search syntax

pt. denotes a Publication Type term;
ab. denotes a word in the abstract;
sh. denotes a Medical Subject Heading (MeSH) term;
bi. denotes a word in the title.

Subheadings are qualifiers added to MeSH subject headings to refine their meaning. Terms such as “etiology” or “poisoning”, when combined with a MeSH heading, give a precise idea of what an article covers. These are displayed following the corresponding MeSH subject headings in the “Complete Reference” view of an article and you can select one or more when searching.

fs. Subheadings can also be used in a search without having to be linked to a specific MeSH subject heading. These are searches using the floating subheading (fs) field and you can search by the full name of the heading, such as “poisoning.fs” or the equivalent 2-letter codes, such as “po.fs.”

In this example drug therapy (dt) is being used as a Floating Subheading without having to specify which specific Subject Heading it is being applied to. A search for dt.fs would find articles tagged with subject headings ranging from Arthritis, Rheumatoid / dt [Drug Therapy] to Zollinger-Ellison Syndrome/dt [Drug Therapy].

Further information and advice

Library Services offers regular and tailored training sessions in database searching and searching for systematic reviews. Contact the Library Services Training & Skills Team http://www.kcl.ac.uk/library/subjectsupport/trainingforyoursubject.aspx to find out more about the training available.

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