How to Search PubMed

PubMed can be searched in multiple ways - each search mode has its advantages and disadvantages.

Question: In dairy cattle, which disease control methods, vaccines or herd culling, the most effective in controlling Johne’s Disease?

Key Concepts
Population = dairy cattle
Problem = Johne’s Disease
Intervention = disease control OR vaccines OR herd culling
Outcome = minimize incidence of Johne’s Disease

1.0 Advanced Search Mode

Connect to PubMed via the University of Calgary Library website at: library.ucalgary.ca

Scroll down, click on the green Databases icon. On the Databases page below, type pubmed in the far right box.


In the Advanced Search Builder page search box, type: dairy cattle
Click Search

On the search results page, click the Advanced link again.

In the Advanced Search Builder page search box, type: disease control
Click Search

On the search results page, click the Advanced link once again.

In the Advanced Search Builder page search box, type: “johne’s disease”
Click Search
Double quotes retrieves the exact phrase, but also shuts off PubMed’s Automatic Term Mapping, and narrows the search results – so should be used with caution to avoid missing relevant studies.

On the search results page, click the Advanced link once again.

In the Advanced Search Builder page search box, type the search set numbers: #1 and #2 and #3   Click Search

**Strategies to broaden** your search include:

1.1 *Avoid using double quotes around a phrase*

Double quotes shut off PubMed’s Automatic Term Mapping, which narrows the search results – so should be used with caution to avoid missing relevant studies.

1.2 Use a *conceptual broader term* for your key concepts eg. cattle, instead of dairy cattle

In the Advanced Search Builder page search box, type:

![BuilderInterface](image1)

Combine this set with your disease control and Johne’s Disease sets – note how many more results you have.

1.3 Add several *synonyms* and narrower *sub-concepts* to each of your key concepts

In the Advanced Search Builder page search box, type:

![BuilderInterface](image2)

In the Advanced Search Builder page search box, type:

![BuilderInterface](image3)

Combine these sets with your cattle search using the set numbers connected with AND

1.4 Remove the *least important concept* from your search

For example, if you omit cattle, and only combine your vaccine AND Johne’s Disease search sets, you will retrieve articles that include other species such as sheep, goats, deer. This might not be appropriate for your particular project, but if you are not able to find many studies in your species of choice, you may find it useful to locate studies in other species.
**Strategies to narrow** your search include: (opposite of strategies to broaden a search)

- Use double quotes around phrases
- Use a conceptual narrower terms for your key concepts
- Use less/no synonyms or less/no terms for narrower sub-concepts of each of your key concepts
- Add one or more key concepts to your search. Combine these with your other search sets using **AND**
- Use *study design search filters* to limit your search to studies from the top of the evidence pyramid. To do this:

Under Article types (top left of screen), click on Customize.

In the pop-up box, click beside: *Meta-Analysis, Randomized Controlled Trial, and Systematic Review*

Click Show. Your selections will now appear under Article Types.

Click on the Article types you want – a check will appear beside your selections.

Click on the checkmark or Clear all to remove filters from your search.
2.0 PubMed Clinical Queries

On the PubMed landing page, click on Clinical Queries under PubMed Tools

Since there is only one search box, group the synonyms for a key concept in parentheses, as shown below.

**PubMed Clinical Queries**

Results of searches on this page are limited to specific clinical research areas. For con

```
cattle AND johne's disease AND (culling OR vaccine OR vaccination)
```

**Clinical Study Categories**

<table>
<thead>
<tr>
<th>Category</th>
<th>Scope</th>
</tr>
</thead>
<tbody>
<tr>
<td>Therapy</td>
<td>Broad</td>
</tr>
</tbody>
</table>

**Systematic Reviews**

```
Results: 5 of 10
Tuberculosis Detection in Paratuberculosis Vaccinated Calves: New Alternatives against Interference.
```

```
Results: 4 of 4
In utero infection of cattle with paratuberculosis: a critical n
```

You can select the Category of question: therapy, diagnosis, etiology, prognosis

You can also choose the Scope of your search: broad or narrow

**NOTE:** Your search strategy in PubMed Clinical Queries is not recorded on the Search History page, so for the VETM 307 Clinical Case Critical Appraisal assignment you will need to do a screen capture and paste this into your assignment.

3.0 PubMed MeSH Database

On the PubMed landing page, click on the MeSH Database

Type: johne’s disease

PubMed maps your phrase to the MeSH heading (index term) used for your concept

**Paratuberculosis**

A chronic GASTROENTERITIS in Ruminants caused by MYCOBACTERIUM AVIUM SUBSPECIES PARATUBERCULOSIS.

PubMed search builder options

- subheadings:
  - analysis
  - anatomy and histology
  - blood
  - etiology
  - genetics
  - history
  - physiopathology
  - prevention and control
  - psychology
Scroll down the page to see your MeSH term in a hierarchy (below) of conceptually broader and narrow terms – you can select a different MeSH term to search if that is better suited to your topic.

All MeSH Categories
Diseases Category
Animal Diseases
Para tuberculosis

Click Add to search builder – the term appears in the box. Click Search PubMed

PubMed Search Builder
"Para tuberculosis"[Mesh]  

Add to search builder AND
Search PubMed

In Search results, click on the PubMed icon then click on MeSH Database again

Type: vaccines

This time more than one MeSH heading displays – click on the best match, #1 Vaccines

Search results
Items: 1 to 20 of 64

- Vaccines
  - Suspensions of killed or attenuated other bio-molecular derivatives,

- Adenovirus Vaccines
  - Vaccines used to prevent infection
    Year introduced: 2014(2013)

- Vaccines, Live, Unattenuated

This displays the details for this MeSH. Click Add to search builder, and Search PubMed.

Vaccines
Suspections of killed or attenuated microorganisms (bacteria, viruses, etc) and their derivatives, administered for the prevention, amelioration, or treatment of infecion.

PubMed search builder options
Subheadings:
- abnormalities
- deficiency
- administration and dosage
- drug effects

On the Search results page, click on Advanced. Combine search sets with AND.

Tutorial: Use MeSH to Build a Better PubMed Query https://www.youtube.com/watch?v=uyF8uQY9wys