

PUBMED

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Introduction

PubMed is a free service provided by the United States' (US) National Library of Medicine. The bibliographic database includes details of over 16 million articles from MEDLINE and from additional life science journals back to the 1950s.

Bibliographic databases contain records of information about journal articles. You can search inside them to find articles on your topic of interest. PubMed is a major database covering medicine, dentistry and some nursing material published since 1966. It contains bibliographic details (author, title, journal title, date, volume number) and author abstracts (summaries) from more than 4,600 biomedical journals published in the United States and 70 other countries.

As well as references taken from MEDLINE, PubMed includes links to full text articles and other related resources which publishers have submitted and which are not available via MEDLINE. PubMed services also give free access to nucleotide, protein, genome and molecular structure databases which are not covered in this workbook.

Learning outcomes

By the end of this workbook, you should be able to:

- Access PubMed via the Library website
- Search the database
- Display the results of your search
- Locate the full text of useful articles
- Save your results for future use
- Be aware of other features of PubMed

About this workbook

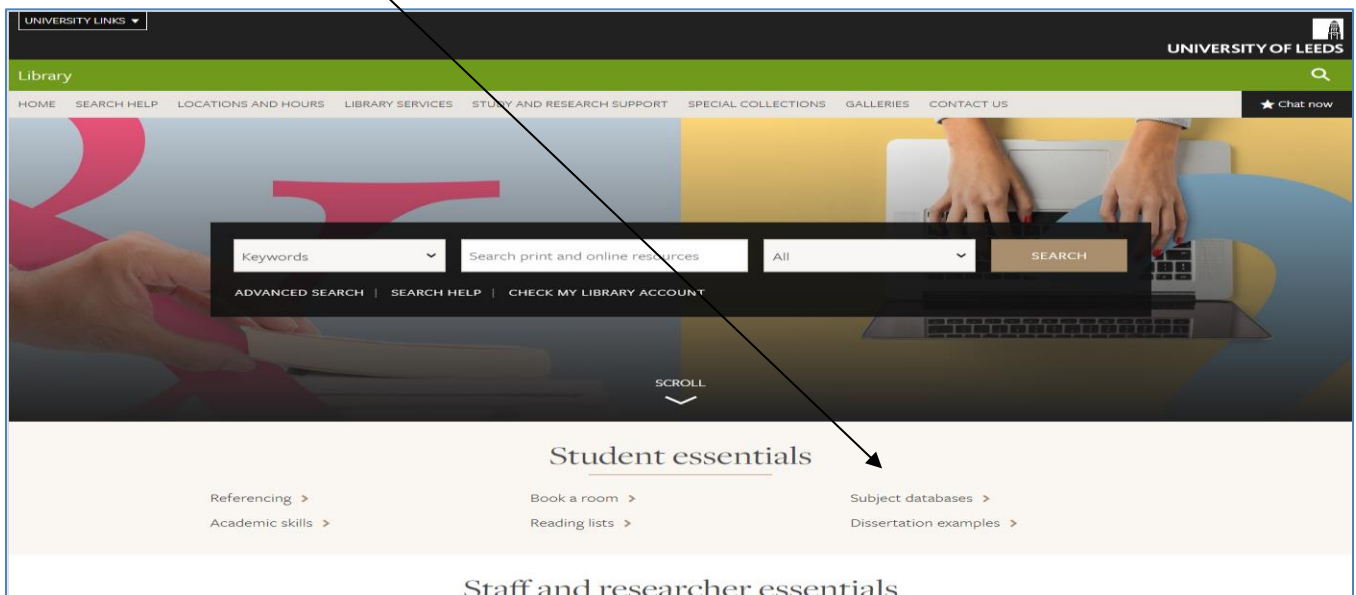
- Things that you need to type are displayed in **Courier New** bold font
- Instructions assume that you are using the Internet Explorer browser (the IT supported Web browser), but you can use any web browser.

1. Getting Started

You do not need a password to enter PubMed - it is a free database available on the internet.

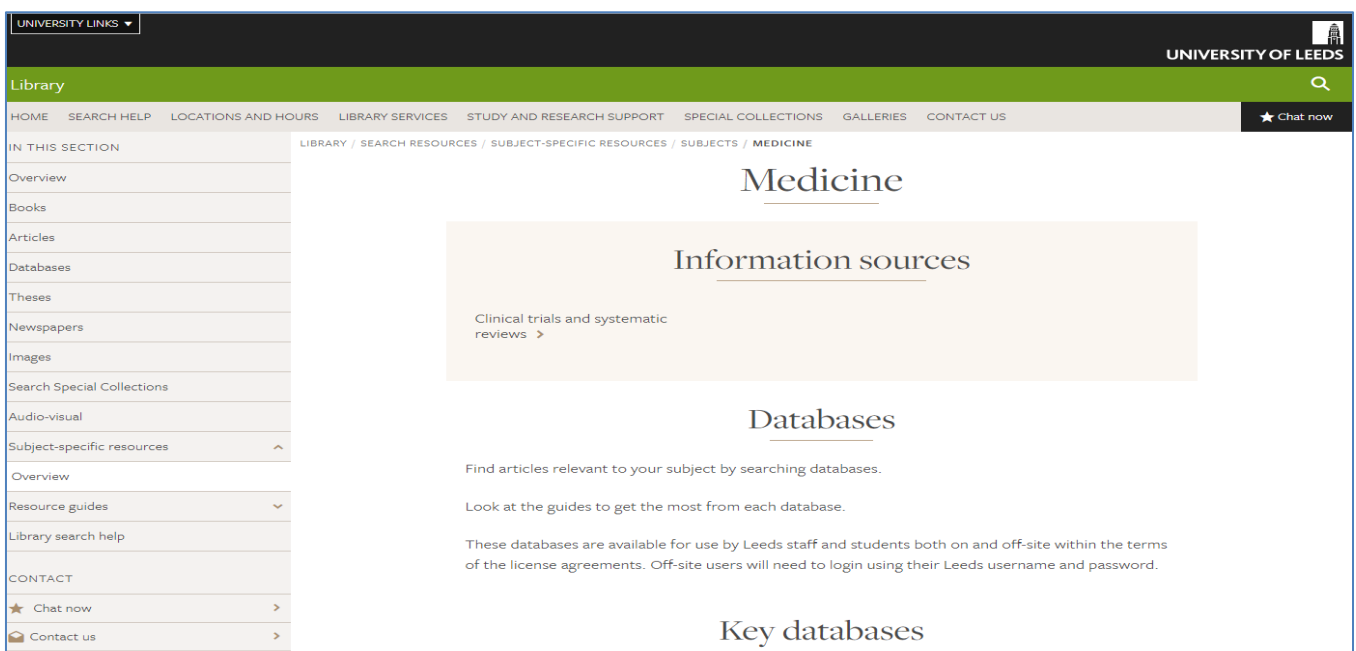
Exercise 1 – Getting in to PubMed

To access the database, go to the Library's homepage at <https://library.leeds.ac.uk/> and under 'Student Essentials' click on '**Subject databases**'. This contains a bank of useful resources to help you with your studies.



You can view databases relevant to your studies by selecting your subject from the subsequent list.

Scroll down the page to find your **Key databases**.



NOTE Pubmed is not listed on the key databases page for every subject. If PubMed is not on your own subject's key databases page, you can find it on the list of key databases on the [Medicine](#) subject resources page

Your key databases section provides you with a list of databases which have been chosen as the most likely to be relevant for your subject. It's a good idea to browse through them and read their descriptions to decide which ones are relevant for your studies.

As this workbook looks at Pubmed, select Pubmed from the list of databases by clicking the green link (circled below). The entry will look like this:

PubMed

A service of the US National Library of Medicine that includes over 16 million citations from the journals in the Medline database as well as biomedical articles from further life-science journals. This version of Medline also includes PreMedline, references to articles that have been published but not yet included in the full version of Medline. The search interface is less easy to use than our normal Medline service, and many of the records in PreMedline don't have abstracts, but this is one of the most up to date biomedical databases available. Also includes some links from references to full text journals. A current awareness service provides links for newly added content.

Next, on the PubMed Catalogue page, click on **PubMed Central**

PubMed Central
National Center for Biotechnology Information (U.S.)
Available Online >

Available online _____
Full text availability _____

[PubMed Central](#)

You should now be able to see the NCBI search screen listing all its' databases. Select PubMed by clicking on the drop down menu near the top left of the screen where it says **All databases**

NCBI Resources How To Sign in to NCBI

NCBI National Center for Biotechnology Information

All Databases Search

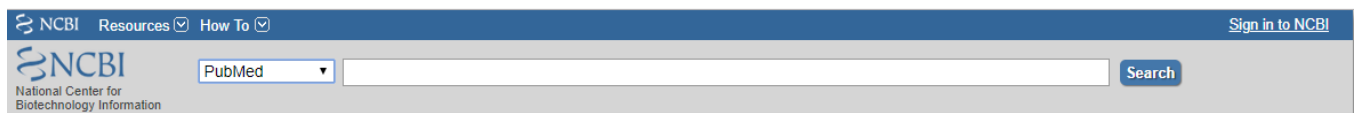
2. Searching for articles on a topic

For the purposes of this workbook, we will search for articles on the topic of:

The role of private practitioners in tuberculosis control

PubMed has been designed so that people who have no database searching experience can do a basic search. It is therefore possible to do a very simple search and still get useful results, but better results are always obtained by doing a more advanced search. Both types of searches will be shown in the exercises in this section.

The following search box should be visible once you have selected PubMed from the list of databases.



a. Simple Searching

Exercise 2a - Simple search

In the search box, type:

The role of private practitioners in tuberculosis control

Click on the **Search** button

The next screen will show you the number of articles found and will give you each article's title and which journal it has been published in (see part 3 for more on this).

How many articles did you find?

The simple search you did above meant that the database only looked for the search words exactly as you typed them. This means that you missed a large number of relevant articles. For example, your search found the word "practitioners" but missed equally important words/spellings e.g. "practice".

b. Breaking down your question

A much more efficient way of searching is to:

1. Break the search topic into its main parts, in this case:

- **private practitioners**
- **tuberculosis control**

2. Use **truncation** to find different variations of words. The truncation symbol in PubMed is * so if you type

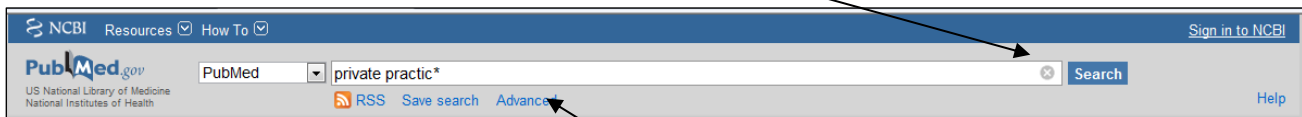
- **nurs*** the database will find words that start with those letters regardless of how the words end i.e. it will find nurse but also nurses, nursing etc. This can be a useful way of finding relevant articles.
- **private practi*** will look for private practitioner, private practitioners, private practice...etc

3. Search for each word/phrase separately

4. Finally combine the searches together appropriately (see page 5)

Exercise 2b - More advanced techniques - using truncation

Clear the search box by clicking on the x here



Then type:

private practi*

Click on **Search**. You will see a list of articles that contain your search terms.

Clear the search box again and type:

tuberculosis control

Click on **Search**. Again you will see a list of articles.

You now have 2 new searches (3 searches altogether). To see all these, click on the link 'Advanced' (below the search box). Each of your searches will be preceded by a number (#1, #2 etc) and in the right hand Result column, you will see how many articles were found for each search word/phrase.

Note: The numbers allocated to your searches may not be the same as the examples shown in this workbook especially if you've been trying out some of your own extra searches. It is therefore VERY IMPORTANT to look at each search number carefully.

c. Combining your search results

You now need to combine the 2 new searches together, using the word **AND**. This **narrows** the search down and makes it **more specific** so that the database only leaves you with articles that contain **both** of your search words/phrases at the same time.

Exercise 3a - Combining searches using AND

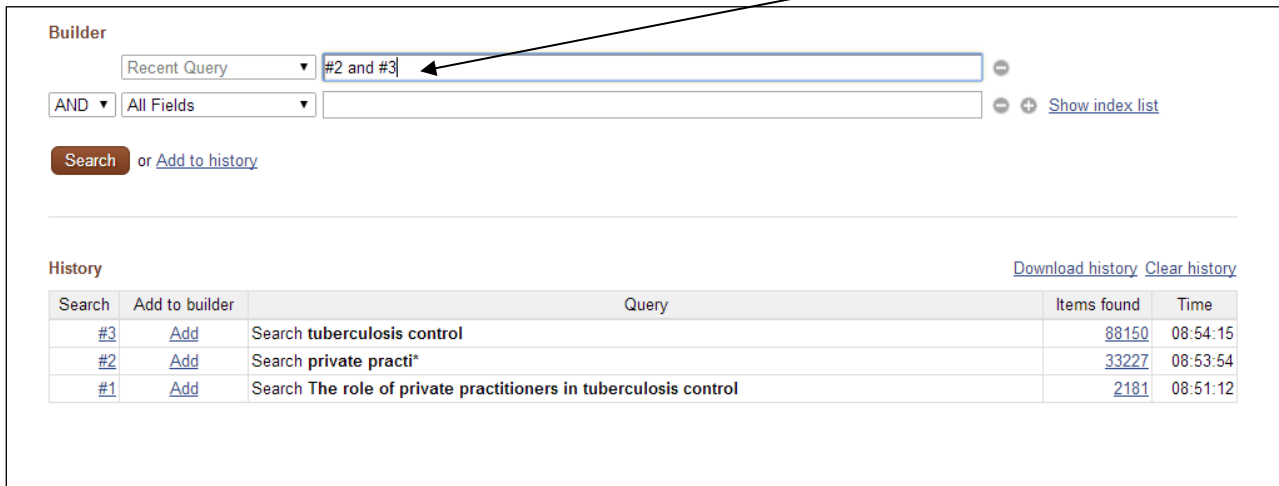
In the search box, you must type the appropriate numbers for the search words/phrases you want to combine together (private practi*, tuberculosis control)

- You **must** use the hash [#] symbol before each number
- Combine them by using the word AND (you can type the word AND using small or capital letters)

Let's see how this looks in practice.

You should already be on the Advanced screen:

Type the numbers (including the #) that relate to your searches – for example #2 AND #3 into this box and click on **Search**



The screenshot shows the PubMed Builder interface. At the top, there is a 'Builder' section with a 'Recent Query' dropdown menu showing '#2 and #3'. Below this is a search box containing the text '#2 and #3'. To the right of the search box are buttons for 'AND', 'All Fields', and a 'Show index list' link. Below the search box is a 'Search' button and a link for 'Add to history'. Below the search box is a 'History' section with a table of search results. The table has columns for 'Search', 'Add to builder', 'Query', 'Items found', and 'Time'. The table contains three rows of search results.

Search	Add to builder	Query	Items found	Time
#3	Add	Search tuberculosis control	88150	08:54:15
#2	Add	Search private practi*	33227	08:53:54
#1	Add	Search The role of private practitioners in tuberculosis control	2181	08:51:12

This will result in a set of articles on your subject.

How many did you find?

This should be more than in the first search.

Combining selected search terms with OR can be useful as it enables you to search for and incorporate synonyms - words/phrases which have a similar meaning e.g. vaccination OR immunisation.

This is a good habit to get into if you want to make sure your search is comprehensive or if you haven't yet found enough articles on which to base your research. For example, the above search produced a reasonable number of articles. But you might want to include *private sector* as well as *private practice/practitioner(s)* in order to make sure you are not missing relevant articles.

To do this:

Exercise 3b - Combining searches with OR

Clear the search box.

Type **private sector** and click on the **Search** button

Now click on the **Advanced** link to see the list of searches you've carried out.

You are next going to instruct PubMed to find all the articles which are on the subject of private practitioners/practice OR the private sector. To do this:

Note the numbers for these 2 search phrases and type them in to the search box, this time separating them with the word **OR** e.g.

#2 or #5 Then click on Search

Don't forget your set numbers may be different.

Note: This workbook just gives you one example of thinking of alternative words/phrases you could combine with OR. For example, you might also want to look for articles which use the abbreviation TB as well as those which use tuberculosis (tuberculosis OR TB). And in a "real life" search of your own, it is good practice to think of as many alternative words/phrases as possible and to combine them with OR.

Exercise 3c - Final combination of search results

You now need to combine this set of results on private practitioner(s)/practice or private sector with the previous results on tuberculosis control using AND in order to obtain a final list of articles that mention BOTH your topics.

Click on the **Advanced** link to see your previous searches

Note the numbers for the search words/phrases you want to combine and type them in to the search box, this time separating them with the word **AND**

Based on this example search history, we will use sets #6 (the private sector OR private practi* search) and #3

Builder

Recent Query: #6 and #3

AND All Fields

Search or Add to history

History

Search	Add to builder	Query	Items found	Time
#6	Add	Search (#2 or #5)	54913	08:58:19
#5	Add	Search private sector	24506	08:57:53
#4	Add	Search (#2 and #3)	4399	08:57:42
#3	Add	Search tuberculosis control	88150	08:54:15
#2	Add	Search private practi*	33227	08:53:54
#1	Add	Search The role of private practitioners in tuberculosis control	2181	08:51:12

Click Search to see your final results.

Make sure you use the right search sets from your own searches

For information, it is possible to go back and view the results from any of your searches from the Advanced screen by clicking on the link under Items found

3. Displaying your results

Your PubMed search results are normally shown 20 at a time (unless you change this by clicking on Per Page).

The year, volume, issue and page number of the

Name of the journal it has been published in.

#6 AND #3

1. [Patients pathways to tuberculosis diagnosis and treatment: a qualitative study from a south Indian district.](#)
 Yellappa V, Lefèvre P, Battaglioli T, Devadasan N, Van der Stuyft P. BMC Public Health. 2017 Aug 4;17(1):835. doi: 10.1186/s12889-017-4627-7. PMID: 28778192 Free PMC Article

2. [Infection prevention and control in health facilities in post-Ebola Liberia: don't forget the private sector!](#)
 Tremblay N, Musa E, Cooper C, Van den Bergh R, Owiti P, Baller A, Siafa T, Woldeyohannes D, ... doi: 10.5588/pha.16.0098.

3. [Emergence of fluoroquinolone resistance among drug resistant tuberculosis patients at a tertiary care facility in Karachi, Pakistan.](#)
 Zaidi SMA, Haseeb A, Habib SS, Malik A, Khawaja S, SaifUllah N, Rizvi N. BMC Res Notes. 2017 Jul 25;10(1):313. doi: 10.1186/s13104-017-2633-6. PMID: 28743312 Free PMC Article

4. [Alarming rates of attrition among tuberculosis patients in public-private facilities in Lahore, Pakistan.](#)
 Khan BJ, Kumar AMV, Stewart A, Khan NM, Selvaraj K, Fatima R, Samad Z. Public Health Action. 2017 Jun 21;7(2):127-133. doi: 10.5588/pha.17.0001. PMID: 28695086 Free PMC Article

5. [Addressing tuberculosis control in fragile states: Urban DOTS experience in Kabul, Afghanistan, 2009-2015.](#)
 Qader G, Hamim A, Sayedi M, Rashidi M, Manzoor L, Seddiq MK, Ikram N, Suarez PG. PLoS One. 2017 May 31;12(5):e0178053. doi: 10.1371/journal.pone.0178053. eCollection 2017. PMID: 28562675 Free PMC Article

Click on the title of any of your results to see more detail.

A typical result will look like this:

BMC Public Health. 2010; 10: 355. PMID: PMC2898828
 Published online Jun 21, 2010. doi: 10.1186/1471-2458-10-355

Estimating the magnitude and direction of bias in tuberculosis drug resistance surveys conducted only in the public sector: a simulation study
 Ted Cohen,^{1,2} Bethany L Hedt,³ and Marcello Pagano

Abstract
 Background
 Accurate assessment of the burden of drug-resistant TB requires systematic efforts to quantify its magnitude and

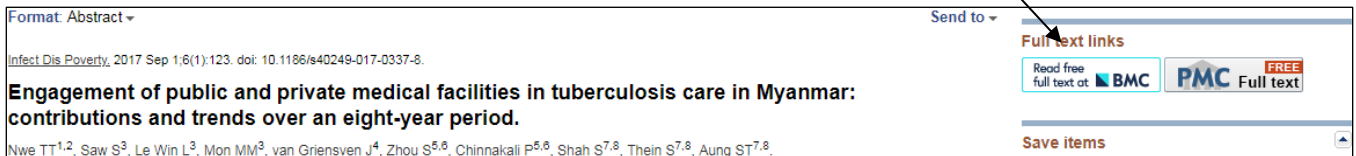
The title of the article, its authors and the abstract (summary of the article)

4. Checking for full text availability

Exercise 5a – Checking for full text

Notice on the right hand side you can see whether the article is available to you in full text.

If you see a button like this you can click on it to download the full article. If there is no button, full text may not be available to you but it is always worth checking the Library catalogue for the journal name (not article name) in case this link is not working for some reason (may not work from off campus). It is also possible that the Library only has the journal in paper copy so electronic full text cannot be found under those circumstances.





Format: Abstract ▾ Send to ▾

Infect Dis Poverty, 2017 Sep 1;6(1):123. doi: 10.1186/s40249-017-0337-8.

Engagement of public and private medical facilities in tuberculosis care in Myanmar: contributions and trends over an eight-year period.

Nwe TT^{1,2}, Saw S³, Le Win L³, Mon MM³, van Griensven J⁴, Zhou S^{5,6}, Chinnakali P^{6,8}, Shah S^{7,8}, Thein S^{7,8}, Aung ST^{7,8}.

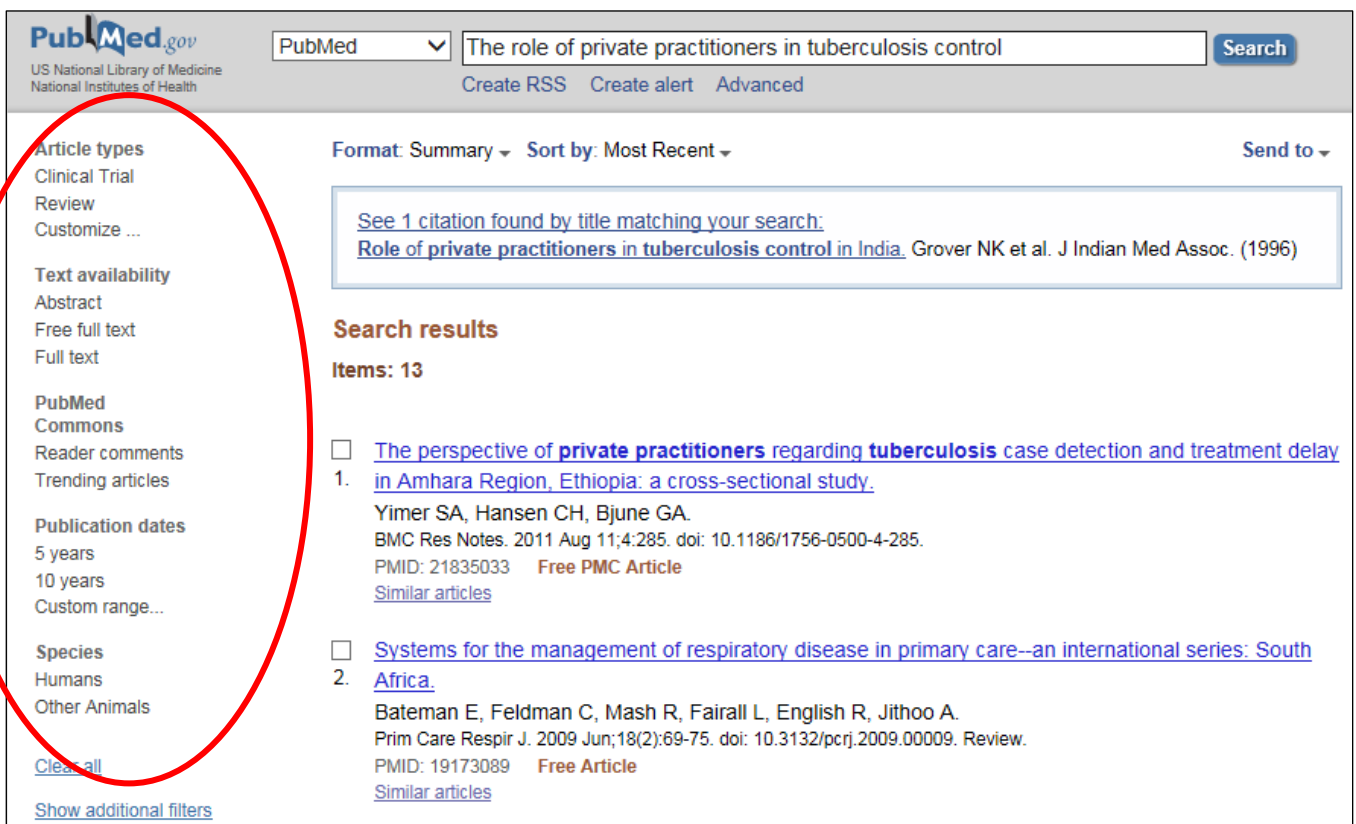
Full text links
Read free full text at   **FREE** Full text

Save items

5. Using limits

You may want to limit your results by full text articles only, publication date, species, article type, language etc.

To do this in Pubmed you can use the limits on the left hand side of your search screen:



PubMed.gov
US National Library of Medicine
National Institutes of Health

PubMed ▾ The role of private practitioners in tuberculosis control Search

Create RSS Create alert Advanced

Format: Summary ▾ Sort by: Most Recent ▾ Send to ▾

See 1 citation found by title matching your search:
[Role of private practitioners in tuberculosis control in India](#). Grover NK et al. J Indian Med Assoc. (1996)

Search results
Items: 13

[The perspective of private practitioners regarding tuberculosis case detection and treatment delay in Amhara Region, Ethiopia: a cross-sectional study.](#)
Yimer SA, Hansen CH, Bjune GA.
BMC Res Notes. 2011 Aug 11;4:285. doi: 10.1186/1756-0500-4-285.
PMID: 21835033 **Free PMC Article**
[Similar articles](#)

[Systems for the management of respiratory disease in primary care—an international series: South Africa.](#)
Bateman E, Feldman C, Mash R, Fairall L, English R, Jithoo A.
Prim Care Respir J. 2009 Jun;18(2):69-75. doi: 10.3132/pcrj.2009.00009. Review.
PMID: 19173089 **Free Article**
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Article types
Clinical Trial
Review
Customize ...

Text availability
Abstract
Free full text
Full text

PubMed
Commons
Reader comments
Trending articles

Publication dates
5 years
10 years
Custom range...

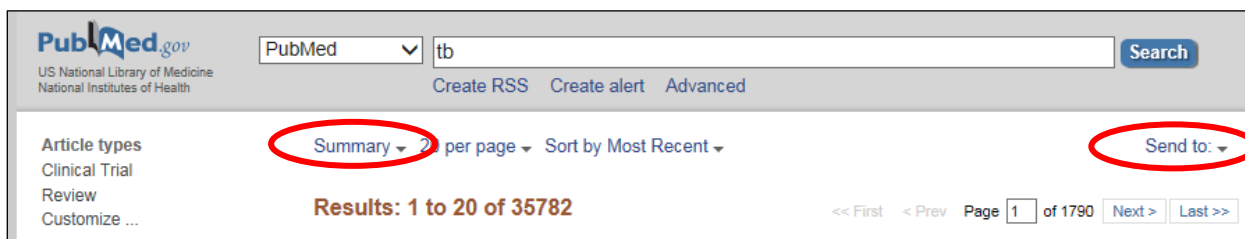
Species
Humans
Other Animals

[Clear all](#)
[Show additional filters](#)

6. Printing, saving, emailing or importing your results

You can select the results you want to keep and save, print or email them to yourself. It is also possible to import your results into reference management software such as EndNote (available on the University computer clusters).

Whichever of these you do, you will be using the two menus highlighted in red below:



Exercise 6a - Printing

Don't do this exercise if you don't really want to print anything yet.

To select references for printing, tick the box to the left of the results you want to keep. If you do not do this, all the references in the set will automatically be selected for you.

Choose the format which you want to the references to appear in by selecting from the **Summary** menu. Select **Abstract (Text)**. Your references will appear in a new window.

From the usual File menu in your browser (top left) click Print

When printing is complete, click on the back button to get back to your results.

Exercise 6b - Saving

To select references for saving, tick the box to the left of the results you want to keep. If you do not do this, all the references in the set will automatically be selected for you.

Using the Send to: menu click on File and make sure the Format drop down menu to **Abstract (Text)**. If you wish, you can choose to change the order in which your results appear.

Click Create File. This will save a text file containing your results to your computer.

[If using Internet Explorer, in the next box click Save and save the file to a folder of your choice. You may want to change the file name from pubmed_result.txt to something more meaningful.]

Exercise 6c – Emailing

To select references for emailing, tick the box to the left of the results you want to keep. If you do not do this, all the references in the set will automatically be selected for you.

To email, click on the Send to link and click on E-mail which will open up this window where you can type in your preferred email address. Click on the E-mail button.

Exercise 6d: Exporting to reference management software (e.g. EndNote)

Note: This exercise assumes you are already an EndNote user – if you're not, look at our support pages https://library.leeds.ac.uk/info/1403/endnote/43/endnote_support to find out more

To select references for exporting, tick the box to the left of the results.

From Send to: choose File

Under Format, you MUST choose MEDLINE

Then click on Create File

Save the file to your computer and then you can import it into your EndNote library in the usual way, using the PubMed (NLM) import filter.

7. Further information

PubMed contains a wealth of further features, including access to specialist databases of interest to biomedical sciences researchers. For more information, including saving searches and re-running saved searches, view PubMed's own help pages here <http://www.ncbi.nlm.nih.gov/books/NBK3827/>

There are also some PubMed tutorials on YouTube
<http://www.youtube.com/playlist?list=PLBD13A2628C7A9965>