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Supporting Literature Searching

Searching the Evidence in PubMed

August 2015

Supporting Literature Searching

Searching the Evidence in PubMed

To help you use this guide,

indicates a step in the process of searching and retrieving articles.

indicates a tip, or an extra piece of information.

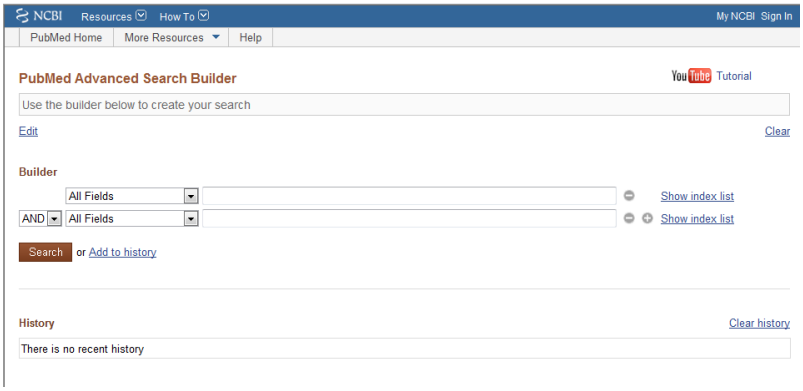
- **How to access PubMed – advanced search**

Access to PubMed is free – it requires no username or password.
PubMed includes references from Medline, but also has more complete coverage of journals that Medline only indexes selectively.

PubMed is available at
http://www.ncbi.nlm.nih.gov/pubmed/advanced

you can use shortcuts:
http://www.pubmed.gov

BUT…..
Better to search the version of PubMed at



http://tinyurl.com/campubmed because this will give you accurate links through to the ejournals available from University of Cambridge.

- **Planning your Search**

In this guide we will search for English language randomised controlled trials about the use of oxygen therapy in chronic obstructive pulmonary disease published in the last 6 years.

Before starting your search you should ask questions of yourself such as:
- What are the keywords?
- Are there any other ways to spell the keywords?
- Are there any other words which mean the same thing (synonyms)?
- Are there any related keywords I want to include?
- What limits do I want to apply – date, language, age group, publication type?

In this search there are 2 sets of keywords:

COPD, chronic obstructive pulmonary disease

We combine these in one search line using the Boolean operator OR

oxygen therapy

We will then combine these 2 search sets with the Boolean operator AND.

Boolean Logic

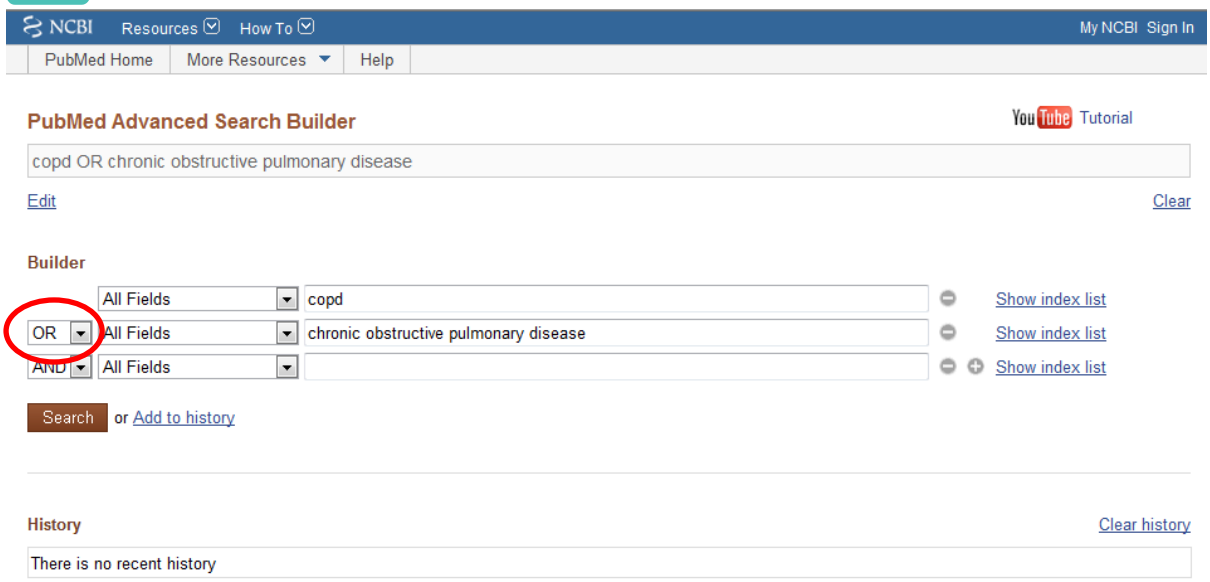
OR will search for articles containing any of the terms we choose. Use OR to combine synonyms, alternative spellings or related items

AND will search for articles which contain all of the terms we have chosen.

- **Searching in PubMed; Search for the first key word**

Using the Builder, type `COPD` into the first box, `chronic obstructive pulmonary disease` into the second.
Ensure that you link them with OR.

Click “Search”



Why can't we enter the whole question at once?

It is tempting to put the whole search into the search box in one go.
Don't!!

- It is better to search in stages, searching only for related terms. Searching in stages, is better because: some databases will treat a string of words as one phrase, so you may find nothing or very little
- searching in stages allows you to build up a much more complex and specific search
- searching in stages makes it easier to correct mistakes.

- **Search for the second keyword**

You'll now see a large number of hits for your first search – don't worry that this number is quite daunting - we've not finished the search yet.

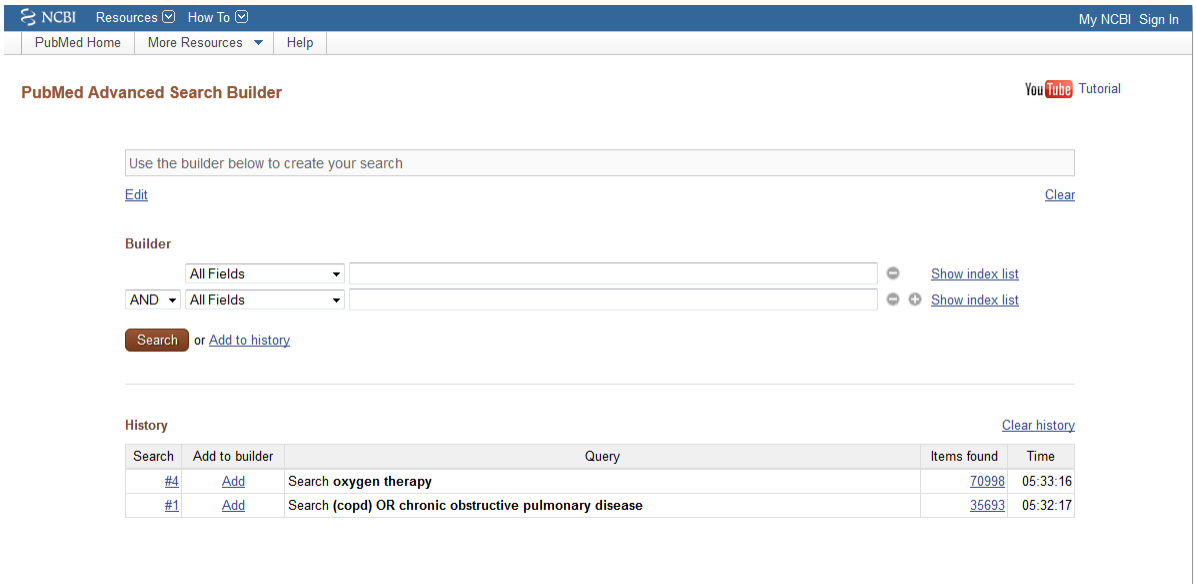
Click "Advanced Search" and, again in the Builder, type the next keyword:

`oxygen therapy`

and click "Search"

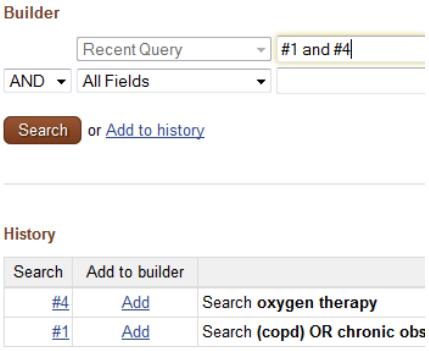
We have now done 2 separate searches – but remember to click on Advanced Search to continue to the next stage.

- **Combining your search results**

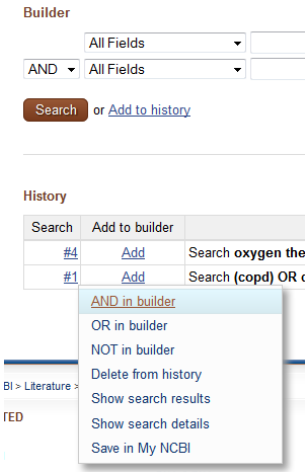


We have done 2 separate searches. We need to combine them using Boolean operator AND using the set numbers (prefixed by #). Remember to clear our the search box first, then you have 3 options: (NB: you only need to do one of the following)

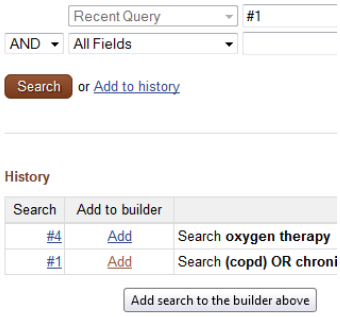
Option 1:
Type into the Builder
`#1 AND #4`
And click "search"



Option 2:
Click on each number (e.g. #1), and click "**AND in builder**" to enter them into the search box automatically. And click "search"



Option 3:
Click "add" for each number, and then switch the AND between the lines of the Builder.
Click "Search"



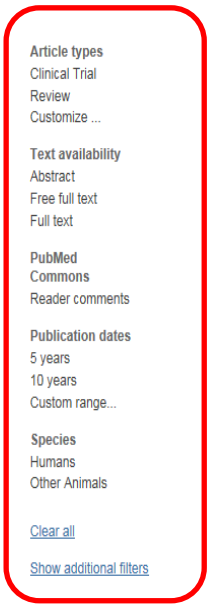
Remember, in a more complex search you must take care to use the correct set numbers.

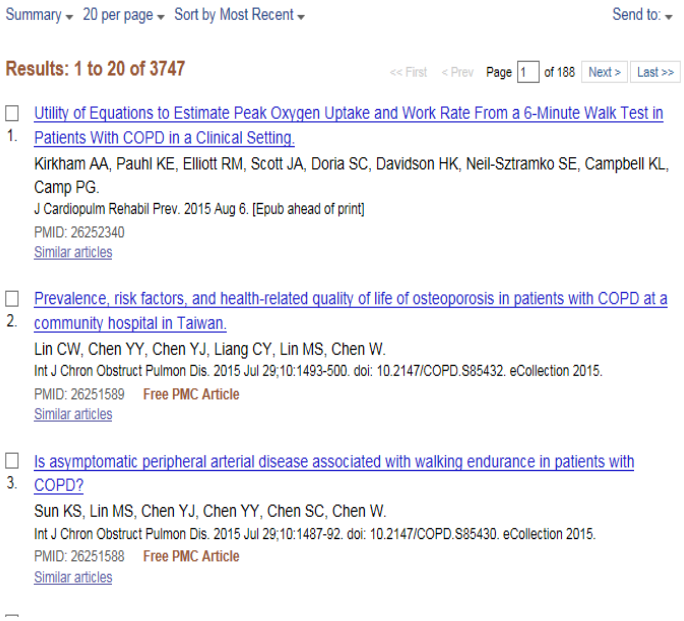
- **Limiting your search**

"Show additional filters"

You can see there are many different types of limits you can set on your search.

Not all are visible at this stage, but you can "Show additional filters"



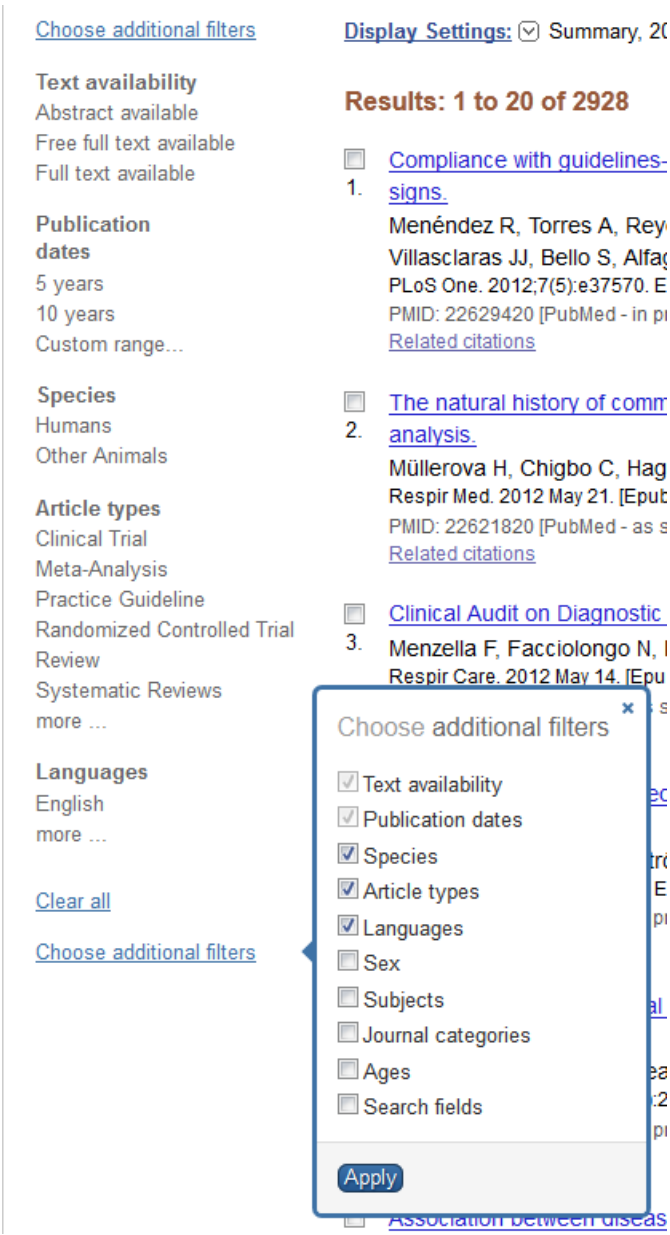


It is likely that the most useful ones will be:

- Publication Date
- Article Type
- Ages
- Languages
- Humans or Animals

Browse the range of options to see the possibilities, (click “more…” to see additional features) but remember, the more limits you apply, the smaller the number of articles you will retrieve.

For this tutorial we are going to limit the search so we only retrieve English language Randomized Controlled Trials published in the last 6 years.



From the results page, look at the “filters” options down the left-hand column.

PUBLICATION DATES: select “custom range” and enter 2009 and 2015 in the year boxes (don’t worry about specifying day and month)

ARTICLE TYPE: Select “Randomized Controlled Trial”

LANGUAGE: Select “English”

Observe how the number of hits has reduced

Limits

Note: The limits you select will apply to any search you do from now on. (Note the tick in the box in the Limits tab).

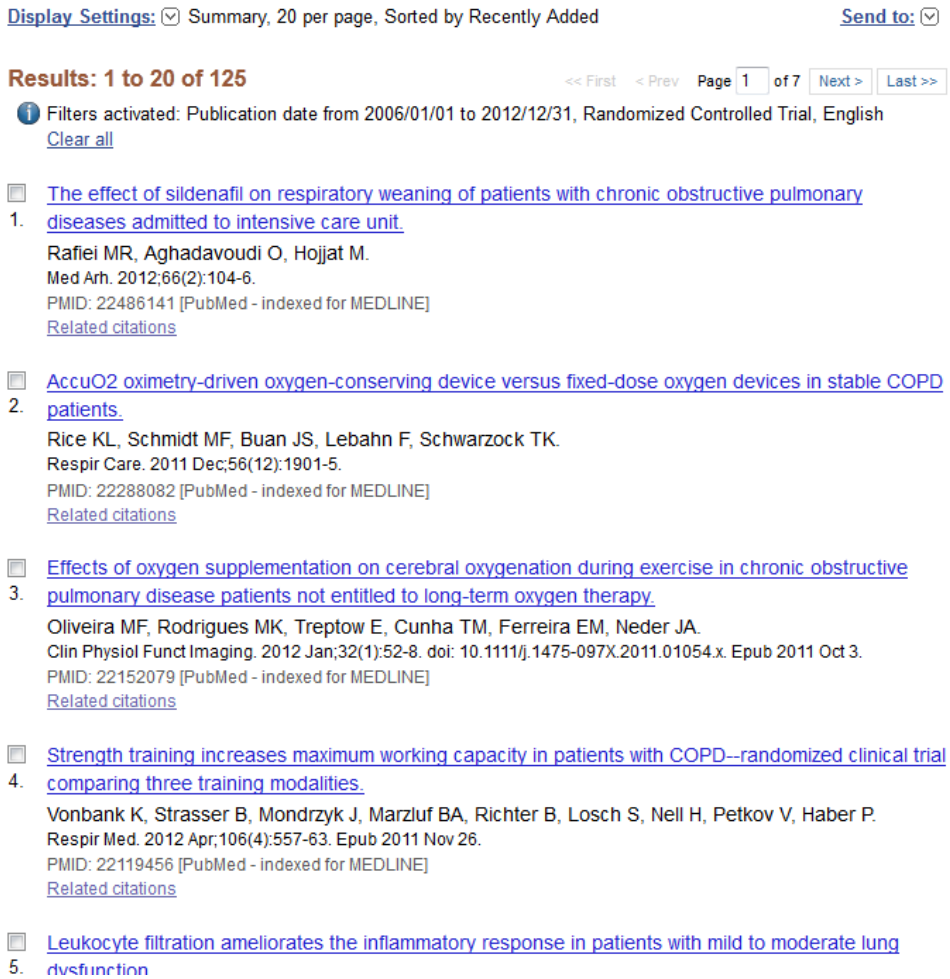
To remove these limits for future searches, simply uncheck this box.

Or

To apply new/different limits, simply click on the Limits tab, and make your selection.

- **Looking at the results of your search**

Lets have a closer look at the results:



PubMed shows us a Summary record, giving details of Authors, Title and Source (ie Journal title, year, month, volume, part and pages).

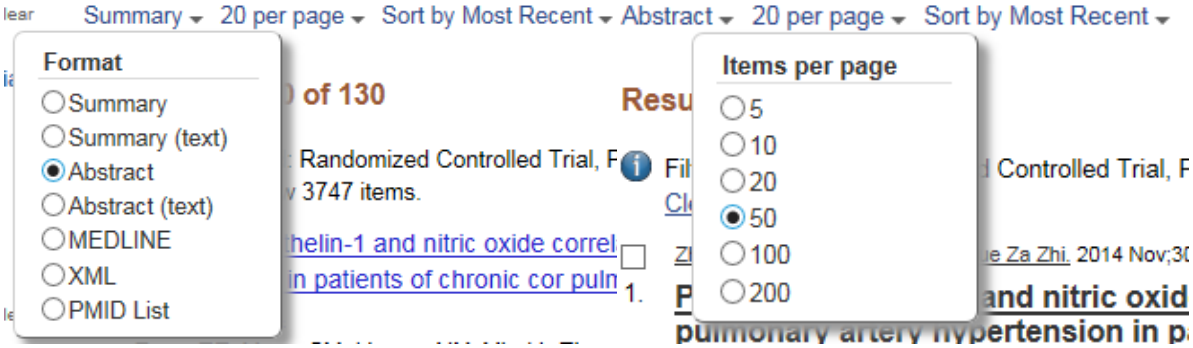
You can change the amount of information you see for each record.

Click on the title to view the abstract and related records for the article.

Use the related articles to “snowball” your search.

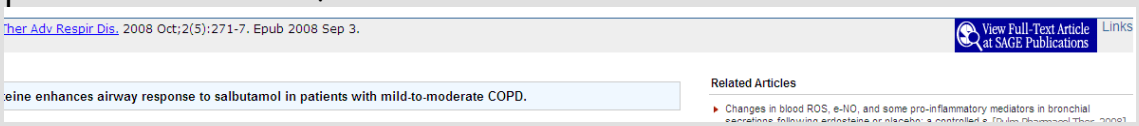
Alternatively, you can change the amount of details using the tabs under the search box which display the current selection.

Change the display option from “summary” to “abstract”, the number of items to 50, and sort the results by publication date.



Access to Full-Text Articles

If you are using the standard version of PubMed, you will notice that some articles provide a link to the full text:



In the Abstract view of the article you may see an indication that there is a link to the journal.

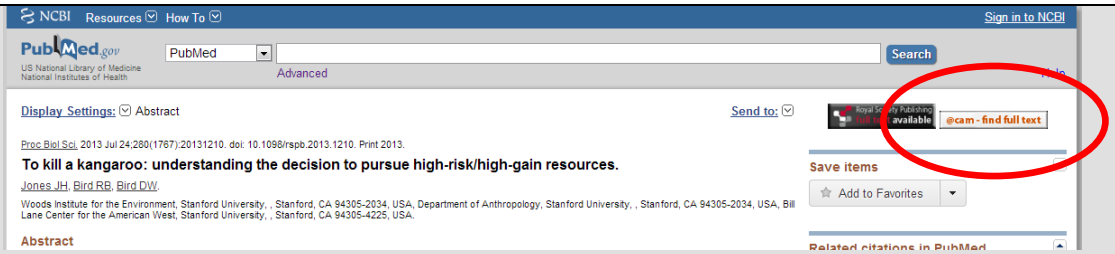
Access to electronic journals will vary depending on the computer you are using (perhaps a computer in the library which is on the University network), and the passwords you have (NHS ATHENS?, University RAVEN?), and it may be that there’s only paper access.

A link in PubMed is no guarantee of access.*

**** No link in PubMed is not proof that you’ll never get hold of the article. ****

To be sure that you have access to the article it’s necessary to check against the journals which have been paid for by the organisations you have connections with (ie the NHS, and the University of Cambridge and its Medical Library)

- Search PubMed with links to Cambridge full text: using the version of PubMed at **http://tinyurl.com/camPubMed** This will give you an extra button to check “@cam – find full text”:



Click on this link to see if there is full text access – NB you may need to use your RAVEN login if you're "off campus"

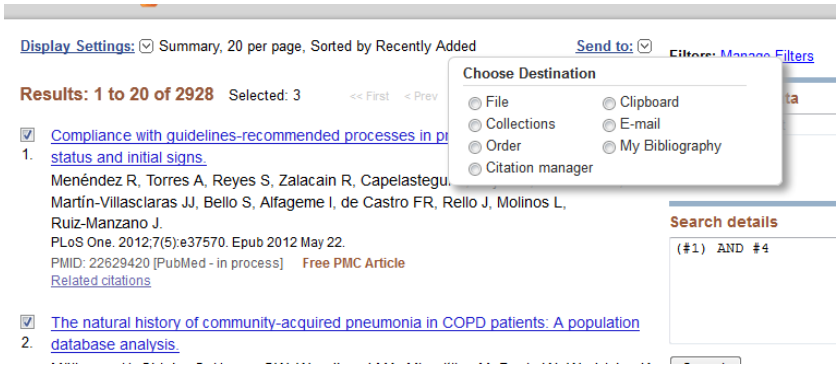
- the **NHS e-Journals** listing: check via http://www.evidence.nhs.uk - click on "Journals and Databases", then "journals" and remember to login with your NHS ATHENS password.
- you can also check **Library Search** to establish whether the Medical Library holds paper or electronic copies of the journal you need: http://search.lib.cam.ac.uk/

- **Selecting references to save/print/email**

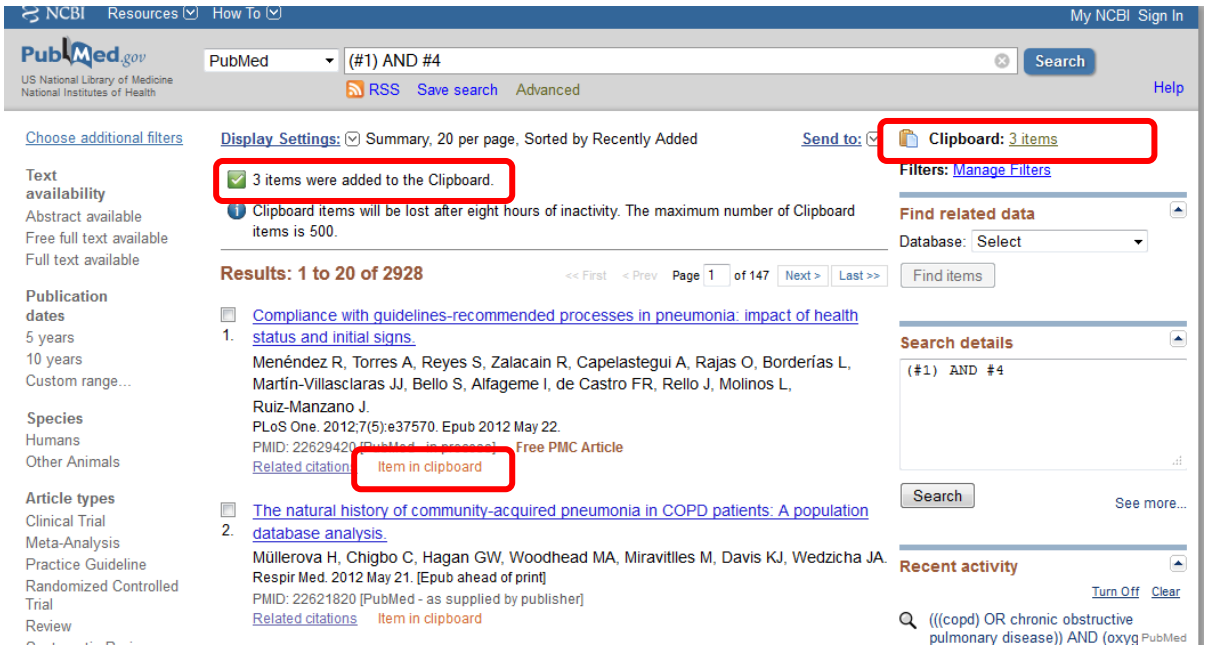
You can select references to print, save or email.

Select (tick in the box next to the reference) the articles you find interesting. NB. You will need to move to the next page of references – at the bottom of the page you'll have the option to click "Next" to move to the next page of references.

Once you have selected all the references, click in the drop down box next to the "send to" option and select **"Clipboard"**. Click **"Add to clipboard"**.



A message will appear under the search box to say that the items were added successfully, the items you've added will be marked as being in the clipboard, and you'll notice the number of items in your clipboard has changed.



Click on the Clipboard (either via the tab, or the link beside the search box) to see the articles you selected.
Remember you can change the format of references by using the drop-down box next to “Display”.

Once you have added articles to the Clipboard, you can continue searching for more articles. Just remember to send your newly selected articles to the clipboard.
Gathering the articles you want in this way will reduce duplication – articles that are already on the Clipboard will be identifiable by the green colour of the item number.

- **Saving, printing and emailing references**

To do any of these things you must first put the references in Clipboard, and click on the “Clipboard” tab.

Change the display format as required.

NB. If you have the summary view on the screen, you will save/email/print the summary details. If you want the abstract you **must** change the display.

To Email: Click on the drop down box next to the “send to” button and select “email”.

.

Fill in the form (check that you’re taking more than just the “summary” of each article, and at least choosing to take the “abstract”, and click “Mail”.

You should get a message, below the search box, indicating that the email has been sent successfully

To Print or Save

PubMed will turn your references into a text file (.txt) which you can print or save.

Click “send to” and chose “file”. Ensure you select the format “Abstract (text)”. While this may not be a very attractive format, it is minimal and ideal for printing.

Open the file and print as normal, or save it.

POP-Ups

If you have pop-up blocker software installed on your machine, you may have difficulties in displaying the “save” option.

To overcome this, hold down the Ctrl / Control key, THEN click on the “file” option in the Send To list of options.

- **Exporting to reference management software**
  If you are using reference management software such as Endnote, it's easy to export your references.

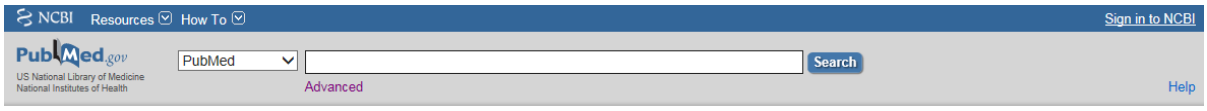
Click "send to" and choose "citation manager". Save the file to your PC.

Open your reference management tool and import.

- **Saving your search strategy or the articles in your clipboard for later – MyNCBI; and/or RSS**

It's useful to be able to save search strategies to re-run at a later date, or to pick up where you left off with a search. It's also helpful sometimes to be able to save the articles you've saved to clipboard.

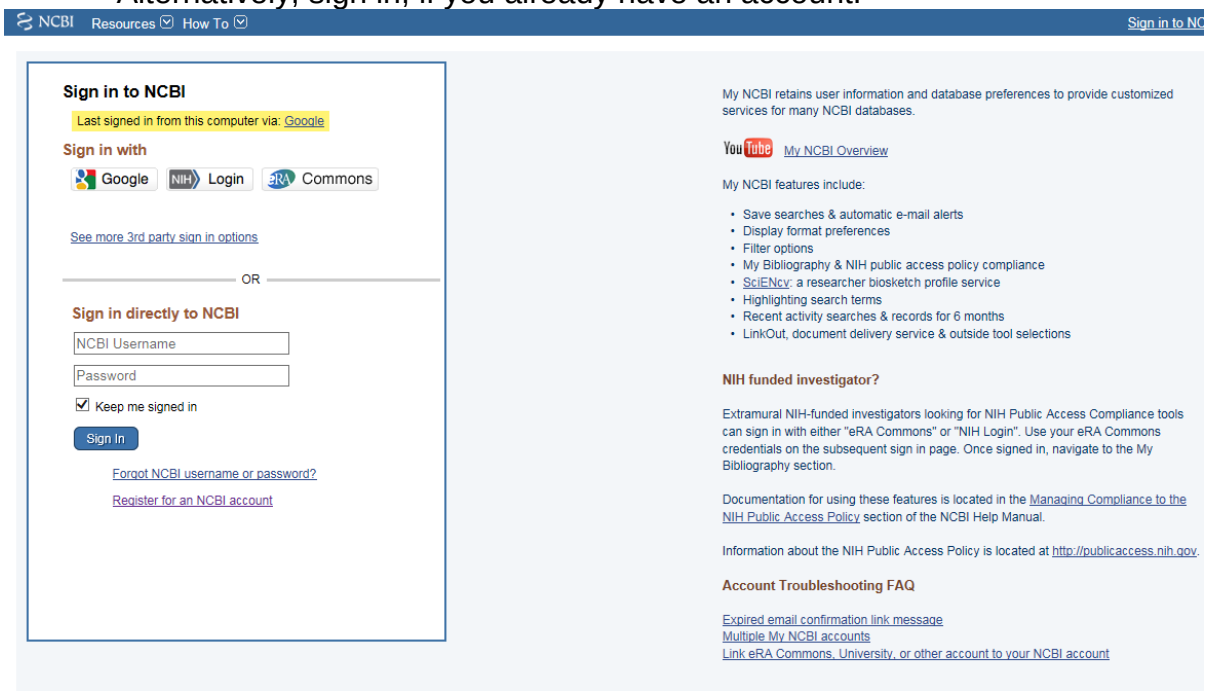
MyNCBI lets you do these things.



Find the Sign in to NCBI link in the top right-hand corner of the page.

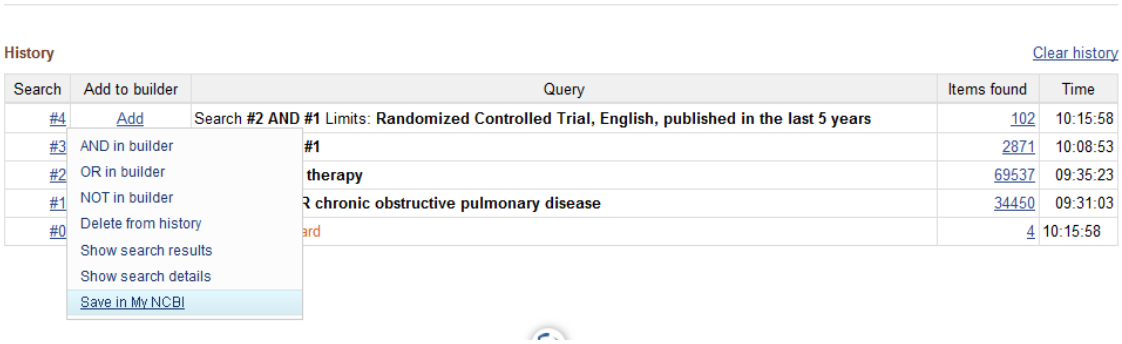
Complete the registration process, or use an existing Google account to sign in.

Alternatively, sign in, if you already have an account.



Once back in PubMed, return to the “Advanced Search” option.
Select the line of your search strategy you wish to save, and click on the number of the search

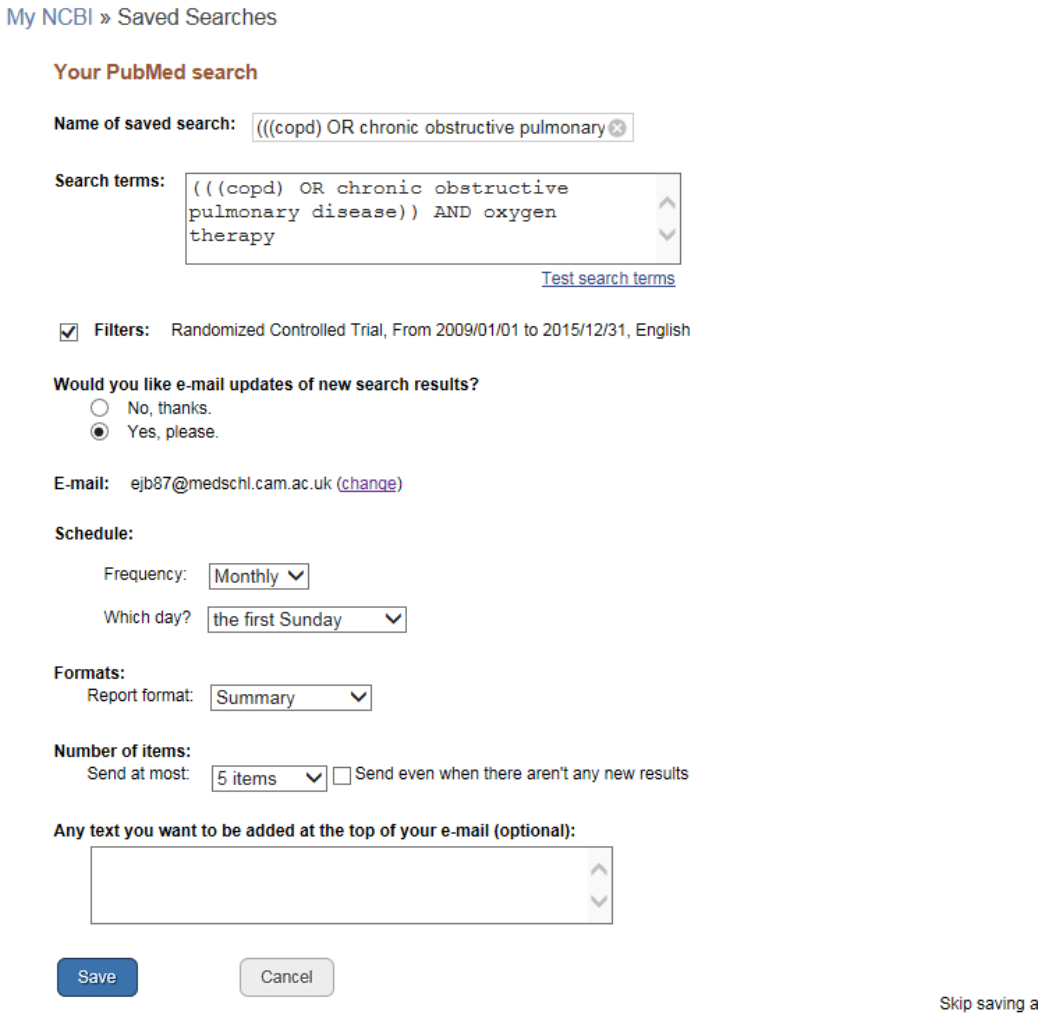
You have the option to “Save in My NCBI” – click that option.



I

If you’re happy with the search, click “save”

You will be given a host of options, including to name the search, to set up an alert which will be emailed to you.
Make your choices and “SAVE”



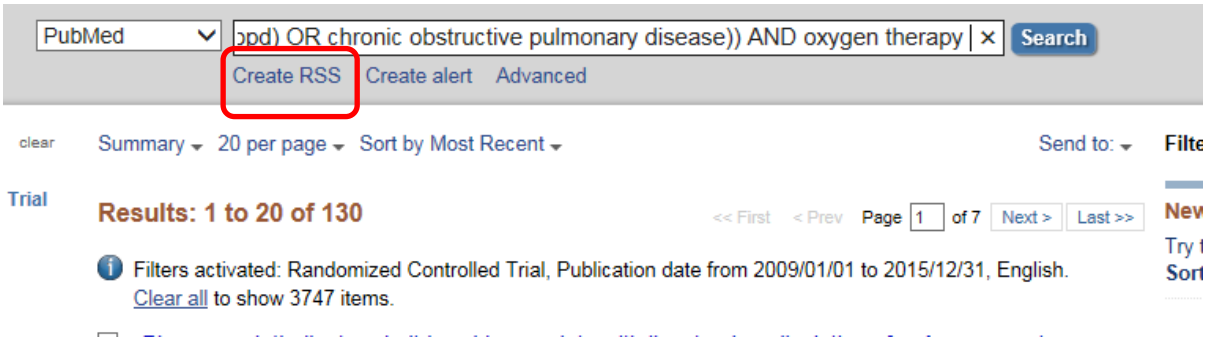
To save a collection of articles saved to Clipboard, when you “send to”, there’s an option to send to “Collections” This is held in My NCBI for you.

- **RSS**

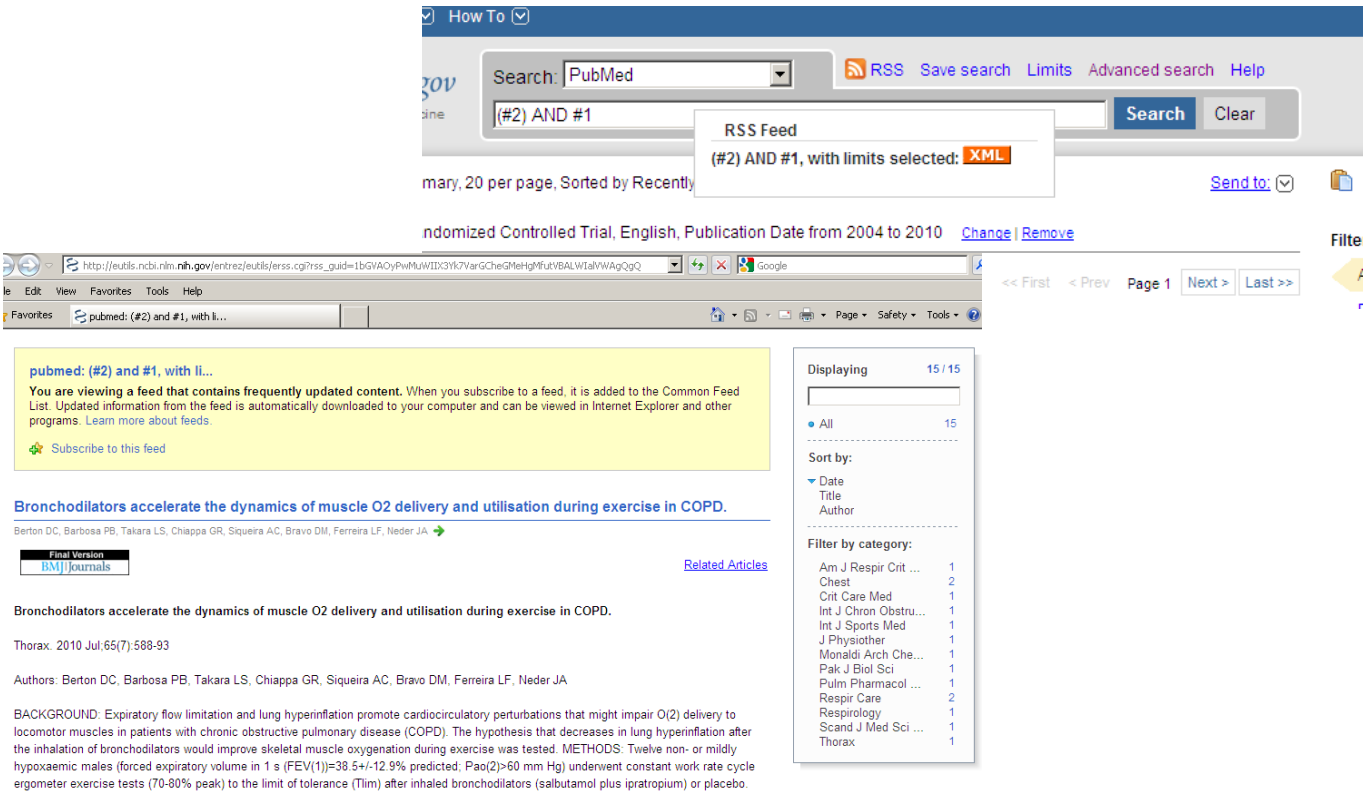
Setting up an RSS feed can be a useful way of keeping track of new material in your field, and will not require you to set up a MyNCBI account.

When you have completed a search strategy which pulls together all the keywords of the question you are trying to answer, run the search.

To set up an RSS feed, click the RSS option.



	A box appears, and you can change the name of your RSS feed if you wish, and change the maximum number of articles which can display in the feed. Make your selection, and click “create RSS”
	Click the XML button, and a page will appear which you can subscribe to, if you use a browser-based RSS reader. Alternatively, you can copy the URL of the page, and add this to your web-based RSS reader.



- **Searching using MeSH (Medical Subject Headings) – a brief introduction**

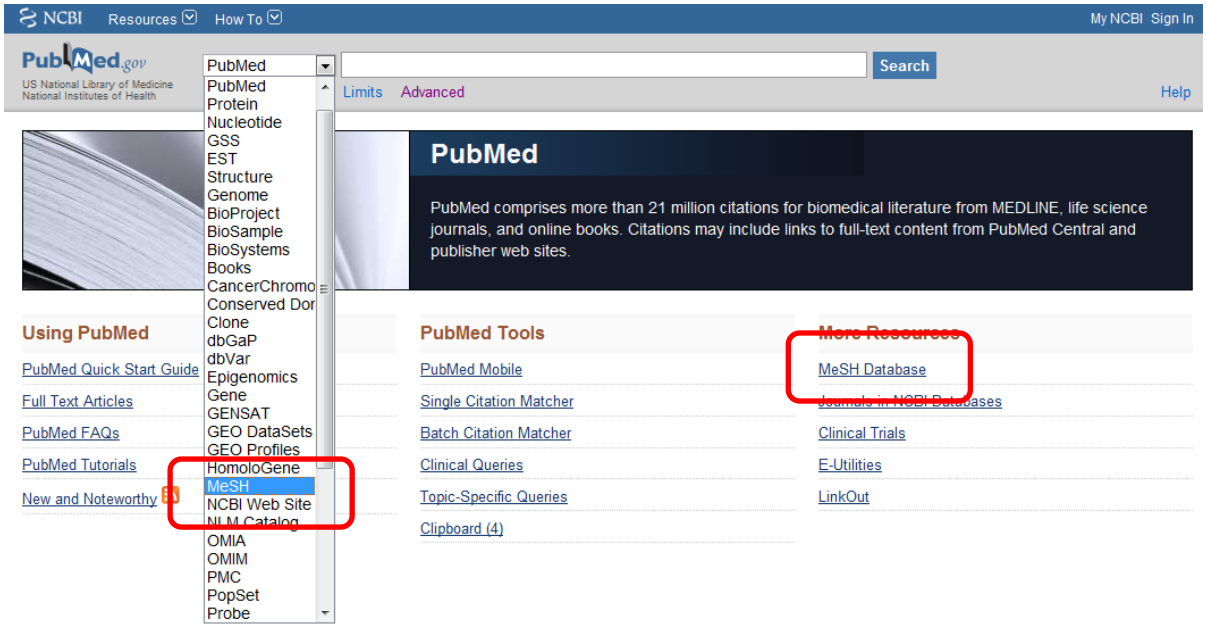
MeSH is the acronym for "**Medical Subject Headings**." MeSH is the authority list of the vocabulary terms used for subject analysis of biomedical literature at NLM. MeSH vocabulary is used for indexing journal articles for **MEDLINE** and is also used for cataloguing books and audiovisuals.

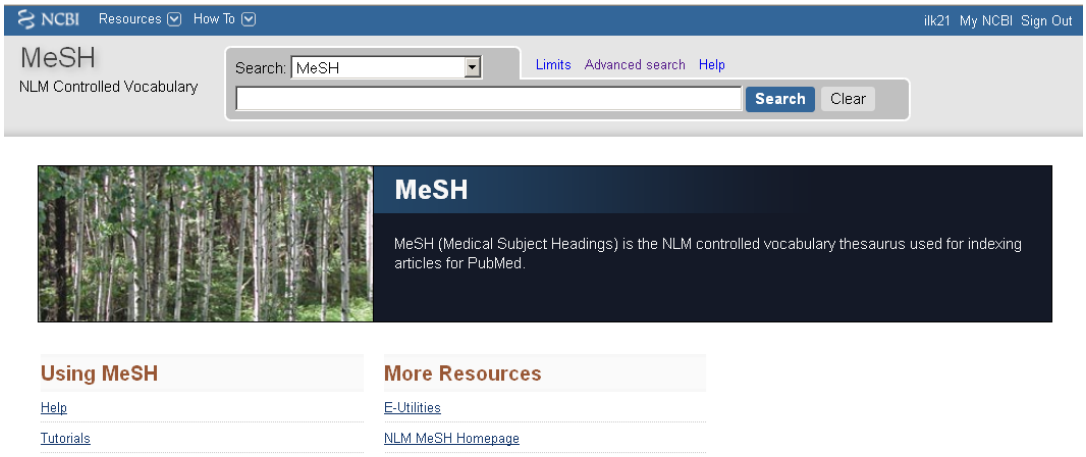
The MeSH controlled vocabulary is a distinctive feature of MEDLINE. It **imposes uniformity and consistency to the indexing of biomedical literature**. MeSH terms are arranged in a hierarchical categorized manner called MeSH Tree Structures and are updated annually.

Searching using MeSH allows you to overcome problems of spelling and terminology – especially when ***you*** might not be aware of different spellings or terminology!

We will search again for English language randomised controlled trials about the use of oxygen therapy in chronic obstructive pulmonary disease published in the last 5 years – this time we will use MeSH.

You reach the MeSH Browser from
a) the homepage of PubMed, or by using the drop down set of options, or in the Advanced Search screen, by scrolling to the ***bottom of the page***, and selecting **MeSH** from the list available in ***Queries***

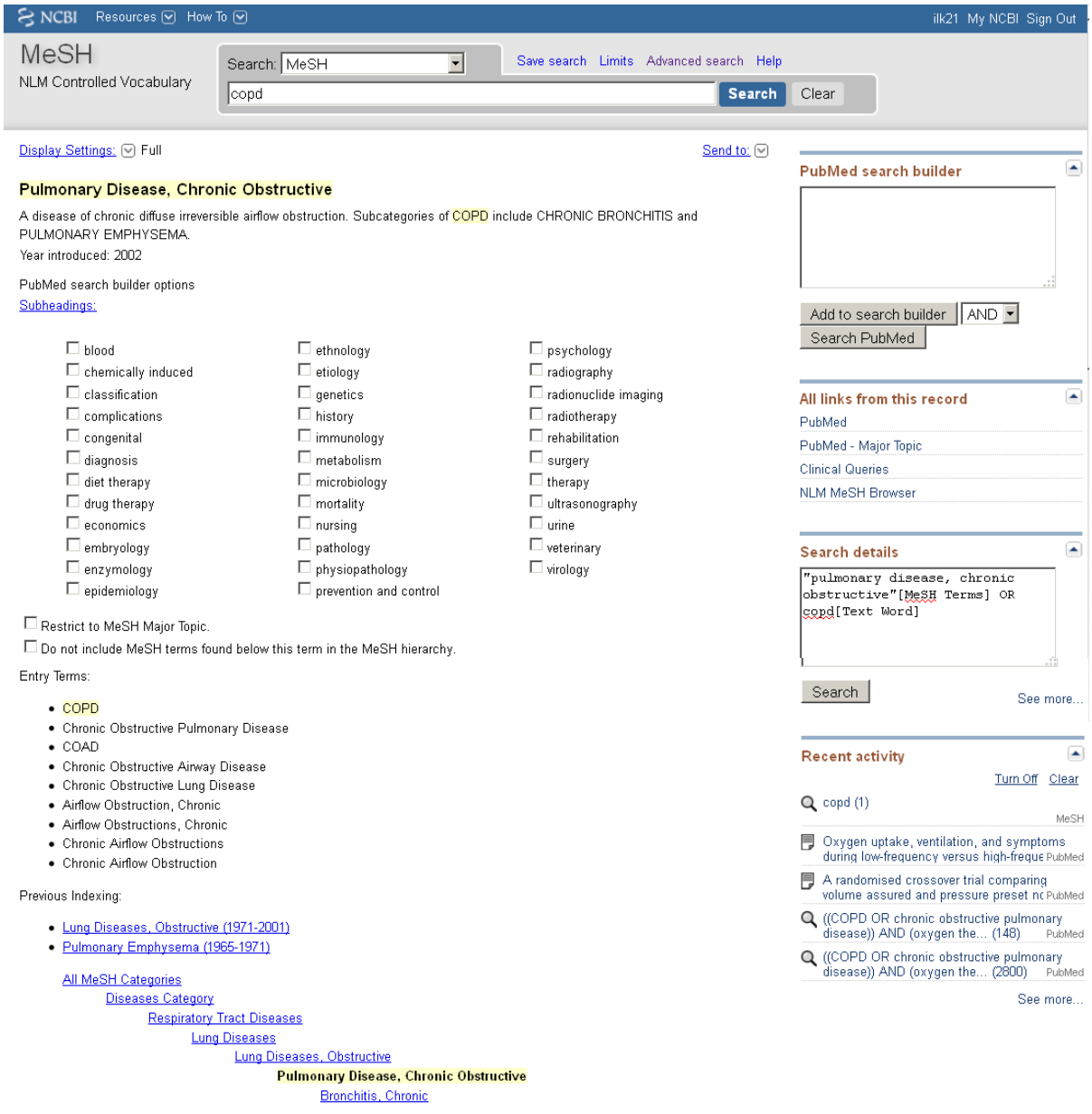




Make sure the search box is clear, then type in:

COPD

Click "Go". PubMed will map your term to a MeSH heading.



Scope Notes

The definition of each MeSH is provided – this is called the scope note. Be aware that definitions and interpretations may vary between Britain and the United States of America.
Make sure you and PubMed are talking the same language!

Subheadings

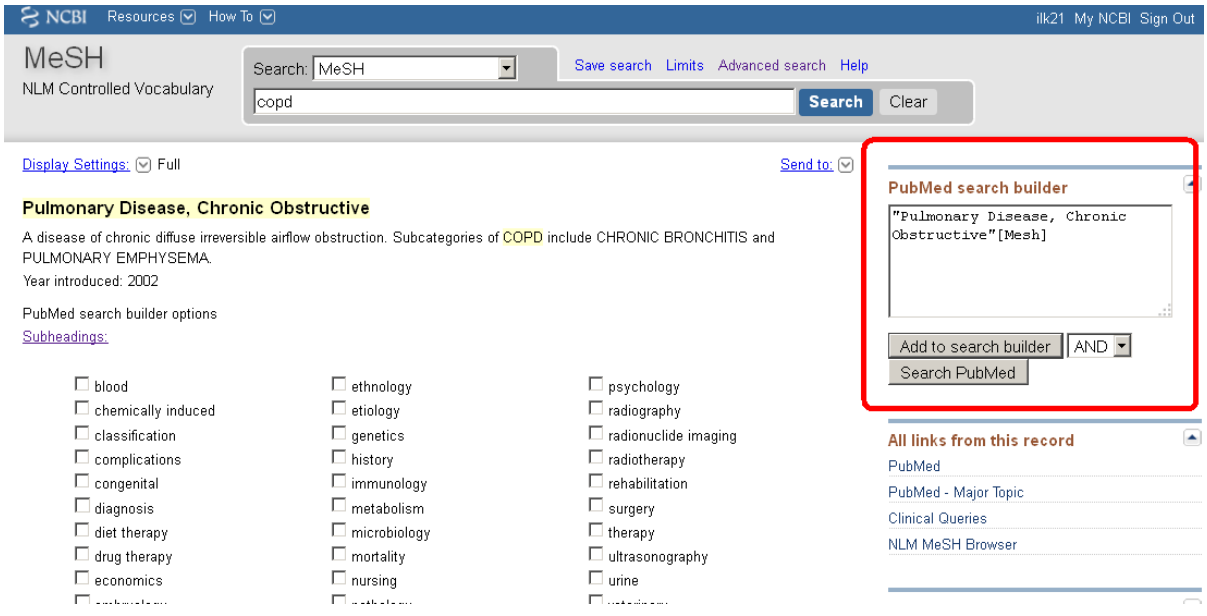
These are qualifying terms which allow you to search on a particular aspect of the Subject Heading you've found. The list of subheadings varies with every Subject Heading, since not all are applicable to all subject headings.

Entry Terms

There are also a selection of synonyms which are used for this subject. The benefit of using MeSH is that you don't have to think of all these synonyms yourself!

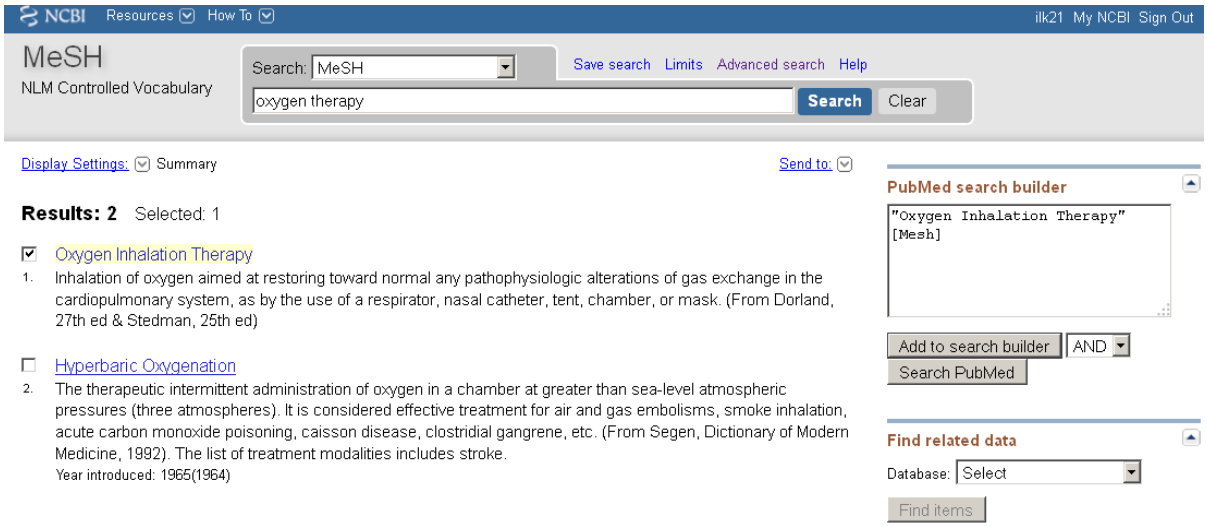
Mark the term (ie tick the box), and click "add to search builder". The default setting for this is to combine using "AND", but you may want to change this to "OR" if you are searching for more than one synonymous subject heading.

Click "Search PubMed" to view the results of your search.



Next, return to the MeSH browser, and search for "Oxygen Therapy" in the same way. You may find it useful to search for Oxygen as a separate MeSH Heading:

Again, make sure you send each term you select to the “Search Box with OR”.



When you have selected all relevant terms, click on “Search PubMed”.

Click the “Advanced Search” tab to combine your searches, using the set numbers, prefixed with # and the Boolean operator AND.

Compare your results. The “free text” search result with limits applied is line #5 in this example (114 results) and the “MeSH” search result with the same limits is in line #10.

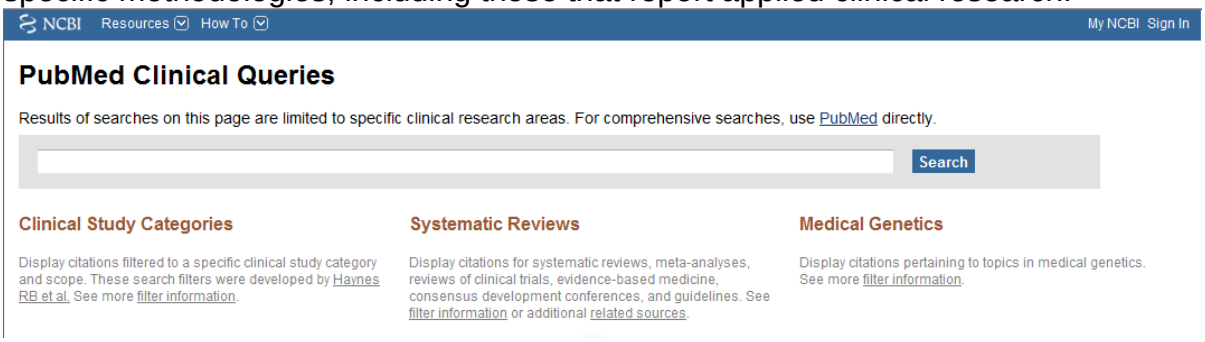
Have you found more, or less? What is missing? What new references have we found? Are the results more focused?

History Clear history

Search	Add to builder	Query	Items found	Time
#12	Add	Search **#10 AND #8** Limits: **Randomized Controlled Trial, English, published in the last 5 years**	29	10:23:16
#11	Add	Search **#10 AND #8**	574	10:23:06
#10	Add	Search **"Oxygen Inhalation Therapy"[Mesh]**	19789	10:22:42
#8	Add	Search **"Pulmonary Disease, Chronic Obstructive"[Mesh]**	17005	10:22:22
#4	Add	Search **#2 AND #1** Limits: **Randomized Controlled Trial, English, published in the last 5 years**	102	10:15:58
#3	Add	Search **#2 AND #1**	2871	10:08:53
#2	Add	Search **oxygen therapy**	69537	09:35:23
#1	Add	Search **copd OR chronic obstructive pulmonary disease**	34450	09:31:03
#0	Add	**pubmed** clipboard	4	10:15:58

- **PubMed Clinical Queries**

The Clinical Study Category is a specialized search method with built-in search filters that limit retrieval to citations to articles reporting research conducted with specific methodologies, including those that report applied clinical research.



To find citations using the Clinical Study Category:

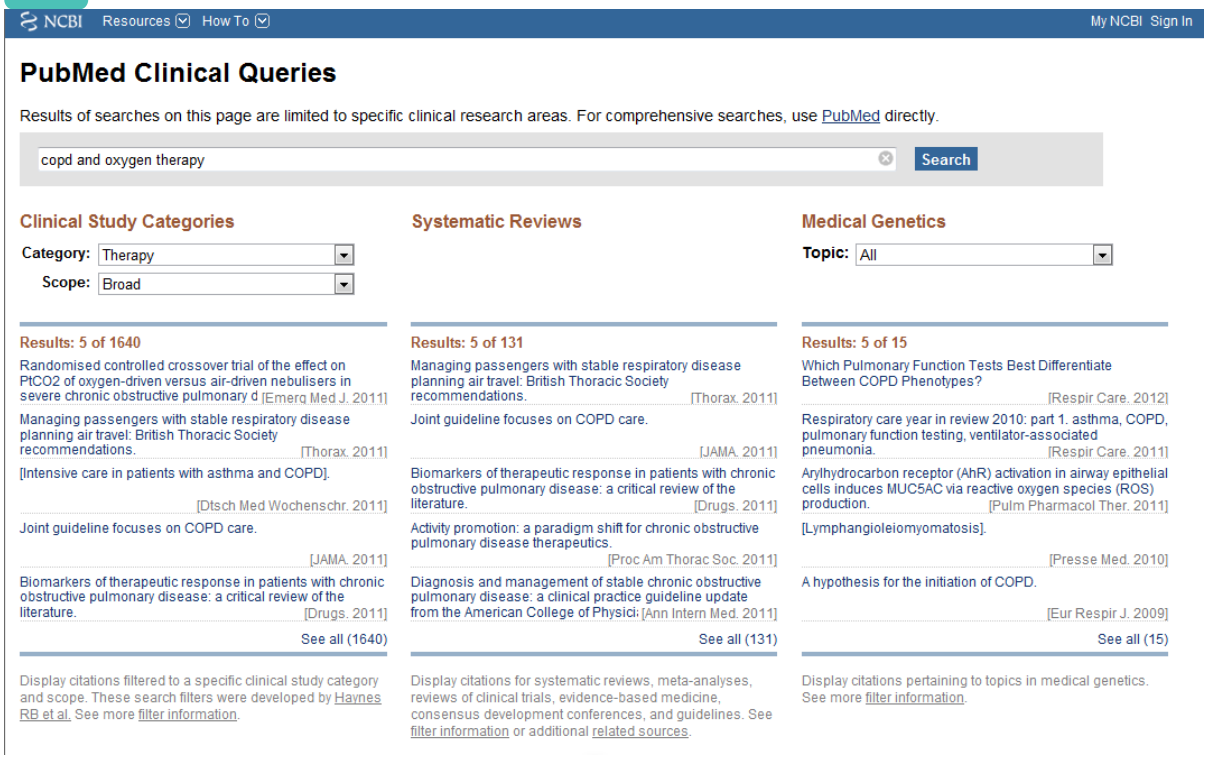
Click the Clinical option from the choices in the Queries box at the bottom of the Advanced Search page

Enter your search term in the search box

Select a Category: therapy, diagnosis, aetiology, or prognosis

Select a Scope: “narrow, specific search or broad, sensitive search

Click Go



Click the “see all” option to view the retrieved articles in more detail.

The Clinical Study Category search filters are based on the work of Haynes RB et al. For example, when you perform a “sensitive” search for “diabetes” with a “therapy” filter, the search that PubMed will perform is:

Diabetes AND ((clinical[Title/Abstract] AND trial[Title/Abstract]) OR clinical trials[MeSH Terms] OR clinical trial[Publication Type] OR random*[Title/Abstract] OR random allocation[MeSH Terms] OR therapeutic use[MeSH Subheading])

- using the Clinical Queries tool simplifies a very complex process, and could save you a great deal of time.

Systematic Reviews uses a customized search strategy which is even more complex: go to http://bit.ly/bkiSHp to see it.

Further Refinements:
The results of these searches can be refined using PubMed’s Limits (e.g., English language).
You may wish to refine the search further by searching for additional terms, and then combining them with the result of your “clinical query”

More Help

For further help or to arrange a training session, please contact:

Isla Kuhn, Veronica Phillips or Eleanor Barker
librarytraining@medschl.cam.ac.uk

Phone: (01223) 336750

Web: http://library.medschl.cam.ac.uk