# A step-by-step guide to searching for literature

## Step 1 Why are you searching?

Be clear about the purpose for which you are searching. If you want a few references to use, then you will be able to use more specific terms and it won't matter if you miss some useful references. However if you want to try and be comprehensive, either because you want to find as much as possible or because you think there won't be a lot of references on your topic, then you will need to use broader terms and fewer concepts. This will likely mean that you will find things that are not relevant but you will reduce the chance of missing important references.

## Step 2 Break down your search question into concepts

Each concept should be an individual idea. So for example, if you were doing a search about whether vitamin C prevents the common cold, these are the concepts that you could identify in your search:

1) Vitamin C
2) Prevention of infection
3) Common cold

You could use one of the tools available to assist in this process. The most well know is PICO – which stands for: Population (or patient), Intervention, Comparison (or control), Outcome. So in the example above, the PICO breakdown would be:

| | |
|---|---|
| Population: | There is no specific population – just people generally |
| Intervention: | Vitamin C |
| Comparison: | There is no specific comparison – just not taking vitamin C |
| Outcome: | Fewer cases of the common cold |

If you were doing a search on whether green tea is more effective than coffee in weight loss in overweight men in the UK, then your PICO breakdown would be:

| | |
|---|---|
| Population: | Overweight men in the UK |
| Intervention: | Green tea |
| Comparison: | Coffee |
| Outcome: | Amount of weight lost |

While PICO is the most well-known tool of this type, it doesn't always fit the search topic. Other such tools are available. For example, if you're looking for qualitative research you could try either SPICE or SPIDER. ECLIPSE is useful for health service management questions. An explanation of these alternatives can be found in appendix 1.

## Step 3 Rank the concepts in order of importance

Once you have identified all of the concepts in your search, it is then helpful to rank them. If you find too few references, this will help you to know which concept you can leave out while still finding relevant results.

In the example above, you might decide that the overweight men don't necessarily have to be UK based if including that part would give you too few results. Alternatively you might consider whether other types of drinks might be relevant.

## Step 4 Think of different terms/spellings for each concept

It also helps if you can think of alternative ways of describing the same concepts. This might be words or terms that have the same or a similar meaning, or it might be a different spelling of the same word. To be more comprehensive in searching, it is essential to include as many alternative terms (synonyms) for each concept as possible.

Examples:
If you are searching for 'Vitamin C', search also for 'Ascorbic acid'.
If you are searching for 'Myocardial infarction', search also for 'heart attack'.
If you are searching for 'children', you might also want to search also for 'young people', 'teenagers', 'neonates', 'child health, 'infants' and 'paediatrics'.
If you are searching for 'paediatrics', search also for 'pediatrics'.

## Step 5 Choose the right resource(s)

Once you have made your search plan, you can then start to search for information on your topic. Different resources will allow you to find different types of information. This guide focuses on searching the main healthcare databases – which mainly provide details of books and journal articles but not the fulltext of them.

We list the most reliable information resources on our website:
www.uhl-library.nhs.uk/resources

**Where to look for other types of information**

| | |
|---|---|
| Guidelines | Local Trust guideline libraries, NICE Evidence, TRIP database |
| Systematic reviews | Cochrane Library, TRIP Database, NICE Healthcare databases |
| Evidence summaries | NICE Evidence, TRIP Database (all NHS staff)<br>UpToDate, DynaMed Plus (UHL only) |

**NICE Healthcare databases (HDAS)**

The NHS healthcare databases are provided by NICE (National Institute for Heath and Care Excellence) to the whole of the NHS. They contain references to literature from all over the world – some of which is not in English. You get access to them via the databases section on our website:
www.uhl-library.nhs.uk/resources

Log in to the databases using your NHS Athens account. (If you do not have an NHS Athens account, you can self-register for one here: www.uhl-library.nhs.uk/athens)

You will see a search box in the middle of the screen and a selection of databases listed underneath it. Do not “Select All” databases because you will do a better search by searching them individually - you’ll never use them all for the same search!

It is important to choose the right database for the search you’re doing. Here is a brief overview:

| | |
|---|---|
| Medline | Covers all aspects of international healthcare. |
| PubMed | The public version of the Medline database. Includes the very latest publications slightly before Medline. |
| EMBASE | Covers all aspects of international healthcare. Particularly strong in medicines information. |
| PsycINFO | Psychology, psychiatry and related fields. |
| CINAHL | Worldwide nursing and allied health. |
| British Nursing Index (BNI) | British nursing, including midwifery & health visiting. |
| AMED | Applied and complementary medicine. |
| HMIC & HBE | Health management and administration. |

## Step 6 Start searching

Here are some of the different search methods and techniques that you can use. For advice or further explanation, just get in touch with one of the library team. We advise to take one concept at a time and put each term on a different search line.

### Basic keyword search

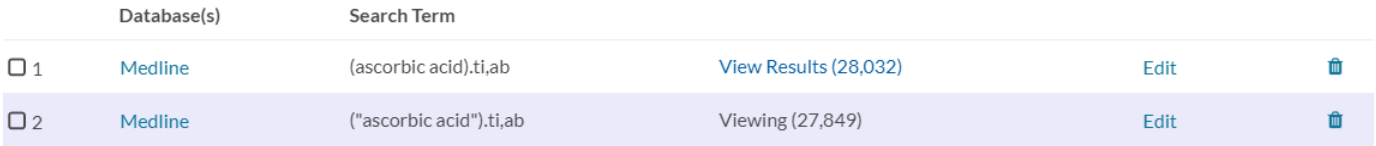
Simply put a word or phrase in the search box and click on ‘search’. This will make the database look for the word(s) in the article records. In the healthcare databases the search will default to searching the title and abstract, which is usually the most appropriate way to search but you can change the fields that are searched.

If you put more than one word in the search box, the database will look for both words, but not necessarily where they are together or in the order you entered them.


In this example, we find that there are 28,032 articles in the Medline database where both the words ‘ascorbic’ and ‘acid’ appear in either the title and/or the abstract, but they are not necessarily together or in that order.

### Phrase keyword searching

If you want to specifically search for a phrase (two or more words together and in the specified order) then you can enter the words within quotation marks “ ” to instruct the database to do this. See line 2 below for an example.




This will find fewer results than basic keyword searching because it is a more specific way of searching. In this example, all of the results in line number 2 will also be in line number 1 as well.

## Truncation keyword searching

Sometimes you want to search for multiple words which start in the same way e.g. gene, genetic, genetics and genetically. Rather than having to search for all of these words individually, you can use the common start of the word and then use the truncation symbol. In the NICE Healthcare Databases, the truncation symbol is an asterisk *

So, for example, searching for: child*
Would find results containing the words: child, children, childhood, childish, childless, childbearing, childlike, childproof, childcare etc.

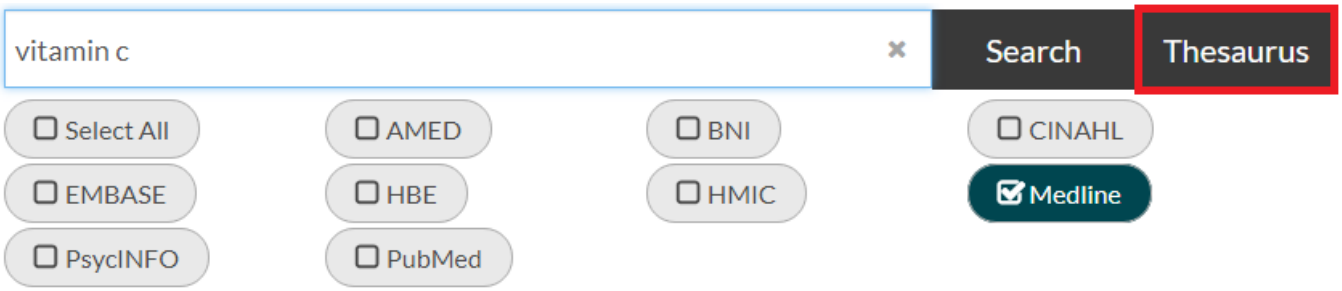
## Subject heading searching

If the concept that you are searching for has a lot of alternative terms or synonyms, it can be difficult to think of all the keywords that should be used. To help with this problem, most databases use an indexing system. This means that if you search using the tags (called subject headings), you can find articles related to those subjects even if the authors use different ways to talk about the same concept.

For example, if you want to search for articles to do with children, there are a large number of words that could describe that concept: young people, adolescents, children, neonates, new-borns, teenagers, child health, paediatrics, paediatrics and so on.

If a database uses the American spelling of paediatrics as its subject heading (tag) for the concept of children, then it will be added to the record of the article. Even if it was written by British authors, set in Britain, published in a British journal and never even mentions the word paediatrics of any spelling, they will still assign the 'pediatrics' subject heading to it.

To search using subject headings, enter a term in the search box and then click on the 'Thesaurus' button.




'Thesaurus' is the name for the list of subject headings that the database uses. This process will ask the database to match your term to one of its tags.

We recommend searching for one concept at a time, and only using one search line for each term.

## Combining search lines

All of the searches that you do are standalone searches. There are no relationships put in between them automatically. You need to decide how they relate to each other.

The relationships are created using the options 'AND' and 'OR'.

| | |
|---|---|
| OR | - Includes one or other of the selected search lines but not all<br>- Used to combine alternative terms or synonyms<br>- Increases the number of results |

| | |
|---|---|
| AND | - Includes all of the selected search lines<br>- Used to combine different concepts together<br>- Reduces the number of results |

**Example search:** Does drinking alcohol cause cancer?

Concept 1: alcohol
alcohol OR alcoholic OR wine OR beer

Concept 2: cancer
cancer OR neoplasms OR “malignant growth” OR tumour

The search would then be completed by putting both concepts together:

alcohol OR alcoholic OR wine OR beer
AND
cancer OR neoplasms OR “malignant growth” OR tumour

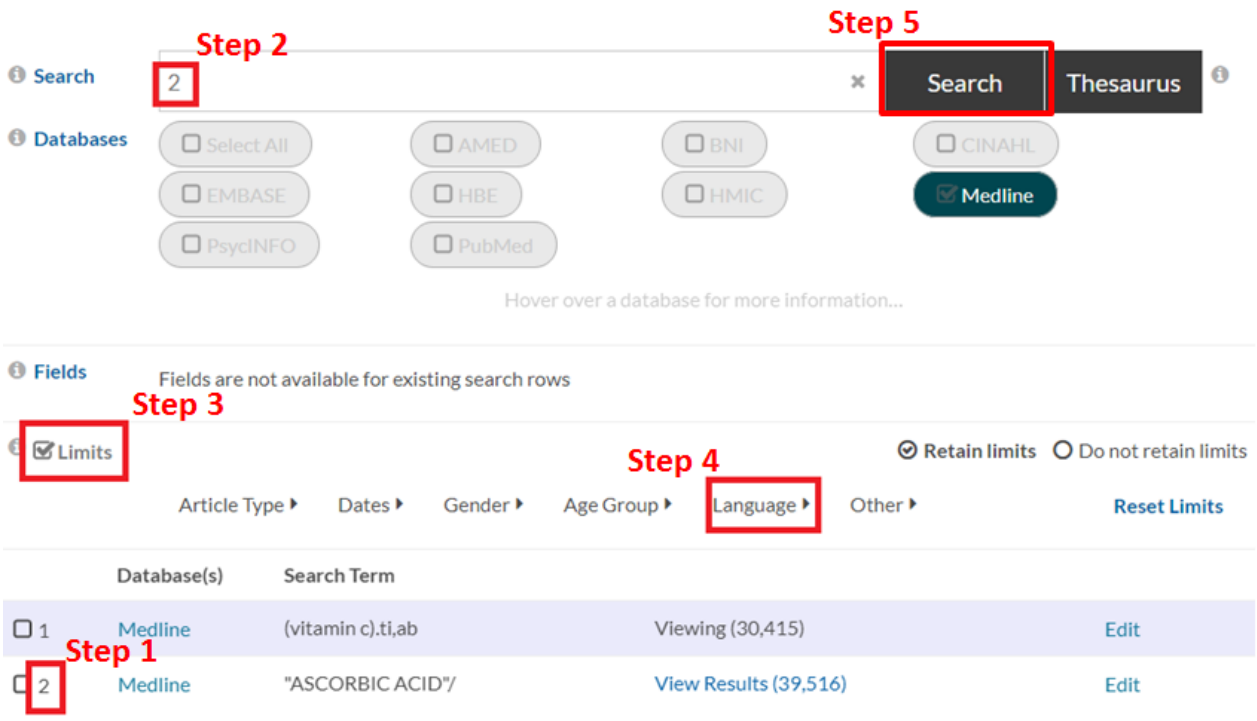
This will only leave the results with any of the words used to describe alcohol as well as any of them used to describe cancer.

## Limits

You can limit your searches in various ways, including language, publication year or article type. Most databases give pre-set options for limiting your search results in such ways.

To apply a limit, simply follow these steps:

1) Check the line number that you want to limit
2) enter the line number into the search box
3) Tick the limits box
4) Click on the type of limit to be applied and then the actual limit that you want
5) Click on the search button




Please note

Once you have applied a limit to a line, you can no longer do anything else with that line e.g. combine it with another line. Therefore it is important that if you use limits, you do that as the very last step of the search – otherwise you will have to go back to the step before to amend your search.

It might be easier in some cases not to limit your search. For example:

- Rather than applying a date limit, you could sort your results by publication date and then just browse through them as far back as you would like to go.
- Rather than limiting to just English language results – consider firstly whether it is appropriate to limit results in this way – but you can also easily see if an article is non-English because the title will be in square brackets [ ].

## Step 7 Evaluate information found

Not everything you read is true. Just because an article may have been peer-reviewed and published, it doesn't make it good quality. A systematic review is high-quality evidence…if it has followed a good methodology and been done carefully.

It is important to evaluate and appraise the information that you find especially if you are going to use it to change your clinical practice.

Here are some things to consider when you evaluate the information that you find.

| | |
|---|---|
| **Currency** | How old is this information?<br>When was it last updated?<br>Do any links work? |
| **Relevance** | Is this what I need?<br>Is it at the right level?<br>Are you happy using this information for your assignment / research / work? |
| **Authority** | Who wrote this?<br>What are their qualifications?<br>Which organisation does it come from? |
| **Accuracy** | Does it give a balanced view?<br>Has it been reviewed by someone else?<br>Are links provided to supporting information? |
| **Purpose** | What is the purpose of the information?<br>Is it designed to sell or promote something, or to educate?<br>Does it appear to be impartial? |

## Fulltext How to get the fulltext of articles found

Resources like Medline, EMBASE, PsycINFO and CINAHL are 'bibliographic databases'. This means that they list the details of a huge number of articles from a large number of journals. Because they have such wide coverage, they cannot provide the fulltext of the articles that they list.

In the NICE healthcare databases, underneath each article you should see details of how to obtain the fulltext. You might see the following:

Links that show the article is available online.
By clicking on the link you should be taken to the website of the fulltext provider. It is important to remember that fulltext access is provided by a range of companies and not all their sites work in the same way. In many cases you will be directed straight to the article that you wanted and you shouldn't need to log in again. In some cases you may need to navigate to the article from the journal home page. On other occasions, you may need to click the OpenAthens or EduservAthens link to gain access.

Links that show the article is available in print at one of our libraries.
If the article is available at one of our libraries, you can either go and find it yourself, or ask us to supply you with a copy of it. We should do this within one working day and at no cost to you.

Links that explain that the article could be available from another library if it is requested through us.
We do not have immediate access to everything and so some articles or books will need to be requested from other libraries. If you would like to get something this way, just ask us. Send us the details and we will do the work. We will let you know if there are any copyright implications arising from your request(s) and explain what you can do to get hold of what you need.

Articles with no links for them at all.
It is highly likely that we can obtain these articles from other sources. Please also request them via one of our libraries.

## Top tips

We recommend the following:

- **Search each database separately**
  You will be able to use subject headings and therefore do a better quality search.

- **Search for each concept separately**
  It is easier to start with your most important concept, searching for all the terms you can for this concept, before moving on to the next concept.

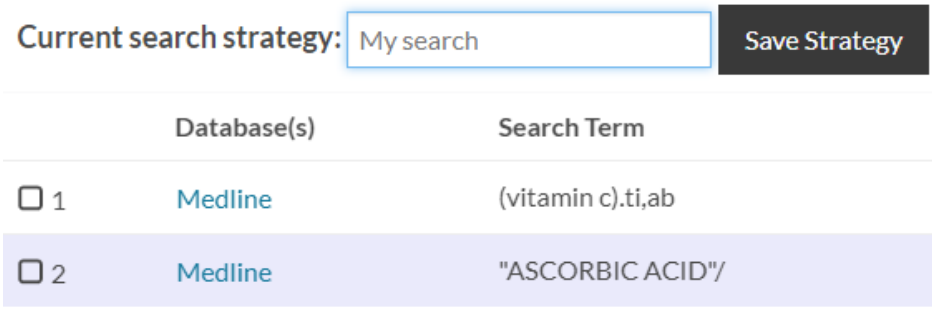
- **Keep each term on a separate line**
  This will allow the most flexibility. If you have another term for the same concept, keep them on separate search lines and combine them together later.

- **Search in an appropriate way for what you want to find**
  If you want your search to be comprehensive, perhaps because you are doing a systematic review and cannot miss anything or because what you're searching for is new or rare, you should use broader terms and fewer concepts. This will reduce the chance of missing references.

- **If you use limits, do them right at the end**
  Once you have limited a line you can no longer use it in a search.
  (See the end of 'Step 6' for more information on this.)

- **You can save results**
  You can select particular articles to add to your saved results list by ticking the box next to any title within your results. Click on the 'Save selected' button at the top or bottom of a page of search results to add them to your list of saved results. You can access your list of saved results at the top of your search strategy. Always add your selected articles to the saved list before navigating to the next page of results.

- **You can save searches**
  If you type a name into the box above your search steps, you will be able to save your search strategy. By doing this, you will be able to log in to these databases, using the same Athens account, anywhere in the world, and find your search under the 'My Search Strategies' menu at the top of the page. You will be able to go back to your search and also find any results that you have saved.




- **You can also 'export' (i.e. save) your results**

  If you want to keep a copy of your results in a separate file, you can 'export' them. Just tick the box next to the row that you want to export and then click on 'Export Options' underneath the search lines. Make sure the number in the 'Records' box is more than the number of results that you wish to export, choose a file type and then choose whether to save (download) your results or to send them attached to an email.

  There are four file types that you can choose from:

| | |
|---|---|
| PDF | Non-editable file which includes a contents page, abstracts and search strategy |
| Word | Editable file which includes a contents page, abstracts and search strategy |
| Excel | Formatted spreadsheet where different pieces of information are separated into different fields. |
| RIS | File which can be used to import your references directly into reference management software e.g. RefWorks, EndNote |

- **Contact the libraries**

If you have any questions on anything contained in this guide, or anything else on searching for information or using our resources, please don't hesitate to get it touch with one of the libraries.

| | |
|---|---|
| **LRI Library** | Odames Library, Level 1, Victoria Building<br>Email: lri.library@uhl-tr.nhs.uk<br>Phone: 0116 258 5558 |
| **Glenfield Library** | Ground floor, Education Centre<br>Email: ggh.library@uhl-tr.nhs.uk<br>Phone: 0116 256 3672 |
| **LGH Library** | First floor, Education Centre<br>Email: leicslib@uhl-tr.nhs.uk<br>Phone: 0116 258 8124 |

**Has this guide been helpful?**
We'd love to hear whether this guide has helped you or how it could be improved.

Has it increased your confidence in searching?
Has it improved your understanding of something?
Have you used it to support your patient care or research?

Please let us know simply by contacting one of the libraries.

**Appendix 1 - Alternative ways to break down a question into concepts.**

| **SPICE** | **For social science or qualitative research questions** | |
|---|---|---|
| Setting: | Where? What context? | e.g. hospital, community, GP surgery |
| Perspective: | Who? | e.g. hospital nurses, physiotherapists, managers |
| Intervention: | What? | e.g. education programme, support group |
| Comparison: | What else? | e.g. same people before intervention, different intervention |
| Evaluation: | Results? How effective? | e.g. change in attitude or understanding |

| **SPIDER** | **For qualitative research questions** | |
|---|---|---|
| Sample: | Who is being looked at? | e.g. young, mothers, Asian people, less able |
| Phenomenon of Interest: | Reasons for behaviour or decisions. | e.g. pregnancy, education, social group |
| Design: | What data collection method(s)? | e.g. questionnaire, survey, focus group |
| Evaluation: | What is the being evaluated? | e.g. views, experience, attitudes, feelings |
| Research type: | What research type is being used? | e.g. Qualitative, quantitative or mixed methods research. |

| **ECLIPSE** | **For health management searches** | |
|---|---|---|
| Expectation: | What do you want the information for? | e.g. better model of care, service improvement |
| Client group: | Who is the service aimed at? | e.g. older people, a particular ethnicity, single men |
| Location: | Where is the service set? | e.g. primary care, whole NHS, social care |
| Impact: | What change in service? What is success? How measured? | e.g. better communication, lower costs, more satisfaction |
| Professionals: | Who is involved? | e.g. doctors, social workers, opticians |
| Service: | What kind of service? | e.g. outpatients, nurse-led clinics, critical care |

You can search the internet for 'PICO alternatives' to find further explanations of these tools or other ones that can be used.