1. WHAT IS MEDLINE?

MEDLINE is one of the key biomedical databases. It is produced by the National Library of Medicine and contains bibliographic records of more than eleven million articles indexed from over 4600 core medical, nursing and dental journals.

This guide explains how to use MEDLINE through Ovid BIOMED. Ovid BIOMED is a web-based service that provides access to a suite of health related bibliographic databases combined with full text electronic versions of selected biomedical, nursing and mental health journals. This service can be accessed anywhere, on or off campus, with an internet connection.

A personal ATHENS username and password is required to gain access to the Ovid BIOMED Service. You can obtain these from the First Floor Reference & Information Point on Blue 1. Alternatively, if you are a member of staff or a remotely based student, you may print off an ATHENS registration form (available on the library’s website at: http://rylibweb.man.ac.uk/data1/ir/athens/athform.html ) and send it to: The ATHENS Co-ordinator, JRULM, Oxford Road, Manchester M13 9PP; your username and password will then be sent to you by e-mail.

2. GETTING STARTED

To access MEDLINE you must first access and login to Ovid BIOMED. To do this:

- From the library’s homepage [ http://rylibweb.man.ac.uk ] select the Electronic Resources option.
- Click on Databases: list and introduction
- Select Medicine from the drop-down subject menu and click on the GO button.
- From the list of medical databases, click on MEDLINE.
- You will now see an information page that gives more details about MEDLINE and the Ovid BIOMED Web Service. Click on the CONNECT TO SERVICE button.

You should then see the following screen:
Type your ATHENS Username and Password into the boxes provided and click on Start Ovid. A menu of all the databases you can search using the Ovid BIOMED service will now be displayed. You will notice that MEDLINE has been split into several sections by date. This is because the database is so large. You can search these sections individually, or you can pick the option to search the whole database from 1966 – to present. Be aware though, this last option increases the amount of time it takes the database to process your instructions and may also return an extremely large number of results when you search. It is good practice therefore to search the most recent sections first and then search back through earlier years if necessary.

Click on the section that contains the years of MEDLINE in which you wish to begin your search. The Main Search screen will now be loaded, as shown below:

Before you actually start to type in search terms however, it is always worth spending a few minutes planning what terms you are going to use and how you are going to go about constructing your search.

3. PLANNING YOUR SEARCH

Planning is an essential part of the search process and will ensure a more efficient and logical search, which retrieves much more relevant records. The key steps in planning a search are as follows:

- It is rare for a search to be about a single topic so the first thing you must do is break your search up into its separate concepts or topics. For example, your query may be “What are the links between diabetes and alcoholism?” In this case the search has two separate concepts: A) diabetes and B) alcoholism.

- Each concept or topic may be expressed by different authors in different ways. The next step is therefore to look at each concept in turn and think of any alternative terms that might be used. This is so you can then search the database thoroughly for each concept and ensure that you do not miss relevant records. Alternative terms within the same concept can be combined together later as a part of the search process in order to bring all the results for the same concept together as one.

- The final step in the search process is to combine the individual concepts together in order to find references which mention all of the concepts relevant to your question.

Using the example of diabetes and alcoholism described above, the following sections of this guide will take you through this process in more detail.

We already know that this search has two main concepts: A) diabetes and B) alcoholism.

Diabetes is a topic with no obvious alternative terms, but alcoholism could be expressed in many different ways.

Let’s take diabetes first.
4. SEARCHING FOR A SINGLE TERM

Think of the keyword that best describes your topic, in this case *diabetes*, and then:

- Type the keyword into the box on the *Main Search* screen and click on **Perform Search**.

As well as the reference, and abstract, all the records in MEDLINE contain special indexing terms called *Medical Subject Headings*, or MeSH terms for short. These MeSH terms summarise the content of the article in a uniform way to help overcome problems of alternative spellings and terminology. Before Ovid BIOMED MEDLINE carries out your search, it will usually suggest a number of MeSH terms it thinks can be applied to your search to make it more efficient. This is known as *mapping*. The mapping process provides a useful check that you have thought of the most appropriate term(s). A *Mapping Display* screen, like the one below, will list the MeSH terms you might wish to use.

![Mapping Display](image)

- Select the MeSH term(s) you think are relevant to your search by clicking in the appropriate box in the Select column, to the left of the screen. A tick appears in the box when selected. Note that you can choose as many or as few of these MeSH terms as you feel are appropriate. In this particular case you are offered only one MeSH term *Diabetes Mellitus*. (If you change your mind about a selection simply click again on the appropriate box and the tick will disappear.)

- In addition to the MeSH term(s) always check the box next to the *(Search as Keyword)* option at the bottom of the list of MeSH terms. This is the keyword you originally typed, in this case *diabetes*. Selecting this option will broaden your search results to include any reference that does not contain the MeSH term(s) you picked but may contain your original search term somewhere else in its record (e.g. in the abstract or article title). Note that if you feel that none of the MeSH terms MEDLINE suggests are suitable, you can ignore them and just use the *(Search as Keyword)* option.

- When you are happy with your selection(s) click on **Continue**. MEDLINE will now carry out your search and return you to the *Main Search* screen to view a summary of your results. The *Search History* column will remind you which terms you asked the database to look for, whilst the *Results* column will show you how many records in the database match these terms.

5. SEARCHING FOR ALTERNATIVE TERMS

Many concepts or topics can be expressed in several different ways and so a search using just one term will not necessarily retrieve all the relevant records from the databases. Its also important to remember that MEDLINE is an American database, so it will mostly use American rather than European terminology.
In the search example “What are the links between diabetes and alcoholism?” you have now completed the search for records referring to diabetes. You can leave that concept to one side for now and move on to searching for records which refer to the concept of alcoholism.

Alcoholism is an example of a concept, which could be referred to in many different ways in different records of the MEDLINE database. Records that contain the terms alcoholism, alcoholic, alcoholics and alcohol abuse might also be useful. To make sure your search returns all the records that are relevant to you, you need to incorporate all of these terms:

- Search for alcoholism as outlined in section 4. Don’t forget to select both the MeSH term for alcoholism and the (Search as Keyword) option.
- Now do separate searches for alcoholic, alcoholism, alcoholics and alcohol abuse. Again don’t forget to select the relevant MeSH terms and the (Search as Keyword) option.
- After you’ve entered and searched on each term you will be returned to the Main Search screen where your Search History will be gradually expanding. It should now look something like this:

![Main Search Screen](image)

6. COMBINING ALTERNATIVE SEARCH TERMS (OR)

You have now built up a series of individual searches on different ways of expressing the same topic of alcoholism. Between them they should cover all the records that deal with alcoholism. However, many of the records each search has returned will be repeated as some records may contain more than one of the alternatives. To make our search efficient, and eliminate these duplicate records we need to combine these terms together into one overall search result for the concept. To do this:

- Click on the Combine Searches icon at the top of the Main Search screen. You will then be taken to a Combine Searches screen like the one shown below.

![Combine Searches Screen](image)
Check the boxes next to each of the alternative search terms you wish to combine together. In this case, all the alcoholism related terms.

Click on the **Combine Selections With** drop down menu and change the setting from **AND** to **OR**. This tells MEDLINE that you want to broaden your search to include all the terms expressing the same concept as one, i.e. bring together all the records that mention either alcoholism, OR alcohol OR alcoholic etc. The function of OR is illustrated by the shading in the diagram below:

![Diagram of alcohol and alcoholism](image)

*alcohol OR alcoholism* will return all the records that mention either of your two search terms but cut out any duplicates.

Now that you have selected **OR**, click on **Combine Searches**.

You will now be taken back to the **Main Search** screen where your new combined search result will be shown in the **Search History**. (Don’t worry if the number of references this gives you doesn’t equal the sum of all the individual searches as this simply means that any duplicates have now been eliminated.)

### 7. COMBINING DIFFERENT CONCEPTS (AND)

Once you have completed separate searches on each of the main concepts in your question, you need to combine the different concepts together to produce a set of results that deals with all of the relevant concepts in each record and eliminate the records which don’t. For example in the search question "What are the links between diabetes and alcoholism?" you have so far produced two separate sets of results; one on diabetes and one on alcoholism. Some of the records in the diabetes results will not refer to alcoholism. Likewise, some of the records in the alcoholism results will not refer to diabetes. You therefore need to combine the two sets of results together to identify the records that mention both diabetes and alcoholism. Because you want to narrow the results down, this time you will need to use **AND** when you combine, as opposed to **OR** which you used previously. To do this:

- Click on the **Combine** icon again.
- Check the box next to the **alcoholism** set you have just produced (using the instructions in section 6) and also the **diabetes** set.
- This time ensure that **AND** is selected in the **Combine Selections With** menu (remember, you are interested in the articles that mention both **alcoholism** AND **diabetes**, not just one OR the other). The function of **AND** is illustrated by the shading in the diagram below:

![Diagram of alcoholism and diabetes](image)

*alcoholism AND diabetes* will return all the records that mention both of your two search terms.

Click on **Combine Searches**. The **Main Search** screen will now show a summary of your final results. You are now ready to view the records your search has identified.
8. DISPLAYING THE RESULTS OF YOUR SEARCH

To display the records your search has returned click on the word **Display**, which is highlighted in blue, in the right hand column of the Search History box. You will then be taken to a **Titles Display** screen where you will see a list of bibliographic references like the one below.

- The records are displayed in sets of ten, which you can view by scrolling down the screen. To see the next set of ten, click on **Next**.
- To view the **Complete Reference**, the **Abstract** or the **Full Text** of record (where applicable), simply click on the relevant phrase highlighted in blue, as shown in the illustration above.
- To return from an individual record to the list of references, click on **Titles Display** (or use the Back button on your web browser).

9. PRINTING / SAVING / EMAILING YOUR RESULTS

Most, but not all, of the records your search retrieves will be useful. To select the records you want to output (i.e. printing, saving or emailing):

- Display your records as described in section 8 above.
- Click in the box to the left of each reference you think is relevant. A tick will appear in the box to indicate the record has been selected for output. (If you make a mistake and select a record that you don’t want, click the box again to remove the tick).
- Now, scroll down to the bottom of the display screen, where you will see a table like the one shown below.
In the **Citations** column, check the **Selected (all pages)** circle to ensure the records you have selected for output will be printed, emailed or saved.

In the **Fields** column, check the relevant circle to indicate how much information you want to include in your output for each record. Most people are happy with **Citation + Abstract**, which gives you all the bibliographical details of an article (i.e. title, authors, journal name, journal volume, dates and page numbers) and a paragraph briefly summarising the content of the article. (If you check **Select Fields** however, you will be able to tailor your output precisely to your needs).

In the **Citation Format** column, check **Include Search History** if you want a reminder of your search history and terms to be included in the output with the records. (This can be extremely useful.) Then:

### 9.1 To Print Records

- Click on [Display]. You should now see your records in the format they will be printed in.
- Click on the “Print” icon on your web browser to print the records. (Alternatively, pull down the File menu on your web browser and select the print option).

### 9.2 To Download Your Records

- Click on [Save]. Select a drive from the ‘Save As’ box to save your records to, (the floppy disc drive is usually a:), and give your file a name (the computer’s default name for any saved records is “cites”, but you may wish to choose something more meaningful. Click on “Save”. Your records should now be downloaded.

### 9.3 To Email Your Records

- Click on [Email]. You will then be taken to an **Email Citations** screen.
- Enter your email address in the “Email Citations To” box and click on [Send Email]. You should receive your citations via email in a matter of minutes.

After completing any of these operations click on [Main Search Page] to return to the **Main Search** screen.

### 10. ADDITIONAL SEARCH TECHNIQUES

Medline offers a number of additional features that you can use to make your search more effective.

#### 10.1 Limiting

MEDLINE allows you to set some basic limits at the beginning of your search, e.g. it allows you to restrict your search to certain types of journal article, or articles in a particular language. They appear on the **Main Search** screen directly beneath the box in which you enter your keywords.
You can set these basic limits before you start your search, by checking the relevant boxes on the Main Search screen (see above). However you would need to remember to reset the limit each time you enter a new keyword.

It is actually much better to wait until you have completed your subject search before applying any limits. This is not only because you can apply the limit(s) to the whole search in one go but you will have a much better idea of which limit(s) are the most appropriate to apply based on the number and type of records you have already retrieved. The method you use to limit after a search also offers you many more limit options. To limit an existing subject search:

1. Click on the **Limit** at the top of the Main Search screen. A Limit a Search screen will be displayed, offering you the full range of limits available.
2. Check the search you wish to limit in the Search History Select column. (If you have just completed your search this will be the last line).
3. Scroll down the page to see the full range of limits you can apply to your search.
4. Select your limits by either checking the relevant boxes or highlighting your preferred option from the drop down menus further down the screen (to select more than one limit from any of these menus hold down the Ctrl key whilst clicking on your choices with the mouse to highlight them).
5. Click on the Limit Search button. You will then be returned to the Main Search screen where a new result will be shown in your Search History. View your records as normal.

Some of the most useful and commonly used limits are:

- **Age Groups** – allows you to choose the age of the patients mentioned in articles. (Very useful for paediatrics questions, for example).
- **Publication Type** – choose what type of article your search retrieves, e.g. review articles, a conference paper, classic article etc.
- **Latest Update** – will limit your search to those articles added to Ovid BIOMED in its last update. This can help you with current awareness.

### 10.2 More about MeSH Headings (Explode and Focus)

As well as their basic use during a standard mapped searching, as described in section 4, MeSH terms can also be used in a more sophisticated manner to help broaden or narrow a search as appropriate. To do this:

1. From the standard Mapping Display for a keyword you have entered, as shown in section 4, click on the MeSH term that interests you. This will take you to a more detailed Tree Display, like the one shown below, which shows the hierarchy of MeSH terms related to your subject.

   ![Tree Display](image)

   - **Check in this column to select a term to use in your search.**
   - **Click here for a term definition.**
   - **Check in this column to choose to explode that search term.**
   - **Check in this column to choose to focus that search term.**
The term you originally selected appears in black whilst related terms are underlined and in blue. The term(s) positioned above and to the left of your term are more general MeSH terms. Those below and to the right are more specific.

- If you are unsure of the meaning of any of the MeSH terms, click on the button to its right to see the MEDLINE definition of the term.

- Use the Back button on your browser to return to the original Mapping Display if none of the terms interest you.

- If one or more of the MeSH terms shown in the tree seem relevant to your search check the appropriate box(es) in the Select column to the left of the terms. (Don’t forget, the original term has been selected by default). You may choose as many or as few of these terms as you wish. Click on a box again to remove any selections you don’t want to include in your search.

- If you check the *Explode* box MEDLINE will automatically include all the narrower more specific MeSH headings associated with the term you have selected. This option will broaden a search.

- If you want a selected term to be the *major* focus of the articles you hope to retrieve rather than just one significant aspect of it, check the *Focus* box to the term’s right. This option will narrow a search down and make it more specific.

### 10.3 Free Text Searching (searching without mapping)

It is possible to ignore the mapping feature and just search MEDLINE for the appearance of a word anywhere in its records, whether they are subject headings or not. This is particularly useful when the mapping facility hasn’t identified any useful MeSH headings relating to your original keyword. Or you may just prefer to carry out a less structured search. To do a non-mapped, free-text search:

- Switch off the mapping facility by unchecking the box marked *Map to Subject Heading* on the Main Search screen.
- Type your keyword into the box provided.
- Click on .
- A summary of the results of your search will be shown in the Search History box on the Main Search screen.
- Repeat as necessary and combine searches as described in section 5 – 6 as necessary

When searching without mapping, it can be frustrating if you have to repeatedly type in what is effectively the same search term to ensure that you don’t miss any references because of variant word endings, plurals, spellings etc. MEDLINE has a number of features which allow you to avoid this and carry out a more streamlined search. (Don’t forget though, you don’t need to worry about this when your are searching for subject headings. MEDLINE’s automatic mapping should solve the problem). These features are described below:

**Unlimited Truncation - $**

Use this at the ends of words to ensure you retrieve all the records containing terms with a common root. For example, if you type *diseas$.tw* your search will return all the records with the words *disease, diseases, diseased* etc. in them, the $ replacing any number of letters in your search term.

Be careful where you truncate your words, though. If you were to search for *rat$.tw* in the hope of returning all the records containing the words *rat and rats* you would also find records containing lots of irrelevant words such as *ration, rationalise, rational* etc. Sometimes you have no choice but to enter the alternatives separately!

**Wildcard - #**

Use this anywhere in a word to represent one character. For example, typing *wom#n.tw* will retrieve all the records containing the words *woman and women*. Remember that the # symbol means that there is a letter
there. Typing disease#.tw will retrieve the records containing the words diseases and diseased, but not the word disease itself.

Optional Wildcard - ?

This can be used to replace one or zero characters in a search. For example, typing an?esthesia.tw will return records containing the words anaesthesia or anesthesia.

10.4 Searching Individual Fields

It is also possible to search for words which appear in specific fields of a record (e.g. author, title, journal title etc.) To do this:

- Click on one of the special icons, or at the top of the Main Search screen.
- Type in the term you wish to look for in that field and click on Perform Search.
- You will then be presented with the results of your search in the usual way.

To search for words in any other fields (e.g. institution):

- Click on at the top of the Main Search screen. You will be taken to the Search Fields / Indexes screen.
- Type the term you wish to search for into the box provided.
- Scroll down the Search Fields / Indexes screen and select the field you wish to search from the list, by checking the box to its left. You can select as many or as few as you wish.
- Click on Perform Search. The results of your search will be summarised in the Search History box on the Main Search screen.

11. CHANGING DATABASES

If, after completing a search, you decide you would like to run it again in another section of MEDLINE, you can do this by using the Change Databases facility.

- From the Main Search screen click on . You will be taken back to the Choose a Database screen where you can select the section of MEDLINE you wish to search next.
- You will be asked if you wish to rerun your search history in the new section. Check the circle next to the word Yes and then click . You will be returned to the Main Search screen where the search will automatically have been carried out in the new section of MEDLINE.

Please note that you can also use this facility to change to another Database provided in the Ovid BIOMED Service. However, it is not recommended that you automatically rerun a MEDLINE search in completely different database (and visa versa) because different databases do not necessarily use the same subject headings. It is much better to start your search from scratch and use the mapping facilities within each new database to help you identify the right terminology for that particular database.

12. SAVING SEARCHES & SETTING UP AUTO-ALERT SERVICES

When you have successfully completed a search you may wish, especially if you are undertaking a lengthy piece of research, to return to it a later date and adapt it or rerun it. To do this you need to save your search. MEDLINE allows you to do this in three ways, each of which has its own particular use:

i) Save as an Auto-Alert Service: this will save your search and then rerun it automatically every time MEDLINE is updated. The results will then be emailed to you at an address that you have specified.
This is particularly useful for people who are researching over a long period of time and want to be kept up to date with developments in their field.

ii) **Save Permanently**: useful when you have completed a core search in a subject that you may want to refine or focus at a later date.

iii) **Save Temporarily (for 24 hours)**: most useful for people who have to stop searching whilst in the middle of a search. They can come back, up to 24 hours later, reload it and carry on where the left off.

All three types of saved search are stored on a remote server, so can be accessed whenever or wherever you use Ovid BIOMED MEDLINE.

**To save your search strategy** in any of the three formats described above:

- Complete your search and return to the Main Search screen
- Click on . A Save Current Search screen will then be displayed.
- Decide whether you want to save your search strategy for 24 hours, permanently, or as an Auto Alert, by checking the relevant box.
- Give your search a name, so that you can identify it later, and add any comments you wish to make in the boxes provided.
- If you are saving your search as an Auto Alert, you must also complete the form as instructed on screen. You will need to type in your email address, indicate which fields you want to be sent to you, and whether you want the original search strategy to be included in the update report. You can even choose what order your records are displayed in when they arrive!
- Click on the button. Your search has now been saved. Click on to return to the Main Search screen.

**To Rerun A Search Strategy** you’ve saved either permanently or for 24 hours:

- Go to the Main Search screen and click on . You will then be taken to a Run a Saved Search screen, where all the searches you have saved will be listed.
- Check the box to the left of the search you wish to use and then click . You will be returned to the Main Search screen where you can view the results of search you have just rerun.
- If you just wish to view your search strategy, check the box to its left and click .
- If you wish to delete a search, check the box to its left and click .

Remember, if you have saved your search as an Auto Alert you do not need to rerun your search. Ovid BIOMED will automatically post a results report to you by e-mail whenever MEDLINE is updated.

### 13. ENDING YOUR SESSION

To end your session:

- Return to the Main Search screen and click on . A message will appear telling you that your session has finished.
- Close down your web browser as normal (click on “File” and then “Exit”)

### 14. GENERAL NOTES

**Database Faults**

Please report any faults when using this database to the Electronic Resources Technical Help Desk tel: 0161 275 7388 or email using the [Help and Comments form](#).
Technical / Networking Help
If you have technical problems accessing this database, contact
1) your Manchester Computing Faculty Support Unit
2) the JRULM’s Electronic Resources Technical Help Desk
   (tel: 0161 275 7388, or e-mail using the Help and Comments form).

Spelling and Terminology Differences
Remember, Medline is an American database, so bear in mind the differences in British and American spelling
and terminology when choosing search terms. Search on both spellings and combine the two with OR, or use
the Wildcard operator to overcome this problem.

Search and Subject Help
For assistance with search strategies, and advice on database content, or other information sources in your
subject area, contact JRULM’s Reference and Information Point, Main Library, Blue 1, tel: 0161 275 3751.
The staff on duty will help you with your enquiry or, if appropriate, refer you to the JRULM’s Health Sciences
Team for more detailed knowledge of your subject area or of particular databases.

Training
Training sessions are organised throughout the year. If you would like further information please contact the
Health Sciences Team.
Regular Drop-in Search Clinics for Health Sciences staff and students are held regularly in the Room G15,
Blue Ground on Wednesday afternoons (2.00 – 4.00 p.m.).

Library Stocks
The library does not stock all the journals referred to by Medline. When you have printed out your list of
references, please consult the JRULM periodicals list or the Library catalogue to see which journals are
available in the library.

Other Libraries You Can Use
Items not held in the JRULM may be kept at other libraries within CALIM (Consortium of Academic
Libraries in Manchester). A CALIM joint periodicals list is available at many Information Points in the
JRULM Main Library, and can also be searched online at http://calim.mcc.ac.uk/. Use the Multiple Catalogue
Searcher to check the catalogues for books. If material is not available in Manchester then it may be requested
via the JRULM’s Document Supply Unit / Inter Library Loans Department in the Main Library, Blue Ground,
tel: (0161 275) 3741- see http://rylibweb.man.ac.uk/guides/dsu.html for further information and current
charges.

Feedback
Please send your comments on this guide to the Health Sciences Team

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