

HOW TO USE PUBMED

MODULE 4.1

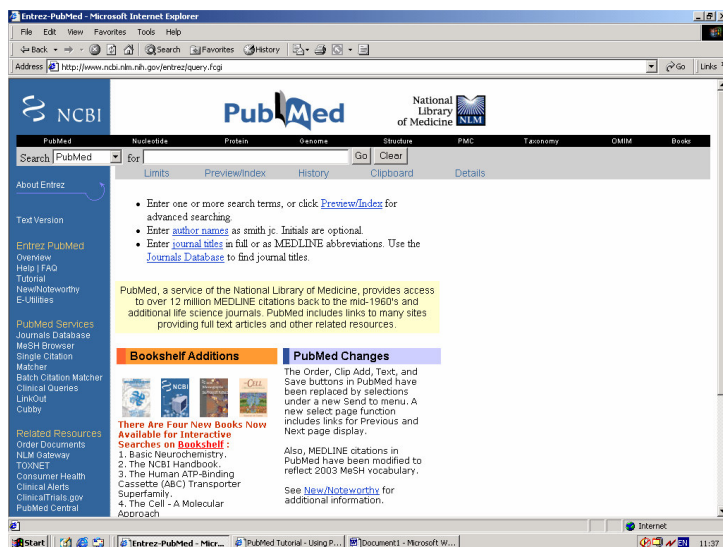
The search interface, display options, downloading and emailing results.

1. Connecting to PubMed

HINARI users can search and access full-text articles directly from the PubMed database. You will need to have your HINARI log in details to do this.

- First go to the HINARI website found at www.who.int/hinari where you can select the **LOGIN** hyperlink which will take you to the HINARI login page.
- When the log in page opens enter your personal HINARI user ID and password into the log in boxes and then select the sign on button to access the HINARI site.
- Go to the **“find articles”** section on the page and select the hyperlink **“search for articles through PubMed (Medline)”**.

The home page for PubMed displays giving you access to PubMed databases.



1.1. PubMed Homepage

The following features can be found on the PubMed home page:

1. The *black bar* which provides access to other Entrez databases.
2. The blue *sidebar* with links to PubMed’s help, other PubMed services and related resources.
3. The *query box* where you enter your search terms.
4. The grey *features bar* with access to additional search features.

2. Navigating through PubMed

The workbook will guide you through the search process and the features available on PubMed. There are exercises incorporated within the workbook to illustrate these features and more exercises to practice at the end.

Tip!

If you use the back button on your browser whilst navigating around PubMed you may find that you need to use the “refresh” feature in order to re-display the webpage.

3. Selecting a database to search on the black database bar



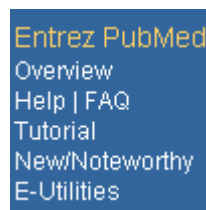
3.1 The black bar contains links to the other NCBI databases. To move between the databases click on the database name.

Exercise 1

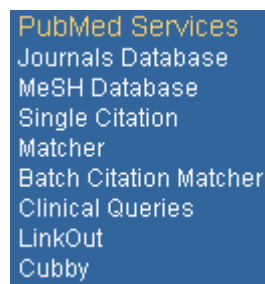
- Select the link for OMIM on the black bar and open up the OMIM database.
- The OMIM home page opens giving you an overview of the database.
- When you are ready return back to PubMed by clicking on the PubMed link on the black bar.

The PubMed home page should now be displayed.

3.2 PubMed resources and services on the left-hand side blue bar



The upper section of the bar on the PubMed home page links to other PubMed resources such as help, frequently asked questions, a tutorial and news items.



The lower half of the bar links to the other PubMed utilities listed below:

- The *Journals Database* allows you to search for journals.
- The *MeSH Database* allows you to browse the MeSH (Medical Subject Heading) Vocabulary.
- The *Single Citation Matcher* helps you find citations.
- *Clinical Queries* has built-in search “filters” designed for clinicians.
- *LinkOut* provides users with links from PubMed and other Entrez databases to web-accessible online resources, including full-text publications.
- *Cubby* allows you to store search strategies and set LinkOut preferences.

Some of these will be explored as you go through the workbooks.

4. Searching PubMed



On the PubMed homepage the active query box is in the grey horizontal bar running across the PubMed page.

To search the PubMed database, you need to ensure that the box adjacent to “**Search**” displays PubMed and that you enter your search terms in the longer search box. When you have entered your search statement click on “**Go**” to run your search.

Exercise 2

- Enter your search terms in the empty query box- type in the following statement: **malaria infections in Africa**.
- Then click on the adjacent “**Go**” button.
The results found should now be displayed.
- Now click on the “**Details**” link below the query box in the grey bar to see how the PubMed software has interpreted your search statements. For further explanation see the notes below on Query translation.
- Go back to your search results (either by clicking on the blue hyperlinked number under results or by using the back button on your browser).

Remember- you may need to “refresh” the page if you use the back button on your browser.

5. Query Translation

PubMed uses automatic term mapping to break down your search statement and you can see how this has been interpreted by using the “**Details**” feature. The translation for the query shows that the search term has been matched to the appropriate MeSH (Medical Subject Heading) term.

You can see that PubMed has searched the database for both the MeSH term and also for the statement as a text word.

Pubmed also searches for the term in the journals and authors table, however if it matches the term in the MeSH headings first it will look no further. e.g. cell will be mapped to a MeSH heading first, therefore PubMed will cease to map it to other indexes. If PubMed cannot match the term in either the MeSH or Journals Tables it will then try the phrase list and author index.

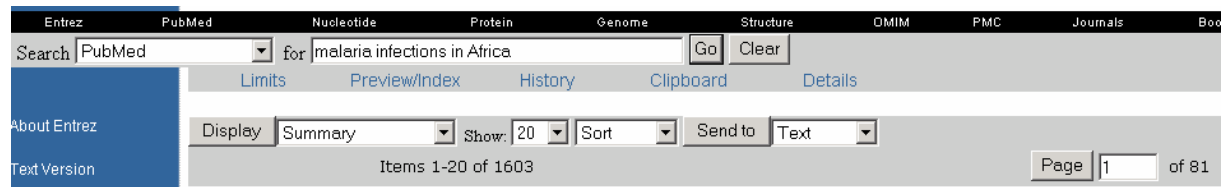
Note: If you enclose your terms in quotes e.g. “malaria infections in Africa” the automatic MeSH mapping feature is turned off.

Also note that PubMed ignores small common stop words when it translates your query.

5. Search Results

First ensure that you have the PubMed results page displayed for your search statement **malaria infections in Africa**.

If you have lost your search repeat steps 1 and 2 in Exercise 2.



If you look at the results screen you can see that the live query box displays the current search.

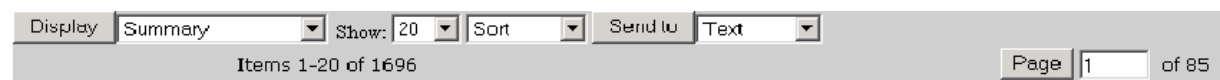
Below this you will see a toolbar for displaying results.

Your results will be displayed in the default format as “Summary” and 20 items per page.

There is also an indication of the number of items retrieved e.g. 1-20 of 1603 and how many results pages there are to look at e.g. page 1 of 81.

5.1. Customizing the display options for search results

In the grey toolbar below the query box there are various options to display the references that you have found.



You can alter the amount of information that is displayed for each record by using the “**Display**” features.

The number of records and how they are displayed and grouped on each page can be changed using the “**Show**” and “**Sort**” options. Exercises 3, 4 and 5 will take you through these.

Finally you can choose the format for the output of your results using the “**Send to**” button. This will be covered later in the workbook in section 7.

5.2. Results display formats

The summary format is the default display for the records of articles found. It will show you:

- **Author name:** All authors from the record are displayed.
- **Title of the article:** Foreign language titles are translated into English and enclosed in square brackets.
- **Source:** This provides the journal title abbreviation, date of publication, volume, issue and pagination. For non-English articles the language will be included. Publication Type will be noted if the article is review or retracted publication. Articles without abstracts will display the notation: “No abstract available”.
- **[Record as supplied by publisher]** or **[MEDLINE record in process]** tags may appear.
- **Identification number:** This provides the PubMed identifier (PMID).
- **Links:** Available links such as Related Articles, Protein, Nucleotide, etc. (Link Out, Books not displayed in the Summary format.)


If you require more information about the record you may want to use some of the features offered from the other display formats such as brief, abstract, citation and MEDLINE.

A full description of the different display formats is given in the Appendix section 1.

5.3. Displaying individual articles

If you click on any of the hyperlinks next to the articles that you have found, you can display the abstract for that particular article.

4: [Wichmann O, Muehlen M, Gruss H, Mockenhaupt FP, Suttorp N, Jelinek T.](#)

 Malarone treatment failure not associated with previously described mutations in the cytochrome b gene. Malar J. 2004 Jun 8 [Epub ahead of print] PMID: 15186499 [PubMed - as supplied by publisher]

Exercise 3

- On your search results page.
- Select the drop down menu next to display by clicking on the arrowhead.
- The menu showing the choice of options will display. You can scroll down the list to see all that are available.
- Select “**Brief**” from the dropdown menu and then click on the “**Display**” button.

Your records should show the first author, part of the article title and the PubMed ID number.

Exercise 4

- Still on your search results page, select the **citation** display.
- Do this by selecting “**Citation**” from the dropdown menu next to “**Display**” and clicking on “**Display**”.
- The full details of the record will be displayed.
- Have a look at the records; note the fields displayed include the first author affiliation and the publication type. Any MeSH terms assigned to the record by the indexers are listed and links to full text articles are also displayed.
- Finally select “**MEDLINE**” from the display menu.

The MEDLINE format shows all the fields in the MEDLINE record along with the field identifiers at the beginning of each line. This format should be used for downloading records into reference management software.

5.4. Number of references per page

There are a number of different options for displaying the number of references per page. These range from 5 to 500 with the default set at 20 per page. It is preferable to show as many references as possible per page, as for large numbers it eliminates the need to scroll through too many pages.

5.5. Sorting records into categories

The default ordering of records is by the PubMed ID number. However you can also sort the records in alphabetical order by author or by journal title. You can also use this feature to list records by publication date.


Exercise 5

- Display your records in **“Summary”** format.
- Using your search results page click on the dropdown menu next to **“Show”** and select the option for 200.
- Then click on **“Display”** note how the number of items now shows 1-200 out of the total number of records found. You will also notice the total number of pages of results to look through has decreased.
- Now go to the **“Sort”** field, click on the dropdown menu next to **“Sort”** and select **“Author”**.
- Click on **“Display”** and note that the records are listed in alphabetical author order.
- Next use **Sort** to select **“Pub Date”** and click on **“Display”**.
- The records are listed by most recent date first.
- Finally select **“Journal”** and click on **“Display”**.
- Note how the records are now listed in alphabetical journal order.

6. Managing your results

6.1. Selecting records

To select records from your list of results you need to tick the check box on the left-hand side near the top of each record.

<input checked="" type="checkbox"/> 2: Bayoh MN, Lindsay SW.	Related Articles, Links
 Temperature-related duration of aquatic stages of the Afrotropical malaria vector mosquito <i>Anopheles gambiae</i> in the laboratory. Med Vet Entomol. 2004 Jun;18(2):174-9. PMID: 15189243 [PubMed - in process]	

After selecting the records of interest you can format the results using the **“Send to”** option on the grey toolbar.

If you click on the arrowhead next to the field a drop down menu appears with choices for text, file, clipboard, e-mail or order.

You can use any display format you prefer such as summary, abstract or MEDLINE for this.

7.2 Printing results

If you wish to **print** results use the **“Send to text”** option as the text format is more printer-friendly and will display citations without the web or HTML components.

To print the results use the print function of your web browser.

Note: If you do not select items and you wish to print your entire search you will need to print the items from each search page, as PubMed only prints the citations from the

displayed page. Remember to use the “**Show**” button to increase the number of references displayed per page.

Exercise 6

- Make sure that you have the results displayed for your search statement **malaria infections in Africa**.
If you have lost your search repeat steps 1 and 2 in Exercise 2.
- Place ticks in the tick boxes next to the first 6 records.
- Display your results as abstracts.
- Then select to display the results in the text format by selecting text and clicking on the “**Send to**” button.
- Print the records by using the print menu in your browser.

Use the back button to get back to your search results. (Note that you may have to “refresh” to see these.)

7.3 Saving results

To download results to a disk drive select “**Send to file**” from the dropdown menu and a dialog box opens enabling you to select a location and name the file. At this stage change the file type from fcgi document to “all files”, name your file and give it a .txt file extension. You can then save your data.

Exercise 7

- Put a floppy disk into the disk drive of your computer. (Alternatively you can use the computer hard drive if you prefer.)
- Make sure that you have the results displayed for your search statement **malaria infections in Africa**.
If you have lost your search repeat steps 1 and 2 in Exercise 2.
- Place ticks in the tick boxes next to the first 6 records.
- For this exercise display your results in the **MEDLINE** format.
- Then select to save the results to disk by selecting file and clicking on the “**Send to**” button.
- A dialog box will open asking what you wish to do with the file. Click on “**Save**”.
- A further dialog box opens allowing you to select the location to save to. Select the drive you are using, rename your file with a .txt file extension e.g. as pubmed.txt and save the file type as “**All files**”.
- Then click on “**Save**”.

7.4 E-Mailing results

Using the “**Send to**” options you can also e-mail your results, in the display format that you have selected, to an address of your choice.

Exercise 8

- To try this exercise you will need an e-mail address.
- Make sure that you have the results displayed for your search statement **malaria infections in Africa**.
If you have lost your search repeat steps 1 and 2 in Exercise 2.
- Place ticks in the tick boxes next to the first 6 records.
- Then select to e-mail the results by selecting the “**e-mail**” option and clicking on the “**Send to**” button.

- The e–mail form opens and you can select the format for the records, choose **abstract** and **text**.
- Type in your chosen e–mail address and then click on the “**Mail**” button.
- You will then be returned to your search page. A message in a pink band should appear, across the top of your results, indicating that your records have been sent from the PubMed server to the address you typed in.

8 Clipboard

Selected results can also be saved in the clipboard area.

The **Clipboard** allows you to save or view selected citations from one search or several searches that you may want to print, save, or order.

The maximum number of items that can be placed in the Clipboard is 500.

8.1 Saving Items to clipboard

To place an item on the Clipboard, click on the box to the left of the citation and then click on the “**Send to**” dropdown menu and select “**Clipboard**”.

Once you have added a citation to the clipboard, the record number will change.

You will know that results have been successfully placed on the clipboard as a message will appear in a pink band across the top of your search results page.

This tells you how many items have been sent to the clipboard, when the time limit expires and how many items are allowed on the clipboard.

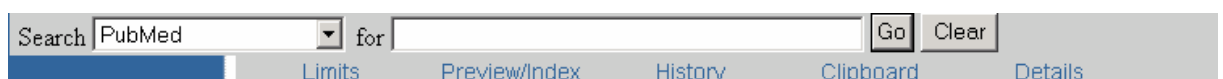
The numbers next to the citations selected for clipboard will change colour from black to green.

Note: The information placed on the clipboard **will be lost after 8 hours of inactivity** on PubMed or any of the other Entrez databases.

Exercise 9

- Make sure that you have the results displayed for your search statement **malaria infections in Africa**.
If you have lost your search repeat steps 1 and 2 in Exercise 2.
- Select 6 of your results by placing a tick in the check box next to them.
- Go to the “**Send to**” dropdown menu and select “**Clipboard**” and then click on “**Send to**”.
- Your items will have been transferred to the clipboard.
- Note that the numbers next to the transferred items have changed to green.

8.1 Retrieving items from clipboard



To retrieve clipboard items click on the “**Clipboard**” link below the search box. The items will be displayed.

The display tool bar can be used to display references in the format you prefer.

If you wish to remove references from clipboard go to the dropdown menu next to the “**Send to**” field and there is an option for “**Clip remove**”.

Select the items to be removed click on "**Send to**".
The pink information bar appears stating how many clips have been removed.

Exercise 10

- Use the results that you sent to clipboard from the previous exercise.
- Click on the **Clipboard** hyperlink below the search box.
- The clipboard screen opens.
- Select 2 items by clicking in the check boxes.
- Then use the "**Clip remove**" option in the "**Send to**" menu.
- Click on "**Send to**" remove the clips.
- You will see a message telling you that your items have been deleted from the clipboard.

At this stage you may wish to obtain your results by printing, e -mailing or saving them to a disk. If so, you will need to follow the steps in the previous section.

9. Practice makes perfect!

You have now covered all the items in this module.

If you wish to practice searching and navigating the various features of PubMed you can try the additional exercises in the Appendix sections 2 and 3.

APPENDIX

Section 1

Display Options for Citations from search results

The **Summary** format consists of the following:

- **Author name:** All authors from the record are displayed.
- **Links:** Available links such as Related Articles, Protein, Nucleotide, etc. (Link Out, Books not displayed in the Summary format.)
- **Title of the article:** Foreign language titles are translated into English and enclosed in square brackets.
- **Source:** This provides the journal title abbreviation, date of publication, volume, issue and pagination. For non-English articles the language will be included. Publication Type will be noted if the article is review or retracted publication. Articles without abstracts will display the notation: "No abstract available".
- **[Record as supplied by publisher] or [MEDLINE record in process]** tags may appear.
- **Identification number:** This provides the PubMed identifier (PMID). This can be used to order documents in Loansome Doc or DOCLINE.

The **Brief** format displays:

- Author name
- First 10 characters of the title
- PubMed Unique Identifier (PMID)

The **Abstract** format displays:

- Journal Source (journal title abbreviation, date of publication, volume, issue and pagination)
- If needed, [Record supplied by publisher] or [MEDLINE record in process] tags
- Title
- On non-English language articles [Article in *language*] tag
- Authors
- Author affiliation (address) of first author at time of publication
- Abstract (if present) from published article
- Publication Types (except for Journal Article Publication Type)
- Erratum strings from Title rubrics
- Comments
- PubMed Unique Identifier

The **Citation** format displays:

- Journal Source
- If Necessary, [Record supplied by publisher] or [MEDLINE record in process] tags
- Title
- On non-English language articles, [Article in *language*] tag
- Authors
- Address or affiliation of first author
- Abstract (if present)
- Publication Types (except for the Journal Article Publication Type)
- Erratum strings from Title rubrics
- Comments

- MeSH Terms
- Personal name as Subject
- Chemical substances (if present)
- Grant numbers (if present)
- PubMed and MEDLINE Unique Identifiers

The **MEDLINE** format displays:

- Two-character tagged field format displaying all fields of the MEDLINE record.
- ***Use this format to download records into bibliographic management software programs. For example: EndNote, Reference Manager, Pro Cite***

- ***NOTE: This is the only format to display the MEDLINE Unique Identifier for the record.***

APPENDIX

Section 2

Additional Exercises

Exercises 11 - 20 covering:

The use of the black databases bar
The blue left hand side PubMed features
Search query box
Details
Displays

Exercise 11

- Open up the “**Protein**” database.
- Take a look at the information on the home page.
- Return back to PubMed.

Exercise 12

- Visit **PMC (PubMed Central)**
- Find out about PMC and the type of information it holds.
- Search for **antimalarials**.
- Note how many articles you found.
- Look at the hyperlinks under the PMC ID number.
- Click on a **[Full Text]** this gives a hyperlinked version of the full article.
- Click on a **[PDF]** this gives a format suitable for printing.
- When you have finished return to PubMed, note how you did this.

Exercise 13

- Type in the search statement **use of bednets in Kenya**.
- Check “**Details**” to see how your statement has been translated.
- Go back to your results.
- Change the display to **abstract**.
- Change the results to **show 50**
- **Display** the results.

Exercise 14

- Start with a clear search box.
- Search for **acta tropica**.
- Check “**Details**” to see how your term has been translated.
- Go back to your results.
- Display your results in **citation** format with **200** citations on a page.

Exercise 15

- Clear the search box
- Now search for **acta tropica AND dengue**
- See how PubMed has translated your search
- Display your results in the **MEDLINE** format

Exercise 16

- Start with a clear search box.
- Search for **perkins AND tuberculosis**.
- Look for the article “New diagnostic tools for Tuberculosis” published in a journal in Dec 2000
- Click on the link to the article to display the abstract

Exercise 17

- Clear the search box and type in **plasmodium falciparum AND resistance**.
- Click on **“Go”**.
- Change the display to **abstract** and to show **500**
- How many articles in the first 200 have HINARI links displayed?

Exercise 18

- Start with a clear search box and type in **elisa AND schistosomiasis**
- Click on **“Go”**.
- Display these in the **brief** format and show **50** per page.
- Sort by **Author** and display the records.

Exercise 19

- Start with a clear search box and type in **malaria AND tuberculosis**.
- Click on **“Go”**.
- Display these in the **citation** format and show **50** per page.
- Sort by **publication date** and display the records.

Exercise 20

- Start with a clear search box and type in **malaria AND blood stage diagnosis**.
- Click on **“Go”**.
- Display these in the **citation** format and show **50** per page.
- Sort by **publication date** and display the records.

APPENDIX

Section 3

Additional Exercises

Exercises 21-30 Covering:

Managing results

Sending to text

Saving results

E-mailing results

Placing results on the clipboard

Removing results from the clipboard

Exercise 21

- Start with a clear search box and type in **malaria AND chloroquine efficacy**.
- Click on **“Go”**.
- From the results mark **5** articles that you wish to select.
- Click on **“Display”**.
- Send to **text**.
- **Print** these.

Exercise 22

- Start with a clear search box and type in **sporozoites AND hepatocytes**.
- Run the search.
- From the results select **6** articles.
- Click on **“Display”** and change the display to **MEDLINE**.
- **Save** the file as a **text** file to the desktop.

Exercise 23

- Start with a clear search box and type in **tuberculosis AND Bangladesh**.
- Run the search.
- Select **7** results.
- **Send** the results to your **e-mail** address

Exercise 24

- Start with a clear search box and type in **schistosomiasis AND Uganda**.
- Run the search.
- Select **8** results
- **Send** the results to the clipboard

Exercise 25

- From exercise 24 using the results on the clipboard.
- Display **abstract** and send to **text**.
- **Print** the results.
- Then go back to PubMed.

Exercise 26

- Start with a clear search box and type in **economic impact of malaria in Africa**.
- Run the search.
- Check the **details**.
- Display **50** per page in the **citation** format.
- Select 2 items from this search and send them to **clipboard**

- **Go to clipboard** and see how many items it now holds.

Exercise 27

- From exercise 26 using the results on the clipboard.
- Select **1** article and **remove** it from clipboard.
- Now **e-mail** the results on clipboard to your e-mail address.

Exercise 28

- Start with a clear search box and type in **schistosomiasis AND Bergquist NR.**
- Run the search.
- Display all the articles in **abstract** format.
- Send to **text**.
- Then **Print** the articles

Exercise 29

- Start with a clear search box and type in **malaria AND vaccine.**
- Run the search.
- Display your results in the **MEDLINE** format.
- Select **5** of the articles from your search results.
- **Save** these articles in **MEDLINE** format as a text file.

Exercise 30

- Start with a clear search box and type in **Anopheles AND vector control.**
- Run the search.
- Check to see how your query has been translated.
- Display your results in the **brief** format to show **500** per page ordered by **author**.

APPENDIX

Section 4

Answer Sheet

Exercise 2. Details

Your query should be translated as follows:

("malaria"[MeSH Terms] OR malaria[Text Word]) AND ("infection"[MeSH Terms] OR infections[Text Word]) AND ("africa"[MeSH Terms] OR Africa[Text Word])

Exercise 3. Display

The default display for PubMed is the **Summary** format

- 1: [Rijken PM, Dekker J, Lankhorst GJ, Dekker E, Bakker K, Dooren J, Rauwerda JA.](#)
Podiatric care for diabetic patients with foot problems: an observational study.
Int J Rehabil Res. 1999 Sep;22(3):181-8.
PMID: 10839671

[Related Articles](#)

Brief format looks like this:

- 1: [Campbell JD et al.](#) The causes of hospital admiss...[PMID: 15233192]
- 2: [Harkness GA.](#) Malaria: a leading cause of d...[PMID: 15187614]
- 3: [Lobovska A et al.](#) [Infectious diseases in 2003]...[PMID: 15134032]

[Related Articles,](#)

[Related Articles,](#)

[Related Articles,](#)

Exercise 4.

- 14: J Clin Invest. 2004 Apr;113(8):1084-92.

[Related Articles,](#)



Antimalarial drug resistance.

White NJ.

Faculty of Tropical Medicine, Mahidol University, Bangkok, Thailand. nickw@tropmedres.ac

Malaria, the most prevalent and most pernicious parasitic disease of humans, is estimated to kill between one and two million people annually, including children, each year. Resistance has emerged to all classes of antimalarial drugs except the artemisinins and is responsible for the recent increase in malaria-related mortality, particularly in Africa. The de novo emergence of resistance can be prevented by the use of antimalarial drug combinations. Artemisinin-derivative combinations are particularly effective, since they act rapidly and are well tolerated and highly effective. Widespread use of these drugs could roll back malaria.

Publication Types:

- Review
- Review, Tutorial

MeSH Terms:

- Antimalarials/pharmacokinetics
- Antimalarials/pharmacology*
- Drug Resistance
- Drug Therapy, Combination
- Female
- HIV Infections/complications
- Human
- Malaria/drug therapy*
- Pregnancy

MEDLINE format

```

1 Rajken PM, et al. Podiatric care for diabetic pa. [PMID:10839671]

UI - 20296481
PMID- 10839671
DA - 20000616
DCOM- 20000616
LR - 20001218
IS - 0342-5282
VI - 22
IP - 3
DF - 1999 Sep
TI - Podiatric care for diabetic patients with foot problems: an observational
study.
PG - 181-8
AB - The aims of this study were to describe podiatric care for diabetic
patients with foot problems and to explore the changes in knowledge,
self-care behaviour and physical functioning after podiatric care. The
treatment characteristics of 26 diabetic patients referred to podiatry
were assessed. Prior to the first podiatric visit (T1) and 20 weeks later
(T2) these patients filled in a structured questionnaire and performed a
six-minute walking test. In half the number of patients preventive goals
were set and strived for by general education about the diabetic foot and
advice on footwear and self-care behaviour. With regard to treatment,
reduction of pain was the most frequently selected goal. To achieve this
reduction, a variety of interventions was applied. After podiatric care,
patients reported having less severe foot pain and some improvements in
functional ability and self-care behaviour were found. This study offers
clues to start controlled clinical trials on the effectiveness of podiatry
for diabetic patients. Trials should not only be directed to (the role of
podiatry in) ulcer healing; it may be even more significant to study its
effectiveness for the purpose of prevention and treatment of early-stage
diabetic foot symptoms.
AD - Netherlands Institute of Primary Health Care NIVEL, Utrecht.
AU - Rajken PM
AU - Dekker J
AU - Lankehorst GJ
AU - Dekker E
AU - Bakker K
AU - Dooren J
AU - Rauwerda JA
  
```

Exercise 5

Records displayed in author order

- 1: [Abba SM](#) Related Articles,
 Problems of child health in West Cameroon.
Practitioner. 1970 Sep;205(227):338-45. No abstract available.
 PMID: 5484912 [PubMed - indexed for MEDLINE]
- 2: [Abdel-Hameed AA, El-Jak IE, Faragalla IA](#) Related Articles,
 Sentinel posts for monitoring therapeutic efficacy of antimalarial drugs against *Plasmodium falciparum* infections in the Sudan.
Afr J Med Med Sci. 2001;30 Suppl1-5.
 PMID: 14513931 [PubMed - indexed for MEDLINE]
- 3: [Abdul-Wahab A, Abdel-Muhsin AM, Ali E, Suleiman S, Ahmed S, Walliker D, Babiker HA](#) Related Articles,
 Dynamics of gametocytes among *Plasmodium falciparum* clones in natural infections in an area of highly seasonal transmission.
J Infect Dis. 2002 Jun 15;185(12):1838-42. Epub 2002 May 31.
 PMID: 12085337 [PubMed - indexed for MEDLINE]
- 4: [Abdool Karim Q, Abdool Karim SS, Singh B, Short R, Ngxongo S](#) Related Articles,
 Seroprevalence of HIV infection in rural South Africa.
AIDS. 1992 Dec;6(12):1535-9.
 PMID: 1492937 [PubMed - indexed for MEDLINE]
- 5: [Abdurrahman ME](#) Related Articles,
 The role of infectious agents in the aetiology and pathogenesis of childhood nephrotic syndrome in Africa.
J Infect. 1984 Mar;8(2):100-9. Review.
 PMID: 6373945 [PubMed - indexed for MEDLINE]

Exercise 8

Text file e mailed

pubmed Search Results - Message (HTML text)

From: Send by Enkes [enkes@indiana.edu]
 To: enkes.web@indiana.edu
 Subject: pubmed Search Results

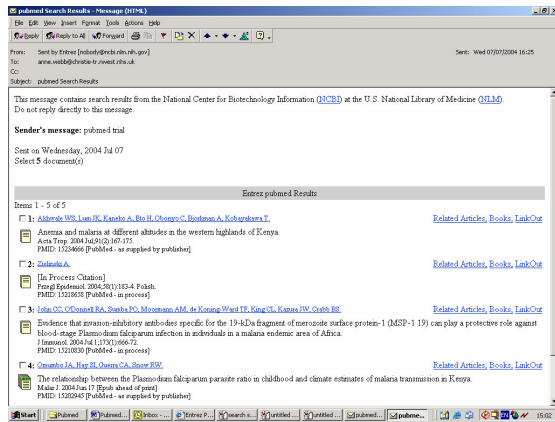
Message 1 - 3 of 3

1: Akhmetzhanov MS, Lum JH, Vokonas A, Kuo H, Ghoshy C, Bjorkman J, Kibengeya T.
 Anemia and malaria at different altitudes in the western highlands of Kenya.
Acta Trop. 2004 Jul;91(3):167-175.
 PMID: 15234666 [PubMed - as supplied by publisher]

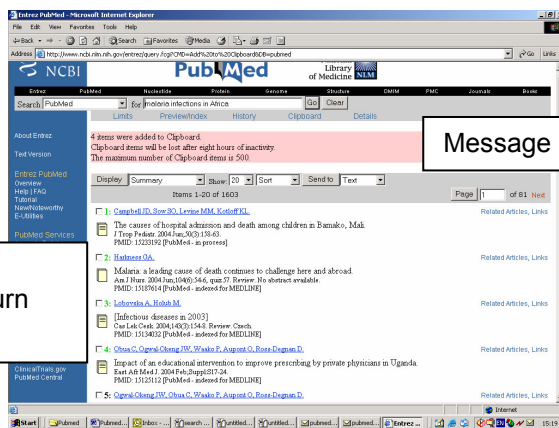
2: Zielinski A.
 [In Process Citation]
Przeglad Epidemiol. 2004;58(1):183-4. Polish.
 PMID: 15218658 [PubMed - in process]

3: John CC, O'Donnell RA, Sumba PO, Roosterman AM, de Koning-Ward TP, King CL,
 Kazura JW, Crabb BS.
 Evidence that invasion-inhibitory antibodies specific for the 19-kDa fragment
 of merozoite surface protein-1 (MSP-1 19) can play a protective role against
 blood-stage *Plasmodium falciparum* infection in individuals in a malaria endemic
 area of Africa.

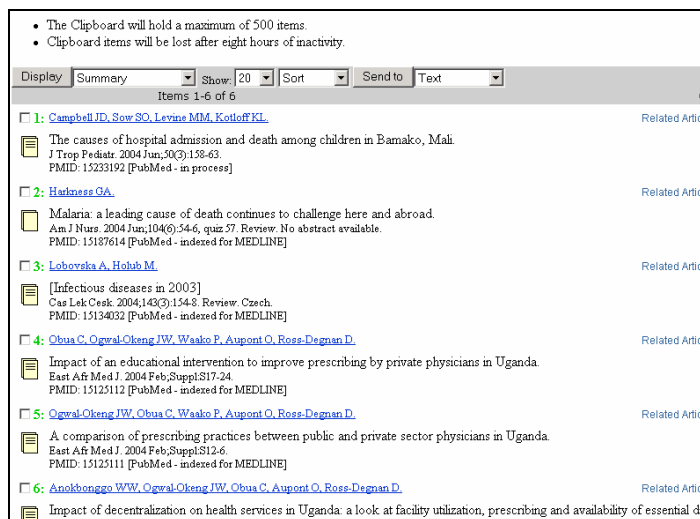
HTML file e- mailed



Exercise 9



Exercise 10



Exercise 12

- To find out more about PMC use the left hand bar and go to **About PMC**
PubMed Central is a digital archive of life sciences journal literature developed by NCBI.
Participation by publishers is voluntary and there is more information in the FAQs section.
- Access the link and articles
- Use the black toolbar to return back to PubMed

Exercise 13

bednets [All Fields] AND ("kenya"[MeSH Terms] OR kenya [Text Word])

Exercise 14

Display shows that the term has been searched as follows:
"Acta Trop"[Journal]

Exercise 15




PubMed has matched your first term to the journals database.
Your search is translated as "Acta Trop"[Journal] AND ("dengue"[MeSH Terms] OR dengue[Text Word])

Exercise 16

You find all the articles with Perkins MD in the author field. You can see this if you display the query using **"Details"**.
Selecting the hyperlink on the result of interest opens the abstract display.

Exercise 17

1: Mol Immunol. 2004 Jul;41(8):775-84. Related Articles.

Characterization of a reduced peptide bond analogue of a promiscuous CD4 T cell epitope derived from the Plasmodium falciparum malaria vaccine candidate merozoite surface protein 1.

Bastian M, Lozano JM, Patarroyo ME, Pluschke G, Daubenberger CA.

Swiss Tropical Institute, Molecular Immunology, Socinstrasse 57, CH 4002 Basel, Switzerland.

Use of synthetic peptides as vaccine components is hampered by their susceptibility to enzymatic degradation and rapid clearanc

Exercise 20

"Details" displays:
("malaria"[MeSH Terms] OR malaria[Text Word]) AND ("blood"[Subheading] OR "blood"[MeSH Terms] OR blood[Text Word]) AND ("neoplasm staging"[MeSH Terms] OR stage[Text Word]) AND ("diagnosis"[Subheading] OR "diagnosis"[MeSH Terms] OR diagnosis[Text Word])

Exercise 24

Once you have selected the records, use **"Send to clipboard"**, there should be a message informing you how many items have been placed on the clipboard.

Exercise 26

Your query is translated as follows: ("economics"[MeSH Terms] OR economic[Text Word]) AND impact[All Fields] AND ("malaria"[MeSH Terms] OR malaria[Text Word]) AND ("africa"[MeSH Terms] OR Africa[Text Word]).

Also note how stop words such as **of** and **in** are ignored.
When you send more items to clipboard they are added to those already on the clipboard from previous searches.

Exercise 27

Notice when you select to e-mail your results from clipboard, the e mail form opens and shows you that you are mailing from the clipboard by displaying "**PubMed clipboard**" in green writing.