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How to perform a literature search

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MAKING EVERY MOMENT COUNT

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Learning objectives

At the end of the session participants will be able to:
• Understand the literature search cycle.

• Access appropriate databases.

• Identify appropriate search terms for their topic or research question.

• Develop effective strategies using standard search techniques and database refine options.

Meaning of the literature search

- Ability to collect essential data for research work
- Identification of quality medical information for obtaining answers to medical questions.

in order to

- Update current practices to new medical opinions / according to evidence based medicine.

Steps of the search

1. Formulating the question concerning the topic of interest
2. Identifying key search terms
3. Using of the proper database according to the topic of interest
4. Doing the search
5. Filter the type of information required

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1. Formulating the question...

• 2 modalities:

A. Refine the question based on personal criteria

It must contain as many elements specific to the topic of interest as possible.

If the question field is broad, the search results will contain too much information, making the search process difficult and the question too general.

Example: Suppose you are interested in finding out the effectiveness of painkillers in cancer pain ....

Question: What is the effectiveness of painkillers in cancer pain? Large

What is the effectiveness of opioids in cancer pain? Narrow

What is the effectiveness of strong opioids in cancer pain? Targeted

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1. ...Formulating the question...

• B. Refine the question based on the PICO concept

P Patient, population or problem (characteristics of the participants, disease of interest)

I Intervention or exposure (Treat, diagnose, observe?)

C Comparison (What is the alternative? Placebo, different medication, surgery)

O Outcome (Morbidity, mortality, complications)

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1. …Formulating the question…

• B. Refine the question based on the PICO concept

PICO concept can help you create a targeted question based on 4 characteristics

Example. How effective is the use of strong opioids compared to placebo in patients with cancer pain?

	Included	Excluded
Patients	Cancer patients with severe pain	Non cancer patients
Intervention	Methadone	weak opioids, coanalgesics, NSAIDs, antispasmodics
Comparator	Placebo/Morphine	
Outcome	Effectiveness	Side effects, barriers, fears

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1. …Formulating the question

• The final question based on the PICO concept

Is Methadone More Effective Than Morphine In Patients With Severe Cancer Pain?

2. Identify key terms

2.1 Break down the question into key topic areas

identify keywords, phrases, synonyms and alternative spellings using Google (.gov, .edu, .org), Wikipedia, Google scholar, www.thesaurus.com

2. Identify key terms

Question. What is the effectiveness of strong opioids in cancer pain?

• Keywords: strong opioids, cancer pain

• Alternative terms or synonyms: analgesics, oncology pain

• Related terms: narcotics, cancer related pain, neoplasm-related pain

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2. Identify key terms

2.2 Chose the keywords from your question and search with pre-defined vocabulary

Pre-defind vocabulary:
- a pre-defined set of term used by a database to describe a particular term.
- It can be called: Subjects, Subject Headings, Subject Terms, Descriptors, Thesaurus, or Index terms.
- In Pubmed it is called MeSH.

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3. Use of the database

- **Datebase** – online collections of information in the form of articles, dissertations, conference communications, working group communications, books

Database	Website
MEDLINE	ncbi.nlm.nih.gov/pubmed/
Clinical key	clinicalkey.com/
Clinical trials	clinicaltrials.gov/
Cochrane Reviews	cochrane.org/reviews/
Directory of open access journals	doaj.org
EMBASE	elsevier.com/
Google scholar	scholar.google.com/
Science direct	
Research gate	
Medscape	

4. Searching in Pubmed

4.1 Use MeSH terms - "automatic term mapping"

MeSH terms are organized in" a tree" with more specific (narrower) terms arranged beneath broader terms.

Helps you to refine your search, to be more specific

PubMed will retrieve each article that contains any of the terms located below the key term in the hierarchy
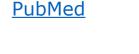
PubMed (nih.gov)

PubMed

4. Searching in Pubmed

4.2 Use of Boolean Operator (AND, OR, NOT)

OR - all articles with search terms separately and all articles in which the topics overlap, results become very broad.
    - is used between similar / synonymous terms to broaden the search.

AND - combines the terms - articles that include both terms, the results become narrower.

NOT - removes the term / topic from articles.
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4. Searching in Pubme d

4.3 Nesting- use parenthesis around OR terms to narrow the search

Example.

cancer pain AND analgesics AND side effect OR complications OR reaction - 5,281,751 results

cancer pain AND analgesics AND (side effect OR complications OR reaction) - 6,513 results

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4. Searching in Pubmed

4.4 Use of truncations

- last few letters of a word are replaced with a symbol.
- results include any ending of that root of the word the search beeing improved.

Used truncation symbol in Pubmed is the asterisk (*).

Example. child* = children, childhood

cancer pain AND analgesics AND child* - 4,613 results

cancer pain AND analgesics AND child   - 4,445 results

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4. Searching in Pubmed

4.5 Quick search

Introduce the article name/ the authors / the journal	Select	Abstact and related articles	Links to full text
PubMed	**Search**	**Main page**	**Right corner**

A Comparative Efficacy of Amitriptyline, Gabapentin, and Pregabalin in Neuropathic Cancer Pain

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5. Filter the type of information required

- decide the type of information is needed (clinical trials, randomized clinical trials, meta-analysis, literature reviews, case series) according to your search question
- year of publication
- content available (full text content)
- filter the results to narrow down the search.

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Summary

Search steps:

1. Formulating the question concerning the topic of interest
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PICO search question

Is **Methadone** More **Effective** Than **Morphine** In Patients With **Severe Cancer Pain**?

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Group work 25-30 minutes

- Think about a medical problem you had and try to find relevant literature.
- Define the broad search question and the PICO question/narrow question
- Identify the key search terms
- Make a database search in Pubmed using specific tools (MeSH terms, Boolean operators, nesting, truncation).
- Filter the result to retrieve full text articles published in the last 5 years
- How many articles did you find?
- Are they relevant?

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Message to take home....

- Literature search helps the clinicians to improve their knowledge and can be the bridge to the research side in professional development.

- Knowing how to search in a database helps you retrieve quickly the best information.

Referinces

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