NOVA MEDICAL SCHOOL

Steps

1 **Understand what information you need**
- Clarify your research question and identify what evidence is required
  (definition, theory, stats, reports, case studies, ...)

2 **Plan where to search**
- <u>Online library catalogue</u>
- Databases
- Other sources

PubMed · Scopus · Clarivate Web of Science™ · Cochrane Library

Clinical Trial Registries ISRCTN, EU Clinical Register, CTIS, OSF, ...

Preprints platforms PrePrints.org, EuropePMC, MedRxiv, ...
Grey literature research reports, theses, conference proceedings, white papers, ...

3 **Build a good search strategy**

3.1. Understand the topic
- Structure the study topic.
- Break broad questions into key concepts.
For example: use the **PICO framework**:

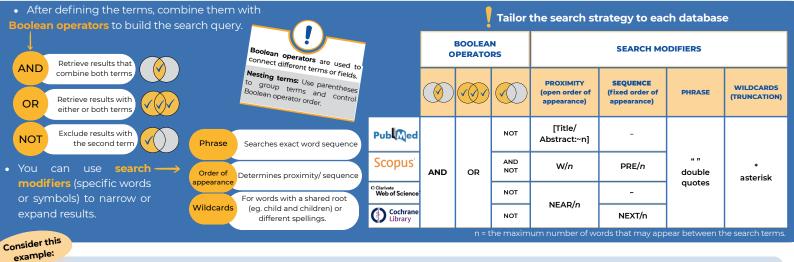| P	I	C	O
Patient Population Problem	Intervention Prognostic factor Exposure	Comparison	Outcome

3.2. Identify keywords
- Choose the **search terms** that best represent each aspect of the PICO framework.
- Check the corresponding **MeSH terms** (only for Pubmed and Cochrane search).
- Search for **synonyms** or **related terms** for each concept to increase coverage.

MeSH Terms · MeSH on Demand

Medical Subject Headings is the National Library of Medicine (NLM) controlled vocabulary thesaurus used for indexing articles for PubMed and Cochrane.
E.g.: **cancer** (natural language) > **neoplasms** (MeSH term)

3.3. Combine keywords & build the search string
- After defining the terms, combine them with **Boolean operators** to build the search query.

AND	Retrieve results that combine both terms
OR	Retrieve results with either or both terms
NOT	Exclude results with the second term

Boolean operators are used to connect different terms or fields.
Nesting terms: Use parentheses to group terms and control Boolean operator order.

- You can use **search modifiers** (specific words or symbols) to narrow or expand results.

Phrase	Searches exact word sequence
Order of appearance	Determines proximity/ sequence
Wildcards	For words with a shared root (eg. child and children) or different spellings.

Tailor the search strategy to each database

	BOOLEAN OPERATORS			SEARCH MODIFIERS			
				PROXIMITY (open order of appearance)	**SEQUENCE (fixed order of appearance)**	**PHRASE**	**WILDCARDS (TRUNCATION)**
PubMed	AND	OR		NOT	[Title/Abstract:~n]	–	" " double quotes	* asterisk
Scopus				AND NOT	W/n	PRE/n		
Clarivate Web of Science				NOT	NEAR/n	–		
Cochrane Library				NOT		NEXT/n		

n = the maximum number of words that may appear between the search terms.

Consider this example:

	Term		MeSH Term		Synomym	
P	cancer	OR	neoplams	OR	malignancy	→ (**cancer*** OR **neoplasm[MeSH Terms]** OR **malignanc***)
			AND			
I	music therapy	OR	music	OR	audio therapy	→ **AND** (**"music therap*"** OR **music[MeSH Terms]** OR **"audio therap*"**)
			AND			
C	meditation	OR	mindfulness	OR	relaxation technique	→ **AND** (**"meditation"** OR **mindfulness[MeSH Terms]** OR **"relaxation technique*"**)
			AND			
O	pain reduction	OR	analgesia	OR	pain relief	→ **AND** (**"pain reduction*"** OR **analgesia[MeSH Terms]** OR **"pain relief"[Title/abstract:~3]**)

3.4. Use the database filters to refine results
- Search in **specific fields** (title, abstract, keywords, full-text...) allows retrieval of more precise results.
- Apply **filters** according to the scope of the investigation to retrieve more relevant results.

Population age · Sex/ gender · Species (Human, animal) · Language · Publication type · Publication date

Modify the search strategy as needed:
- **Few results?** → broaden terms, try synonyms, new databases, change the search field,...
- **Many irrelevant results?** → narrow terms, add limits, add more terms...

Library Training available

4 **Run the search, save it & export results to a citation/ reference manager**

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