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Searching the Literature



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Activity

Think about your previous experience of searching for information and/or evidence. What sources have you used in the past?

Learning Objectives:

Develop knowledge & understanding of how to:

- Use tools to clearly define your selected information topic, and identify and frame problems or research questions.
- Identify appropriate online sources to search for your topic.
- Use online sources to locate information by keywords, Boolean operators, truncation, phrase searching, and special punctuation where appropriate.

Session Outline

1. Different kinds of evidence and where we might look
2. How to structure a question
3. How to build a search strategy
4. Applying a search to a database

Session Outline

1. Different kinds of evidence and where we might look

Hierarchy of Evidence



[Exploring Evidence Video:
Levels of Evidence](#)

General vs Focussed Question

A general or “**Background**” question is one that asks for general knowledge about a particular clinical problem.

[NHS Wales Libraries
Catalogue](#)

A focussed or “**Foreground**” question asks about the specific management of patient(s)/population with a clinical problem.

Resources for Medical literature

Cochrane Library

EMBase

MEDLINE

PsycInfo

Scopus

NHS Wales e-Library for Health

Resources for Nursing & Midwifery literature

British Nursing Database

**Cumulative Index of Nursing and Allied Health
Literature (CINAHL)**

Maternity & Infant Care Database (MIDIRS)

[NHS Wales e-Library for Health](#)

Resources for Allied Health literature

Allied & Complementary Medicine (AMED)

Cumulative Index of Nursing and Allied Health Literature (CINAHL)

Physiotherapy Evidence Database (PEDro)

[NHS Wales e-Library for Health](#)

Resources for Management literature

Health Administration Database

Health Management Information Consortium (HMIC)

[NHS Wales e-Library for Health](#)

Medline Vs Embase

MEDLINE	EMBASE
Focus = Biomedicine & health	Focus = Broad biomedical scope with in-depth coverage of drugs and pharmacology
More than 5600 journals	More than 8500 indexed peer-reviewed journals
1946 to present with some older material	From 1947 to present
Indexed with NLM Medical Subject Headings (MeSH)	Emtree Thesaurus
MeSH is updated once a year	Emtree is updated every three months
Over 23 million references to journal articles	Over 31 million indexed records

Session Outline

2. How to structure a question



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Structuring your search question

- To enable your question to be as specific as possible you can use a framework that will help you identify the elements of your question into a structured question

The PICO framework

P = Patient / Problem / Population (who / what?)

I = Intervention (what do you want to do?)

C = Comparison (are there alternatives?)

O = Outcome (what is the effect of the intervention?)



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Structuring your search question

- The PICO framework is particularly suited to clinical questions. For questions that search for meaning, for example why people act in a certain way, questions around patient experience and satisfaction, the SPICE framework might be more appropriate.

The SPICE framework

S = Setting (where? hospital/community?)

P = Perspective / Point of view (for whom?)

I = Intervention / Interest (what do you want to do?)

C = Comparison (are there alternatives?)

E = Evaluation (how is the intervention measured?)

Example - How to break your question down into your framework

Question / Query	<i>In 'children' with 'sickle cell disease' is the long term use of 'prophylactic' 'penicillin' absolutely necessary to 'prevent infections'?</i>
P	Children, child, infant, paediatrics Sickle cell disease, sickle cell anaemia, sickle cell anemia
I	Penicillin
C	No treatment
O	Preventing infections, prophylactic

Activity 2

Does listening to music preoperatively reduce anxiety?

Put this question into a PICO framework

Activity 2- PICO Framework

Does listening to music preoperatively reduce anxiety? Put this question into a PICO framework

1. Who would be considered to be the population

☐ Preoperative patient

☐ Music

2. What would be the intervention

☐ Listening to music

☐ reduction in anxiety

3. What would be the comparison?

☐ No comparison

☐ Music

4. What would be the outcome?

☐ Preoperative patient

☐ Reduction in anxiety

Activity 2- Question

Activity 2

Does listening to music preoperatively reduce anxiety?

P- Preoperative patient

I- Listening to music

C- Not applicable

O- Reduction in anxiety

Session Outline

3. How to build a search strategy

Identifying search terms and key word searching

- Fast method of searching that we are familiar with
- Free text looks for the occurrence of a word/phrase usually within the ***title*** or ***abstract*** of an article.
- Does not allow for spelling mistakes
- Need to think of as many different ways to express the concepts that make up your question

Identifying search terms and key word searching

Many Words for the Same Concept...

Brain Cancer

Brain Tumor

Brain Tumour

Brain Neoplasm

Intracranial Neoplasm

Malignant Brain Tumor

Benign Brain Tumor

Primary Brain Tumor

Brain Cancers

Brain Tumors

Brain Tumours

Brain Neoplasms

Intracranial Neoplasms

Malignant Brain Tumors

Benign Brain Tumors

Primary Brain Tumors



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Identifying search terms with a controlled vocabulary

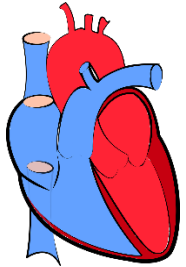
- Index headings (also known as subject headings) are a *controlled vocabulary* of words that are assigned to articles by databases to enable the identification of articles on a particular topic, regardless of the terminology used by the authors.
- Provides a precise results with articles on the subject chosen.
- The results are not dependent on author's usage.
- The subject headings may not match the concept that you are trying to search



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Finding the correct terminology - examples

In Subject Headings in Medline
(MeSH), the term used for
heart attack is **Myocardial
Infarction**.



Your term mapped to the following Subject Headings:

Click on a subject heading to view more general and more specific terms within the tree.
See term mapped to thesaurus term

☐ Include All Subheadings

Combine with: OR ▼

Continue

Select	Subject Heading
☒	Myocardial Infarction
☐	heart attack.mp. <i>search as Keyword</i>



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Finding the correct terminology

Tips to identifying free text terms:

- Consider different ways of expressing the same meaning / concept
- Consider different British and American spellings of terms (eg color v colour)
 - In articles on your topic review the terms used in the title and abstract

Tips to identifying subject headings:

- In the databases look for the thesaurus
- In articles on your topic look to see what subject headings that they have been given



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Finding the correct terminology - exploding subject headings

			Explode	Focus		
[-]	☒	Pregnancy	872773	☐	☐	
	☐	Gravidity	1181	☐	☐	
[+]	☐	Labor, Obstetric	29332	☐	☐	
	☐	Maternal-Fetal Exchange	29426	☐	☐	

[Exploring Evidence Video: What are MeSH headings?](#)



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Refining your search terms - truncation

- Truncation searching is an easy way to quickly search for root of words. For example Medline uses the * and \$ symbols for truncation searching.
- Searching like this will broaden your search and the database will bring back results with any ending of your root word.





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Examples of using truncation

pregnan*	will find	pregnant, pregnancy, pregnancies
nurs*	will find	nursing, nurses, nurse
smok*	will find	smoke, smoker, smokers, smoking, smokeless

Take care not to overdo a truncation. For example:

creat*	will find	create, creature, creatine, creator, creating, etc.
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Refining your search terms - wild cards

- Wild card searching is an easy way to quickly search for words with similar spellings (eg British / American) or irregular plurals. For example Medline uses the # and ? symbols for wild card searching.
- Searching like this will broaden your search and the database will bring back results with a variety of words according to your search.

Wildcard

- Wildcard # allows you to search for one character in a word e.g.

Organi#ation finds organisation or organization

- Wildcards find irregular plurals e.g.

wom#n finds woman or women

Proximity searching & additional search fields

- Use the abbreviation '**adj**' to help you find words near each other
e.g. middle ear adj5 infect* will retrieve:
Middle ear infection, infected middle ear, infection of the middle ear.
-
- Make use of the **search fields** to select title and abstracts to search for terms to make your search more precise.

[Exploring Evidence Video: Database Searching Tips](#)



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Combining terms together

Our search terms have to be combined to narrow or widen a search. The main Boolean operators are:

AND

both terms must be present

OR

either or **both** words must be present

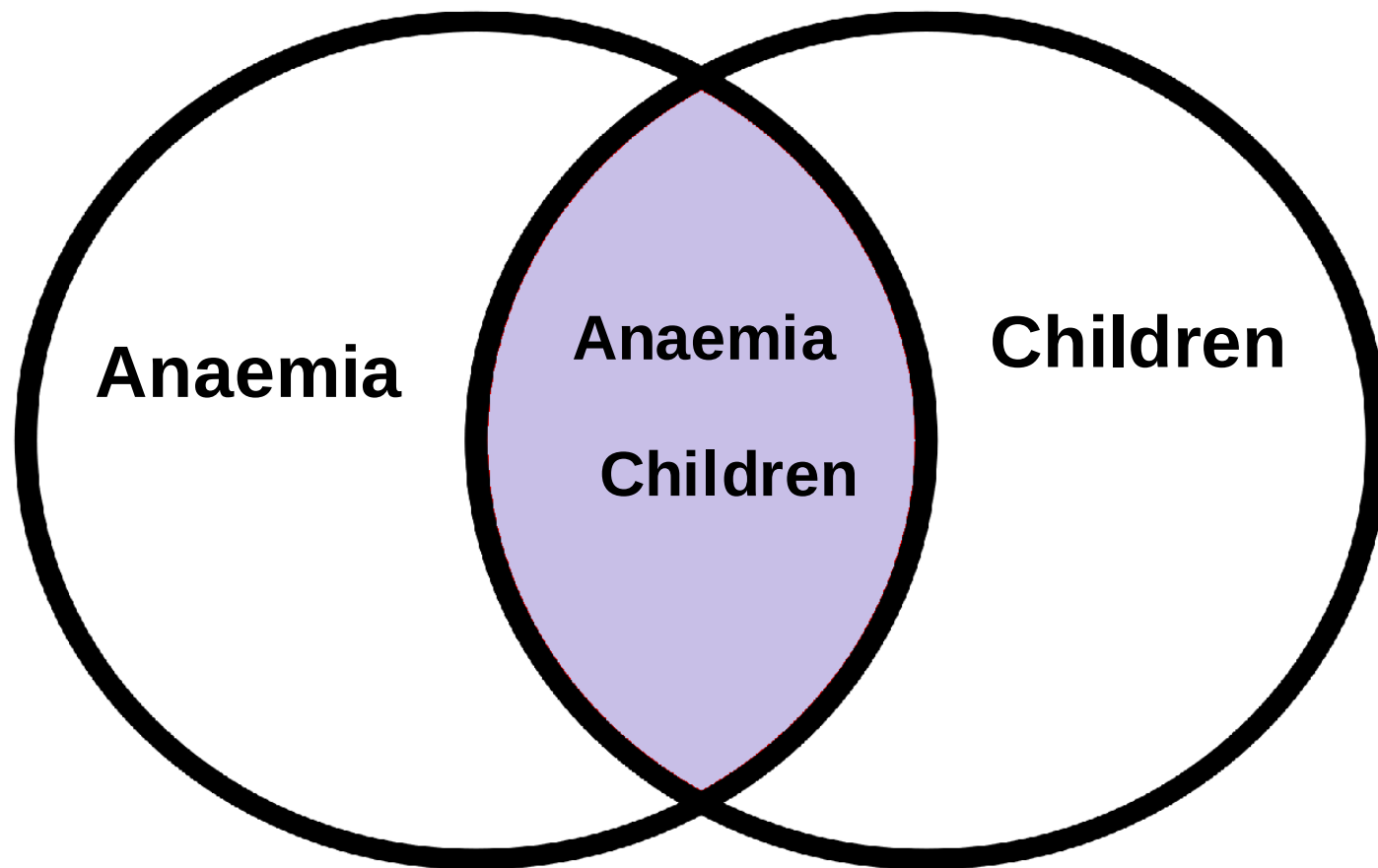
NOT

the **first** but not the **second** word must be present



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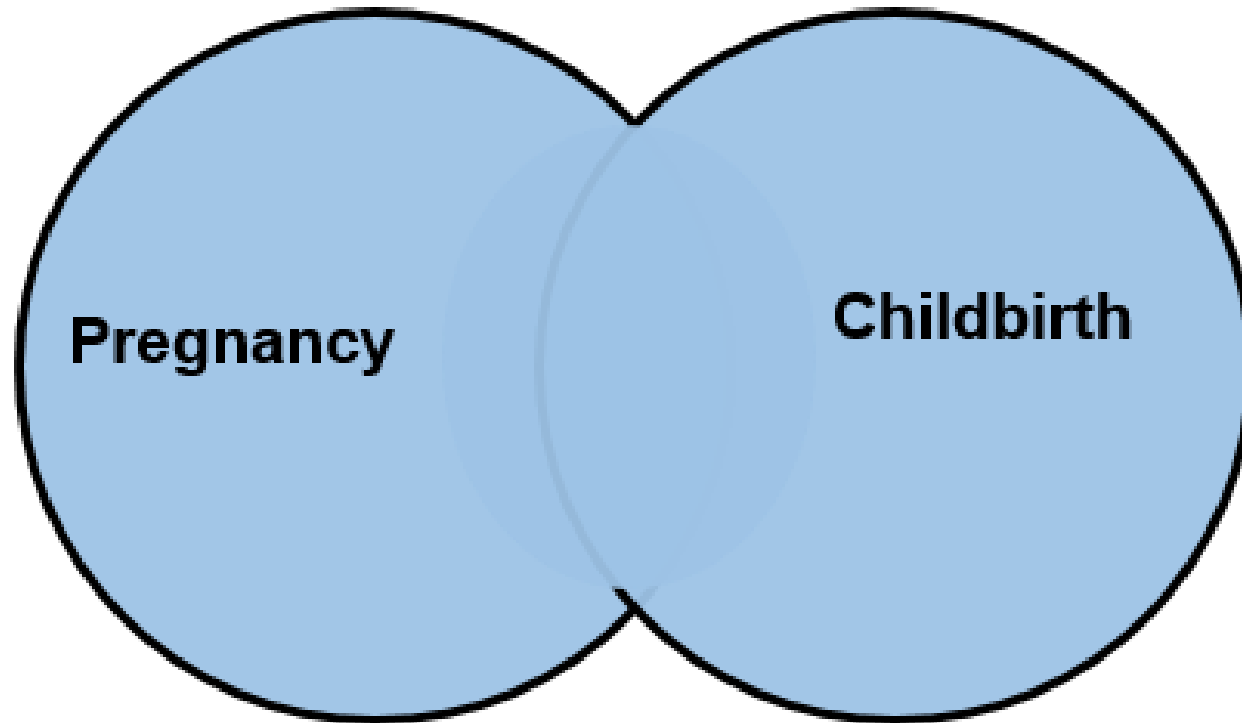
AND narrows your search



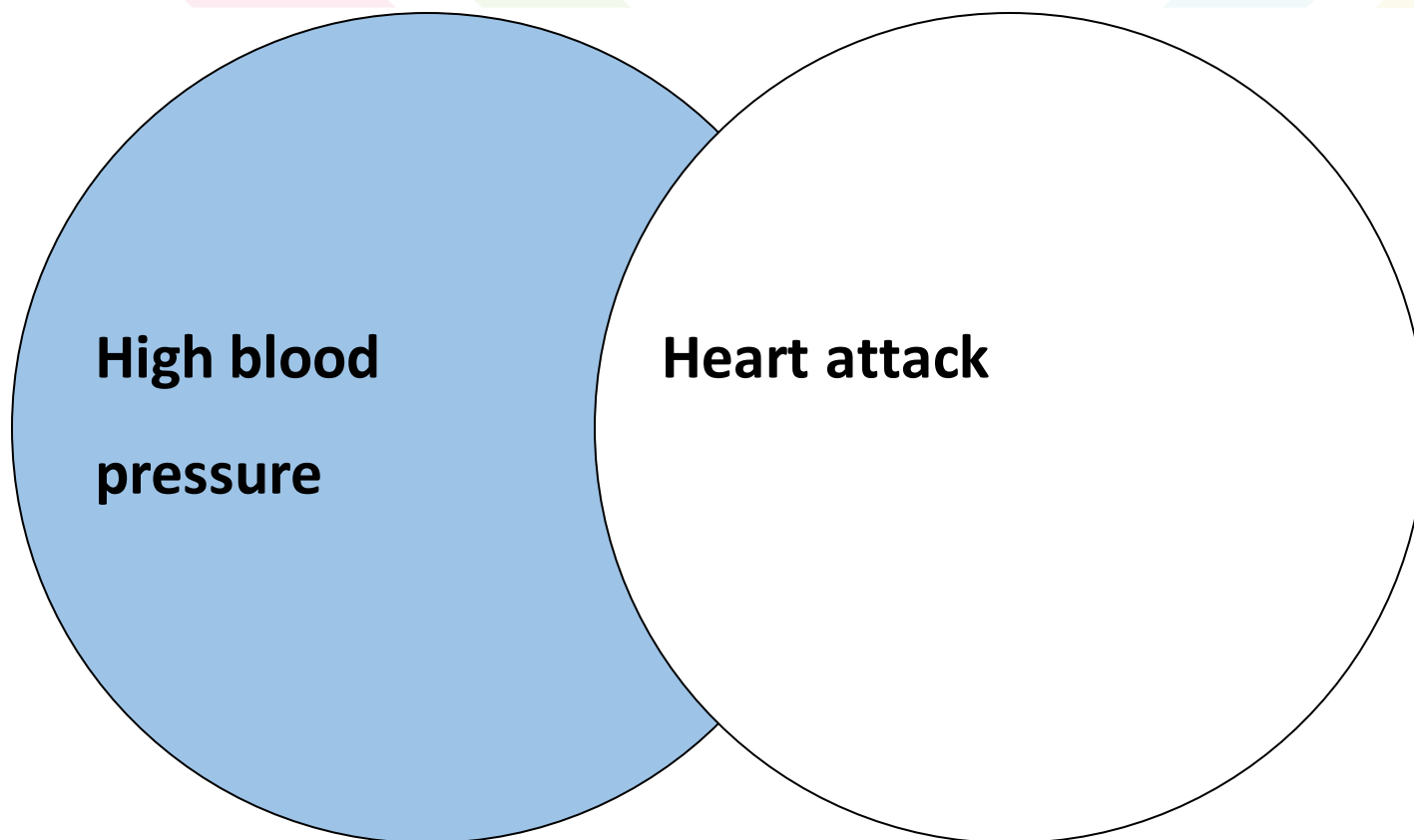


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OR broadens your search



NOT excludes terms



P		I		C		O
Pre-surgical	AND	Music*	AND	—	AND	Anxiety
OR		OR		—		OR
Presurgical		Song*		—		Concern*
OR		OR		—		OR
Pre-surgery		Tune*		—		Dread
OR		OR		—		OR
Presurgery		Sound*		—		Panic
OR		OR		—		OR
Pre-operative		Sing		—		Fear*
OR		OR		—		OR
Preoperative		Singer		—		Apprehension
		OR		—		OR
		Singing				Stress*
						OR
						Nervous*

[Exploring Evidence](#)
[Video: Boolean](#)
[Searching](#)

Activity 3

Boolean Searching AND/OR/NOT Exercise

1. Which operator would increase your search results?

- ☐ AND
- ☐ OR
- ☐ NOT

2. The operator AND...

- ☐ Expands your search
- ☐ Restricts or limits your search
- ☐ Quantifies your search
- ☐ Redirects your search

3. What is the purpose of the NOT operator?

- ☐ To expand a search
- ☐ To include only phrases that are searched in search results
- ☐ To exclude a term or phrase from a search
- ☐ To create a broader search

4. If I wanted to search for articles on anaemia in children which search string would give me the best results?

- ☐ anaemia OR children
- ☐ anaemia AND children
- ☐ anaemia NOT children

Activity 3- Questions

Activity 3 Answers

1. Which operator would increase your search results?

☐ AND

☒ OR 

☐ NOT

2. The operator AND...

☐ Expands your search

☒ Restricts or limits your search 

☐ Quantifies your search

☐ Redirects your search

3. What is the purpose of the NOT operator?

☐ To expand a search

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4. If I wanted to search for articles on anaemia in children which search string would give me the best results?

☐ anaemia OR children

☒ anaemia AND children 

☐ anaemia NOT children

Session Outline

4. Applying a search to a database

Does listening to music preoperatively reduce anxiety?

P- Perioperative patient

I- Listening to music

C- Not applicable

O- Reduction in anxiety

Literature searching demonstration

Summary

- Search process from framing our question through to performing the search in a database
- Databases may vary slightly in look and syntax but principles generally remain the same
- NHS Wales Librarians are on hand to support you

www.nhswls.org/contactyourlibrary

Any Questions?

List of resources

NHS Wales Libraries- www.nhswls.org/

NHS Wales e-Library- <https://elh.nhs.wales/>

NHS Wales Library Catalogue- <https://nhswaleslibrarysearch.cardiff.ac.uk/>

SURE Unit Critical Appraisal Checklists- <https://www.cardiff.ac.uk/specialist-unit-for-review-evidence/resources/critical-appraisal-checklists>

CASP Checklists- <https://casp-uk.net/>

Exploring Evidence Videos:

[Exploring Evidence: Boolean Searching](#)

[Exploring Evidence: Levels of Evidence](#)

[Exploring Evidence: What are MeSH headings?](#)

[Exploring Evidence: Database Searching Tips](#)

[Exploring Evidence: Hedges](#)



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Evaluation form