Search Strategy

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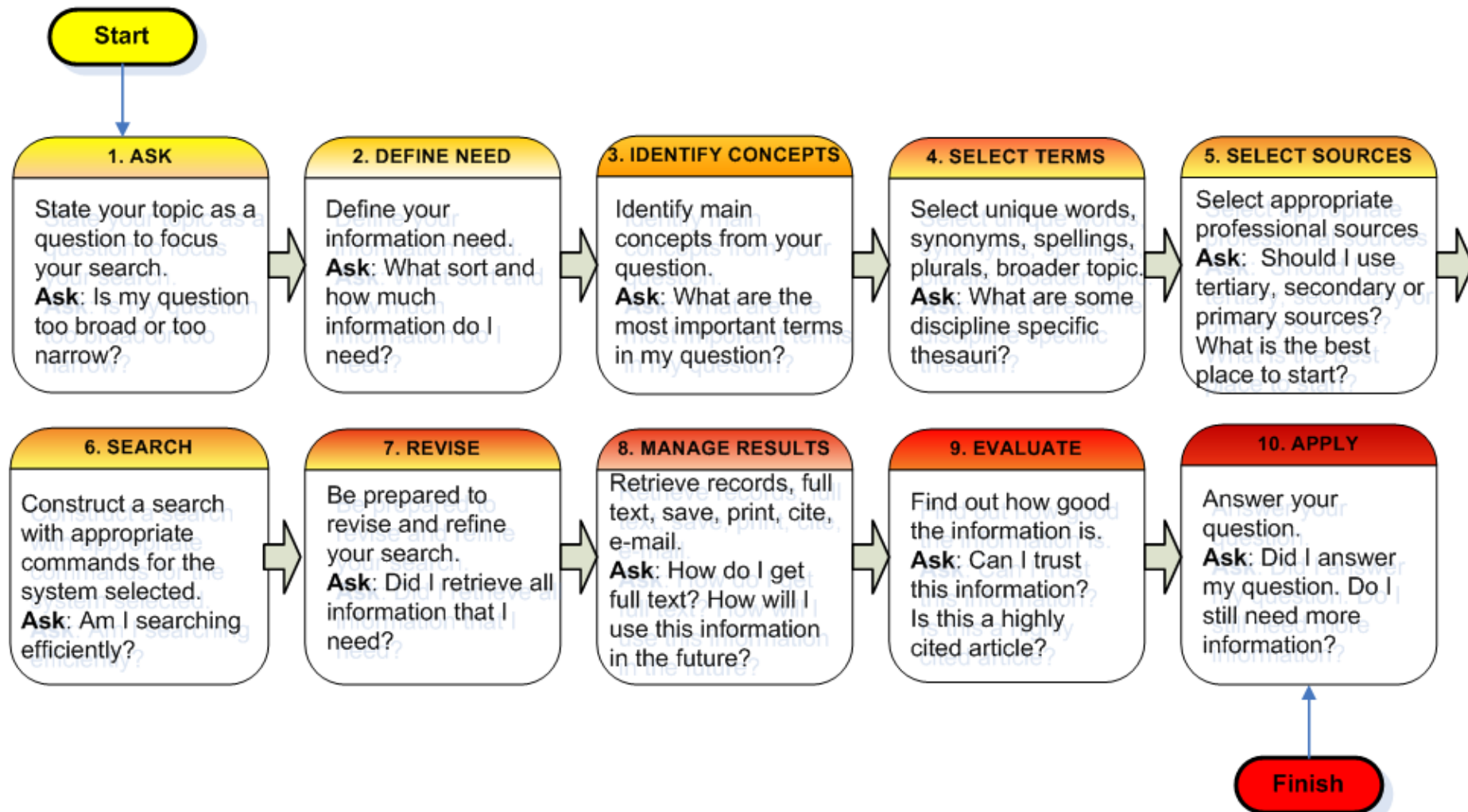
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Why Search Strategy is Important?

- Health care includes the provision of information to consumers or professionals (reliable, accurate, up-to-date)

- Information explosion- billions of documents in the WWW; hard to find the 'needle in the hay stack' and know which source is best for a specific situation;

- Evidence-Based Practice - clinicians are not using enough evidence in practice

- Systematic search strategy should be adopted when dealing with clinical questions to avoid 'information malpractice'

Developing a Search Strategy: Process Overview

Start

1. ASK
State your topic as a question to focus your search.
Ask: Is my question too broad or too narrow?

2. DEFINE NEED
Define your information need.
Ask: What sort and how much information do I need?

3. IDENTIFY CONCEPTS
Identify main concepts from your question.
Ask: What are the most important terms in my question?

4. SELECT TERMS
Select unique words, synonyms, spellings, plurals, broader topic.
Ask: What are some discipline specific thesauri?

5. SELECT SOURCES
Select appropriate professional sources
Ask: Should I use tertiary, secondary or primary sources? What is the best place to start?

6. SEARCH
Construct a search with appropriate commands for the system selected.
Ask: Am I searching efficiently?

7. REVISE
Be prepared to revise and refine your search.
Ask: Did I retrieve all information that I need?

8. MANAGE RESULTS
Retrieve records, full text, save, print, cite, e-mail.
Ask: How do I get full text? How will I use this information in the future?

9. EVALUATE
Find out how good the information is.
Ask: Can I trust this information? Is this a highly cited article?

10. APPLY
Answer your question.
Ask: Did I answer my question. Do I still need more information?

Finish

Remember: Your question drives the search strategy. There is no one best way to search. Avoid one stop searching to prevent bias.

Example (Steps 1-4)

1. Ask: What **health** problems are associated with **water pollution**?
2. Need: scholarly primary research
3. Main Concepts: health, water, pollution
4. Select terms:
   - Broader terms: 'health', environmental degradation', 'agricultural management',
   - Synonyms:
     health, illness, disease, etc.
     water, rivers, lakes, sea, domestic water, etc.
     pollution, 'oil spills', chemical, biological, toxicity, etc
   - Alternative spellings: none
   - Plurals: river(s), lake(s), disease(s)
   - Capitals: e.g. name of a specific lake, disease, region

1. Ask: Focusing your Question

- What am I looking for exactly? Question before you search!
- Test search to find out how much information is available
  - If you are finding little information - broaden the question
  - If you are finding lots of information - narrow the question

2. Define Your Need

- How much information do I need?
- What kind of information do I need?

3. Identify Main Concepts

Concept: **'Heart Attack'**

attack infarct attacks
Myocardial infarction infarctions
Ischemia
myocardial infarcts
heart

Concept: **'Antibiotic'**

Cefalexin agents
antibiotics anti·mycobacterial
Keflex antibiotic anti·bacterial
agent Amoxicillin

4. Select Terms

• Use professional standard thesauri/controlled vocabularies
  – MESH (Medical Subject Headings):
    http://www.nlm.nih.gov/mesh/MBrowser.html

Keyword vs. Subject Search

KEYWORD: Benign Neoplasms

KEYWORD: Cancer

KEYWORD: Carcinoma

SUBJECT: **NEOPLASMS**

KEYWORD: Tumor

KEYWORD: Cysts

KEYWORD: Hematoma
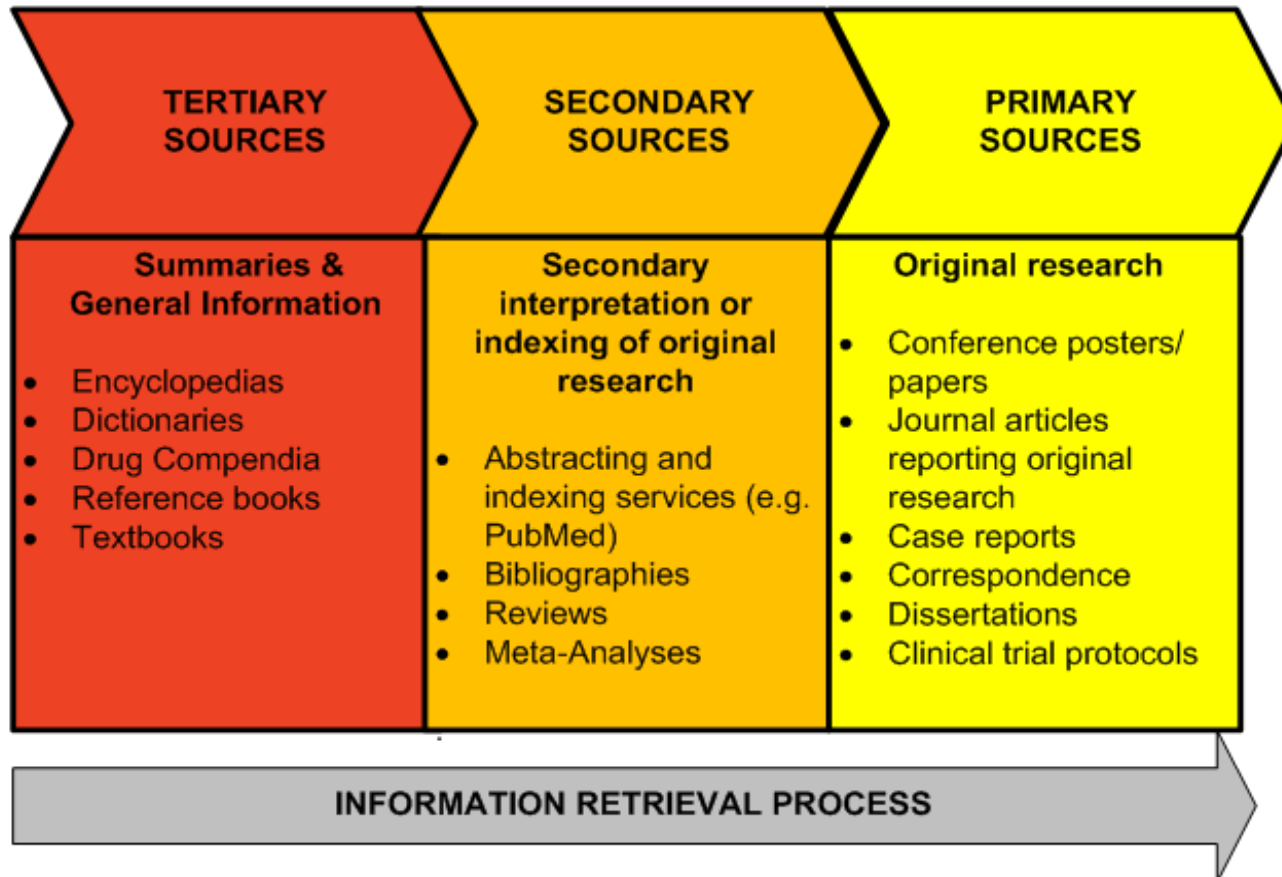
KEYWORD: Hormonal Cancers
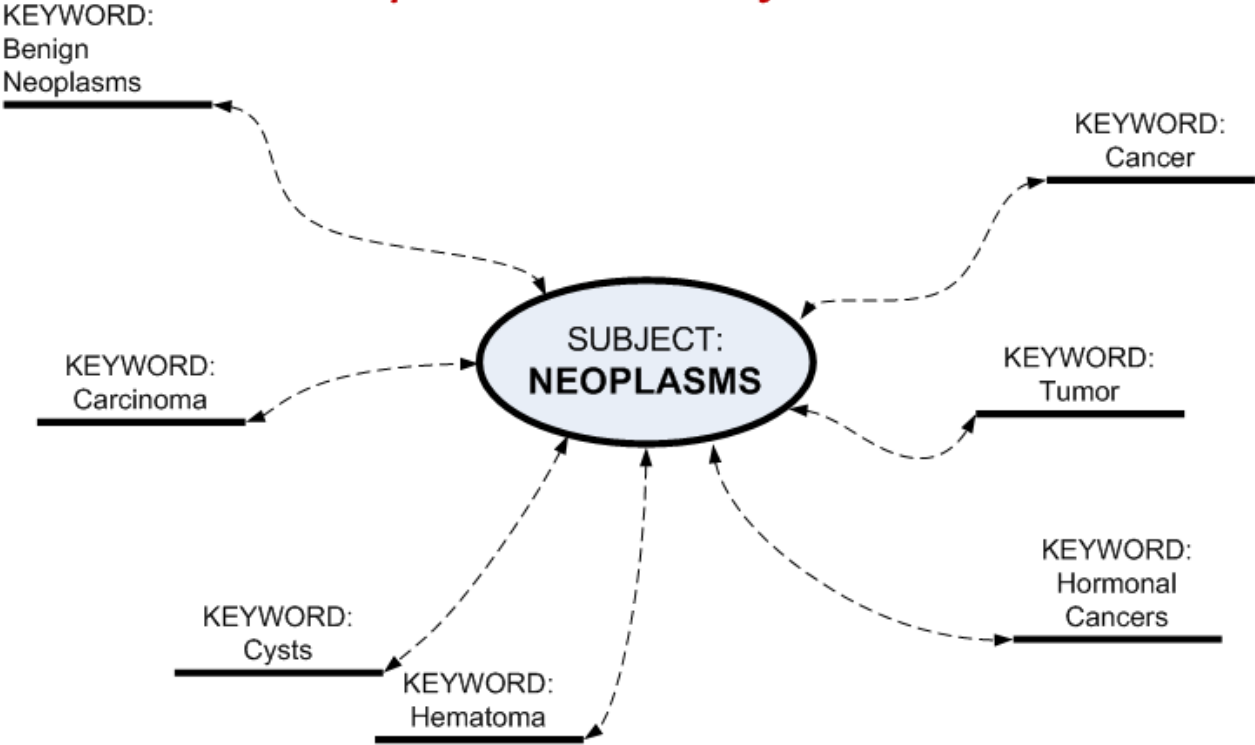
Keyword Search	Subject Search
Searches for the exact words entered.	Searches with pre-defined vocabulary
You can enter your own terms.	You need to know the exact controlled term.
Database looks for keywords anywhere.	Database looks only in the subject field.
Yields too many or too few results. Many irrelevant.	Yields more specific results most of which are relevant.

5. Select a Source

Types of Information Sources and Information Retrieval Process

Sources are considered primary, secondary, or tertiary based on the originality of their information and its proximity to the original source. When you are looking for answers you may need to consult several types. No single source is comprehensive

TERTIARY SOURCES	SECONDARY SOURCES	PRIMARY SOURCES
Summaries & General Information • Encyclopedias • Dictionaries • Drug Compendia • Reference books • Textbooks	**Secondary interpretation or indexing of original research** • Abstracting and indexing services (e.g. PubMed) • Bibliographies • Reviews • Meta-Analyses	**Original research** • Conference posters/ papers • Journal articles reporting original research • Case reports • Correspondence • Dissertations • Clinical trial protocols

INFORMATION RETRIEVAL PROCESS

5. Select a Source

Tertiary Sources

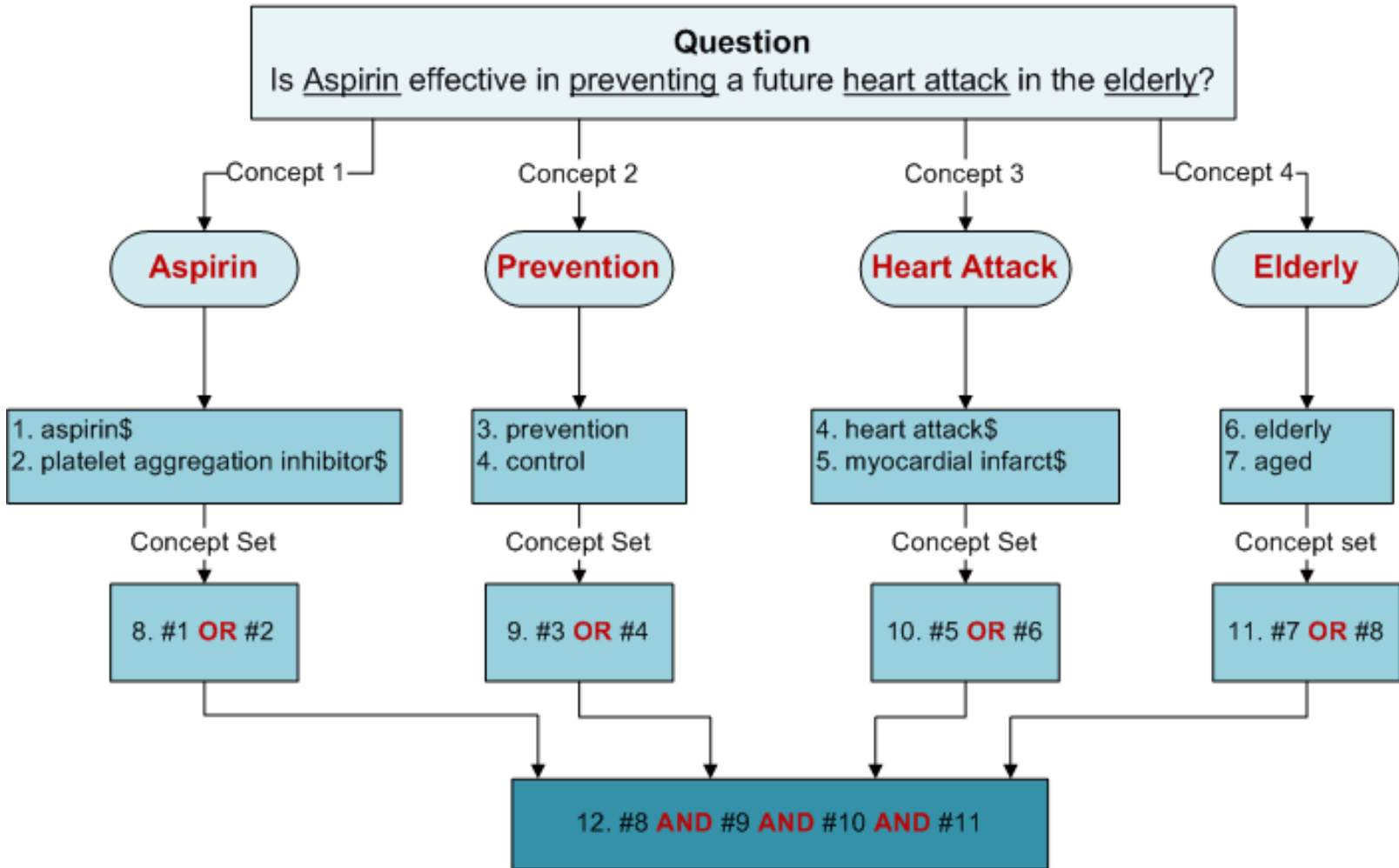| ADVANTAGES	DISADVANTAGES
Easy access	Lag Time
Ease of use	Outdated
Concise	Incomplete information
Relatively inexpensive	Incorrect interpretation

Secondary Sources

ADVANTAGES	DISADVANTAGES
Rapid access to the primary literature	Lag time
Generally high standard journals	Command language varies
Ability to perform complex searches	Proficient search skills are needed
Routine updates on selected topics (alerts)	Can be expensive

Primary Sources

ADVANTAGES	DISADVANTAGES
Original data	Large volume data
Unbiased information	Time consuming

6. Search

Construct a Search using Appropriate Commands and Best Practices

Question
Is Aspirin effective in preventing a future heart attack in the elderly?

Concept 1 — **Aspirin**
Concept 2 — **Prevention**
Concept 3 — **Heart Attack**
Concept 4 — **Elderly**

Aspirin	Prevention	Heart Attack	Elderly
1. aspirin$ 2. platelet aggregation inhibitor$	3. prevention 4. control	4. heart attack$ 5. myocardial infarct$	6. elderly 7. aged
Concept Set	Concept Set	Concept Set	Concept set
8. #1 OR #2	9. #3 OR #4	10. #5 OR #6	11. #7 OR #8

12. #8 AND #9 AND #10 AND #11

When searching enter one term/phrase at a time; keep terms in separate concept sets; combine search terms with OR first; then with AND.

7. Revise

Review and refine you search

- be prepared to review/revise your search
- keep your search terms in concept sets/zones but remember to explore subtopics
- try new sources of information
- save the search and citations for future use
- promote use of high-quality resources

8. Manage Results

- Download, print, save, e-mail results & search history
- Cite using a biomedical citation style
- Save search, set up alerts

9. Evaluate–Who? What? When? Where? Why?

- Accuracy
- Authority
- Objectivity
- Currency
- Coverage

10. Apply —Answer the question.