

Advanced Literature Searching: Strategies and Techniques

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Learning objectives

- Understand characteristics of advanced literature searches.
- Learn to construct structured and sensitive search strategies.
- Identify resources as jumping off points for information seeking.
- Understand best practices for documenting and organizing your information.

Ongoing Collaboration

- Information seeking consultations
- Education and Instruction
- Scholarly Communication
- Connections to expertise across campus



Source: <https://pixabay.com/en/feedback-group-communication-2044700/>

Resource Selection: Matching Tool to Need

▲ Many services and materials are available remotely — see our [COVID-19 updates](#). Library buildings are closed.



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Taubman Health Sciences Library

Taubman Health Sciences Library supports the research and curricular needs of the university's health sciences schools, Michigan Medicine, and associated disciplines. Collaborate with an expert, get help with assessment and evaluation, and more.



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- Library buildings are closed
- MLibrary@NCRC is our satellite location in the North Campus Research Complex



Hours

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▲ Many services and materials are available



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Explore what the library has to offer.

Library Search

Search the catalog, articles, databases, online journals, and more.

Research Guides

Consult research resources and guides created by library experts.

Interlibrary Loan

Request materials for delivery or from other library systems. Login required.

Deep Blue Data

Share and access research data.

Deep Blue Documents

Share and access articles, chapters, dissertations, and more produced by the U-M community.

[Browse Databases](#)

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[Digital Collections A-Z](#)

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Research Guides as Jumping off Points

Health Sciences

Browse our best resources, organized by subject

13 SUBJECTS

Health Sciences

Go

Showing 88 Guides

[Academic Integrity at SPH](#) ⓘ

📅 Sep 28, 2017 👁 33

[Allergy and Clinical Immunology](#) ⓘ

📅 Feb 8, 2018 👁 79

[Anesthesiology](#) ⓘ

📅 Jan 25, 2018 👁 35

[Biobanking](#) ⓘ

📅 Dec 1, 2017 👁 9

[Biographical and Historical Resources for Health Sciences](#) ⓘ

📅 Nov 30, 2017 👁 11

[Bioinformatics](#) ⓘ

📅 Nov 30, 2017 👁 1595

[Biological Chemistry](#) ⓘ

📅 Nov 30, 2017 👁 131

Health Services and Policy Research

This guide serves as a portal to key resources for the interdisciplinary field of health services and policy research.

Overview

Databases

Electronic Books

Grey Literature

News Sources

Policy

Access to Care

Healthcare Cost

Health Disparities

Quality of Care

Health Statistics [↗](#)

U-M Health Services and Policy Resources

Resource Spotlight: Overton Interdisciplinary Policy Database

[Overton](#) Provides the world's largest collection of policy documents, guidelines, think tank publications, and working papers.

SEARCH POLICY DOCUMENTS

SEARCH PEOPLE

SEARCH SCHOLARLY ARTICLES

Search **6,873,924** policy documents

Search policy

We'll search the titles and full text of the policy documents we index. You can use booleans (AND, OR, NOT), "phrases in quotes", the ~ operator and a number after phrases to allow word gaps, and parentheses. See our [help page](#) on advanced searches for more.

Example searches:

["Tobacco packaging"](#)

[covid-19 AND masks](#)

[title:"World Development Report"](#)

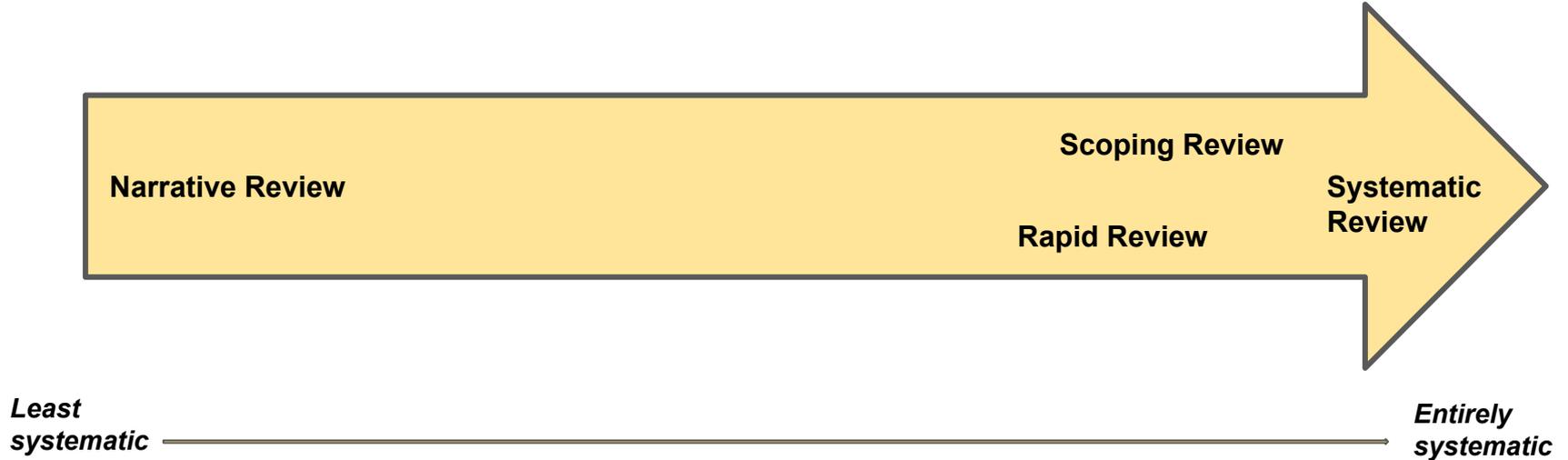
["Phillips Curve Netherlands"*40](#)

Journal Databases – Match to Discipline

| If you are looking for? | Use |
|---|--|
| Biomedical literature, clinical studies, and reviews | PubMed (Medline is main component) |
| Health Policy Literature | Health Policy Reference Center, PubMed, Public Affairs Index, Research Institute Reports, Government Reports, News |
| Pharmaceutical and Pharmacological Literature | Embase |
| Psychology | PsycInfo |
| Nursing or allied health literature (including professional literature) | CINAHL |
| Systematic Reviews | Cochrane Database of Systematic Reviews |
| Interdisciplinary topics | Scopus, Web of Science, Google Scholar |

Characteristics of Systematic Approaches

Evidence Synthesis Methodologies Fall Along a Spectrum



Sutton A, Clowes M, Preston L, Booth A. [Meeting the review family: exploring review types and associated information retrieval requirements](#). *Health Info Libr J*. 2019;36(3):202–222. doi:10.1111/hir.12276

Characteristics of Systematic Approaches

1. Working with a team
2. Transparency in methodology and presentation
3. Search comprehensiveness
4. Predefined inclusion/exclusion criteria
5. Quality assessment

Working with a Team

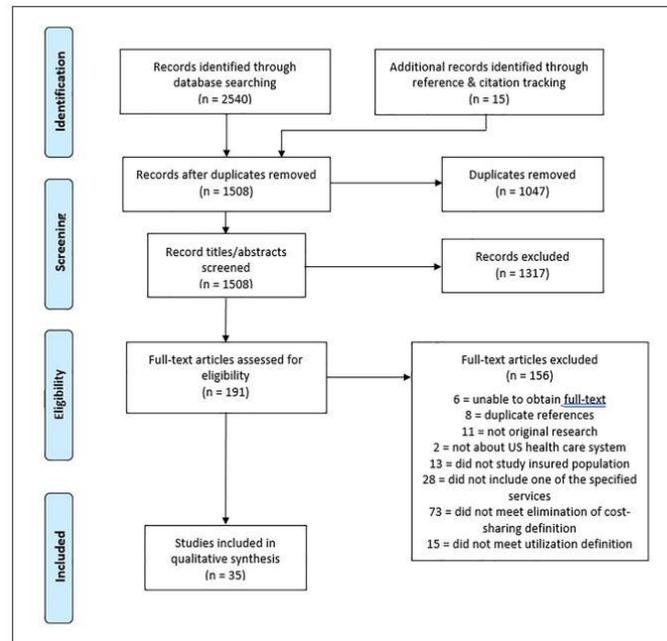
- Establishing a team with multiple types of expertise is one way of reducing bias
- Minimum of two people (e.g., two clinical or other subject experts)
- All team members are co-authors and are responsible for the final manuscript

Transparency in methodology and presentation

- Clear reporting practices involves being explicit in every aspect of the review, starting with the protocol (e.g., search process, data extraction, presentation and synthesis of results, etc...)
- Clarity in reporting increases the accountability of your scholarship
- Transparency enables others to reproduce your work
- Examples of Transparency:
 - Examine other systematic reviews: [Cochrane Library](#)
- Reporting Guidelines:
 - PRISMA General Information: <http://www.prisma-statement.org/>
 - PRISMA Checklist: http://www.prisma-statement.org/documents/PRISMA_2020_checklist.docx

Transparency Requires Tracking Throughout Your Project

- Level of transparency depends on type of literature review
 - However...prepare for current and future use.
- What to track:
 - Resources searched
 - Number of results
 - Date searched
 - Filters
 - Years
 - Types of studies
 - Inclusion and exclusion criteria
 - Screening process



PRISMA diagram from the following rapid review: Norris HC, Richardson HM, Benoit MC, Shrosbree B, Smith JE, Fendrick AM. Utilization Impact of Cost-Sharing Elimination for Preventive Care Services: A Rapid Review. Med Care Res Rev. 2022 Apr;79(2):175-197. doi: 10.1177/10775587211027372. Epub 2021 Jun 22. PMID: 34157906.

Search Comprehensiveness

- Complete comprehensiveness requires finding all published studies regardless of geographic location
- Searching multiple databases of peer-reviewed literature
- Searching grey literature (e.g., research institute reports, government documents)
- Scanning Tables of Contents of journals, reference lists, citation tracking, speaking to experts

Predefined Inclusion and Exclusion Criteria

- Entails deciding *prior* to searching the set “rules” for the types of studies to include in the review
- In a systematic approach, the inclusion and exclusion criteria do not change in the course of the review
- Considerations for inclusion:
 - Date
 - Language
 - Study Design
 - Outcomes
 - Populations

Quality Assessment

- Assessment of individual studies that meet inclusion criteria
- Critically examining each studies methodology and findings—strengths and flaws
- Tools exist to help with this process (e.g., [Cochrane Risk of Bias tool](#), [Newcastle-Ottawa Scale](#))

Questions to ask your research partners this summer

- **Purpose of review**
To inform a project? Publish a literature review paper?
Prepare for a grant submission?
- **Search Comprehensiveness**
Looking for a selection of articles? Looking for all articles to answer research question?
- **Screening Process**
Should you “cherry pick” articles? If so, what is the inclusion criteria? Or, do they want you to provide all search results and they will screen?
- **Delivery and organization**
How do they want you to abstract the data from relevant citations? What (if any) citation management tool is your team using?



The Search Process: Start with Exploratory Searches

Initial Exploratory Searches

Why?

- To harvest terminology to help you develop your search.
- To see if others have already conducted similar research.

How?

- Conduct very basic searches and look at relevant citations
 - Examine terminology in titles and abstracts to identify synonyms
 - Look at subject headings of sentinel articles (e.g., MeSH terms in PubMed)
 - Open records and look at related citations
- Look for review articles
- Examine pre-existing search strategies (in review articles or in ready-made filters)
- Citation Track when you find a relevant article ([Scopus](#), [Google Scholar](#), [Overton Interdisciplinary Policy Database](#))

Initial Exploratory Searches: Explore Pre-existing Search Methodologies

- Identify reviews on similar topics and adapt methodology (and cite)
- Places to search:
 - [Cochrane Library](#)
 - [PubMed Clinical Queries](#)
- [PubMed Topic-Specific Queries](#)
- [Health Services Research PubMed Queries](#)
- [InterTASC Filters](#)

MEDLINE®/PubMed® Health Disparities and Minority Health Search Strategy

This query is not updated.
Search strategy last updated: May 9, 2019.

Watch the video on [How to Save PubMed Searches](#) to learn how to save and maintain your own topic-specific PubMed searches.
If you have questions, please contact NLM Customer Support at <https://support-nlm-nih-gov.proxy.lib.umich.edu/>

[Health Disparities Home Page](#)

Search Details

```
((ethnic disparities[TIAB] OR
ethnic disparity[TIAB] OR
health disparities[TIAB] OR
health disparity[TIAB] OR
healthcare disparities[MH] OR
health care disparities[TIAB] OR
healthcare disparities[TIAB] OR
health-care disparities[TIAB] OR
health care disparity[TIAB] OR
healthcare disparity[TIAB] OR
health-care disparity[TIAB] OR
health status disparities[MH] OR
(disparities in health[TIAB]) OR
J Health Care Poor Underserved[Journal] OR
J Health Dispar Res Pract[Journal] OR
```

Creating Structured Searches

[after you've done exploratory pre-work!]

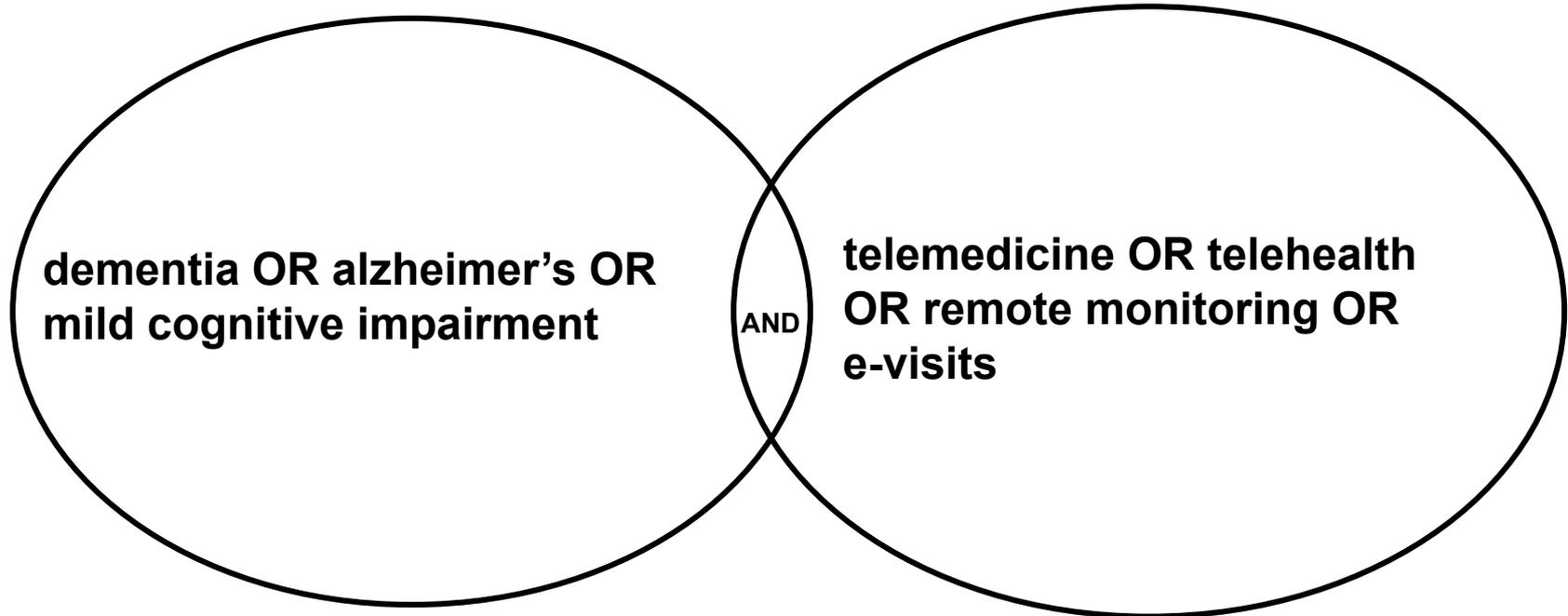
Search Construction: start with a searchable question

Which telehealth interventions are most effective with patients with dementia?

Breakdown Main Concept Areas to Search

Which telehealth interventions are most effective with patients with dementia?

Identify Synonyms and Combine with Boolean Operators (and,or)



Principles for Creating Structured Searches

Comprehensive search methodologies require:

Database's Subject Terms (e.g., indexing/tagging) if available

- Databases don't all use the same index terms
- Examples: PubMed uses MeSH, Embase uses Emtree

Keywords

- Terminology and many synonyms that may show up in the title, abstract, or author-supplied keywords

Combine Concept Blocks with Boolean Operators (AND/OR)

Dementia

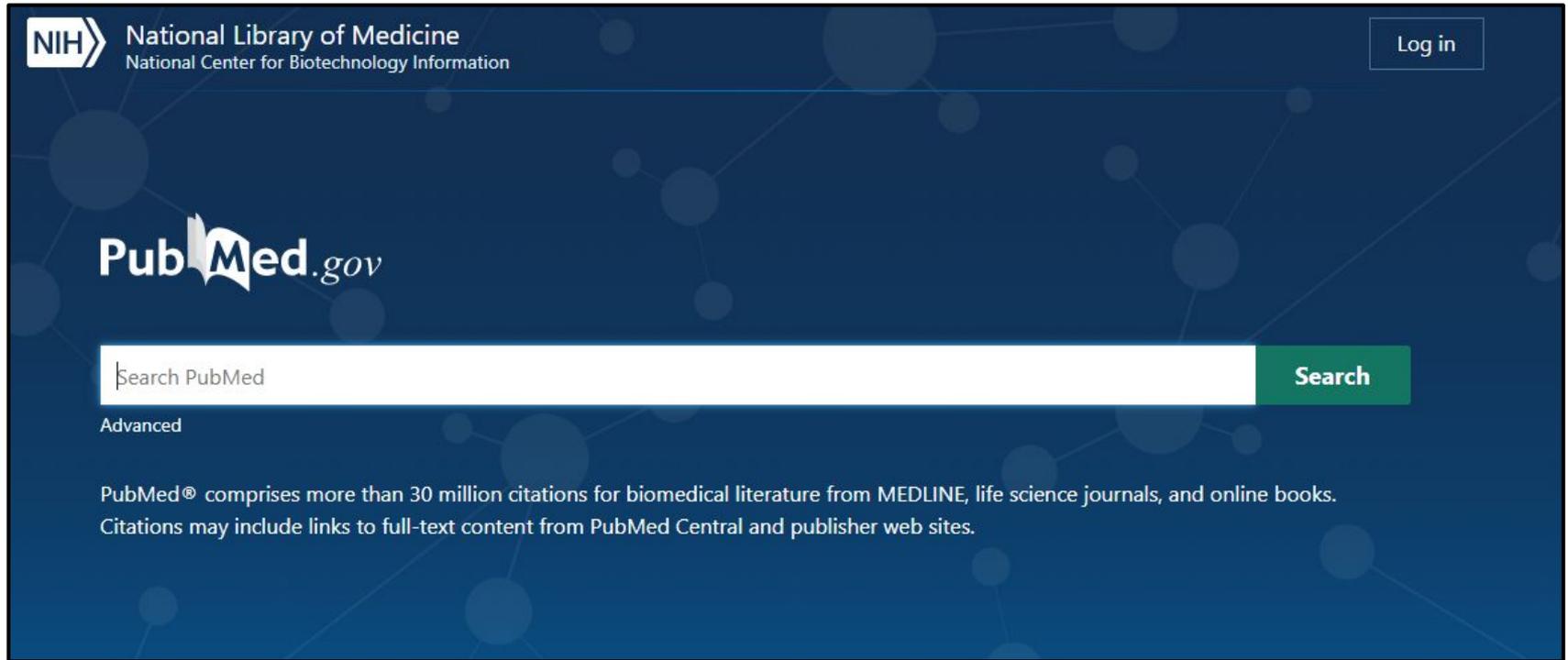
dementia[Title/Abstract] **OR** alzheimers[Title/Abstract] **OR** "mild cognitive impairment"[Title/Abstract] **OR** "lewy body"[Title/Abstract] **OR** dementia[MeSH Terms]

AND

Telemedicine

telemedicine[Title/Abstract] **OR** telehealth[Title/Abstract] **OR** telecare[Title/Abstract] **OR** teleconsultation[Title/Abstract] **OR** telemonitor*[Title/Abstract] **OR** telepathology[Title/Abstract] **OR** telemedicine[MeSH Terms]

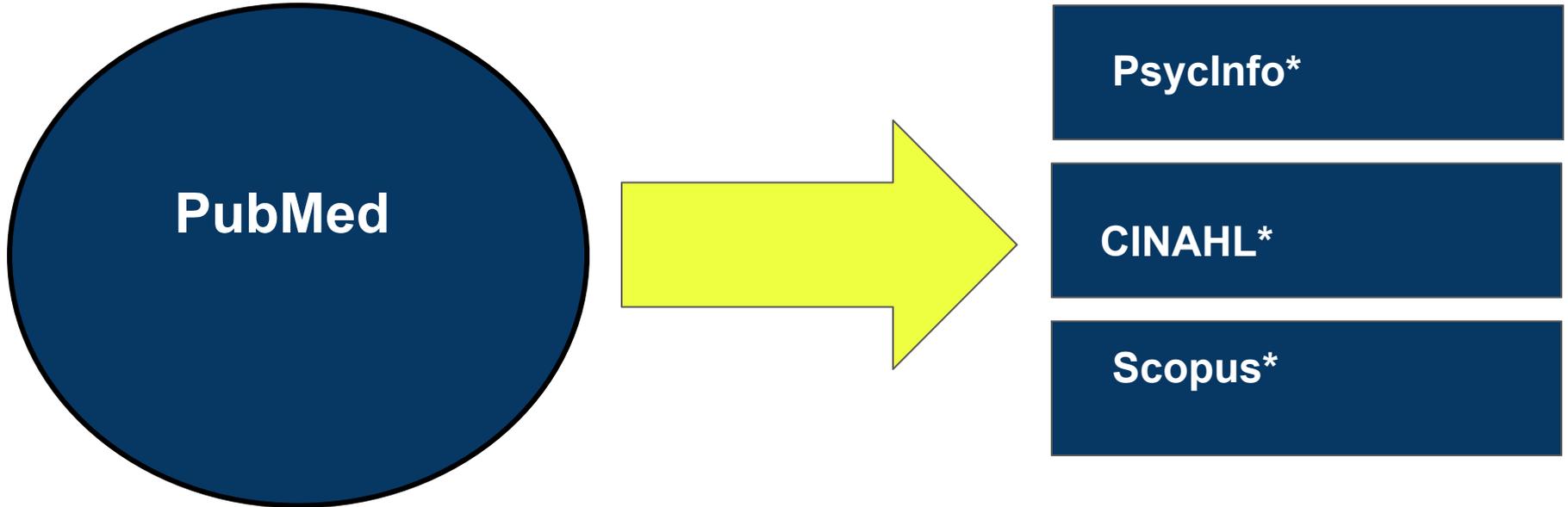
Structured Searching: PubMed Demo

The image shows the PubMed.gov homepage with a dark blue background and a network diagram of circles and lines. At the top left is the NIH logo and text: "National Library of Medicine National Center for Biotechnology Information". At the top right is a "Log in" button. The PubMed.gov logo is centered. Below it is a search bar with the placeholder text "Search PubMed" and a green "Search" button. Under the search bar is the word "Advanced". At the bottom, there is a paragraph of text: "PubMed® comprises more than 30 million citations for biomedical literature from MEDLINE, life science journals, and online books. Citations may include links to full-text content from PubMed Central and publisher web sites."

<http://www.lib.umich.edu/database/link/9817>

Comprehensive Searching

PubMed will likely be your core search. Finalize that search *then* translate the strategy to other core databases depending on your topic.



*These are just a few examples. There are numerous discipline focused databases.

PubMed Search



Embase

Your query

```
1 telehealth[tiab] OR telemedicine[tiab] OR telemedicine[mesh]
2
3 dementia[tiab] OR demential[mesh]
```

Replace Line References

Open Query in SearchRefiner Import Search From .txt File

> PubMed

> Medline (via Ovid)

▼ Embase (via Ovid)

```
telehealth.ti.ab. OR telemedicine.ti.ab. OR exp telemedicine/
dementia.ti.ab. OR exp demential/
```

[Polyglot search translator](#) will translate your search into a few databases. It translates your search into the database's syntax. It does not translate controlled vocabulary (e.g., MeSH). You will need to look up these terms manually when you translate.

Capturing and Organizing Resources

[and citing them]

CITATION MANAGEMENT TOOLS

EndNote®

 MENDELEY

zotero

WHY USE A CITATION MANAGEMENT TOOL?

Organization and Documentation

- Organize your resources into one spot
- Automatically insert citations into documents and manuscripts
- Create bibliographies
- Share and collaborate
- Lessen chances for attribution errors

Choice considerations: No perfect tool!

- Collaborators: what do they use?
- Size of project
- Type of content
- Each has strengths and challenges.

Additional Resources

Advanced Literature Searching MOOC [free]

<https://www.edx.org/course/advanced-literature-searching-in-the-health-scienc>

Systematic Review Guide

<http://guides.lib.umich.edu/sysreviews>

Citation Management

<http://guides.lib.umich.edu/citationmanagement>

Yale Mesh Analyzer

<http://mesh.med.yale.edu/>

Thank you!

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