FINDING THE LITERATURE TO SUPPORT YOUR RESEARCH

Jo-Anne Petropoulos
Postgraduate Medicine Liaison
MUMC Site Librarian
petroja@mcmaster.ca

McMaster University

HEALTH SCIENCES

OBJECTIVES

- Identify useful library services
- Navigate the library's website
- Develop a search strategy
- Conduct a search in Ovid Medline

LIBRARY SERVICES

- Service Desk
  - Email requests to hslib@mcmaster.ca
  - Live Virtual Help Desk via Zoom (Mon. – Fri., 11 a.m. – 3 p.m.)
- Research Consultation
  - Email request to petroja@mcmaster.ca
  - Submit a request using a form
- Interlibrary Loans
  - Request books, book chapters, and articles not available in McMaster's collections

NAVIGATING THE LIBRARY'S WEBSITE

- Health Sciences Library
  - There are four libraries on campus: Health Sciences, Thode (Science and Engineering), Mills (Humanities and Social Sciences), and Innis (Business)
    - The latter have a separate website from Health Sciences Library
- Popular Resources (e.g., Databases, Ebooks, Guides & Tutorials)
  - How to Search the Literature (Advanced)
  - Medicine: Postgraduate
  - Mobile Apps
  - Register for a Covidence Account
  - Register for an Interlibrary Loans Account (i.e., RACER)
- Library Catalogue
  - Is an index to the contents of the library
    - Allows you to locate material by author, title, subject, etc.
    - Videos:
      - Searching the Catalogue for a Journal or Book Title
      - How to Search the Catalogue on a Topic

PROXY URL

- The URL for the McMaster proxy server is:
  http://libaccess.mcmaster.ca/login?url=
  - You can put this in front of any URL to access an article's full-text
- For example, let's imagine that you encountered this article on the internet:
  - Evidence-Based Medicine:A New Approach to Teaching the Practice of Medicine by the Evidence-Based Medicine Working Group
  - You can insert the proxy URL in front of the article URL to login for access:
    - http://libaccess.mcmaster.ca/login?url=http://jama.jamanetwork.com/article.aspx?articleid=400956
- You will be prompted to login using your Mac ID and password

STEPS TO DEVELOPING A SEARCH STRATEGY

1. Formulate a Research Question
2. Identify Search Concepts
3. Identify Search Terms
   - Subject Headings and Keywords
4. Construct a Search Strategy
   - Truncation and Wildcards
   - Boolean Operators
5. Select Resources to Search
   - Grey Literature
6. Search a Database
7. Translate a Search Strategy
8. Manage Search Strategies and Results

FORMULATING A RESEARCH QUESTION

- A well-formulated question will focus your information needs, help to identify key search concepts, and guide you in the direction of potential resources
- Question types:
  - Quantitative Questions: PICO framework
  - Qualitative Questions: PS framework

IDENTIFYING SEARCH CONCEPTS

- **Question:** Is ketamine an effective treatment of major depressive disorder in adults?

Patient / **P**opulation / **P**roblem **(P)**	**I**ntervention **(I)**	**C**omparator / **C**ontrol Intervention **(C)**	**O**utcome **(O)**
Concept A	**Concept B**	**Concept C**	**Concept D**
Major Depressive Disorder	Ketamine		

IDENTIFYING SEARCH TERMS

- Search strategies should include subject headings and keywords for each concept
  - **Subject Headings** are a standardized set of terms (called a controlled vocabulary) used to describe the content of a resource in a database
  - **Keywords** are terms that appear somewhere within the resource (e.g., title, abstract, or author keywords). Searching by a keyword will retrieve resources where the author(s) used that specific term.

IDENTIFYING SUBJECT HEADINGS AND KEYWORDS

- Search for a known article in PubMed
  - Review the subject headings assigned to the article (located below the references)
  - Scan the title, abstract, and author keywords to identify **keywords**
- Search for each keyword in a database (e.g., Ovid Medline)
  - Most of the medical databases accessible through the Health Sciences Library are set up to map your keyword search to a list of possible relevant subject headings
- Use a concept model or map to generate keywords
  - Remember to include the following: synonyms, acronyms, variation in spelling (e.g., paediatric or pediatric)
  - Remember to include generic and brand name drugs

CONSTRUCTING A SEARCH STRATEGY

- The **truncation** symbol can be used in a keyword search to retrieve alternate word endings
  - Use truncation to avoid having to think of and type out all possible variations of a word
    - e.g., surg* in Ovid will retrieve surgery, surgeries, surgeon, or surgical
- **Wildcards** are symbols that can optionally replace a single letter in a word
  - This is useful when dealing with variant spelling (e.g., pediatric and paediatric)
    - e.g., the question mark (?) in Ovid will substitute for one or no character

CONSTRUCTING A SEARCH STRATEGY

- The **OR** operator broadens your search results by retrieving records that contain either or both of your search terms
- The **AND** operator narrows the search results by retrieving records that contain both of your search terms
- The **NOT** operator narrows the search results by eliminating a specific search term
  - **Use the NOT Operator with caution.** It can eliminate relevant results that happen to mention the term you are "noting" out

CHECK-IN

CONSTRUCTING A SEARCH STRATEGY

Patient / **P**opulation / **P**roblem **(P)**	**I**ntervention **(I)**	**C**omparator / **C**ontrol Intervention **(C)**	**O**utcome **(O)**
Concept A	AND Concept B	OR Concept C	Concept D
MDD OR Major Depressive Disorder AND Adults	Ketamine OR Ketalar OR Ketolar You can use DynaMed, Ovid Medline or Embase to identify generic and brand drug names		It is recommended that you scan on the outcomes to not bias the results

SELECTING RESOURCES TO SEARCH

- Commonly used databases: Ovid Medline, Ovid Embase, CINAHL, Web of Science, and Cochrane Library
- Grey Literature
  - The Fourth International Conference on Grey Literature (GL '99) in Washington, DC, in October 1999 defined grey literature as follows:

    "That which is produced on all levels of government, academics, business and industry in print and electronic formats, but which is not controlled by commercial publishers."

IDENTIFYING GREY LITERATURE

- The type of grey literature will determine where to search
- Examples of grey literature include:
  - Brochures, pamphlets, leaflets, fact sheets, and data sheets
  - Discussion papers produced by corporations, government agencies, think tanks, political organizations, professional associations, and non-governmental agencies
  - Data sets, statistics, and survey results
  - Clinical trials (i.e., unpublished clinical trials)
  - Conference proceedings
  - Government documents
  - Newsletters
  - Policy Documents
  - Policy Statements
  - Annual reports, business reports, NGO reports, research reports, technical reports
  - Working papers
  - Dissertations and theses
  - Blog posts
  - PowerPoint presentations
  - Social media posts
  - Websites / webpages

IDENTIFYING ADDITIONAL ARTICLES

- Scan the table of contents of relevant journals
- Scan the reference lists of relevant articles
- Contact authors in the field to identify unpublished or ongoing research
- Consider using the "related articles" feature in databases such as PubMed, Ovid Medline, Ovid Embase, or Web of Science
- Look for articles that cited an article of interest using the 'Cited by' feature in Web of Science and Google Scholar

SEARCHING A DATABASE

- Demonstration on how to search Ovid Medline

Database: OVID Medline Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Ovid MEDLINE(R) Daily and Ovid MEDLINE(R) 1946 to Present

1 Depressive Disorder, Major/

2 Major Depressive Disorder.mp.

3 MDD.mp.

4 or/1-3

→ Concept A

5 Ketamine/

6 Ketamine.mp.

7 Ketalar.mp.

8 Ketalor.mp.

9 or/5-8

→ Concept B

10 4 and 9

11 Animals/ NOT (Animals/ AND Humans/)

12 10 NOT 11

→ Lines 11 and 12 are used together to exclude results about animals

Searching Tips:

- Search one concept at a time
- Use a combination of subject headings and keywords
- Combine terms within a concept using the OR Boolean Operator (note: there are some exceptions to this rule)
- Combine the different concepts using the AND Boolean Operator (note: there are some exceptions to this rule)
- Combine search concepts before applying limits
- Apply limits one at a time to see the impact on the results

TRANSLATING A SEARCH STRATEGY

1. Access a copy or open your original search strategy (e.g., Ovid Medline). This will serve as a guide to translating your strategy into the other database(s)

2. Open the database you wish to translate your search into (e.g., Ovid Embase, CINAHL, Ovid PsycINFO)

3. In the search box of the new database (e.g., Ovid Embase), enter the first term or phrase from your original strategy (e.g., Ovid Medline)

4. Identify and search on the relevant subject heading

- Remember, controlled vocabulary / subject heading terms vary across databases
- An equivalent controlled vocabulary / subject headings may not exist across databases. In such situations, it is recommended that you search it as a keyword.
- For all keyword or phrase searches, check to see if there is a controlled vocabulary / subject heading in the new database, regardless of whether the equivalent exists in the original search strategy

5. Repeat step 4 for subsequent terms or phrases from the original search

Database: Embase <1974 to 2020 July 14>

Search Strategy:

1	Major Depression/
2	Major depression disorder.mp.
3	MDD.mp.
4	or/1-3

→ Concept A

5	Ketamine/
6	Ketamine.mp.
7	Ketalar.mp.
8	Ketalor.mp.
9	or/5-8

→ Concept B

10	**4 and 9**
11	Animals/ NOT (Animals/ AND Humans/)
12	10 NOT 11

How to Read an Ovid search strategy:

- / = subject heading
- .mp.= keyword search in multiple fields
- .ti,ab,kw,kf.= keyword search in title, abstract, and author keywords in Ovid Medline and Ovid Embase
- .kw. = the Keyword Heading (KW) field contains the Keyword Headings assigned by authors. Keyword Headings are the author keywords. To retrieve every Keyword Heading that includes a particular word, search for the word in the Keyword Heading Word (KF) field.
- .kf. = The Keyword Heading Word (KF) index allows you to retrieve every Keyword Heading assigned by authors that include a particular word. Do this by searching a single word in the Keyword Heading Word (KF) field
- exp = searches for your requested subject heading as well as more specific terms that are related to that subject heading
  - E.g., Ovid Embase: exp depression /searches for depression/ OR major depression/ OR minor depression OR masked depression OR …
- /xx = restricts the subject heading to a specific subheading
  - E.g., Ovid Embase: Major Depression/dt [drug therapy] will retrieve articles that looks at drug therapy for major depression
- * = truncation: searches for alternate endings of a word

MANAGING SEARCH STRATEGIES AND RESULTS

- Here are a few suggestions on how to **manage your search strategies**:
  - Register for an account in a database and save your search strategy
  - Email, export, print, or save the search history to file
    - It is recommended that you do this on the same day you export the results
      - Record the date of export on the search strategy history, and be sure to also make note of the total number of records retrieved in each database
- Here are a few suggestions on how to **manage your search results:**
  - Use citation software tools (e.g., EndNote (free via Web of Science), Mendeley, Zotero)
  - Use knowledge synthesis management software (e.g., DistillerSR, Rayyan, Covidence)
    - It is recommended that you screen the results outside of the database as there will be duplication of records

RESOURCES

- Bonato, S. (2018). *Search the Grey Literature: A Handbook for Searching Reports, Working Papers, and Other Unpublished Research*. Rowman & Littlefield Publishers
- Grant, M. J., & Booth, A. (2009). A typology of reviews: an analysis of 14 review types and associated methodologies. *Health Information & Libraries Journal*, *26*(2), 91-108.
- Kellermeyer, L., Harnke, B., & Knight, S. (2018). Covidence and Rayyan. Journal of the Medical Library Association: JMLA, 106(4), 580.
- Nilashi, M., Dalvi, M., Ibrahim, O., Zamani, M., & Ramayah, T. (2016). An interpretive structural modelling of the features influencing researchers' selection of reference management software. *Journal of Librarianship and Information Science*, 0961000616668961 Lorenzetti, D. L., & Ghali, W. A. (2013). Reference management software for systematic reviews and meta-analyses: an exploration of usage and usability. *BMC medical research methodology*, *13*(1), 141.
- Ouzzani, M., Hammady, H., Fedorowicz, Z., & Elmagarmid, A. (2016). Rayyan - A web and mobile app for systematic reviews. *Systematic Reviews, 5*(1), 1–10. https://doi.org/10.1186/s13643-016-0384-4
- Rader T., Mann M., Stansfield C., Cooper C. & Sampson M. (2014). Methods for documenting systematic review searches: a discussion of common issues. Res Synth Methods, 5(2). doi:10.1002/jrsm.1097.
- Saleh, A. A., Ratajeski, M. A., & Bertolet, M. (2014). Grey literature searching for health sciences systematic reviews: a prospective study of time spent and resources utilized. *Evidence Based Library and Information Practice*, *9*(3), 28-50.

THANK YOU

Jo-Anne Petropoulos
petroja@mcmaster.ca

McMaster University

HEALTH SCIENCES