SRC - Medical Librarian Talk

How Quillen Librarians Can Help

- Help researchers decide if they need a systematic, scoping, or narrative review
    - If search is systematic, see request form.
    - Librarians will ask for authorship regarding systematic reviews as we will develop the search with researchers, perform the searches, and pull the dataset together using EndNote. We will also write the Methods portion of the article that details this process and provide PRISMA compatible reporting on the search.
- Provide consultation about research topics in relation to search strategy development
- Assist in developing replicable search strategies across multiple databases
- Discuss inclusion/exclusion criteria as it relates to the search
- Discuss time expectations on both sides
- Discuss tech and program availability (citation managers, distiller/covidence type tools)
- Assist with some aspects of the publishing process, such as journal suggestions, submission tips, etc.
- Consultation about editing paper drafts prior to submission

Intro to Literature Searching

STEP 1: Question Formation

Be clear with your question. Avoid vague terms. Terms that are too generic are likely to bring in too many results. See below for tips on doing this.

- Consider if the following are relevant to your query:
    - Age of population studied
    - Sex of population studied
    - Ethnicity of population studied
    - Socioeconomic levels of population studied
    - Location of population (Avoid "regions" as they are usually poorly indexed and defined. Stick to states, countries, or rural/urban terms.)
    - Article type(s)/level of evidence desired
    - Years published
- Decide if your question relates to:
    - Therapy/treatment
    - Prevention
    - Diagnosis
    - Prognosis/forecast
    - Etiology/causation
- Consider using PICO(T) to narrow your search. (See examples of PICO questions.)
    - Patient/Population
    - Intervention
    - Control/Comparison
    - Outcome
    - Timeframe

STEP 2: Beginning the Search Process

==Once you know your question, we <u>strongly </u>suggest meeting with a librarian ESPECIALLY if you intend to work on a systematic review. We will help you through the searching process.==

- <u>Database choice: </u>When choosing a database, we suggest that you consider the following:
    - o <u>Database functionality</u>
        - ▪ Some databases have more robust search capabilities than others and all databases format searches differently. You will be using a combination of databases, so you will want some that have strong search capabilities in addition to those that are subject specific that may not allow for a complex search.
        - ▪ Example: If you're searching on a physical therapy topic you would want to use PubMed (robust search capabilities, general medical database that allows you to cull physical therapy literature from the general medical lit), but you would *also* want to use PEDro (poor search capabilities but includes and is limited to physical therapy specific content that might not be available via PubMed).
        - ▪ You'll ultimately combine results from multiple databases to create your own dataset, so you want to make sure that you have multiple sources of content covered.
    - o <u>Search topic</u>
        - ▪ We assume that your topic is medical and, therefore, you will be using medical databases such as PubMed, Cochrane Databases, and CINAHL; however, medical topics can and do intersect with other disciplines such as:
            - • Education (ERIC, etc.)
            - • Psychology (PsycINFO, etc.)
            - • Sociology (Sociological Abstracts, etc.)
            - • Environmental science (Environment Complete, Agricola, etc.)
            - • Sports Medicine or Physical Therapy (SPORTDiscus, PEDro, etc.)
            - • Agriculture/Food Science (Agricola, etc.)
    - o <u>Database Availability</u>
        - ▪ You'll have to work with the databases that you have access to. Check our library website as well as the Sherrod Library website to see databases that you have access to.
        - ▪ Example: We cannot do systematic reviews with the database Embase, even though that is what Cochrane standards recommend. We do not have access to Embase as it is cost prohibitive; however, we can still can produce a systematic review using other databases – just ask.
    - o <u>Gray literature sources</u>
        - ▪ Gray literature is literature like conference proceedings, white papers, authoritative websites, and the like. You usually cannot find this information in databases.
        - ▪ Do not limit yourselves to databases when you search. We do encourage use of web search engines; however, <u>their results should serve to fill gaps in your search, not to create the bulk content of your search results.</u>

- When using Google stick to the Advanced Search functions to limit results to .edu or .gov domains, to search with relevant phrases, to look in relevant professional society or conference websites for phrases, etc.
- Look to reference sections of articles that already fit your topic as another way of searching the gray literature.
- Realize that you will never be able to go through all the results from gray literature searching. This is why it is important to have the bulk of your information from databases. Database searches have the ability to be systematic and replicated while Google searches do not.

STEP 3: Search and Document

Although searching and documenting are two different topics, we group them together because you should be documenting/making notes *while* you search.
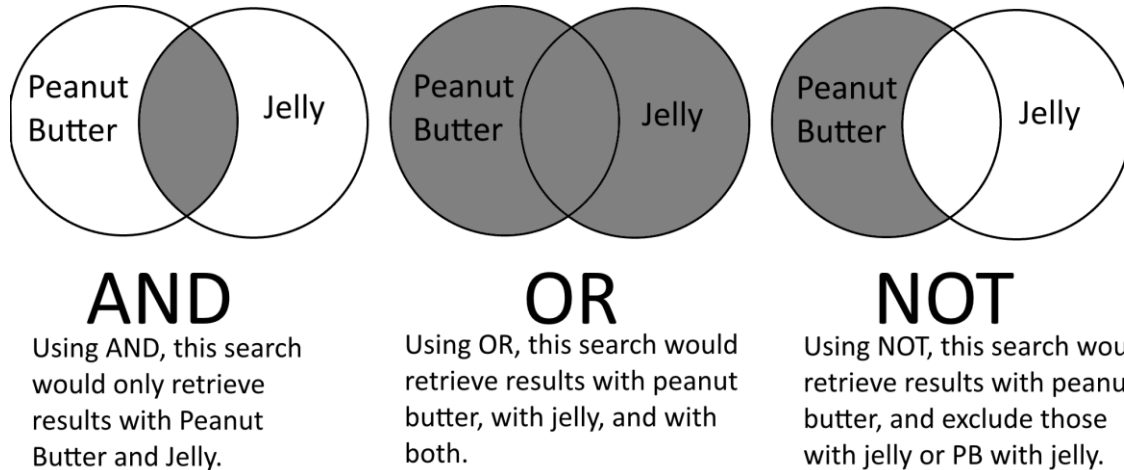
- Term selection
  - Once you start with your search you will need to compile different types of terms to create your search strategy.
  - You can pull terms from your own knowledge base and from literature you've already identified.
  - The two main types of terms are controlled vocabulary and keywords. To format a comprehensive search you will want to use a combination of controlled vocabulary (if available) and keywords.
    - Controlled vocabulary
      - Most databases have a form of controlled vocabulary. This is how articles are indexed within the database.
      - Sometimes controlled vocab is called "subject headings" or the "thesaurus". The controlled vocabulary in PubMed is called MeSH, short for "Medical Subject Headings".
      - Remember that there is not a corresponding controlled vocabulary term for every word – sometimes you have to rely on keywords alone because a controlled vocabulary term doesn't exist.
      - Example: The MeSH (controlled vocab) term for Heart Attack is "Myocardial Infarction"[Mesh]
    - Keywords
      - Keywords are often synonyms of controlled vocabulary terms, but they can also be an unformatted version of the controlled vocabulary term itself.
      - Keywords can be searched as phrases or as plurals.
      - For example, keyword phrases for "Myocardial Infarction"[Mesh] would be "myocardial infarction" OR "myocardial infarctions" OR "heart attack" OR "heart attacks".
- Developing a Search Strategy
  - Search structure
    - Different databases format searches differently. For example, the search for "Myocardial Infarction"[Mesh] in PubMed would be formatted as (MH "Myocardial

Infarction") in CINAHL. <mark>This is why we recommend you consult with us as you develop your strategy. We are happy to help you format it correctly across your chosen databases.</mark>

- o Boolean logic
    - Most databases use Boolean Operators AND, OR, and NOT to combine terms. The image below from Slippery Rock University demonstrates how databases read these operators.

AND
Using AND, this search would only retrieve results with Peanut Butter and Jelly.

OR
Using OR, this search would retrieve results with peanut butter, with jelly, and with both.

NOT
Using NOT, this search would retrieve results with peanut butter, and exclude those with jelly or PB with jelly.

- o Phrase searching
    - Generally, you may search for a phrase by using quotation marks.
    - For example, to ensure that you search for heart attack as one phrase instead of heart AND attack, search for "heart attack".
- o Search fields
    - Different aspects of articles are stored in relevant fields so that databases can retrieve them quickly. For example, an author's name would be stored in the author field for the database.
    - When searching with keywords you may wish to search in specific fields to pull more relevant results.
    - Example: When searching for heart attack, you may wish to see this phrase in the title or abstract of an article. Searching in the title and abstract fields in PubMed looks like "heart attack"[tiab]. Searching in the title and abstract fields in CINAHL looks like (TI ("heart attack")) OR (AB ("heart attack")).
- o Filters
    - Search filters can be activated to limit your search results. In PubMed filters are found in the column to the left of search results.
    - Filters usually stay activated between searches, so remember to de-activate them when you are finished using them.
    - Have a rationale for the filters you use. For example, you may only want to review RCTs, hence you would use an article type to limit to RCTs.
    - Common filters used are:
        - Language
        - Publication date

- - • Article Type
    - o General tips
        - ▪ Try different versions of your search
        - ▪ Make sure to keep record of what you have tried and why it did or did not work
        - ▪ Once you have settled on the search strategy that you would like to use, document why that strategy meets the needs of the project that you are working on.
- - Documentation
    - o You should be documenting search terms and filters used as you develop your strategy. Once you have developed a strategy you may begin to apply it to different databases. (Again, we recommend librarian assistance with this.)
    - o PRISMA Guidelines
        - ▪ PRISMA is a reporting structure for systematic reviews and meta-analyses.
        - ▪ See the link above for the PRISMA checklist and related flow diagram for systematic review reporting.

STEP 4: Citation Management

As you are performing your finalized search across different databases you will want to pull those search results into a citation manager to review them later.

- • Citation managers serve two main purposes
    - o They allow you to combine all of your results from multiple databases and remove duplicate references. This is especially useful if you are performing a systematic review.
    - o They allow you to auto-format citations in word documents and change the style of those citations.
- • There are many citation managers available. We most commonly use EndNote, but any citation manager that you are comfortable with may work.
- • If you are interested in using EndNote Basic:
    - o See a quick video tutorial here.
    - o See an in-depth handout here.

STEP 5: Article Review/Analysis

As librarians our primary goal in this process is to provide search assistance so that researchers have a reliable collection of literature to analyze. We generally leave analysis of materials to subject matter experts. (We are the searching experts. The researchers are the subject matter experts.)

Analysis can involve several things, but usually involves examining the literature and including or excluding materials based upon pre-determined inclusion/exclusion criteria. For more information on inclusion/exclusion criteria, see the PRISMA standards.

STEP 6: Write-up and Publication Tips

When you are ready to write-up an article discussing the findings of your analysis, you may find the following links helpful.

- • JCE Writing Tips Series

- o These are brief articles that provide checklists for authors on what to do for every part of the article development process.

- Journal Selector Tools
  - o Paste in an abstract and keywords from your article into these tools for suggested journals to publish in:
    - Journal/Author Name Estimator (Jane)
    - EndNote matching feature (must have a free EndNote Web account to use)
    - Edanz Journal Selector
    - Elsevier Journal Finder
    - Springer Journal Selector (Beta)

- Impact Tools
  - o Generally speaking, the higher the impact factor the more people read the journal. I wouldn't worry too much about targeting journals with high impact, but you can use tools like SCImago to pull a list of journals in a certain specialty, which might help you.
    - SCImago Journal Rankings
    - Google Scholar metrics
    - iCite (paste in PubMed query or article PMID for metrics)