E.R.C. Library presents: Research Strategies

- Keywords/Subject Terms
- Boolean Operators
- PICO
- Levels of Evidence
- Search Engines
- Advanced Web Searching Methods
- Evaluating Scholarly Information
- Searching for Nurse Authors
Creating a Search Strategy

Keywords vs. Index/Subject Terms

• Keywords
  – Help to broaden your results.
  – They will be searched for in journal titles, author names, article titles, and article abstracts.
Index/Subject Terms

- Index/Subject terms
  - Help to focus your search appropriately, looking for items that have had a specific term applied by an indexer.
Why use a subject heading when keyword searching works just fine?

A subject heading search helps when the keyword selected has many meanings.

\textit{e.g. I need information on AIDS, the disease.}

Because a computer simply reads a string of letters, and not the meaning of the actual word, the search will often pick up results that are not relevant to the topic.

For example, if a search is run using the word \textit{aids}, the computer will pick up \textit{handicapped aids, visual aids, diabetes aids}, etc.—but you meant AIDS, the disease.

However, if a researcher looks up the word \textit{aids} in CINAHL Headings, it will direct them to a number of choices with the word \textit{aids} in them, one of them being the heading, \textit{acquired immunodeficiency syndrome}.

Subject headings are controlled vocabulary created by organizations to give consistency to the way that literature is described.
Acquired Immunodeficiency Syndrome falls under HIV infections under two types of Virus Diseases, Retrovirus Infections and Sexually Transmitted Diseases.
Build on your terms

CINAHL Subject Headings are arranged in a hierarchy. The "explode" feature lets you select the term, plus any terms indented underneath it.

When you select **Major Concept** for a term, you create a search query that finds only records for which the subject heading is a major point of the article. Searches are limited with specific qualifiers (subheadings) to improve the precision of the search, and limited to major subject headings indicate the main concept of an article.

*Click Browse Additional Terms to add more headings to your search*
Combining Search Terms Using Boolean Operators

**OR**
- CHILD
- ADOLESCENT

OR: Retrieves records containing *either* the word “child” *or* the word “adolescent.”

*OR between terms makes the search broader*

Examples: doctors OR physicians
Injuries OR accidents

**AND**
- CHILDREN
- DISABLED

AND: Retrieves records containing *both* the words “children” and “disabled.”

*AND between terms makes the search narrower*

Examples: Vitamin C AND Cancer
doctors AND managed care

**NOT**
- DISABLED
- DEAF

NOT: Retrieves records containing the word “disabled” but *not* the word “deaf.”

*NOT can exclude certain terms but is used rarely*
Formulating Queries

PICO

TYPES OF QUESTIONS

LEVELS OF EVIDENCE
Quantitative Questions: The PICO Model

Clinical and nursing practice questions can be broken down into the PICO(T) format, which breaks a question apart into searchable parts:

<table>
<thead>
<tr>
<th></th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>P</strong></td>
<td>Patient, Population, or Problem</td>
</tr>
<tr>
<td><strong>I</strong></td>
<td>Intervention, Prognostic Factor, or Exposure</td>
</tr>
<tr>
<td><strong>C</strong></td>
<td>Comparison or Intervention (if appropriate)</td>
</tr>
<tr>
<td><strong>O</strong></td>
<td>Outcome you would like to measure or achieve</td>
</tr>
<tr>
<td></td>
<td>What Type of question are you asking?</td>
</tr>
<tr>
<td></td>
<td>Type of Study you want to find</td>
</tr>
<tr>
<td></td>
<td>How would I describe a group of patients similar to mine?</td>
</tr>
<tr>
<td></td>
<td>Which main intervention, prognostic factor, or exposure am I considering?</td>
</tr>
<tr>
<td></td>
<td>What is the main alternative to compare with the intervention?</td>
</tr>
<tr>
<td></td>
<td>What can I hope to accomplish, measure, improve, or affect?</td>
</tr>
<tr>
<td></td>
<td>Diagnosis, Etiology/Harm, Therapy, Prognosis, Prevention</td>
</tr>
<tr>
<td></td>
<td>What would be the best study design/methodology?</td>
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</table>
Defining the Question Type

- Different types of clinical questions are best answered by different types of research studies.
- Understanding what types of studies are best suited for your question can improve your search for information to answer your question.
- All types of clinical questions can be answered by systematic reviews or meta-analyses, when available.
- When these filtered resources are not available, look for unfiltered resources (individual studies), focusing on the study types appropriate to your question.
- The table below suggests study designs best suited to answer each type of clinical question.

### Defining the Question Type

<table>
<thead>
<tr>
<th>Type of Question</th>
<th>Def.</th>
<th>Study</th>
<th>PICO Template</th>
<th>PICO example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Therapy</td>
<td>Deciding if a treatment’s pros outweigh the cons.</td>
<td>Systematic Review/Meta-analysis → RCT → Case Control → Case Series</td>
<td>&quot;In <em>P</em> do/dose <em>L</em> result in <em>O</em> when compared with <em>C</em> over <em>T</em>?&quot;</td>
<td>In Healthy Full-term newborns who are undergoing a painful procedure, does sucrose combined with radiant warmth result in lessened pain during a painful procedure when compared with using only sucrose?</td>
</tr>
<tr>
<td>Diagnoses</td>
<td>How to evaluate and analyze diagnostic tests.</td>
<td>Cross-Sectional → Prospective, Blind comparison to Gold Standard</td>
<td>&quot;Is/are <em>L</em> performed on <em>P</em> more effective than <em>C</em> over <em>T</em> in <em>O</em>?&quot;</td>
<td>&quot;Are self-reporting interviews and parent reports performed on children aged 5-10 more effective than parent reports alone over a four-week consultation process in diagnosing depression?&quot;</td>
</tr>
<tr>
<td>Etiology</td>
<td>How to determine a cause for disease.</td>
<td>Systematic Review/Meta-analysis → RCT → Cohort Study → Case Control → Case Report</td>
<td>&quot;Are <em>P</em> with <em>L</em> over <em>T</em> more likely to <em>O</em> when compared with <em>C</em>?&quot;</td>
<td>&quot;In early childhood, does Hand dishwashing result in fewer or More Allergic Disease developments when compared with Machine Dishwashing in Children aged 7-8 years?&quot;</td>
</tr>
<tr>
<td>Prognosis</td>
<td>How to estimate and anticipate a patient’s likely course of disease or treatment, excluding intervention factors named in PICO.</td>
<td>Cohort Study → Case Control → Case Series</td>
<td>&quot;Do/does <em>L</em> performed on <em>P</em> lead to <em>O</em> over <em>T</em> compared with <em>C</em>?&quot;</td>
<td>&quot;Does location of suture fusion in school-aged children with single-suture-craniosynostosis lead to developmental delays when compared with unaffected children or children with different suture locations?&quot;</td>
</tr>
<tr>
<td>Prevention</td>
<td>How to anticipate and correct barriers to a patient's health.</td>
<td>RCT → Cohort Study → Case Control</td>
<td>&quot;In <em>P</em> do/dose <em>L</em> result in <em>O</em> when compared with <em>C</em> over <em>T</em>?&quot;</td>
<td>&quot;In emergency room visitors, do hand sanitizing stations result in fewer in-hospital infections when compared with no hand sanitizing stations over a year-long pilot period?&quot;</td>
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<tr>
<td>Level of evidence (LOE)</td>
<td>Description</td>
<td></td>
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<td>-------------------------</td>
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<tr>
<td>Level I</td>
<td>Evidence from a systematic review or meta-analysis of all relevant RCTs (randomized controlled trial) or evidence-based clinical practice guidelines based on systematic reviews of RCTs or three or more RCTs of good quality that have similar results.</td>
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<td>Level II</td>
<td>Evidence obtained from at least one well-designed RCT (e.g. large multi-site RCT).</td>
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<tr>
<td>Level III</td>
<td>Evidence obtained from well-designed controlled trials without randomization (i.e. quasi-experimental).</td>
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<tr>
<td>Level IV</td>
<td>Evidence from well-designed case-control or cohort studies.</td>
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<tr>
<td>Level V</td>
<td>Evidence from systematic reviews of descriptive and qualitative studies (meta-synthesis).</td>
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<tr>
<td>Level VI</td>
<td>Evidence from a single descriptive or qualitative study.</td>
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<tr>
<td>Level VII</td>
<td>Evidence from the opinion of authorities and/or reports of expert committees.</td>
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</table>
Resources

SEARCH ENGINES
ADVANCED SEARCHING
EVALUATING RESOURCES
Search Engines

• Search engines are large databases of web page files.

• When you use a search engine (such as Google, Yahoo, Ask, Bing) you are asking it to scan its index of sites and match your keyword(s) and phrase(s) with those in the texts of documents within its database.
Meta search engines

• A search engine that queries other search engines and then combines the results that are received from all. In effect, the user is not using just one search engine but a combination of many search engines at once to optimize Web searching.
Advanced Google Searching

- Due to the sheer number of words indexed by search engines you may get many responses to simple search requests
- Try using the “Advanced Search” feature found in the lower right corner of Google under Settings
Microsoft PowerPoint (.ppt)
Microsoft Word documents (.doc)
Microsoft Excel file (.xls)
Portable Document Format (.pdf)
JPEG image (.jpg)

Scenario: You would like to review APA formatting for an upcoming paper that is due. You type: APA format filetype: .ppt
Success: You have several PowerPoint presentations to pick from.
Site or Domain Searching

This search tells Google to limit your search to a particular site or domain. For instance, if you limit to site:berkeley.edu you would only search the UCBerkeley site. Similarly site:gov would search only sites ending in .gov and site:edu would search only sites ending in .edu.
YOU are the filter
Ask yourself: THE FOUR W’s

• **Who runs this site?**
  – Institution, Professional Association or Organization, For-Profit Company, Government (check the file extension: .EDU, .GOV, .ORG, .COM)
  – How is the site paid for: Individual, Organization, by Advertisements
  – Check for an “About Us” or “bio” section and way to contact the webmaster, provide feedback or ask questions about the site content.

• **What is the purpose of this site?**
  – Who is the site’s intended audience: patients, physicians, health professionals, consumers
  – Is the site set up for: education, sales, support, research
YOU are the filter
Ask yourself: THE FOUR W’s

• Where does the information on the site come from?
  – Is there an editorial board, and if so, what are their qualifications
  – Are there citations for information and research presented as fact? If so, track down the original documents using PubMed Single Citation Matcher
  – What is the methodology used for any data/research materials presented?

• When was the site last updated?
  – Does the page itself show when it was last updated?
  – How current is the information/research cited?

AND FINALLY...
Does the information provided match information you have already found in familiar, reputable resources?
Evaluating Scholarly Information

• Same standards apply as with websites
• Peer reviewed?
• Is it a scholarly article or letter to the editor/comment/column?
• Is it a randomized controlled trial or a review?
• Is it a well-known journal? Publisher? Author? Affiliation?
• How many times cited?
Peer Review

What Is Peer Review?

In academic publishing, the goal of peer review is to assess the quality of articles submitted for publication in a scholarly journal. Before an article is deemed appropriate to be published in a peer-reviewed journal, it must undergo the following process:

- The author of the article must submit it to the journal editor who forwards the article to experts in the field. Because the reviewers specialize in the same scholarly area as the author, they are considered the author's peers (hence "peer review").
- These impartial writers are charged with carefully evaluating the quality of the submitted manuscript.
- The peer reviewers check the manuscript for accuracy and assess the validity of the research methodology and procedures.
- If appropriate, they suggest revisions. If they find the article lacking in scholarly validity and rigor, they reject it.

Because a peer-reviewed journal will not publish articles that fail to meet the standards established for a given discipline, peer-reviewed articles that are accepted for publication exemplify the best research practices in a field.

How Do I Find Peer-Reviewed Articles?

The easiest and fastest way to find peer-reviewed articles is to search the online library databases, many of which include peer-reviewed journals. To make sure your results come from peer-reviewed (also called "scholarly" or "academic") journals, do the following:

Read the database description to determine if it features peer-reviewed articles.

When you search for articles, choose the Advanced Search option. On the search screen, look for a check-box that allows you to limit your results to peer-reviewed only.

If you didn't check off the "peer-reviewed articles only" box, try to see if your results can organized by source. For example, the database Criminal Justice Abstracts will let you choose the tab "Peer-Reviewed Journals."
Searching for Nurse Authors

EBSCOhost

Searching: CINAHL Complete, Show all | Choose Databases

Enter any words to find books, journals and more

Search Options ▶ Basic Search ▶ Advanced Search ▶ Search History

Special limiters for CINAHL Complete

- Abstract Available
- Research Article
- Search Only Pre-CINAHL
- CE Module
- Meta-Synthesis

- English Language
- Exclude Pre-CINAHL
- Exclude MEDLINE records
- Evidence-Based Practice
- Clinical Queries
  - All
  - Therapy - High Sensitivity
  - Therapy - High Specificity
  - Therapy - Best Balance

- Human
- Any Author is Nurse
- Randomized Controlled Trials
Questions

Please feel free to stop by the library, Educational Resources Building 110, if you would like assistance using our database platforms.

You may wish to email librarian, Marisa Tolosa at MTolosa2@dhs.lacounty.gov, with reference questions.

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Friday 0730-1400 (Closed 1200-1300)

Hours may be subject to change.
Closed weekends and holidays.