Clinical Decision-Making I Handout

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Agenda

- Review of Hardin and Resources
- Creating a Searchable Question – PICO
- Practice
- Basic Search in PubMed
- Practice
- Break
- Advanced PubMed – MeSH
- Practice
- Limits
- Clinical Queries
- Single Citation Matcher
- My NCBI
- Practice and time for questions

Things to Remember:

- Access resources from Hardin Library webpage http://www.lib.uiowa.edu/hardin/
- Refer to the EBP LibGuide for more information http://guides.lib.uiowa.edu/ebp
- Librarians are here to help you
- **If it takes you more than 15 minutes to run a search (not including reviewing results), stop and ask for assistance.**

Exercises

1. In patients with the "common cold" (viral URI), is zinc a safe and effective treatment option?

	Initial Question	Alternate Vocabulary
Patient		
Intervention		
Comparison		
Outcome		

Search strategies that worked best?

2. Does administration of the MMR vaccine in childhood increase the future risk of developing autism?

	Initial Question	Alternate Vocabulary
P		
I		
C		
O		

Search strategies that worked best?

3. In a patient with acute abdominal pain where you are mainly worried about appendicitis, how does abdominal CT scan compare to ultrasonography in its ability to accurately diagnose appendicitis and thereby minimize unnecessary or delayed surgery?

	Initial Question	Alternate Vocabulary
P		
I		
C		
O		

Search strategies that worked best?

4. In a child with acute otitis media, is treatment with an antibiotic necessary for a good outcome?

	Initial Question	Alternate Vocabulary	MeSH Terms
P			
I			
C			
O			

Search strategies that worked best?

5. How safe is home birth in the United States?

	Initial Question	Alternate Vocabulary	MeSH Terms
P			
I			
C			
O			

Search strategies that worked best?

For these vignettes, develop a relevant clinical question and search PubMed.

Vignette #1

Your current appointment is a 25-year-old woman with a 2-day history of right leg pain. She denies any trauma to the leg. She has no fever but has noticed the leg is swollen, warm and red. The leg pain is causing ambulatory difficulty. She has no history of illness or recent history of prolonged immobility. She denies chest pain or shortness of breath and exercises three times a week by walking vigorously. She takes oral contraceptives and smokes 2 packs per day. There is no family history of blood clotting problems.

Vital Signs
T: 98.6° F
BP: 110/70 mmHg
RR: 12 breaths/min
HR: 80 beats/min

The patient's height is 66 inches and weight is 125 lb. (BMI=20.2). Skin, lungs and heart are all normal under physical examination. Right leg is erythematous, warm and tender to palpation. Pulses are 2+ bilaterally.

Presentation suggests deep venous thrombosis. Would an ultrasound be a good way to confirm this diagnosis?

	Initial Question	Alternate Vocabulary	MeSH Terms
P			
I			
C			
O			

Limits?

Vignette #2

S.C. was a 4-year-old boy who presented to his primary care physician with complaints of worsening cough and shortness of breath. On physical exam, he was at the 5th percentile for weight, and he had expiratory wheezes with prolonged expiration. Pulmonary function testing could not be performed at his age, but a chest x-ray film showed evidence of bronchiectasis. Further history did not reveal risk factors for tuberculosis, but it was noted that one of his siblings had died in infancy. Routine laboratory testing result was unremarkable, and skin testing result was negative for tuberculosis. He had no risk factors for HIV and had no abnormality in leukocyte count. A sweat chloride was obtained because of a suspicion for CF. The initial test was indeterminate at 50 mEq/mL. Repeated sweat chloride tests were 60 and 64 mEq/ml establishing the diagnosis of CF.

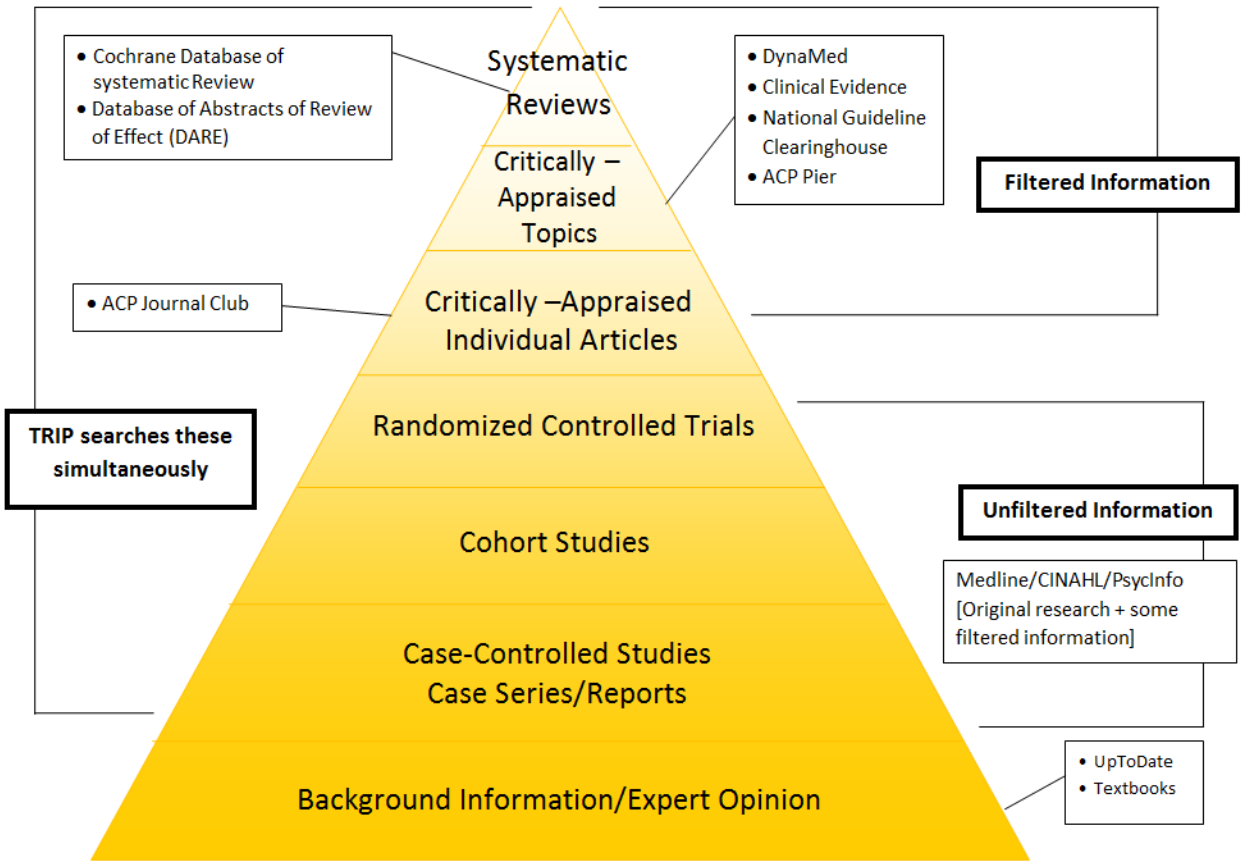
The child's parents are understandably concerned about the diagnosis and, after pursuing some research on their own, question why their son wasn't screened for CF at birth.

	Initial Question	**Alternate Vocabulary**	**MeSH Terms**
P			
I			
C			
O			

Limits?

Publication Types Considered to be Evidence Based

Levels of Evidence Pyramid



Adapted from Supporting Clinical Care: An Institute in Evidence-Based Practice for Medical Librarians. (2010). Evidence Pyramid. http://www.dartmouth.edu/~biomed/institute2010/

This is often referred to as the "evidence pyramid". It is used to illustrate the evolution of the literature.

The base of the pyramid is where information usually starts with an idea or laboratory research. As these ideas turn into drugs and diagnostic tools they are tested in laboratories models, then in animals, and finally in humans. The human testing may begin with volunteers and go through several phases of clinical trials before the drug or diagnostic tool can be authorized for use within the general population. Randomized controlled trials are then done to further test the effectiveness and efficacy of a drug or therapy. ***As you move up the pyramid the amount of available literature decreases, but increases in its relevance to the clinical setting.***

A **Meta-analysis** will thoroughly examine a number of valid studies on a topic and combine the results using accepted statistical methodology as if they were from one large study. Some clinicians put Meta-analysis at the top of the pyramid because part of the methodology includes critical appraisal of the selected RCTs for analysis.

Systematic Reviews usually focus on a clinical topic and answer a specific question. An extensive literature search is conducted to identify all studies with sound methodology. The studies are reviewed, assessed, and the results summarized according to the predetermined criteria of the review question. *The Cochrane Collaboration* has done a lot of work in the area of systematic reviews.

Randomized controlled clinical trials are carefully planned projects that study the effect of a therapy on real patients. They include methodologies that reduce the potential for bias (randomization and blinding) and that allow for comparison between intervention groups and control groups (no intervention).

Studies that show the efficacy of a diagnostic test are called **prospective, blind comparison to a gold standard study.** This is a controlled trial that looks at patients with varying degrees of an illness and administers both diagnostic tests -- the test under investigation and the "gold standard" test -- to *all* of the patients in the study group.

Cohort Studies take a large population and follow patients who have a specific condition or receive a particular treatment over time and compare them with another group that has not been affected by the condition or treatment being studied. Cohort studies are observational and not as reliable as randomized controlled studies, since the two groups may differ in ways other than in the variable under study.

Case Control Studies are studies in which patients who already have a specific condition are compared with people who do not. They often rely on medical records and patient recall for data collection. These types of studies are often less reliable than randomized controlled trials and cohort studies because showing a statistical relationship does not mean than one factor necessarily caused the other.

Case series and **Case reports** consist of collections of reports on the treatment of individual patients or a report on a single patient. Because they are reports of cases and use no control groups with which to compare outcomes, they have no statistical validity.

The pyramid serves as a guideline to the hierarchy of evidence available. You may not always find the best level of evidence to answer your question. In the absence of the best evidence, you then need to consider moving down the pyramid to other types of studies.

From http://www.hsl.unc.edu/services/tutorials/EBM/Supplements/QuestionSupplement.htm

Limits for Evidence Based Literature

Depending upon the database you use, you will need different limits to find evidence based information. This handout will tell you what to look for in the different databases, but it is best to meet with a librarian for assistance. If you are having trouble finding articles that fit these requirements, you may need to consider information with lower levels of evidence.

PubMed

Once you have run a search, you will see a "filter" bar to the left of the page. You may need to look under "More" for some of these publication types. For some studies, you will have to use MeSH (ex. Cohorts).

Case Reports	Controlled Clinical Trial	Meta Analysis	Guideline
Clinical Trial	Randomized Control Trial	Practice Guideline	Clinical Trial
Systematic Review			

You may also want to use "Clinical Queries" (located near the bottom middle of PubMed's front page) to find systematic reviews and articles by clinical study category.

CINAHL

Make sure you are using the Advanced Search (see link right beneath search box).
Run your search. Now, there is a box to the right of your results that says "Limit Your Results". Click the link at the bottom of the box that says "Search Options."

You can select the option for Evidence Based Practice, or you will want to scroll to the bottom of the page where it says "Publication type" and select any or all of the following…

Case Study	Evidence Based Care Sheet	Practice Guidelines
Clinical Trial	Systematic Review	

If this does not get you any material, you could also try limiting to other publication types such as Research or limiting to Journal Subset "peer reviewed." Don't forget to look at the clinical queries, too.

Basic Searching in PubMed

PubMed contains over 19 million citations for biomedical literature from MEDLINE, life science journals, and online books.

Accessing the Database

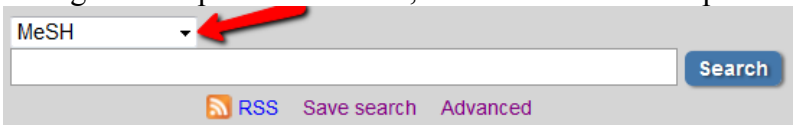
1. Go to the Hardin Library homepage at http://www.lib.uiowa.edu/hardin/
2. Click on the link that says "PubMed." It is located near the top left of the page under the heading "Popular Databases." (NOTE: While PubMed is freely available, it is best to access it from the Hardin Library website so that you will have access to full text articles that you are only entitled to as an affiliate of the University of Iowa).
3. If you are off-campus, you will be prompted for your Hawk ID and password.

Searching via Keywords (Quicker search, but less focused search)

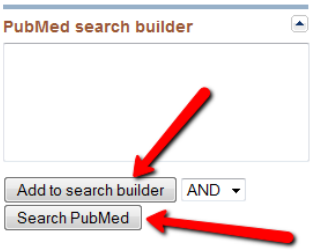
1. Break your search into concepts. For instance, a search on the effects of aspirin on hypertension has two concepts. "Aspirin" is one and "hypertension" is the other.
2. Search one term at a time.
3. Check the "Details" box on the bottom, right-hand side of the screen to see how PubMed interpreted your search and make changes accordingly.
4. Repeat steps 2 and 3 as necessary for additional terms.
5. Combine searches and then limit your search as necessary (See "Combining Searches" and "Limiting Results" on the second page of this handout).

Searching via MeSH (More structured search meant to yield higher quality citations)

1. Break your search into concepts. For instance, a search on the effects of aspirin on hypertension has two concepts. "Aspirin" is one and "hypertension" is the other.
2. Change the drop box to "MeSH," then enter one concept in to the search box at a time.



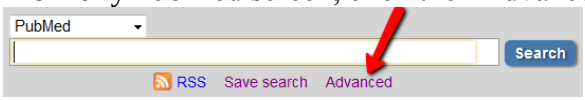
3. You will be given a list of MeSH terms. Use the descriptions beneath the terms to determine which is most appropriate and then check the box to the left of your chosen term. (Note: if you want to use subheadings, click the link for the MeSH term).
4. Now, near the top, right of the screen, click the "Add to Search Box" button.
5. If you have another term to search, clear the top search box and enter your new term.
6. Once you have entered all of you terms, select "Search PubMed.



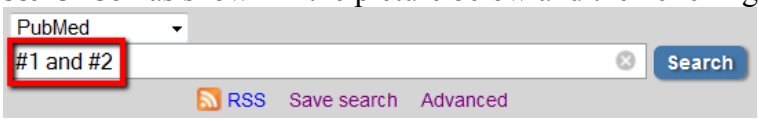
7. Combine searches and then limit your search as necessary (See "Combining Searches" and "Limiting Results" on the second page of this handout).

Combining Search Results (Search History)

1. From any PubMed screen, click the "Advanced Search" link above the search box.



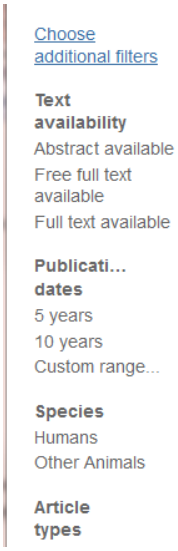
2. Near the middle of the screen is your Search History. You can combine your previous searches by typing the "#" plus the number to the left of the appropriate search into your search box as shown in the picture below and then clicking the "Search" button.



Limiting Search Results

1. You have options for limiting your search results to certain age groups, languages, publication types, etc. To limit a search result, use "Choose Additional Filters" option to the left of your search results.

2. Select the appropriate limits. Keep in mind that the more limits you select, the fewer articles you will retrieve. Also, be aware that not all limits show up. You may have to click, "more…" to see all available options. Then, click the limits again. They are activated when they turn blue with a checkmark to the left.

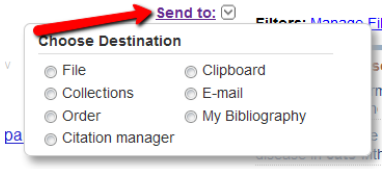


Managing Results

1. You can check the boxes to the left of citations and then email or print them out for later use. Once you have checked all the citations you are interested in go to the top right of the screen and click on the "Send to" link.

   a. To email: simply click the "email" option.

   b. To print: click the "Clipboard" option. Then, click the link for "Clipboard" near the top right of the screen. All the items you've selected will display for printing.



Finding Full Text

1. Click the title of an article to see more information, including options for full text access, abstracts (when available), and MeSH terms.

2. To see if full text is available, use the InfoLink button 

. (It is generally located near the top right of the screen).

3. If no full text is available, contact us at Hardin or use our interlibrary loan service http://www.lib.uiowa.edu/hardin/illa.html