

EBP Literature Searching Skills - Part 1

**8th Annual Nursing Research Conference
Christiana Hospital, Newark, DE
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Agenda – Part 1

- ❖ Path to an evidence-based practice
- ❖ Formulating a research question
- ❖ Using the PICO format
- ❖ Type of clinical questions
- ❖ Study types
- ❖ Simple search and database record review
- ❖ Practice clinical query and search strategy development
- ❖ Tips for creating a search strategy

The Desire

- ❖ Consistently deliver high quality healthcare
- ❖ Achieve the best patient outcomes
- ❖ Maintain a professional commitment to an evidence-based practice

The Challenge

- ❖ Two million articles published in the biomedical literature annually (year: 1978)¹
- ❖ Publication growth rate is increasing geometrically
- ❖ If practitioners were to attempt to keep up with the literature by reading two articles per day, in 1 year they would fall 55 centuries behind¹
- ❖ If physicians were to read everything of possible biomedical relevance, they would need to read 5500 articles per day (year: 1986)²

¹Cogent Communication: Overcoming Information Overload. Bernier, & Yerkey 1979

²How to keep up with the medical literature: I. Why try to keep up and how to get started. Annals of Internal Medicine, 1986

What is needed?

- ❖ First requirement: a spirit of inquiry¹

- ❖ Second requirement: critical thinking²
 - Be aware (beware) of assumptions (pervasive in our thinking patterns)
 - Cloud our thinking
 - Check their accuracy and validity
 - Begin reasoning toward inferences (thoughts we form as we reason toward conclusions)
 - Find evidence to support our inferences
 - Draw conclusions from developed observations & facts

¹Adapted from Evidence-based practice, step by step: Asking the clinical question: A key step in evidence-based practice, American Journal of Nursing, 2010

²Adapted from Teaching Evidence-Based Practice in Nursing, Levin & Feldman 2013

What is needed?

- ❖ Third requirement: asking the clinical question
 - Well-built clinical questions help us search for the most current literature

 - Use PICO(T) as a guide to systematically identify components of a clinical issue
 - Increases likelihood of quickly and efficiently finding the best evidence to inform your practice

Adapted from Evidence-based practice, step by step: Asking the clinical question: A key step in evidence-based practice, American Journal of Nursing, 2010

What is needed?

- ❖ Fourth requirement: tenacity when doing library research
 - Searching is a complex process
 - Give yourself time to get to know a tool
 - Basic online tutorials
 - Trial and error
 - Ask your librarian

Begin to formulate question

- ❖ Is it a Background question?
 - General information on an issue
 - Answer can usually be found in a textbook
 - Necessary before you can answer a foreground question
 - e.g. What is eczema?

- ❖ Is it a Foreground question?
 - Focus on a specific clinical issue
 - Can be answered from scientific literature
 - e.g. Will acupressure help my patient with eczema?

PICO (T)

P (population, patient, or problem)

I (intervention)

C (comparison)*

O (outcome)

(T) (time)*

*not always required

PICO*

- P (age, gender, specific disease)
- I (therapy or issue of interest)
- C (alternative treatment, placebo, no intervention)
- O (expected outcome (positive) or outcome to avoid)

*Your query may not always fit neatly into the PICO format

Types of clinical questions

- ❖ Intervention/Therapy
- ❖ Diagnosis (or diagnostic test)
- ❖ Prognosis
- ❖ Etiology/Harm
- ❖ Meaning

Intervention/Therapy

- In _____ (P)
- How does _____ (I)
- Compared to _____ (C)
- Affect _____ (O)
- Within _____ (T)

Diagnosis

- In _____ (P)
- Are/is _____ (I)
- Compared with _____ (C)
- More accurate in diagnosing _____ (O)

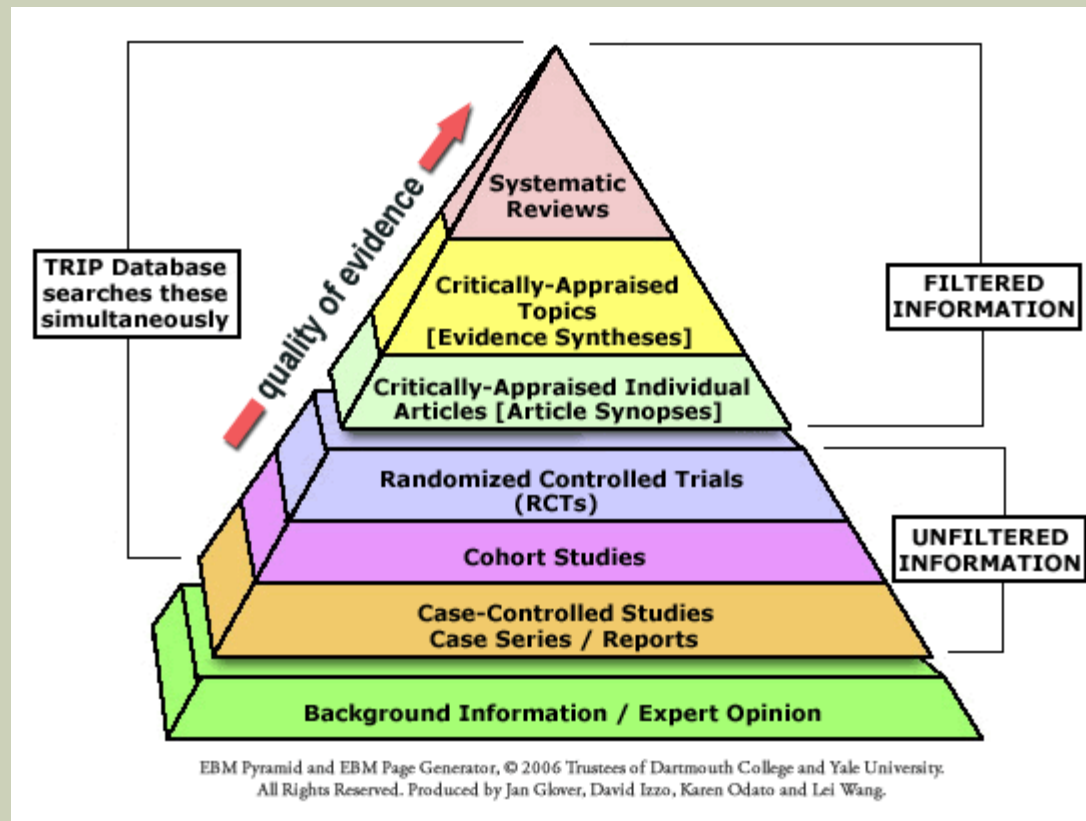
Prognosis

- In _____ (P)
- How does _____ (I)
- Compared to _____ (C)
- Influence or predict _____ (O)
- Over _____ (T)

Etiology

- Are _____ (P)
- Who have _____ (I)
- Compared with those without _____ (C)
- At _____ risk for _____ (O)
- Over _____ (T)

EBM Levels of Evidence Pyramid



Let's try a simple search first

Field searching (free-text)

You heard about an article that has chocolate and happiness in the title but you have no other details about it

- Concept 1: chocolate AND Concept 2: happiness
- Search in Medline

Result:

A clinical trial gone awry: the Chocolate Happiness Undergoing More Pleasantness (CHUMP) study.

Chan, K. (2007). A clinical trial gone awry: The chocolate happiness undergoing more pleasantness (CHUMP) study. *Canadian Medical Association Journal*, 177(12), 1539-1541.

Let's take a look at the record

MeSH Subject Headings

Adult

*Cacao (this is the preferred term for chocolate; the asterisk means that it is a major focus of the article)

*Candy

Double-Blind Method

Feeding Behavior

Female

*Happiness

Humans

Male

*Wit and Humor as Topic (clicking on any hyperlinked subject heading will take you to articles in the database that are indexed with it; this heading has 2,829 papers that are indexed in Medline, that is, out of over 22 million biomedical articles in Medline, only 2,829 are humorous 😊)

Before we go any further...

Let's talk about the process of creating a search strategy along with some search tips

Create a search strategy

- ❖ Select a database(s) (e.g. Medline, CINAHL)

- ❖ Use keywords (main concepts) from your PICO question to formulate your search strategy
 - It helps to put them in the format of a chart
 - Columns for each main concept (these concepts will be combined in the strategy using 'AND') but first...
 - Add additional similar or related terms for each main concept (these similar terms can be searched together using 'OR' in the strategy)

Create a search strategy

- ❖ Use database's controlled vocabulary to find the preferred subject headings for that database that closely match the terms in your chart
 - "MeSH" (Medline) - Medical Subject Headings
 - "CINAHL Headings"

- ❖ Use free-text (e.g. as you would enter terms in a Google search box) when your term is not indexed in the database's controlled vocabulary
 - newer terms or concepts often don't make it into the database's controlled vocabulary right away

Searching tips

- ❖ Major focus: your term must be the main point of the article

- ❖ Truncation: use asterisk in many databases to obtain various forms of a term (useful if term is not in database's controlled vocabulary)
 - E.g. impermeab* will retrieve articles that contain impermeable or impermeability

Searching tips

- ❖ Explode function: database will search for related terms under a subject heading

- ❖ Boolean searching: AND, OR, NOT

- ❖ Combining search statements
 - E.g. CINAHL: S1 AND S2 (tick box next to set 1 and set 2 then click on 'Search with AND' button to combine them)

More searching tips

- ❖ Limits & Filters: date, language, review articles, systematic reviews, clinical queries, etc.
- ❖ Utilize subheadings in MeSH and CINAHL: help to refine your topic. E.g. heart failure/th
 - The subheading/th signifies therapy (in both Medline and CINAHL) and by adding it to your term 'heart failure' it will retrieve records with the focus of heart failure and therapy)
- ❖ Related citations
- ❖ Utilize database tutorials

Clinical Scenario

A nurse in a pain clinic works with patients with chronic back pain and wonders if evidence supports the use of yoga as a treatment option.

Worksheet: <http://bit.ly/12IFiH6>

Create PICO Question

What type of question is it?

Intervention/Therapy or Etiology or Diagnosis?

In _____ "patients with chronic back pain " _____ (P)

How does _____ "yoga" _____ (I)

Compared to _____ (C)

Affect _____ "pain management" _____ (O)

"Do patients with chronic back pain who practice yoga experience less pain?"

MEDLINE OR CINAHL

Concept 1	<u>AND</u>	Concept 2	<u>AND</u>	Concept 3
Chronic back pain (use preferred MeSH term: Back Pain/) Use subheadings for 'therapy' and 'prevention and control' – Back Pain/th, pc		Yoga/		After combining concept 1 and concept 2, you may want to look at your results before adding other terms. These results will provide a broad view of the topic but if you'd like to further narrow or focus your results you can add the following term(s) or other measures you are interested in:
<u>OR</u>		<u>OR</u>		
Low Back Pain/th, pc				Pain measurement/
				<u>OR</u>
				Quality of Life/
				<u>OR</u>
				Treatment Outcomes/

Suggested Search Strategy* in OVID Medline

1. exp Low Back Pain/th, pc
2. exp Back Pain/th, pc
3. 1 or 2
4. exp Yoga/
5. 3 and 4
6. limit 5 to (english language and clinical trial, all)

*One size does not fit all! Search strategies will vary for each research question.

Suggested Search Strategy* in CINAHL

1. (MH "Back Pain+/PC/TH") OR (MH "Low Back Pain/PC/TH")
2. (MH "Yoga+")
3. S1 AND S2
4. Apply Limiters - English Language; Research Article

*One size does not fit all! Search strategies will vary for each research question.

EBP Literature Searching Skills - Part 2

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Agenda – Part 2

- ❖ Study types (continued)
- ❖ Practice clinical query and search strategy development
 - using your own clinical scenario or one from the instructor
- ❖ Professional practice

Study types

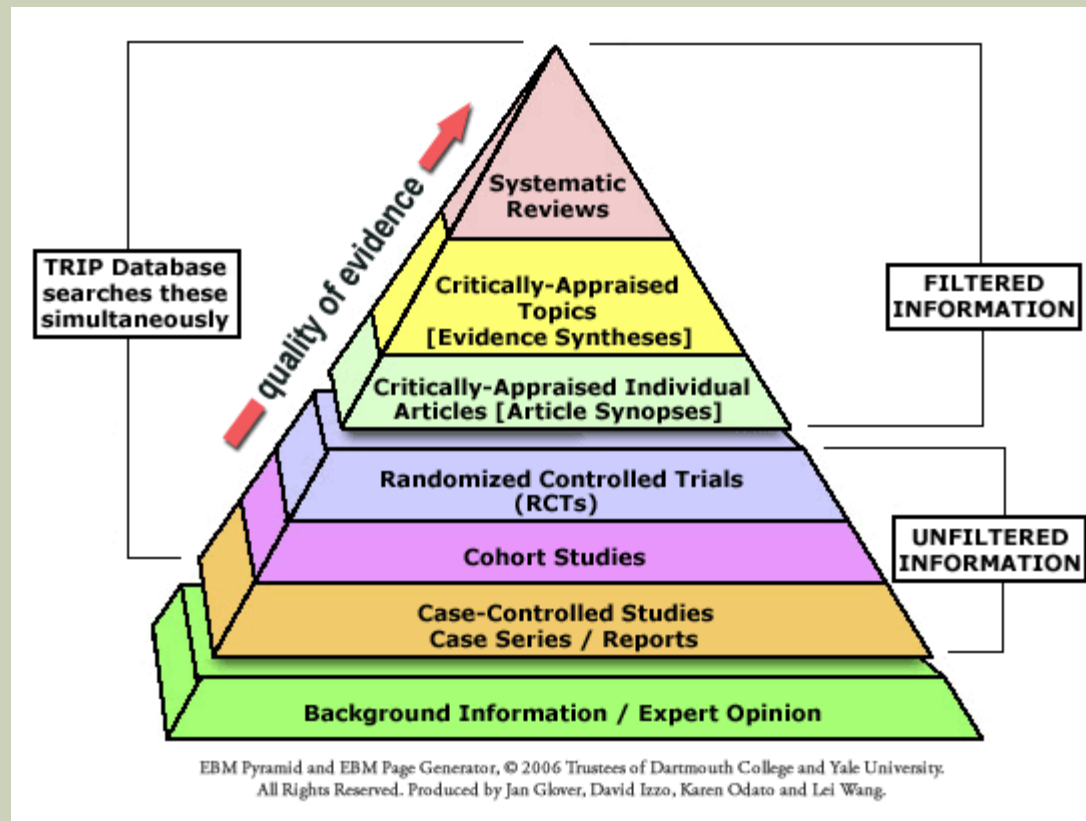
Can be found in biomedical literature databases

- Systematic Reviews
- Meta-analysis
- Randomized controlled clinical trials
- Cohort studies
- Case control studies
- Case series and Case reports
- Cross-sectional studies

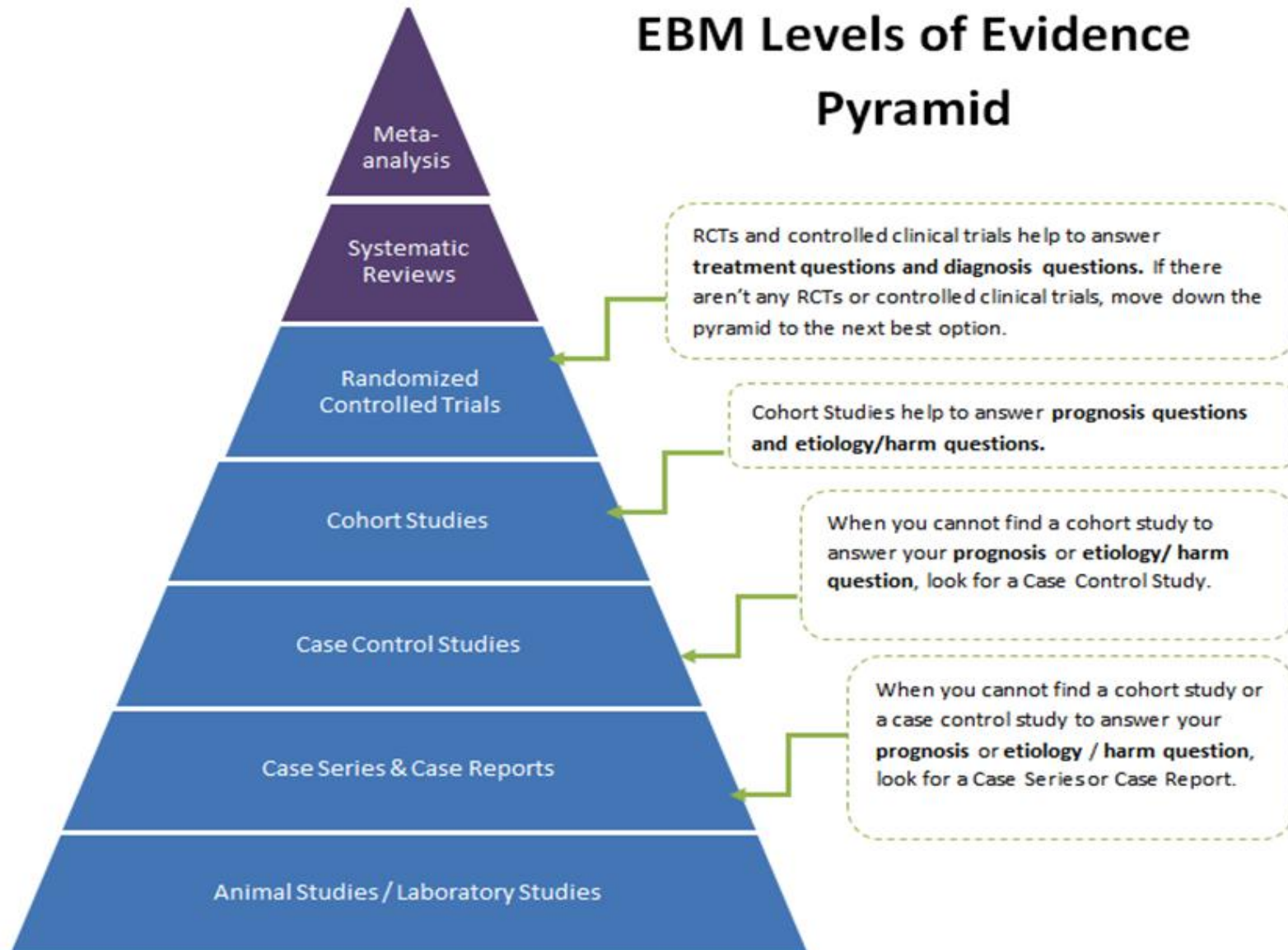
See description of studies at:

<http://guides.mclibrary.duke.edu/content.php?pid=431451&sid=3530453>

EBM Levels of Evidence Pyramid



EBM Levels of Evidence Pyramid



Type of Question	Suggested best type of Study
Therapy	RCT > cohort > case control > case series
Diagnosis	prospective, blind comparison to a gold standard
Etiology/Harm	RCT > cohort > case control > case series
Prognosis	cohort study > case control > case series
Prevention	RCT > cohort study > case control > case series
Clinical Exam	prospective, blind comparison to gold standard
Cost	economic analysis

Source:

<http://www.hsl.unc.edu/Services/Tutorials/EBM/Supplements/QuestionSupplement.htm>

Cochrane Database of Systematic Reviews

- ❖ Systematic reviews of research in healthcare and health policy
- ❖ Type of reviews include
 - Intervention
 - Diagnostic
 - Methodology
- ❖ Findings based on the results of trials which meet certain quality criteria
- ❖ Can search for reviews in Medline but must subscribe to Cochrane to view full reviews

Cochrane Database Search

Search
Search Manager
Medical Terms (MeSH)
Browse

Title, Abstract, Keywords ▼

AND ▼

"yoga"

"back pain"

Go

Save

[Search Limits](#)
View search tips
(Word variations have been searched)

All Results (27)

- Cochrane Reviews (2)
 - All
 - Review
 - Protocol
- Other Reviews (2)
- Trials (21)
- Methods Studies (1)
- Technology Assessments (0)
- Economic Evaluations (1)
- Cochrane Groups (0)

- All
- Current Issue

Cochrane Database of Systematic Reviews : Issue 8 of 12, August 2013

Issue [updated daily](#) throughout month

There are **2** results from **8065** records for your search on **"yoga" in title abstract keywords and "back pain" in title abstract keywords in Cochrane Reviews'**

Sort by Relevance ▼

[Select all](#) | [Export all](#) | [Export selected](#)

Individual patient education for low back pain
 Arno J Engers , Petra Jellema , Michel Wensing , Daniëlle AWM van der Windt , Richard Grol and Maurits W van Tulder
 January 2008

[Review](#)

Yoga treatment for chronic non-specific low-back pain
 L. Susan Wieland , Nicole Skoetz , Eric Manheimer , Karen Pilkington , Ramaprabhu Vempati and Brian M Berman
July 2013

A Protocol is an outline of a review in preparation

Protocol

Me

Methodology

Clinical Scenario

A nurse working with asthmatic patients in a hospital setting is occasionally asked by patients being discharged if they should use impermeable bed covers to decrease exposure to dust mites.

Worksheet: <http://bit.ly/12IFiH6>

Create PICO Question

What type of question is it?

Intervention/Therapy or Etiology or Diagnosis?

In _____ "asthmatic patients" _____ (P)
 How does _ "the use of impermeable bed covers" _____ (I)
 Compared to _____ (C)
 Affect _____ "peak expiratory flow" _____ (O)

In patients with asthma does the use of impermeable bed covers improve peak expiratory flow?

Medline

Concept 1	<u>AND</u>	Concept 2	<u>AND</u>	Concept 3	<u>AND</u>	Concept 4
Asthma/		Bedding (use preferred MeSH term: Bedding and Linens/)		Impermeable (not a preferred term; use impermeab* to retrieve impermeable and impermeability)		peak expiratory flow (use preferred MeSH term: peak expiratory flow rate/)
		<u>OR</u>		<u>OR</u>		
		Linens (use preferred MeSH term: Bedding and Linens/)		Barrier (not a preferred term; use barrier* to retrieve barrier or barriers)		To broaden your topic you may consider other terms to 'OR' with "peak expiratory flow", e.g. "symptoms"
		<u>OR</u>				
		Covers (not a preferred MeSH term; use cover* to retrieve cover, covers, etc.)				

Suggested Search Strategy* in OVID Medline

1. exp Asthma/
2. exp "Bedding and Linens"/
3. cover*.mp.
4. 2 or 3
5. impermeab*.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept, rare disease supplementary concept, unique identifier]
6. barrier*.mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept, rare disease supplementary concept, unique identifier]
7. 5 or 6
8. exp Peak Expiratory Flow Rate/
9. 1 and 4 and 7 and 8
10. limit 9 to (english language and clinical trial, all)

*One size does not fit all! Search strategies will vary for each research question.

Your legacy!

- ❖ Commitment to a professional practice
- ❖ Career vs job
- ❖ Share your knowledge beyond your institution
- ❖ **Publish your results**
 - NAHRS 2012 Selected List of Nursing Journals
<http://nahrs.mlanet.org/home/>

Resources

- AGREE II (international tool for the assessment of practice guidelines)
<http://www.agreetrust.org/>
- CINAHL (Cumulative Index for Nursing and Allied Health Literature); subscription-based via EBSCOHost; check your library resources
- Cochrane Database (for systematic reviews); subscription-based; can retrieve titles/abstracts from Medline but full records only through subscription (check your library resources)
- DARE (Database of Abstracts of Review of Effects); a database of abstracts of quality assessed systematic reviews produced by the Centre for Reviews and Dissemination; available at <http://www.crd.york.ac.uk/crdweb/> and its content is also available via the Cochrane Library, TRIP Database, OVID's Evidence-Based Medicine Reviews.
- InterTASC Information Specialists' Sub-Group Search Filter Resource (search filters designed to retrieve research by study design or focus)
<https://sites.google.com/a/york.ac.uk/issg-search-filters-resource/home>
- Joanna Briggs Institute EBP Database (includes systematic reviews); subscription based <http://joannabriggs.org/> (check your library resources)

Resources

- KT Clearinghouse (formulating answerable clinical questions)
<http://ktclearinghouse.ca/cebm/practise/formulate>
- Medical Library Association: Nursing and Allied Health Resources
Section: NAHRS 2012 Selected List of Nursing Journals
<http://nahrs.mlanet.org/home/>
- Medline (biomedical literature database); free access at PubMed
www.pubmed.gov/ but full-text might not be freely available; or via
OvidSP (subscription-based), check your library resources
- National Guideline Clearinghouse (public resource for evidence-based
clinical practice guidelines) <http://www.guideline.gov/>
- Natural Standard (evidence-based information about complementary and
alternative medicine); subscription based
<http://www.naturalstandard.com/> (check your library resources)
- PubMed Health (clinical effectiveness research)
<http://www.ncbi.nlm.nih.gov/pubmedhealth/>
- Trip Database (searches multiple sources for evidence-based
information); free access at <http://www.tripdatabase.com/>

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Thank you!

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Link to slides <http://jdc.jefferson.edu/aisrpubs/33/>