Evidence-Based Practice Literature Search Skills

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November 3, 2017

The National Library of Medicine (NLM), on the campus of the National Institutes of Health in Bethesda, Maryland, has been a center of information innovation since its founding in 1836.

National Network of Libraries of Medicine (NNLM)
- Trainings
- Funding
- Consultations on resources
- Exhibits
**Objectives**

- Find patient education information using MedlinePlus and Genetics Home Reference
- Access drug information using Drug Information Portal
- Find clinical trials by condition and limit to those with results in ClinicalTrials.gov

**Objectives, continued**

- Find clinical practice guidelines
- Find systematic reviews in PubMed Health and PubMed/MEDLINE

**Steps in Evidence-Based Research:**

1. Asking answerable questions
2. Finding the best evidence
3. Critically appraising the evidence
4. Applying a decision
5. Evaluation

Step 1: Asking answerable questions using PICO

- Patient, Problem, Population
- Intervention or therapy
- Comparison, Control, Context
- Outcome

Step 2: Finding the best evidence

Finding the best evidence with which to answer the question through structured searches and understanding the literature:

- Primary Studies
  - Clinical trials
  - Randomized Controlled Trials
  - Multicenter studies
- Secondary (synthesized, summarized) Studies
  - Reviews
  - Meta-analyses

Hierarchy of Evidence
Step 3: Critical appraisal

- Can it help?
- Is it valid?
- Is it important?

Step 4: Application

- How much will it help a patient or population?
- Does it meet their values and goals?
- Is it cost-effective?

Step 5: Evaluation

Formative
- Assess whether elements of program are appropriate
- Conducted prior to program implementation

Process
- Assess program planning, delivery
- Quality control: What is being delivered vs. what is intended

Impact
- Assess program outcomes, benefits
- May be completed after program or after program has been established for some time

Patient Education

**MedlinePlus details:**

- 1000 health topics in English and Spanish
- Videos and animations
- Drug and herbal supplement information
- Multiple languages
- Medical dictionary and encyclopedia
- Easy-to-read materials
MedlinePlus topic pages

1000 topics!
• Bedbugs
• Cardiac rehabilitation
• Caregivers
• Coping with chronic illness
• Elder abuse
• Food allergy

• Gay, lesbian, bisexual, and transgender health
• Osteoporosis
• Prescription drug abuse
• Self-harm
• Tick bites

MedlinePlus Connect

MedlinePlus has connected to health information from MedlinePlus.gov
Why MedlinePlus Connect?

- MedlinePlus Connect outreach identified as an NN/LM national initiative
- HHSinnovates Award in March 2011
- It is free and easy to implement
- It can be used alone or in conjunction with other patient education services
- Helps meet the patient-specific education criteria objective for meaningful use
**Diabetes**

Diabetes is a disease in which your body cannot properly use the food you eat for energy. Your cells need energy to live and grow. When you eat, food breaks down into a form of sugar called glucose. Glucose is another name for sugar. Glucose is carried to your cells through your bloodstream. When you have too much sugar in your blood, your blood glucose level is high. Insulin is a hormone made by your pancreas. It helps glucose move from your blood into your cells, so your body can use it for energy. People cannot live without insulin.

There are three main types of diabetes:

- **Type 1 diabetes**: the pancreas makes no insulin.
- **Type 2 diabetes**: the pancreas does not make enough insulin or your body is not able to use the insulin the pancreas makes.
- **Gestational diabetes**: during pregnancy, the mother is not able to make enough insulin, so she has the needs of both mother and baby.

**HealthReach opioids info**
Exercises (part 1)

My son has been having trouble using his inhaler correctly. Do you have any tips?

Exercises (part 1 cont.)

I have been using St. John’s Wort for depression? Is it safe?

Exercises (part 1 cont.)

Can you find me information to give my pregnant patients who speak Nepali?
Patients and Families

• ClinicalTrials.gov offers a reliable and generally comprehensive list of ongoing trials that people might consider enrolling in

• Gives patients a centralized place to search by condition, location, and other trial characteristics

*“Access to more information about clinical trials is good for patients, the public and science,” NIH Director Francis S. Collins, M.D., Ph.D.*

Sample Uses of ClinicalTrials.gov

• Access information about specific trial
  o Find trials for potential participants
  o Track progress and protocol changes
  o See results (if available)

• Assess available evidence relevant to a specific clinical topic

• Assess nature of current and past research

• Review methodologies used in clinical trials
What is PubMed?

- The world's premiere biomedical bibliographic database
- Online access to the MEDLINE database
- Contains more that 25 million citations to journal articles in these major content areas:
  - Biomedical Sciences
  - Nursing, Dentistry, Pharmacy and Allied Health
  - Veterinary Medicine
  - Preclinical sciences
3 ways to speed up your search

1. Use clinical queries to limit to clinical research areas
2. Use filters to limit your search quickly
3. Once you have one good article, click Related Citations to see more like it.

Clinical Queries

Evidence-based search filters:
- Systematic Reviews
- Therapy
- Etiology
- Prognosis
- Diagnosis
- Clinical Prediction Guides

Clinical Effectiveness and Clinical Guidelines

PubMed Health
National Guideline Clearinghouse
Systematic Reviews

- Critical assessment and evaluation of all research studies that address a particular clinical issue
- Studies are searched for and included in the review using a set of specific criteria
- May include a quantitative pooling of data, called a meta-analysis.
- **Example:** Scientists collected all the published studies that compared types of treatment for prostate cancer that had not spread beyond the prostate gland. They compiled the results of these studies in a comparative effectiveness review, which is a type of systematic review.

Source: Agency for Health Care Research and Quality
http://1.usa.gov/1gfJZnw
Exercises (part 2)

I have been told that I am at risk for inheriting androgenetic alopecia. What is it? Are there any clinical trials I can join?
Exercises (part 2 cont.)

In my dad’s pill box, I saw a pill I couldn’t recognize. It’s pink and oval-shaped and has E 54 printed on it. What is it? Can you give me information on what it’s used for?

Exercises (part 2 cont.)

You work on a surgical unit. You notice that patients that bring music to listen to seem to complain less about postsurgical pain. Is there any evidence to support your observation?

Exercises (part 2 cont.)

You are a nurse in the NICU. You want to improve mother-child bonding and reduce infant mortality. You want to try “kangaroo care.” How do outcomes compare to conventional neonatal care?
Exercises (part 2 cont.)

Find clinical trials looking at avastin treatment for macular degeneration. How many are recruiting? Are there any trials with results?

Exercises (part 2 cont.)

Find evidence-based interventions for the management of adolescent obesity.

Exercises (part 2 cont.)

Silver is often an ingredient in creams for diabetic foot ulcers. Is there evidence that it is useful?
Exercises (part 2 cont.)

Of the resources introduced, which one is most relevant to your work or of most interest to you? Give an example of how you might use it in the future.

Thanks!

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This project is funded by the National Library of Medicine, National Institutes of Health, Department of Health and Human Services, under Cooperative Agreement Number UG4LM012342 with the University of Pittsburgh, Health Sciences Library System.