Teacher's Toolbox 2010

Christie Newton
Robin Love

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WHAT IS IT?
LET ME GOOGLE YOU.
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Objectives

- To become more familiar with available online resources
- To better understand the strengths and weaknesses of different online resources
- To review how to efficiently access and use these resources in practice

What resources do you use?

Graber MA, et al. Answering clinical questions in the ED. Am J Emerg Med. 2008 Feb;26(2):144-7. PubMed

- Physicians have approximately 5 questions per 8-hour shift
- 2 most commonly used information sources
  - drug information resources (37% of the time)
  - electronic resources (Google, UpToDate) (29% of the time)

The tricks for practice:

- Know a handful of independent, objective sources relevant to your area
- Practice using these sources
- The key is to know how to find reliable, objective information fast

What are some of the features that you would consider to “appraise” a resource?

How to judge clinical resources

1. Content: accuracy, amount of information
2. Ease of use/interaction: layout, speed
3. Evidence based
4. Currency
5. Platforms/Formats
6. Cost
7. Special features

Examples of popular resources

- Clinical Evidence: http://clinicalevidence.bmj.com
- Clinical Guidelines Databases: http://www.cpsbc.ca or http://www.cfpc.ca
- Cochrane: http://www2.cochrane.org
- Essential Evidence Plus: http://www.essentialevidenceplus.com
- Google
- PubMed/Medline
- TRIP database: http://www.tripdatabase.com
- UptoDate
- Centre for Evidence Based Medicine

http://clinicalevidence.bmj.com


The Cochrane Library
Evidence for healthcare decision-making
InterScience
BROWSE
SEARCH
Title, Abstract or Keywords
Welcome to The Cochrane Library
More About The Cochrane Library
What's New in Issue 4, 2009?
Help! New Users Start Here
For Clinicians
For Researchers
For Patients
For Policy Makers
NEW
Cochrane Journal Club
Join the discussion

COCHRANE LIBRARY	
Cochrane Database of Systematic Reviews	6,076
Database of Abstracts of Reviews of Effects quality- assessing and summarising reviews not carried out by Cochrane Collaboration	11,887
Cochrane Central Register of Controlled Trials (CENTRAL; Clinical Trials)	608, 405
Cochrane Methodology Register (CMR; Methods Studies)	12,778
Health Technology Assessment Database details of health technology assessments from around the world	7,724
NHS Economic Evaluation Database (NHSEED; Economic Evaluations)	28,159
About The Cochrane Collaboration	82

GOOGLE

- “Drinking from a fire hose, don’t know where the water is coming from”
- Trawls some resources but not others – PubMed/Medline yes, UptoDate and other proprietary resources, no
- Searcher doesn’t have much control over date of publication

Google Scholar

Google scholar beta

Scholar Articles and patents | anytime | include citations

Results **1** - **10** of about **1,660,000**. (**0.10** sec)

The **medical home**, access to care, and insurance: a review of evidence
B Starfield, L Shi - Pediatrics, 2004 - Am Acad Pediatrics
... The **medical home**. **...** mortality in the United States: the roles of geographic area, socioeconomic status, household type, and availability of **medical** care. **...** Soc.1999; 47 :1425 –1429[ISI][Medline]; Manuel DG, Mao Y. Avoidable mortality in the United States and **Canada**, 1980-1996. **...**
Cited by 174 - Related articles - AONE Full Text @ KO - Get at CISTI - All 13 versions - Import into RefWorks

aucd.org [PDF]
Get it @ Western

The American College of Rheumatology 1990 criteria for the classification of ...
F Wolfe, HA Smythe, MB Yunus, RM Bennett ... - Arthritis Care & ... - interscience.wiley.com
... MA 7 McMaster University, Hamilton, Ontario, **Canada** 8 Oregon Health Sciences University, Portland, OR 9 University of Connecticut, Farmington, CT 10 McMaster University, Hamilton, Ontario, **Canada** 11 Sunnybrook **Medical** Centre, Toronto, Ontario, **Canada** 12 Toledo Clinic **...**
Cited by 3468 - Related articles - All 3 versions - Import into RefWorks

Get it @ Western

... of **medical** resources and quality of life after acute myocardial infarction in **Canada** ...
DB Mark, CD Naylor, MA Hlatky, RM Califf, ... - ... England Journal of ..., 1994 - content.nejm.org
... P = 0.001) and angiotensin-converting-enzyme inhibitors (P = 0.02), whereas significantly more US patients went **home** taking nitrates **...** Consumption of **Medical** Resources. **...** The initial hospitalization lasted one day longer in **Canada** than in the United States (P = 0.009), whereas **...**
Cited by 338 - Related articles - Get at CISTI - All 5 versions - Import into RefWorks

Get it @ Western

[PDF] **Home** care in **Canada**
K Wilkins, E Park - Health Reports, 1998 - statcan.ca
... Chart 6 Number with ADL or IADLneeds who did not receive formal **home** care in past year, household population aged 18 and older, **Canada ...** Health Reports (Statistics **Canada**, Catalogue 82-003-XPB) 1997; 8(4): 33-9. 2 Andersen GM **... Medical** Care 1997; 35(10): OS93-OS101 **...**
Cited by 64 - Related articles - View as HTML - BL Direct - All 18 versions - Import into RefWorks

statcan.ca [PDF]
Get it @ Western

TRIP Turning Research into Practice

- www.tripdatabase.com
- Clinical search engine developed by physicians
- Simultaneous searching of multiple sites to answer real clinical questions using the principles of evidence based medicine
- Filter your results based on an evidence based medicine hierarchy e.g. evidence-based synopses, systematic reviews

UptoDate

- Covers more than 7,400 topics in 13 medical specialties
- ~76,000 pages of text, graphics, links to Medline abstracts, ~254,000 references, and a drug database
- Updated version of UpToDate is released every four months (approximately 40% content is updated)

Bonis PA, et al. Association of a clinical knowledge support system with improved patient safety, reduced complications and shorter length of stay among Medicare beneficiaries in acute care hospitals in the United States. Int J Med Inform. 2008 Nov;77(11):745-53.PubMed

… compared hospitals with access to UpToDate with other acute care hospitals

RESULTS: Hospitals with access (n=424) were associated with significantly better performance than other hospitals in the Thomson database (n=3091) on risk-adjusted measures of patient safety (P=0.0163) and complications (P=0.0012), and had significantly shorter length of stay (by on average 0.167 days per discharge). All of these associations correlated significantly with how much UpToDate was used at each hospital.

LIMITATIONS: The study was retrospective and observational and could not fully account for additional features … that may also have been associated with better health outcomes.

Interesting evidence about EBM

Ely JW, et al. Patient-Care Questions that Physicians Are Unable to Answer. J Am Med Inform Assoc 2007;14(4):407-414 [PubMed]

- 3 types of questions accounted for 54% unanswered questions:
  - "Undiagnosed finding" questions -- management of abnormal clinical findings, such as symptoms, signs, and test results
  - "Conditional" questions – qualifying conditions appended to otherwise simple questions
  - Compound" questions about the association between two highly specific elements (Can X cause Y?)
- Conclusions:
  - To improve the chance of finding answers, physicians should change search strategies by rephrasing questions and searching more clinically oriented resources
  - Resource authors should anticipate questions that may arise in practice, resources should provide clearer and more explicit answers

Campbell R, Ash J. An evaluation of five bedside information products using a user-centered, task-oriented approach. Journal of the Medical Library Association 2006; 94(4):435-41, e206-7.[PubMed]

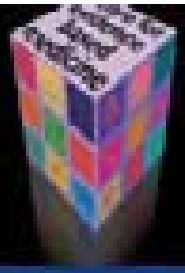
Conclusion: When evaluating electronic products designed for use at the point of care, the user interaction aspects of a product become as important as more traditional content-based measures of quality

The wise man doesn't give the right answers, he poses the right questions.

Claude Levi-Strauss

USE 4 PART "PICO" TO FORMULATE A FOCUSED CLINICAL QUESTION ABOUT THE PROBLEM:

	Fill-in column with your question
Patient population What group do you want information on?	
Intervention (or exposure) What medical event do you want to study the effect of?	
Comparison Compared to what? Better or worse than no intervention at all, or than another intervention?	
Outcomes What is the effect of the intervention?	



CEBM

CENTRE FOR EVIDENCE BASED MEDICINE

UNIVERSITY OF OXFORD

Levels of Evidence (March 2009)

www.cebm.net

Level **1A**	Therapy/Prevention, Aetiology/Harm	1a SR (with homogeneity* of RCTs
	Prognosis	SR (with homogeneity*) of inception cohort studies; CDR† validated in different populations
	Diagnosis	SR (with homogeneity*) of Level 1 diagnostic studies; CDR† with 1b studies from different clinical centres
	Differential diag/symptom prevalence	SR (with homogeneity*) of prospective cohort studies
	Economic and decision analyses	SR (with homogeneity*) of Level 1 economic studies
Level **1b**	Therapy/Prevention, Aetiology/Harm	Individual RCT (with narrow Confidence Interval‡)
	Prognosis	Individual inception cohort study with >80% follow-up; CDR† validated in a single population
	Diagnosis	Validating** cohort study with good††† reference standards; or CDR† tested within one clinical centre
	Differential diag/symptom prevalence	Prospective cohort study with good follow-up****
	Economic and decision analyses	Analysis based on clinically sensible costs or alternatives; systematic review(s) of the evidence; and including multi-way sensitivity analyses
Level **1c**	Therapy/Prevention, Aetiology/Harm	All or none§
	Prognosis	All or none case series
	Diagnosis	Absolute SpPins and SnNouts††
	Differential diag/symptom prevalence	All or none case-series
	Economic and decision analyses	Absolute better-value or worse-value analyses ††††
Level **2a**	Therapy/Prevention, Aetiology/Harm	SR (with homogeneity*) of cohort studies
	Prognosis	SR (with homogeneity*) of either retrospective cohort studies or untreated control groups in RCTs
	Diagnosis	SR (with homogeneity*) of Level >2 diagnostic studies
	Differential diag/symptom prevalence	SR (with homogeneity*) of 2b and better studies
	Economic and decision analyses	SR (with homogeneity*) of Level >2 economic studies

Critical Appraisal – Is the Evidence Good Enough?

It has been estimated that less than 20% of published literature is scientifically sound, leaving health practitioners with the often overwhelming task of sorting the valid, sound and useful literature from the invalid and ineffectual (Demaerschalk, 2004; Rychetnik & Wise, 2004). So, how can public health professionals decide if the evidence they find is good enough? The answer lies in a critical appraisal of the research evidence.

Ciliska et al 2008. **A Compendium of Critical Appraisal Tools for Public Health Practice**

Summary:

1. Refine your clinical question (PICOS)
2. Determine level of evidence and research methodology best suited for your question
3. Search in multiple (a few familiar) databases for a systematic review (if none, then look at primary literature)
4. Critically appraise what you found – read through the review to answer your question, do not rely solely on the authors conclusions or discussions.

McGowan JL, Grad R, Pluye P, et al. Electronic retrieval of health information by healthcare providers to improve practice and patient care. Cochrane Database Syst Rev. 2009 Jul 8;(3):CD004749.

OBJECTIVES: To assess the effectiveness of interventions intended to provide electronic retrieval (access to information) to health information by healthcare providers to improve practice and patient care.

MAIN RESULTS: ... two studies that examined this question. Neither study found any changes in professional behavior following an intervention that facilitated electronic retrieval of health information. There was some evidence of improvements in knowledge about the electronic sources of information reported in one study. Neither study assessed changes in patient outcomes or the costs of provision of the electronic resource and the implementation of the recommended evidence-based practices.

Referenced Material

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