EBM Core Competencies: An Area of Controversy

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Conflicts of interest

- Work with lots of guideline groups
- Co-chair GRADE working group
- Consultant UpToDate

Who are you and your experience?

- Clinicians look after patients or used to?
- Work closely with non-academic clinicians?
 - Colleagues or students (practicing clinicians, trainees)

Questions

- True or false?
- Conducting critical appraisal of primary research articles core skill/activity EBM clinician
- Conducting critical appraisal
 - Involves assessing risk of bias
- Assessing risk of bias requires reading methods and results

Estimates of behavior

- Non-academic practicing clinicians
- What % have read the methods and results of an original journal article in the last 6 months
 - Less than 5%
 - 5 to 20%
 - 20 to 50%
 - More than 50%

Provision of high quality care

Clinicians who never read methods and results can provide high quality evidencebased clinical care?

My beliefs

- Very few clinicians read methods and results
- Many provide basic EB high quality care
- Few provide most advanced EB care
 - Shared decision-making

How did I get to these beliefs?

- 1990 took over internal medicine residency
- Mission to teach new approach to medicine
- Needed a name: EBM

EDITORIAL

Evidence-Based Medicine

An internist sees a 70-year-old man whose main problem is fatigue. The initial investigation reveals a hemoglobin of 90 g/L. The internist suspects iron deficiency anemia. How might she proceed?

The way of the past

When faced with this situation during her training just a few years earlier, the internist was told by the attending physician that one ordered serum ferritin and transferrin saturation and proceeded according to the results. She now follows this path. If both results come back helow the laboratory's

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relevant (1).

She faxes the citation to the library at the local hospital and picks up the article when she does rounds the next morning. She reviews the paper and finds that it meets criteria she has previously learned about validating a diagnostic test (2) and that the results are applicable to patients like hers.

The study shows that she should order a serum ferritin level. but not transferrin saturation. which is less powerful and adds no useful information. She also finds that her laboratory's normal range for the test is misleading. The internist estimates the pretest likelihood of iron deficiency and orders the test. When the result is available, she uses data from the article to determine the sensitivity and specificity associated with the serum ferritin value obtained, calculates the post-test probability of iron deficiency, and then decides on further management.

Discussion

The way of the future described above depicts an important advance in the inclusion of new evidence into clinical practice. Clinicians were formerly taught to look to authority (whether a textbook. an expert lecturer, or a local senior physician) to resolve issues of patient management. Evidence-based medicine uses additional strategies, including quickly tracking down publications of studies that are directly relevant to the clinical problem, critically appraising these studies, and applying the results of the best studies to the clinical problem at hand. It may also involve applying the scientific method in determining the optimal management of the individual patient (3).

For the clinician, evidence-Based medicine requires skills of literature retrieval, critical appraisal, and information synthesis.* It also requires judgment of the applicability of evidence to the patient at hand and systematic approaches to make decisions when direct evidence is not available. The primary purpose of ACP Journal Club is to help make evidencebased medicine more feasible for internists by extracting new. sound clinical evidence from the morass of the biomedical literature so that practitioners can get at it.

Gordon H. Guyatt, MD, MSc

References

- Guyatt GH, Patterson C, Ali M, et al. Diagnosis of iron-deficiency anemia in the elderly. Am J Mod. 1990;88:205-9.
- Sackett DL, Haynes RB, Guyatt GH, Tugwell P. Clinical Epidemiology, a Basic Science for Clinical Medicine. 2nd ed Bostic Little, Born and Computer for Proceedings 1991.
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 3. Guyatt CH, Keller JL, Jaeschke R, et al. The n-of-1 randomized controlled trial: clinical usefulness. Our three-year experience. Ann Intern Med. 1990;112:293-9.

*Interested in acquiring or enhancing these skills? Attend the ACP Annual Meeting, 11-13 April 1991, for workshops on Searching the Literature on MEDLINE and Using the Clinical Literature to Solve Clinical Problems - The Editor

Evidence-Based Medicine

A New Approach to Teaching the Practice of Medicine

Evidence-Based Medicine Working Group

JAMA, November 4, 1992—Vol 268, No. 17

EBM represents a new paradigm for medical practice Less emphasis intuition, clinical experience, pathophysiologic rational Instead evidence from clinical research

Users' Guides to the Medical Literature

How to Get Started

JAMA, November 3, 1993—Vol 270, No. 17

Andrew D. Oxman, MD, MSc; David L. Sackett, MD, MSc; Gordon H. Guyatt, MD, MSc; for the Evidence-Based Medicine Working Group

Evolution of EBM

- Residency program the laboratory
- Teaching all residents to critically appraise
- All would be reading methods and results
- Maximal training compatible with residency

Evolution of EBM

- Seven years later
 - Failure in initial goals
 - Most won't have skills sophisticated appraisal
 - None will have the time

Practitioners of evidence based care

BMJ 2000;320:954-5

Not all clinicians need to appraise evidence from scratch but all need some skills

- Results and applicability still crucial
 - Trade offs benefits and harms
 - Shared decision-making



Consensus Statement | Medical Education

Core Competencies in Evidence-Based Practice for Health Professionals Consensus Statement Based on a Systematic Review and Delphi Survey

Loai Albarqouni, MD, MSc; Tammy Hoffmann, PhD; Sharon Straus, MD, MSc; Nina Rydland Olsen, PhD; Taryn Young, PhD; Dragan Ilic, PhD; Terrence Shaneyfelt, MD, MPH; R. Brian Haynes, MD, PhD; Gordon Guyatt, MD, MSc; Paul Glasziou, MBBS, PhD

JAMA Network Open. 2018;1(2):e180281. doi:10.1001/jamanetworkopen.2018.0281

What Clinicians Need to Know

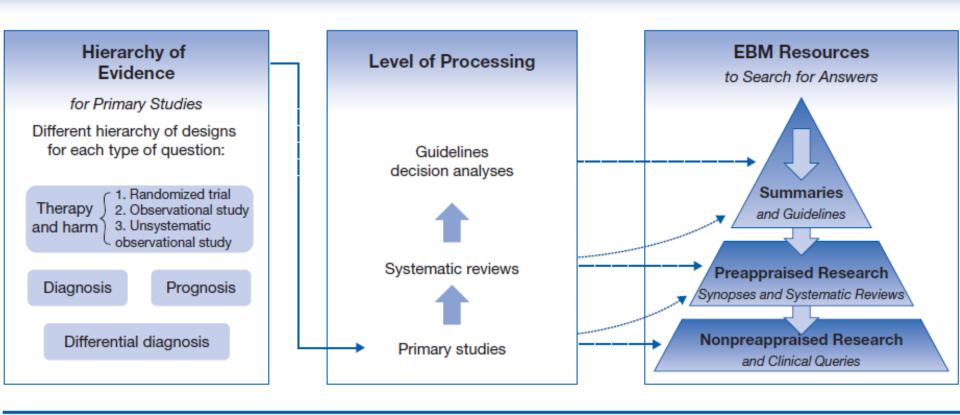
- Don't need
 - RoB
 - RCTs concealment, blinding, LFUP, ITT
 - Observational adjustment

0.4 Practice the 5 steps of EBP: ask, acquire, appraise and interpret, apply, and evaluate

Still teach – why?

0.3 For each type of clinical question, identify the preferred order of study designs, including the pros and cons of the major study designs

From Evidence to Evidence-Based Resources



>110 organizations have adopted **GRADE**





























































































































































































































What they need to know

- What do strong, weak recommendations mean?
- What does high to very low quality evidence mean?
 - Teach RoB, imprecision, inconsistency, indirectness, PB
- What is a relative and an absolute effect
 - What is the relation between the two
- Recognize trivial, small, moderate, large effects

Bad sore throat in last decade?

Single dose of dexamethasone

Comparison of benefits and harms									
Favours steroi	ds <	No important difference	ce Fav	Favours no steroids					
		Events per 1000 peop	le —	Evidence quality					
Complete pain resolution (24 hrs)	224	124 more	100	★★★ ★ Moderate					
Complete pain resolution (48 hrs)	608	183 more	425	★★★★ High					
	I	Mean time to resolution (h	iours)						
Complete pain resolution	33.0	11.1 fewer	44.0	★★★★ Low					
		Events per 1000 peop	le —						
Symptom recurrence or relapse	34	No important difference	ce 65	★★★ ★ Moderate					
Antibiotics prescription	468	96 fewer	564	★★★★ Low					

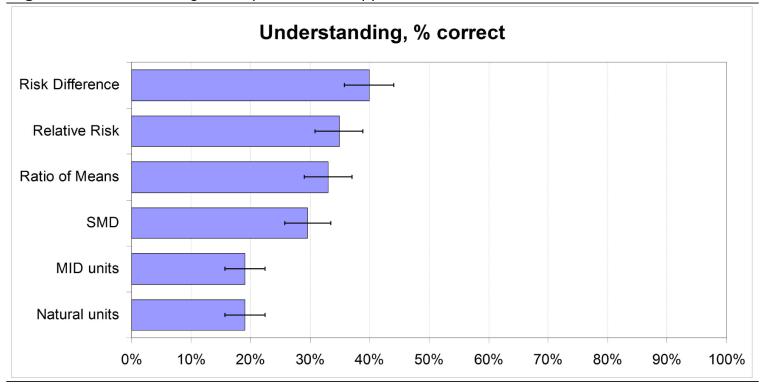
Weak



	Com	nparison of be	enefits and h	arms		
	Favours transfemoral TAVI		Favo	ours SAVR		
	Ev	ents per 1000 pe	Quality of evidence			
Deaths	73	19 fewer		92	***	Moderate
Strokes	56	14 fewer		70	***	Moderate
Aortic valve reinterventions	10		7 fewer	3	****	Moderate
Pacemaker insertions	226		134 fewer	92	***	Moderate
Life-threatening bleeds	161	252 fewer		413	****	High
New onset atrial fibrillation	134	178 fewer		312	****	High
Moderate / severe heart failure	87		18 fewer	69	****	Moderate
	Eve	ents per 1000 pe	ople – within 10 y	rears		
Aortic valve reinterventions	198		137 fewer	61	****	Very low
		Length of h	ospital stay			
Median days in hospital	8	4 fewer		12	****	High

Cross-sectional, paper-based survey Academic centers in 8 countries, Internal and family medicine, 531/610 (87%)

Figure 3: Understanding of the presentation approaches, n = 531



Problem: Clinicians don't understand results So how can they do shared decision-making?

Implications for education

- Critically appraise not a core skill
- Evidence summary
 - Magnitude of effect
 - Quality/certainty of evidence
- Much less RoB, critical appraisal
- Much more results, applicability
- Much less primary studies
- Much more systematic reviews, guidelines
- Do you tweet?



@EBCPMcMaster

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