

The 5-Minute EBM Clinician

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Objectives

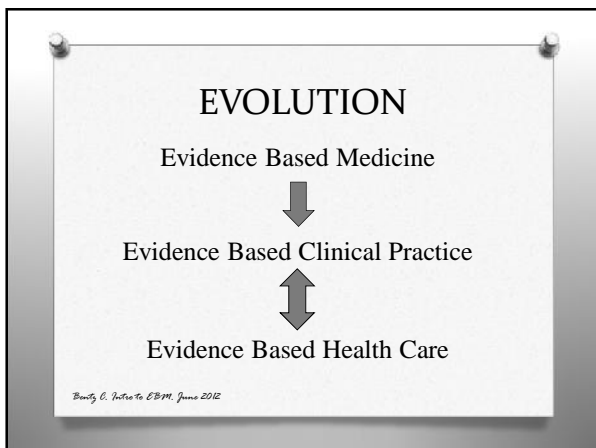
- o Delineate the need for EBM Clinicians
- o Define what it means to be an EBM Clinician
- o Discuss a simple 5-minute EBM approach to a clinical question
 - o Including how to use your mobile device in answering a clinical question

Study ties hormone therapy to dementia

The search for truth on Pvt. Lynch

Record retirements hit PERS

Brendy C. Patton to EBPM, June 2012



The history of EBM

- o Ancient Era EBM
 - o Ancient historical or anecdotal accounts
 - o Teaching during this time was authoritative and passed on with stories
- o Renaissance era of EBM (17th century)
 - o Personal journals, textbooks begin to be more prominent
- o Transitional era of EBM (1900s-1970s)
 - o More textbooks, beginning of peer-reviewed journals
 - o Emergence of RCTs
- o Modern era of EBM (1970s+)
 - o Informatics explosion with online journals and large databases


"As history brings us closer to the present day, one theme emerges. The presence of evidence does not immediately translate into the practice of EBM."

Claridge and Fabian. History and Development of Evidence-based medicine. World J. Surg. 29, 547-553 (2005). DOI: 10.1007/s10026-005-740-1

Evidence-based clinical practice (EBCP)

o is an approach to health-care practice that explicitly acknowledges the evidence that bears on each patient management decision, the strength of that evidence, the benefits and risk of alternative management strategies, and the role of patients' values and preferences in trading off those benefits and risks.


EBM, McMaster University, Available at http://ebm.mcmaster.ca/about_us/ebm.htm



EBM-Defined

- o Integration of individual clinical expertise with the best external clinical evidence from systematic research

“Enlightened skepticism”



Brendy G. Intero to EBM, June 2012

Pre-EBM vs. EBM

	Pre-EBM	EBM
Medical education	Sufficient	Necessary but needs lifelong learning
Clinical experience	Sufficient	Necessary but need to be aware of research
Textbooks	Sufficient	Useful but need to be aware of recent research
Statistical significance	Sufficient	Necessary but need to assess clinical significance

Why EBM?

- o How do we make clinical decisions?
 - o Physiologic rationale
 - o Experts' advice
 - o Textbooks
 - o Manufacturer's claims

Physiologic rationale— Ischemic Stroke example

- o External carotid-internal carotid bypass surgery
 - o Many had done until someone questioned it
 - o NIH study proved it ineffective and that it delayed recovery
- o Streptokinase (a thrombolytic used in treating MI)
 - o 3 clinical trials stopped prematurely because of increased patient death in the treatment group
 - o Tissue plasminogen activator (t-PA) works well

EBM, McMaster University, Available at http://ebm.mcmaster.ca/about_intro.htm

Experts' Advice—Eclampsia

- o In 1992 for control of convulsions in eclampsia
 - o Experts recommended: diazepam
 - o Studies showed magnesium sulphate to be better (more effective with less mortality)

EBM, McMaster University, Available at http://ebm.mcmaster.ca/about_intro.htm

Textbooks

- o Streptokinase use in MI
 - o In 1977 there should be enough evidence
 - o In 1990 it was recommended in textbooks

EBM, McMaster University, Available at http://ebm.mcmaster.ca/about_intro.htm

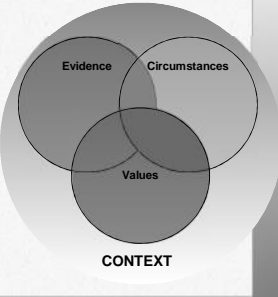
Year	No. of Trials	No. of Patients
1960	1	27
2	65	
1965	3	140
4	816	
1970	7	1,783
10	2,544	
11	2,659	
1975	15	3,311
17	3,929	
22	5,402	
1980	23	6,787
25	8,028	
33	13,821	
44	20,813	
55	40,947	
57	45,290	
1985	60	68,918

Manufacturers' claims

- o May be misleading
- o Is there an alternative motive?
- o Can you truly trust it without researching it yourself?

What is the answer?

- o Decisions based SOLELY on one source may turn out to be wrong
 - o They are not always wrong
- o But if you have several sources telling you the same thing, then you are likely to be right




Where is the evidence?

Resource	Defined	Strengths	Weakness	Time to search
Textbook	Collected "wisdom" of experts	Synthesized, easy, cheap	Out of date, opinionated	2-5 minutes
Computer-based (e.g., UpToDate)	Many authors, encyclopedic, CDs	Same as above	Expensive to update	2-5 minutes
Best Evidence, POEMS, Journal Watch	Computer collection of articles	EBM-based, focused	Small, lacks detail that would aid in decisions	2-5 minutes

Where is the evidence? (continued)

Resource	Defined	Strengths	Weakness	Time to search
Cochrane Library	Systematic Reviews, RTCs,	Rigorous, committed, comprehensive	Incomplete topics, too academic	2-5 minutes
Medline	Citations from 4000+ journals	Comprehensive, free, updated	Time consuming difficult	30 minutes
Internet	Should I even try?	Clearing house for everything, will always find something	Difficult, content uncertain	10+ minutes



To be a 5-Minute EBM Clinician, one must...

- o Be able to frame any clinical dilemma into a clinical question,
- o Be comfortable using any resource, including Medline, and
- o Be very familiar with EBM concepts and calculations.

o In other words, the EBM areas that some clinicians find difficult. They include searching Medline, appraising articles, and calculating/interpreting relative risk, hazards ratios, number-needed-to-treat, likelihood ratios, etc.

Choosing to Answer a Clinical Question

- o Is the question important to the patient's health?
- o Can you answer the question in the time you have available?
- o Will you encounter the question repeatedly in your practice?
- o Are you interested in the topic?


What do you do if the answer is not in Up To Date or First Consult?

- o I just said that it can take 30 minutes to search Medline
- o And to truly read and appraise an article from Medline would likely take an hour (for some) and days (for others)
- o Let's not even mention the calculations!
- o So here are some tips to make this possible...

The Four Steps

- o Ask
- o Acquire (find)
 - o Everyone should have a librarian in the family
- o Appraise
- o Apply

ASK: Framing Clinical Questions



- o **P- Patient or Population**
 - o Age, gender, ethnicity, socioeconomic background, occupation, primary and secondary disorders, symptom complex
- o **I- Intervention**
 - o Diagnostic test, drug, surgical procedure, time, risk factor
- o **C- Comparison**
 - o Placebo, alternative therapy, none
- o **O- Outcome**
 - o Patient relevant, Improvement, prevention, diminished consequence, cost, resource use
- o **T- Type of Question**
 - o Therapy/Prevention, Harm, Prognosis, Diagnostic Test, Guideline
- o **T- Type of Study**
 - o Randomized control trial, observational, etc.

ACQUIRE: Searching the literature

- o Type of source
 - o What types of evidence could exist?
 - o Studies, Synopses, Summaries, Syntheses,
 - o What level of evidence?
 - o Where is it found?
 - o Medline, Journal Watch, Cochrane, Guideline.gov, UpToDate, FirstConsult

APPRAISE: Validity, Results, and Applicability

- o To be really good at the appraisal process, it takes practice, but I will pass on some tips...
- o Skip reading the Introduction
- o Highlight the "Buzz" Terms in the Methods section
 - o Randomized, double-blinded, placebo, intention-to-treat, loss to follow-up
- o Scan "Table 1" or the characteristics of the participants table that compares the control and treatment groups prior to starting the study
 - o Look for major difference between the groups
 - o Look to see if your patient population would "fit in"

APPRAISE: Validity, Results, and Applicability

- o Figuring out which results matter can be tricky, and changing them into something meaningful is even worse...
- o Remind yourself what outcomes are most meaningful to the situation, to your population, to you.
- o Look at the tables and figures first for the **percentage** or number of each group that had the outcome
 - o Note: if you see things like mean score or mean change these numbers are useful but require no further calculations
- o If you can't find them in a table/figure, then you might have to read the Results section

The Calculations

- o You could struggle with looking up the formulas and calculating them yourself or...
- o You can use these online calculators:
 - o Centre for EBM, Toronto:
<http://ktclearinghouse.ca/cebm/practise/ca/calculators/statscalc>
 - o MedCalc:
http://www.medcalc.org/calc/relative_risk.php

This calculator is also available as a Palm OS version and a Pocket PC version.

APPRAISE: Validity, Results, and Applicability

- o There are three areas that help me decide if the article and its results are applicable to my patient care
 - o Study participants and setting/environment
 - o Would my patient meet all of the eligibility criteria? If not, are the difference impactful?
 - o Study outcomes
 - o Are the primary outcomes the one that I am interested in?
 - o Did they use surrogate outcomes?
 - o The harms vs the benefits

A quick note about outcomes

- o Primary outcomes are those that have the primary focus of the researchers
 - o A study's methodology is dictated by the outcomes of interest
- o Surrogate outcomes are NOT patient important outcomes
 - o Examples of surrogate: HBA1C, Blood Sugar levels, VLDL, Blood Pressure, etc.
 - o Tend to be blood test, biochemical markers
 - o Examples of patient important: Death, Loss of limbs, Loss of sight, Length of Hospital stay
 - o More difficult and costly to measure

An Example: a conversation with a surgeon

- o A couple years ago, I had what started as a casual conversation with a surgeon that turned into a flat out scolding: "I wish you primary care people would stop using Bactroban (mupirocin) to treat simple impetigo, because now you have added to the resistance making it difficult for me to treat my patient's clean wounds with it!"
- o I searched MDConsult, not helpful
 - o FirstConsult, not helpful
 - o UpToDate, not helpful

Great...I have to search Medline

- o Start with making it into a question using PICO(TT)
 - o P: Adults with a clean wound
 - o I: petrolatum-based ointment
 - o C: topical antibiotic agents
 - o O: wound healing, rate of infection or other complications
 - o T: Therapy
 - o T: Randomized control trials

Great...I have to search Medline

- o Start with making it into a question using PICO(TT) and deciding on **keywords**
 - o P: Adults with a clean wound
 - o I: **petrolatum**-based ointment
 - o C: topical **antibiotic agents**
 - o O: **wound healing**, rate of infection or other complications
 - o T: Therapy
 - o T: Randomized control trials

Wolters Kluwer | OvidSP
 Health | My Account | Support & Training | Help | Logout

Search Journals Books My Workspace

Search History (5 searches) (click to clear)

#	#	Searches	Results	Search Type	Actions
<input type="checkbox"/>	1	exp Wound Healing/	8435	Advanced	Display More >
<input type="checkbox"/>	2	exp Petrolatum/	2211	Advanced	Display More >
<input type="checkbox"/>	3	exp Antibacterial Agents/	41211	Advanced	Display More >
<input type="checkbox"/>	4	1 and 2 and 3	56	Advanced	Display More >
<input type="checkbox"/>	5	limit 4 to English Language and Humans	80	Advanced	Display More >

Advanced Search | Basic Search | Find Citation | Search Tools | Search Fields | Multi-Field Search

1 Resource selected: 1 Title | OvidSP
 Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations, Ovid MEDLINE(R) Daily and Ovid MEDLINE(R) via Inspec

Universal Search:
 Enter keyword or phrase (P or S for truncation)
 Limits (Click to clear)

Only Ten articles to scan through...

- o The third article looked promising.
 - o Draelos ZD, Rizer RL, Trookman NS. A comparison of postprocedural wound care treatments: do antibiotic-based ointments improve outcomes?. Journal of the American Academy of Dermatology. 64(3 Suppl):S23-9, 2011 Mar.

Excerpt from the study: Objective

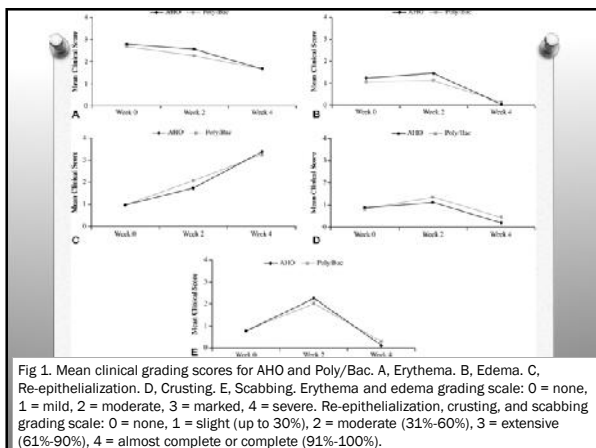
o We sought to compare the efficacy and safety of a nonantibiotic, petrolatum-based ointment (Aquaphor Healing Ointment [AHO], Beiersdorf Inc, Wilton, CT) and an antibiotic-based first-aid ointment (Polysporin [Poly/Bac], Johnson & Johnson, New Brunswick, NJ) for the treatment of wounds created by removal of seborrheic keratoses.

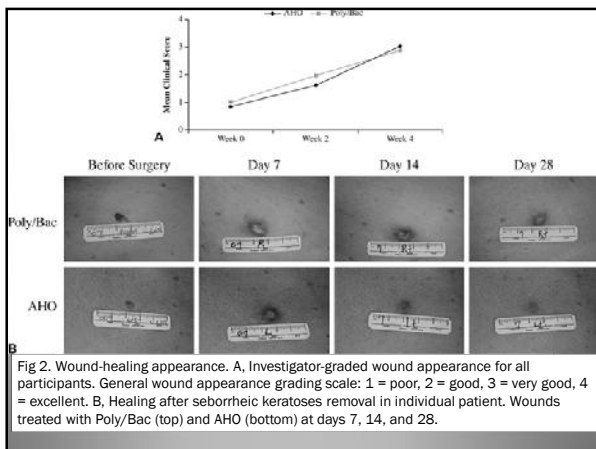
Excerpt from the study: Methods

o In this **double-blind randomized** controlled study, 30 subjects (aged 50-83 yo, Fitzpatrick skin types I, II, or III, with no known allergies or health conditions that would interfere with the study) each had two seborrheic keratoses removed from their trunk or abdomen; one wound was treated with AHO and one with Poly/Bac twice daily. Clinical grading of wound healing and subjective irritation was assessed at days 7, 14, and 28 postwounding. Adverse events were recorded.

Excerpt from the study: Results

o Clinical grading assessment showed no differences between wounds treated with AHO versus Poly/Bac for erythema, edema, epithelial confluence, crusting, and scabbing at any time point. Subjective irritation assessment showed wounds treated with Poly/Bac had a significant increase in burning at week 1, whereas no differences were seen between treatments for stinging, itching, tightness, tingling, or pain. One case of allergic contact dermatitis was reported after Poly/Bac treatment.





Could we do this on my smart phone?

- o Not as easily
- o There are the paid subscriptions of course
 - o ACP - PIER - via Skyscape Downloads to iOS, Android, BB for \$79/year
 - o UptoDate - Web only access for iOS and Android \$195/year students \$495/year Providers
 - o Essential Evidence Plus - Web only access for iOS and Android \$79/year
 - o Dynamed - via Skyscape downloads to iOS, Android, BB \$99/year Students, \$395/year Providers
 - o PEPID - Downloads to iOS and Android for \$255 year
 - o Epocrates Essentials - Downloads to iOS and Android \$159/ year

http://www.elsevier.com/locate/ehp_appelites

More on iTunes only

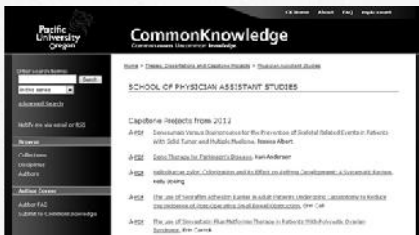
- o Physician summaries of top internal medicine articles
 - o Evidence-based Med Student, \$0.99
 - o Journal club, \$2.99
- o PubSavvy, \$1.99
 - o Searches Medline via PubMed
- o Evidence-based Medicine Tool Kit, \$35.99
- o Medicine toolkit, \$9.99
 - o Consists of Bayes at the Bedside (a list of 175 LR's) and Pocket Evidence (evidence summaries)
- o Plenty of podcasts

Free and Helpful Apps...Not much

- o PubMed Mobile
 - o I had 10 results including the one that I used BUT I had to use different keywords (Wound care, petrolatum, antibiotic)
- o And of course I have the internet which allows me to access my employers webpage (library access to UpToDate, FirstConsult, MDConsult, Medline, CINAHL, and more)
 - o Preceptors are usually given library access
- o Anyone find one that they would like to share with us?

Pacific University PA students' CommonKnowledge Library

o <http://commons.pacificu.edu/pa/>



Questions?

- Contact me with any EBM help (I would be happy to advise or help in anyway, even with calculations or searching clinical questions).

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