**POEMs: USEFUL EVIDENCE-BASED MEDICINE**

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**POEMs**

- What is a POEM (not Shakespeare or Whitman)?
- Give one example of a POEM.

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**What is Evidence-Based Medicine (EBM)?**

1. “An approach to practicing medicine in which the clinician is aware of the evidence in support of his/her clinical practice, and the strength of that evidence.” (McMaster University group)
2. “The conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients.” (Sackett/Rosenberg/Gray/Haynes/Richardson—Centre for Evidence-Based Medicine, 1996)
3. “The truth is out there.” (Fox Mulder, *The X-Files*)

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**What is “The Truth”?**

- Community consensus ("community standard of care")
- HMO edict
- Whatever is least expensive
- Expert guidelines
- What the "experts" (i.e., specialists) do
- What the lawyers & lay juries tell us
- Correct answer on ABFP exam
- A probability statement ("quantum medicine")—what we do for patients does more good than harm

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**What is Evidence-Based Medicine (EBM)?**

- My favorite definition:
  - “The integration of best research evidence with clinical expertise, and patient values” (Sackett, Straus, Richardson, Rosenberg, & Haynes, 2000)

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**Why do we care about EBM?**

a) Physicians’ needs
   i) Knowledge = Power;
   ii) Medical Literature = The Key to Knowledge;
   iii) Therefore Medical Literature = The Key to Power
   iv) Physicians want to be good practitioners
   v) “Catching your own fish”
Fish

• Give a man a fish, and you feed him for a day. Teach a man to fish:
  – and you can sell him fishing equipment.
  – and he will sit in the boat and drink beer all
day.
  – and you will not have to listen to his whining
  about how hungry he is.

Feeding

• Give a man a fish, and you feed him for a
day. Teach a man to fish, and you feed him
for a lifetime.
• AND if you teach the teachers, the entire
community eats for their lifetimes.
• YOU are the teachers – for yourselves, your
pts, and….

Why do we care about EBM?

b) Realities of the medical labyrinth
  i) Calls for accountability by insurers and patients
     (e.g., advent of practice guidelines, outcomes
     research, patient advocacy groups, etc.)
  ii) Unacceptable iatrogenesis (“iatrogenocide”)
  iii) Cost-effectiveness concerns

Alternatives to EBM

• Eminence-based medicine: The more senior the
colleague, the less importance placed on the need for
anything as mundane as evidence. Faith in clinical
experience (“making the same mistakes with
increasing confidence over an impressive number of
years.”)
• Vehemence-based medicine: substitution of volume for
evidence is an effective technique for brow beating
your more timorous colleagues and for convincing
relatives of your ability.

Alternatives to EBM – 2

• Eloquence based medicine: Be smooth. Sartorial
elegance and verbal eloquence are powerful
substitutes for evidence.
• Providence based medicine: If the caring
practitioner has no idea of what to do next, the
decision may be best left in the hands of the
Almighty. Too many clinicians, unfortunately, are
unable to resist giving God a hand with the
decision making.

Alternatives to EBM – 3

• Diffidence based medicine: Some doctors see a
problem and look for an answer. Others merely see
a problem. The diffident doctor may do nothing from a
sense of despair. This, of course, may be better than
doing something merely because it hurts the doctor’s
pride to do nothing.
• Nervousness based medicine: Fear of litigation is a
powerful stimulus to overinvestigation and
overtreatment. In an atmosphere of litigation phobia,
the only bad test is the test you didn’t think of ordering.
• Confidence based medicine: This is largely restricted to
surgeons.
Exponentially expanding body of research

1. New types of evidence are being generated which, when we know & understand them, create frequent/major changes in how we care for patients (e.g., RCT’s, meta-analysis)

2. Although we need this new evidence daily, we rarely get it (insufficient time, outdated texts, journals/articles disorganized/voluminous)

Challenge of EBM

- As a result of (1) & (2), our “current” knowledge & clinical performance deteriorate with time
- Traditional CME programs are not sufficient to improve our clinical performance
- A new approach to clinical learning has been shown to keep clinicians up-to-date

Information Anxiety

- “The frustration that occurs when there is a great deal of information but it doesn’t tell us what we want or need to know.” (Richard Wurman)
- Can lead to:
  - Frustration
  - Lack of confidence
  - Rigid, dogmatic attitude
  - Just ask the “expert”
Information Anxiety

Old & New Paradigms of Medical Learning

• Unsystematic observations from clinical experience
• Mechanisms of disease & pathophysiologic principles
• Traditional training & common sense are sufficient for evaluating new tests & treatment
• Introduction & Discussion sections of a paper are adequate for gaining relevant information
• Traditional scientific authority & adherence to standard approaches
• Experience & instincts crucial, but not sufficient
• Systematic research increases confidence in available knowledge
• Pathophysiologic principles necessary but not adequate
• Understand rules of evidence
• Clinical implications of Methods & Results sections
• Clinicians must be willing to live with uncertainty
• Lower value on authority, make independent assessments of evidence
• Not a rejection of learning from colleagues and teachers
• Physicians whose practice is based on an understanding of evidence will provide better patient care.

Paradigm shift in health care

OLD
• knowing what you should know
• uncertainty discouraged and ignorance avoided
• learning by humiliation, name shame and blame
• sole methods: apprenticeship, learning from accepted wisdom
• finite amount of knowledge to be absorbed
• intuition very powerful
• dominated by knowledge from experience
• fact based learning
• professionals on top

NEW
• knowing what you don’t know, (not feeling bad about it) and knowing how to learn
• legitimizing uncertainty, learning by questioning
• able to question received wisdom
• turning problems into questions, and to find, appraise, store, and act on experience and evidence to solve them
• complementing experience with knowledge from research
• problem and process based learning
• professionals on tap

Uncertainty

• A critical skill: becoming comfortable with uncertainty.
• A related skill: not becoming too comfortable with certainty.
  – Make a commitment.
  – AND be prepared to change your dx, approach, etc.
  • In room w/pt.
  • Over years in your practice.

Hierarchy of Evidence
What EBM is NOT

1. Impossible
2. Cookbook
3. Purely cost-cutting (though ideally it is cost-effective, if that aspect is studied)
4. Restricted to randomized controlled trials (RCT’s) & meta-analyses

What to Learn?

1. We need to learn not only how to read the medical literature, but also what to read and when.
2. It’s on a “need-to-know” basis—you need to know what you do & don’t need to know.

Misinterpretations of the “New Paradigm” of EBM

1. EBM ignores clinical experience & clinical intuition
2. Understanding of basic investigation & pathophysiology plays no part in EBM
3. EBM ignores standard aspects of clinical training such as the physical examination
4. EBM is the heart & soul of medical practice—it’s the only part of medicine that really counts

Dr Dave’s Law of EBM

• Medicine is still both an art and a science. Anybody who tells you otherwise is lying or deluded.

JASPA*

(Journal-Associated Score of Personal Angst)

J: Do you feel anxious that you should be reading more JOURNALS?
A: Do you feel ANGER towards prolific authors?
S: Do you ever use journals to help you SLEEP?
P: Are you surrounded by PILES of PERIODICALS?
A: Do you feel ANXIOUS when journals arrive?

Scoring:
• 0 (liar) (or oblivious—DS)
• 1-3 (normal range)
• >3 (sick; at risk for polythemia gravis and related conditions)

The Usefulness Equation

• Usefulness = (Validity X Relevance) / Work
• Validity—the difficult part of information mastery
• Work—varies with source (drug reps vs. MEDLINE search) & your need (is one ACE inhibitor better than another?; vs. should I treat elevated blood pressure?)
• Relevance—the key
Types of Evidence

- Disease-Oriented Evidence (DOE)—more common. Pathophysiology, pharmacology, etiology, etc. Sometimes referred to as intermediate/surrogate outcomes.
- Patient-Oriented Evidence (POE)—More important. Morbidity, mortality, QOL, etc. Also referred to as “final” outcomes.

What You’re Looking For

- Patient-Oriented Evidence that Matters (POEMs).
  - Most important.
  - If it matters, it should affect the way you practice.
  - Meets all criteria of Usefulness Equation.
  - Applicable to your pts.

Examples

- Flecainide reduces arrhythmias.
  - Disease-oriented evidence.
- Flecainide reduces pt symptoms of arrhythmia.
  - Patient-oriented evidence.
- Flecainide is associated with higher rate of death and nonfatal arrhythmia in CAD pts.
  - Patient-oriented evidence that matters.

Evidence Relevance Table

<table>
<thead>
<tr>
<th>Frequency of Condition</th>
<th>Common</th>
<th>Rare</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pt-Oriented Evidence</td>
<td>Best</td>
<td>Only if Time (POEMs)</td>
</tr>
<tr>
<td>Dz-Oriented Evidence</td>
<td>Danger</td>
<td>Biggest time-waster</td>
</tr>
</tbody>
</table>

POEMs

- Give an example of a POEM you have recently read or heard about.

How Useful is the Medical Literature?

- Survey of 85 medical journals of potential interest to primary care physicians.
  - 8085 original research articles over 6 mo.
  - 211 (2.6%) were POEMs.
  - 10 journals accounted for 50% of the POEMs.
How Useful is the Medical Literature? – 2

• Other POEM-rich journals:
• ½ the journals had 0 or 1 POEM over the 6 months.

Your Goal

• “Kill as few patients as possible.” (Oscar London, MD)

Practical EBM: Steps to POEMs

1. Ask an answerable (focused) question
2. Acquire evidence
3. Appraise evidence
4. Apply evidence (taking into account provider experience & pt values)
5. (Audit to Assess clinical practice & how application of the evidence is working)

Ask An Answerable Question

• Specific:
  – Topic of interest
  – Population of interest
  – Intervention of interest
  – Outcomes of interest

PICO Approach to Formulating a Question

• Population of Patients
  – What pt(s) are you looking at?
• Intervention
  – Diagnostic or therapeutic.
• Comparison
  – To what are you comparing the intervention (placebo, usual care, …)?
• Outcome
  – What effect/outcome are you measuring?

Appraise the Evidence

• Type of study
• Validity of study (internal validity)
  – Bias
  – Confounding
  – Power
• Applicable to my pt? (external validity)
  – Population studied
  – Outcomes measured
3 Modes of Evidence-Based Practice

1. Common conditions encountered daily:
   1. Stay up to date.
   3. Stay in “appraising mode.”

2. Conditions seen less frequently:
   1. Avoid excessive time drain.
   2. Look for pre-appraised evidence (Cochrane, DynaMed, Best Evidence, other).
   3. Stay in “selective searching mode.”

Center for Evidence-Based Medicine Toronto, http://ktclearinghouse.ca/cebm/intro/howtopractice


3 Modes of Evidence-Based Practice – 2

1. Rare conditions:
   1. Find an authority, accept recommendation.
   2. “Replicating mode.”
   3. Frequent mode for medical trainees—students, residents (esp unlicensed), etc.
   4. No guarantee that the info received from the “expert” is authoritative (evidence-based, resulting from operating in the “appraising” mode) vs. authoritarian (opinion-based, resulting from pride and prejudice).
   5. Follow up – read.

Approaches to Information Management

• “Push” - alerts us to new information (“foraging”).
  – “Just in Case” learning.
  • Use ONLY for important, new, valid research.
• “Pull” – access information when needed (“hunting”).
  – “Just in Time” learning.
  • Use whenever questions arise.
  • EBM Steps: Question; search; appraise; apply.


Just In Case Learning (Foraging)

• Useful for impressing attendings with useless information.
• May come in handy some day (or may never come in handy).
• Stick with POEMs for Just In Case Learning

Just In Case Resources

• Journal Watch: http://www.jwatch.org/
• Physician’s First Watch (free) – at JWatch
• BMJ Evidence-Based Medicine: http://ebm.bmj.com/
• Info POEMs: http://www.essentialevidenceplus.com/
Just In Time Learning (Hunting)

- Point of service resources
- EHR may be linked to POS resources
- Can research some answers in room (or out of room)
- Case based
- Relevant

Just In Time Resources

- UpToDate
- DynaMed
- Good old fashioned textbooks (how quaint!)
- PogoFrog: http://www.pogofrog.com/
- Medscape/eMedicine
- UCSF VPN

New Paradigm Is…

- More complicated
- More scientific
- More utilitarian
- More generalizable
- More time consuming

Be a Good “Information Consumer”

- Identify, validate, and apply common POEM’s
- You can ignore lots of information
- Know how & where to find evidence and information when you need it
- It’s OK to not know everything—anybody who tells you otherwise is mean, stupid, or deluded (i.e., some tertiary center attendings)