

Evidence-Based Medicine: A New Approach in the Practice of Medicine

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The Evidence- Based Approach

- Arises out of the increased need for certainty in diagnose and practice
- I.E. the need to have greater evidence in legal defense



Applications of evidence-based medicine

Health System/Provider Applications: □ Build provider support for guidelines as a basis for reducing variability of practice patterns:

- Standardize guidelines for admissions and discharge planning
- Volume and provider adherence scoring for Centers of Excellence
- Credentialing of providers and allied professionals
- Patient education
- Outcome measurement
- Development of disease and care management programs (revenue enhancement)
- Development of gain-sharing formula with local plans and employers □ Responses to accrediting organizations i.e. JCAHO, URAC, et al



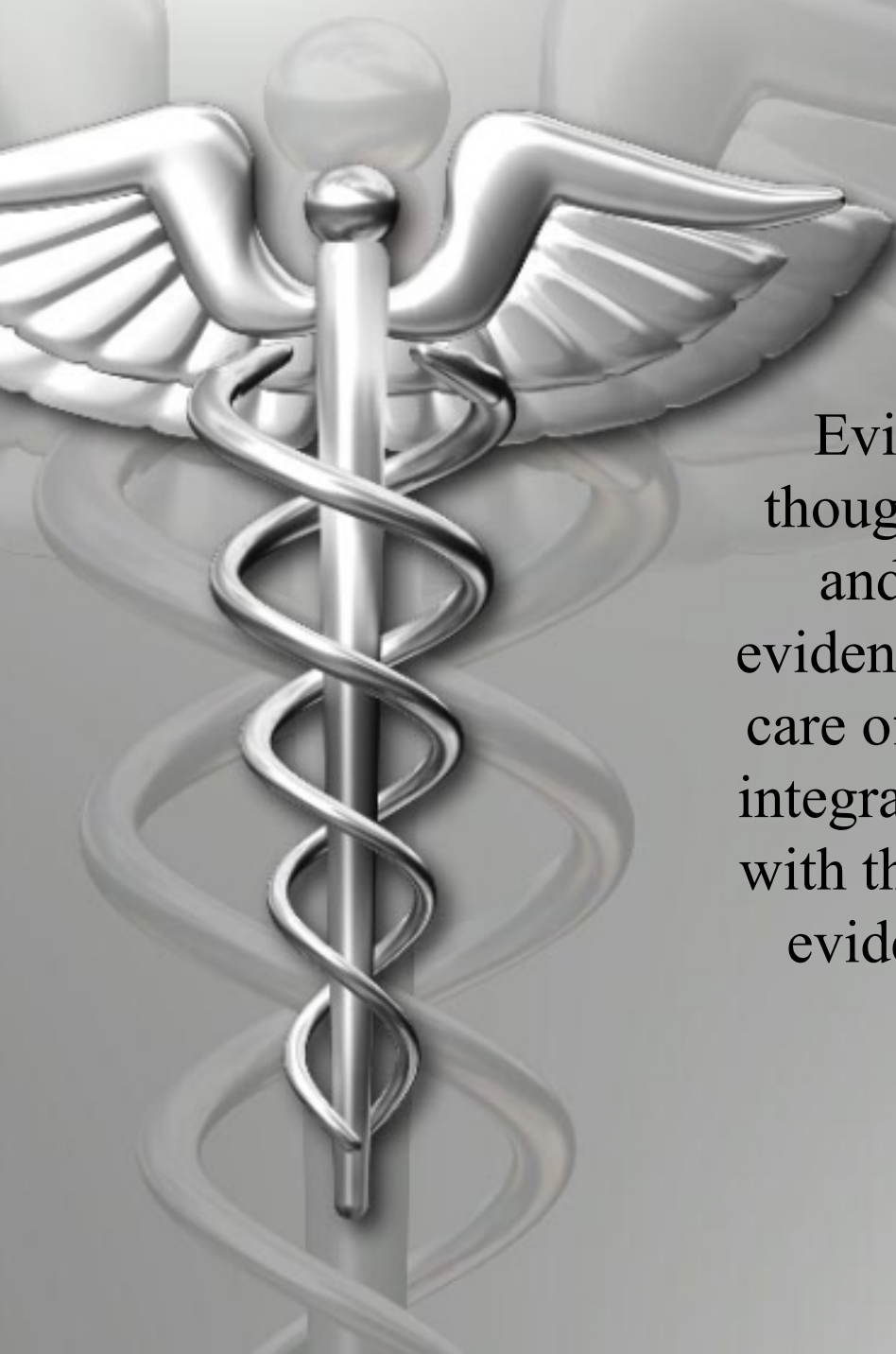
Doctor Applications:

- Care and disease management
- Decision support (for providers and consumers)
- Provider report cards (physicians, hospitals) given to employers and consumers
- Credentialing of physicians based on adherence to guidelines and compliance by patients
- Development of alternative payment systems to reward results rather than visits
- Develop personalized care plans for enrollees to stimulate provider interaction



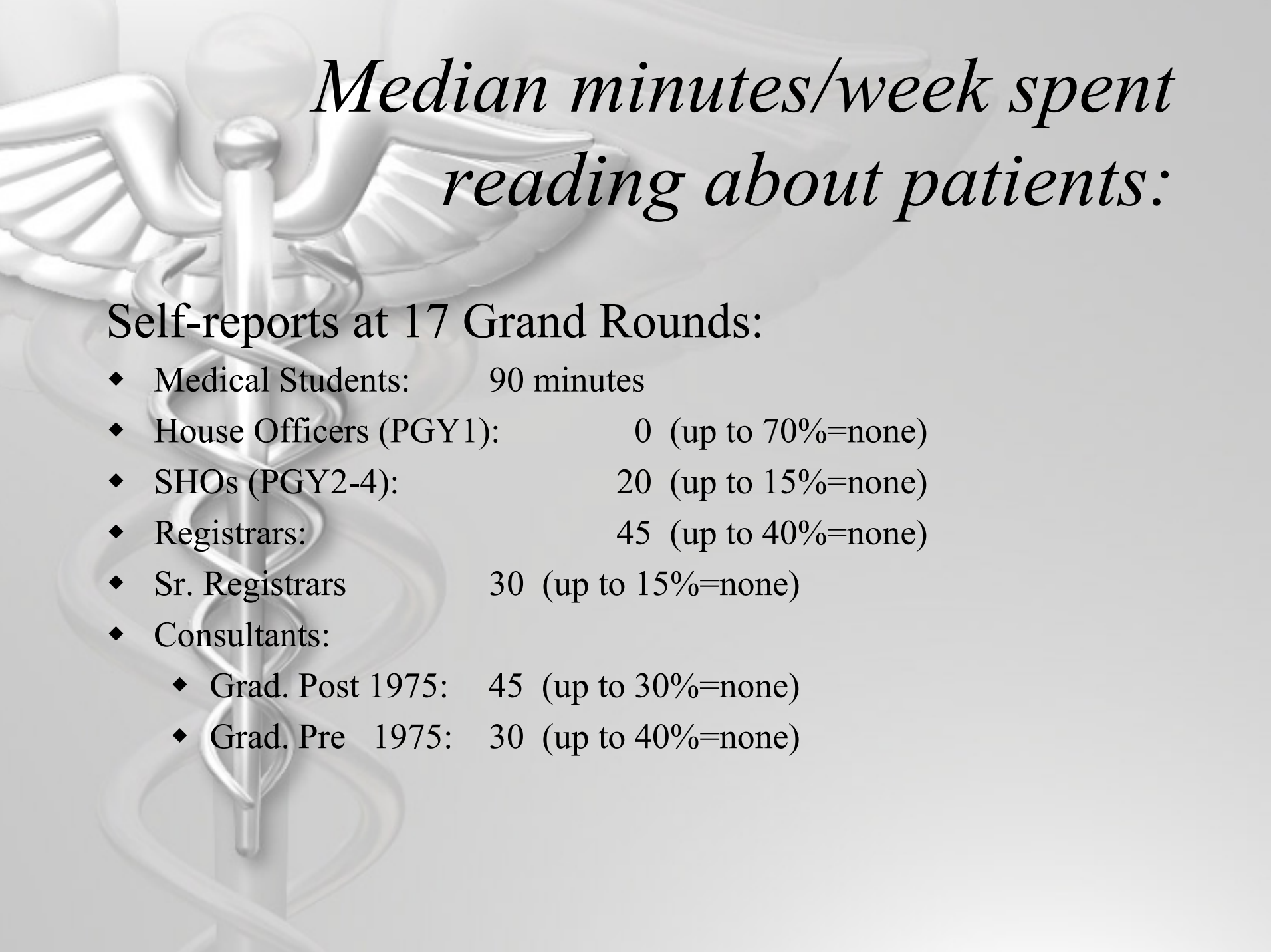
Consumer Applications:

- Detailed information to better understand conditions and procedures
- Tools and support for self-care activities and education
- Information on care and disease management
- Increase patient involvement and decision support
- Improved physician and patient relationships and interaction



Definition:

Evidence Based medicine can be thought as the conscientious, explicit and judicious use of current best evidence in making decisions about the care of the individual patient. It means integrating individual clinical expertise with the best available external clinical evidence from systematic research.



Median minutes/week spent reading about patients:

Self-reports at 17 Grand Rounds:

- ◆ Medical Students: 90 minutes
- ◆ House Officers (PGY1): 0 (up to 70%=none)
- ◆ SHOs (PGY2-4): 20 (up to 15%=none)
- ◆ Registrars: 45 (up to 40%=none)
- ◆ Sr. Registrars 30 (up to 15%=none)
- ◆ Consultants:
 - ◆ Grad. Post 1975: 45 (up to 30%=none)
 - ◆ Grad. Pre 1975: 30 (up to 40%=none)



A Great Deal of Uncertainty in Medicine

- ◆ On average 4 unanswered questions per surgery or clinical visit
- ◆ Questions are
 - 40% factual
 - 43% medical opinion
 - 17% non medical
- ◆ Only 30% can be answered by a colleague



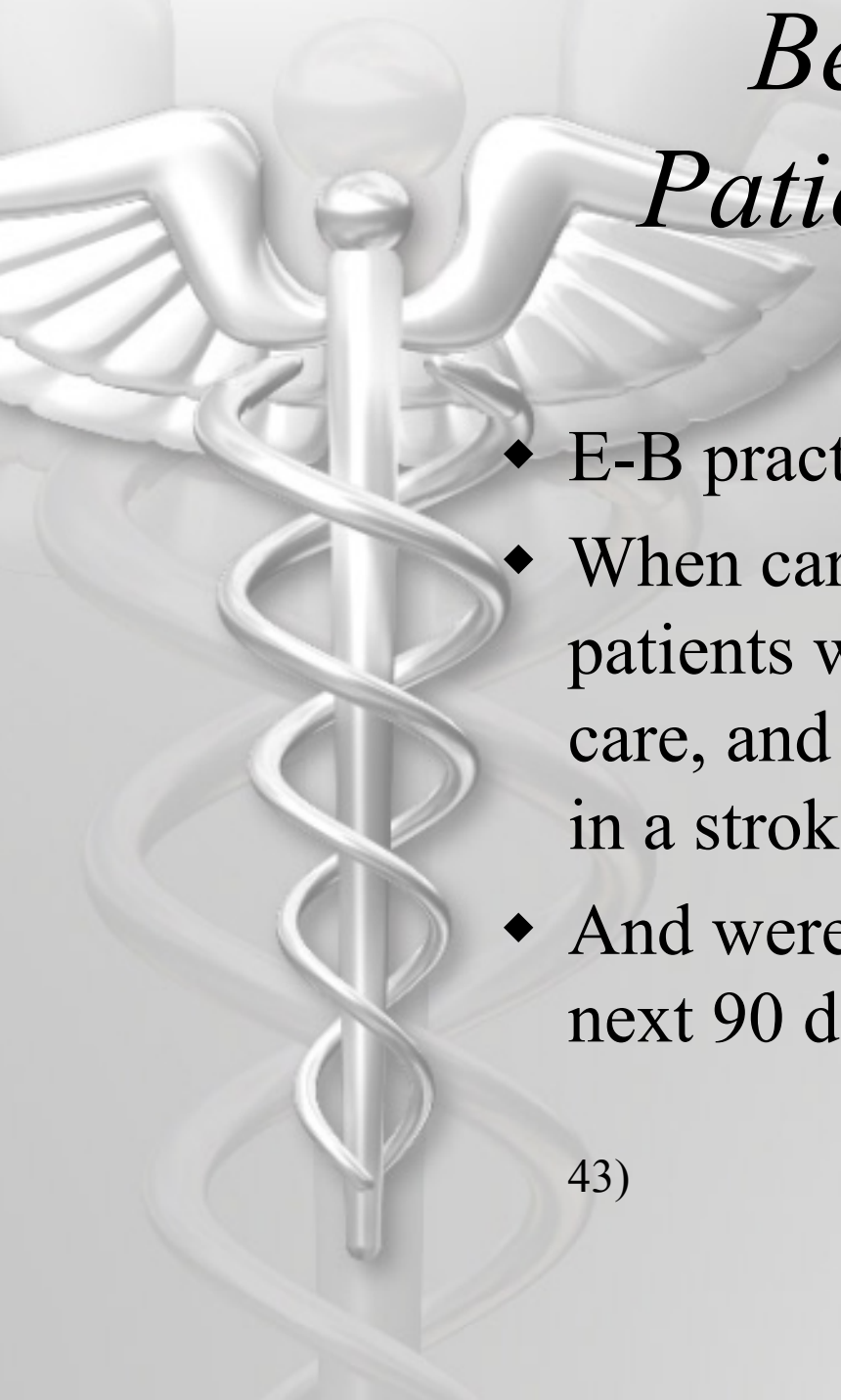
Patients can benefit

- ◆ Even if <10% of clinicians are capable of practicing in the “searching & appraising” mode (5% of GPs)
- ◆ As long as most of them practice in a “searching” mode within high-quality evidence sources (70-80% of GPs):
 - ◆ Cochrane Library, E-B Journals, E-B Guidelines, etc



So much info

- ◆ In 1990 there were more than 100,000 scientific journals
- ◆ 80% core info is 1,000 journals
- ◆ Even still not all patient issues can be covered by the journals alone



Better Outcomes for Patients When EBM Is Practiced

- ◆ E-B practice vs. Outcome in stroke (US):
- ◆ When cared for by E-B neurologists, patients were 44% more likely to receive care, and much more likely to be placed in a stroke care unit,
- ◆ And were 22% less likely to die in the next 90 days.

(Mitchell et al: stroke 1996;27:1937-

43)



Steps in Evidence Based Medicine

1. Ascertaining a problem area of uncertainty
2. Converting information into a focused, clinically important question that is likely to be answered
3. Efficiently tracking down and appraising the best evidence.
4. Estimating the clinical importance of the evidence and the clinical applicability of any recommendations and conclusion
5. Unifying the evidence and the clinical applicability of any recommendations or conclusions
6. Summarizing and caching records for future reference



Ascertaining a Problem or Area of Uncertainty

The first step in Evidence based Medicine

- Most address a relevant question and have a correct clinical appraisal
- Wrong conclusions can be very dangerous



Converting Information into a Focused, Clinically Important Question

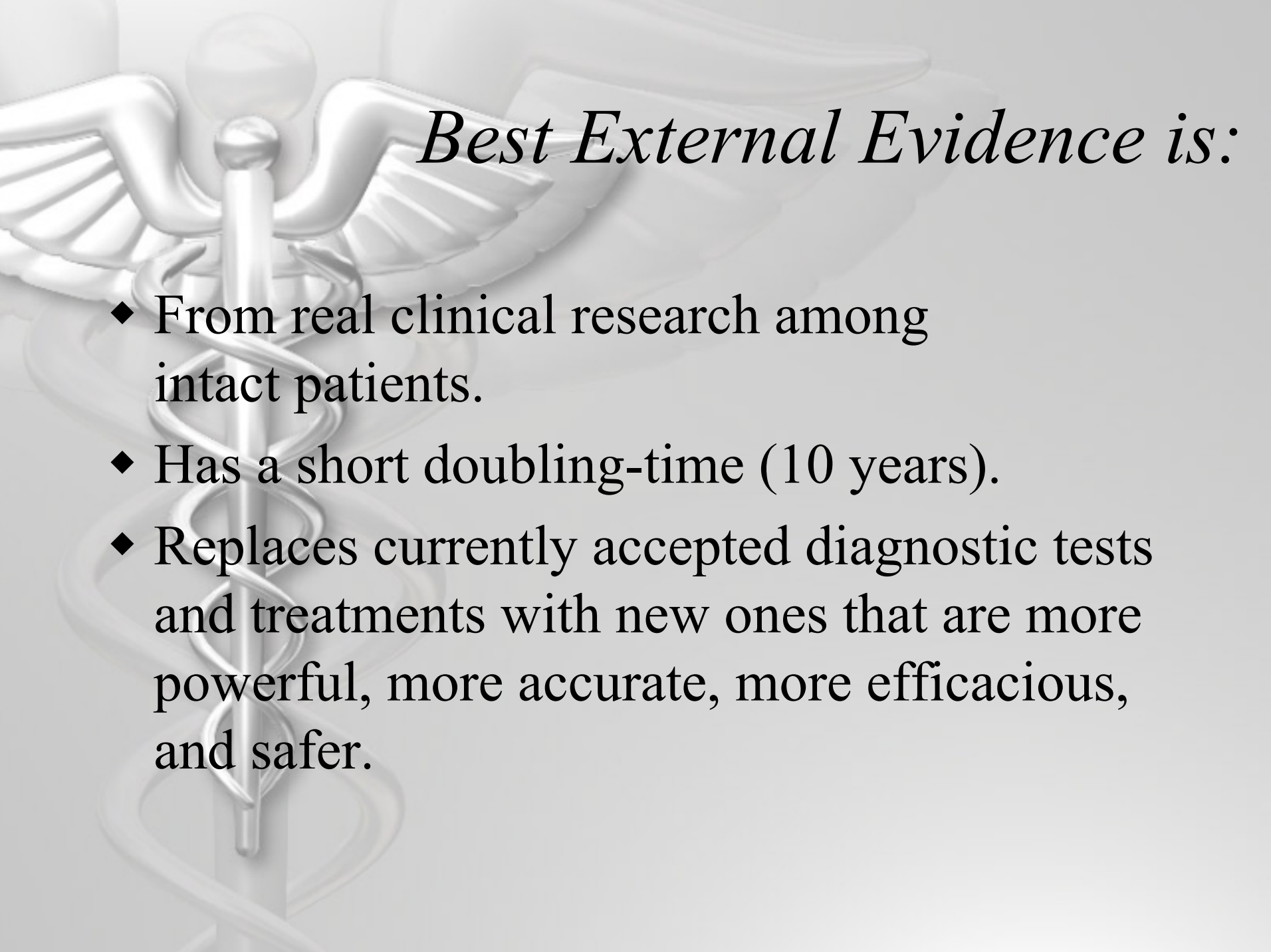
Key Parts

- **Patient or Problem**
(Is Question about the Patient or is about a Problem they have)
- **Intervention**
(Find a current line of treatment)
- **Comparison Intervention**
(Compare lines of treatment)
- **Outcomes**
(Does it fit what you want?)




Efficiently Tracking Down and Appraising the Best Evidence

- Ask the right question
- Choose the right information
- Find the best resources
- Find the best clinical studies
- The key is finding out how these resources can be obtained quickly and easily




Best External Evidence is:

- ◆ From real clinical research among intact patients.
- ◆ Has a short doubling-time (10 years).
- ◆ Replaces currently accepted diagnostic tests and treatments with new ones that are more powerful, more accurate, more efficacious, and safer.



*Estimating the Clinical
Importance of the Evidence*

Simply put: Should you act on the
evidence



*Unifying the Evidence with Clinical
Expertise, Patient Preferences and
Applying it to Practice*

If the Information has Validity, it must be reviewed. Then put to the Question:
“Does it fit my patient?”



*Summarizing and Caching
Records for Reference*

Not mandatory. But helpful for
the many similar cases doctors
have or for future research



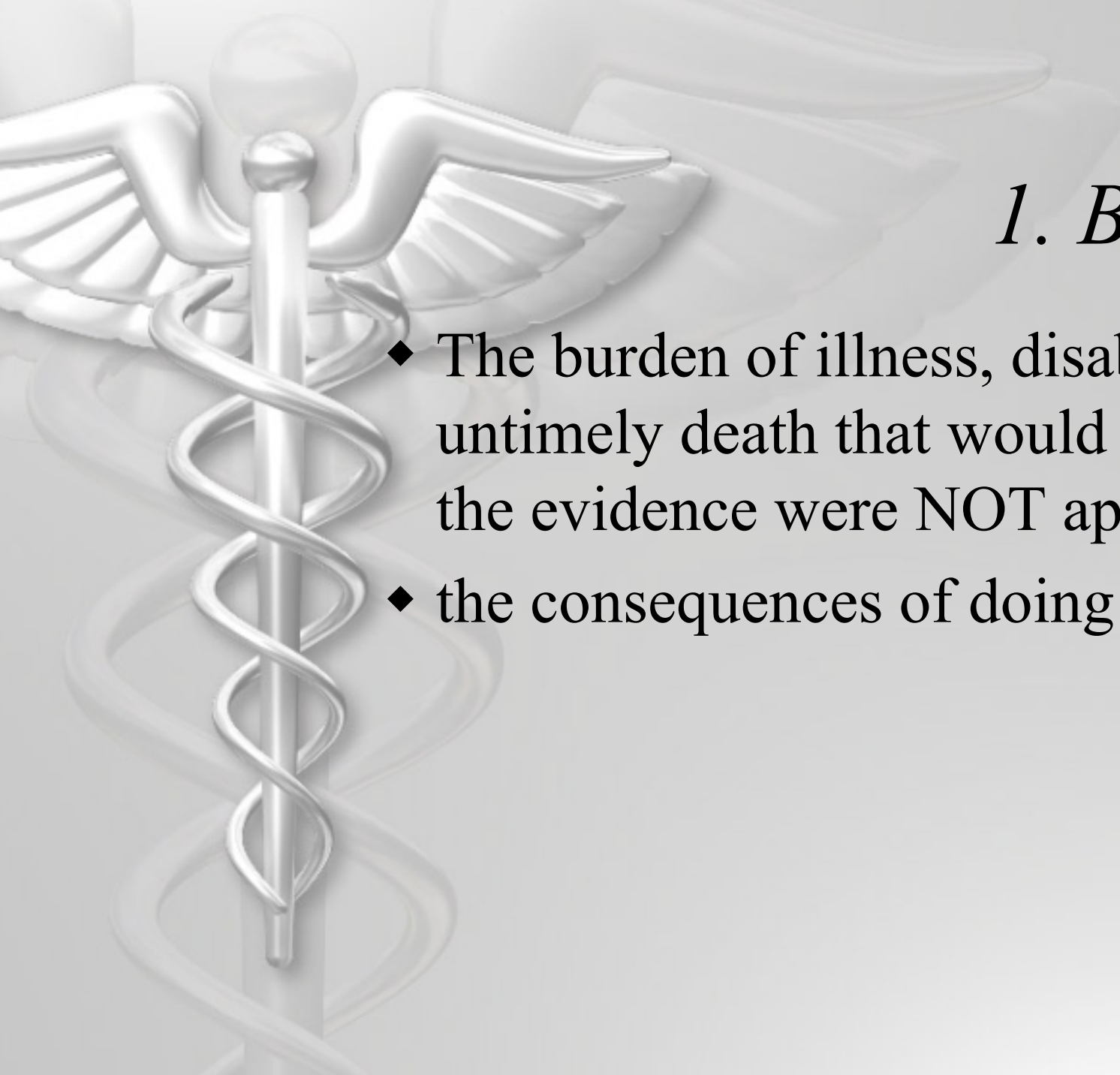
EBM and E-B Guidelines

- ◆ The best evidence comes from systematic reviews (such as Cochrane) and/or E-B journals of 2° publication:
 - ◆ Much more likely (than personal search and critical appraisal) to be true
 - ◆ Saves the clinician's precious (scarce!) time
- ◆ Avoids error and duplication of effort



EBM and E-B Guidelines

- ◆ NO systematic review (I.e. EBM system can or should try to) identify the “4 B’s”:
 - ◆ Burden
 - ◆ Barriers
 - ◆ Behaviors
 - ◆ Balance
- ◆ They can **ONLY** be determined at the doctor level



1. Burden

- ◆ The burden of illness, disability, and untimely death that would occur if the evidence were NOT applied
- ◆ the consequences of doing nothing



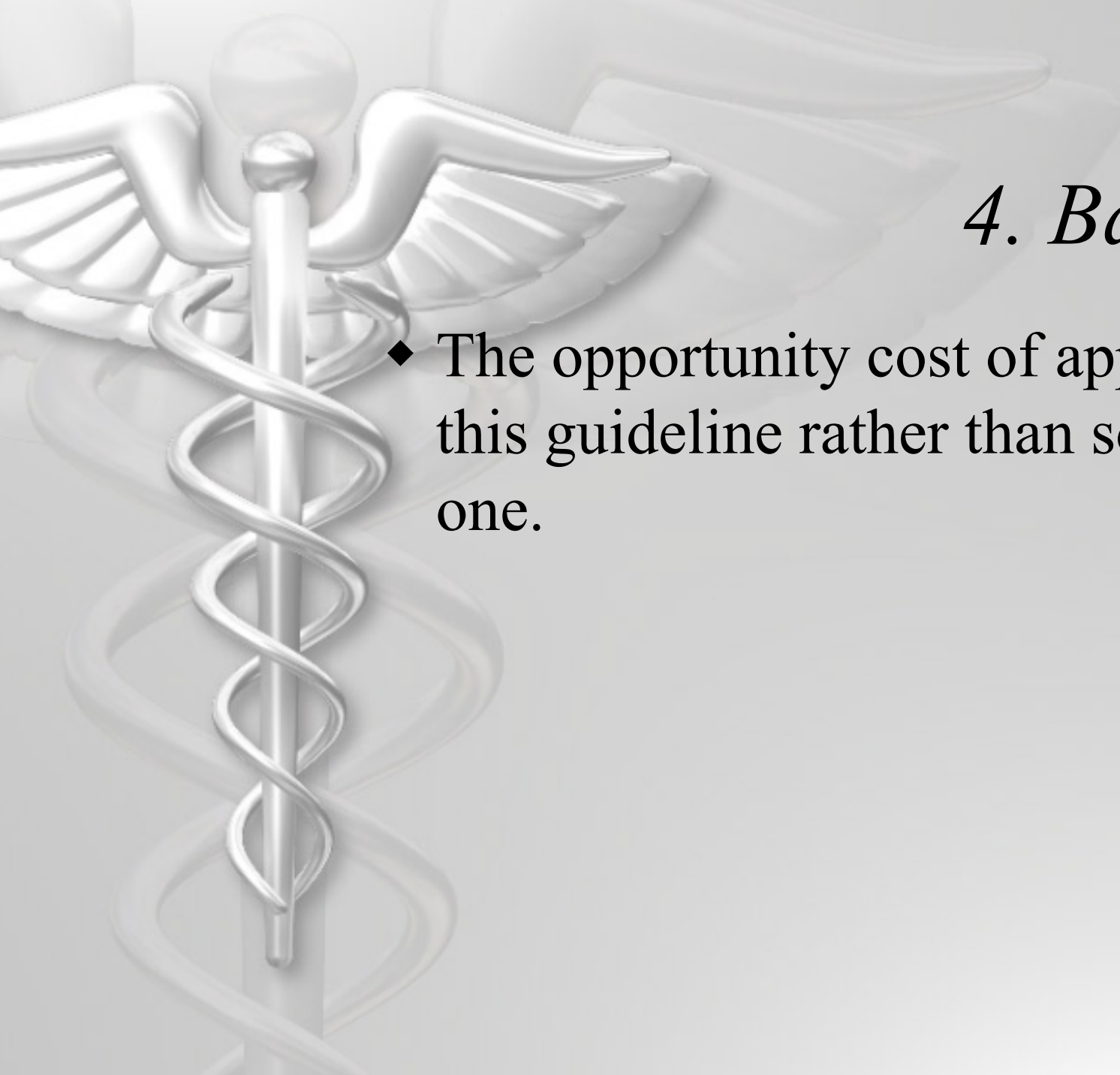
2. Barriers

- ◆ Patient-values & preferences
- ◆ Geography
- ◆ Economics
- ◆ Administration/Organization
- ◆ Tradition
- ◆ “Expert” opinion



3. Behaviors

- ◆ The behaviors required from providers and patients if the evidence is applied.
- ◆ All that guidelines can do is specify the former!



4. Balance

- ◆ The opportunity cost of applying this guideline rather than some other one.



Killer B's

- ◆ Burden: too small to warrant action.
- ◆ Barriers: ultimately down to patients' values.
- ◆ Behaviors: may not be achievable.
- ◆ Balance: may favor another guideline over this one.



Misapprehensions about EBM

Misinterpretation

Evidence-based
medicine ignores
clinical
experience and
clinical intuition.

Untested signs and
symptoms should
not be rejected out of
hand. They may
prove extremely
useful, and ultimately
be proved valid
through rigorous
testing. Diagnostic
tests may differ in
their accuracy
depending on the
skill of the
practitioner.



Misapprehensions about EBM

Understanding of basic investigation and pathophysiology plays no part in evidence-based medicine.

The dearth of adequate evidence demands that clinical problem solving must rely on an understanding of underlying pathophysiology.



Misapprehensions about EBM

Evidence-based medicine ignores standard aspects of clinical training such as the physical examination.

A careful history and physical examination provides much, and often the best, evidence for diagnosis and directs treatment decisions. Evidence-based practice considers the physical conditions of the patient while evaluating the evidence



Barriers To Practicing EBM

1. Quick links to good literature many not be readily available.
2. Economic Barriers and counterproductive barriers
3. There may not be enough time to carefully study use or revise info on pressing clinical problem



Concerns Regarding the Adopting of EBM

- ◆ Alter Personal and Professional Experiences of the General Practitioners
- ◆ Effect Patient Doctor Relationship
- ◆ Create new tension between primary and secondary care providers
- ◆ Create more tension between General Practitioners and Patients
- ◆ Tricky to logically implement. Even trickier to get doctors to trust the implantation.



Modes of practice

→ “Searching & appraising”

- ◆ provides E-B care, but is expensive in time and resources

→ “Searching only”

- ◆ much, quicker, and if carried out among E-B resources, can provide E-B care

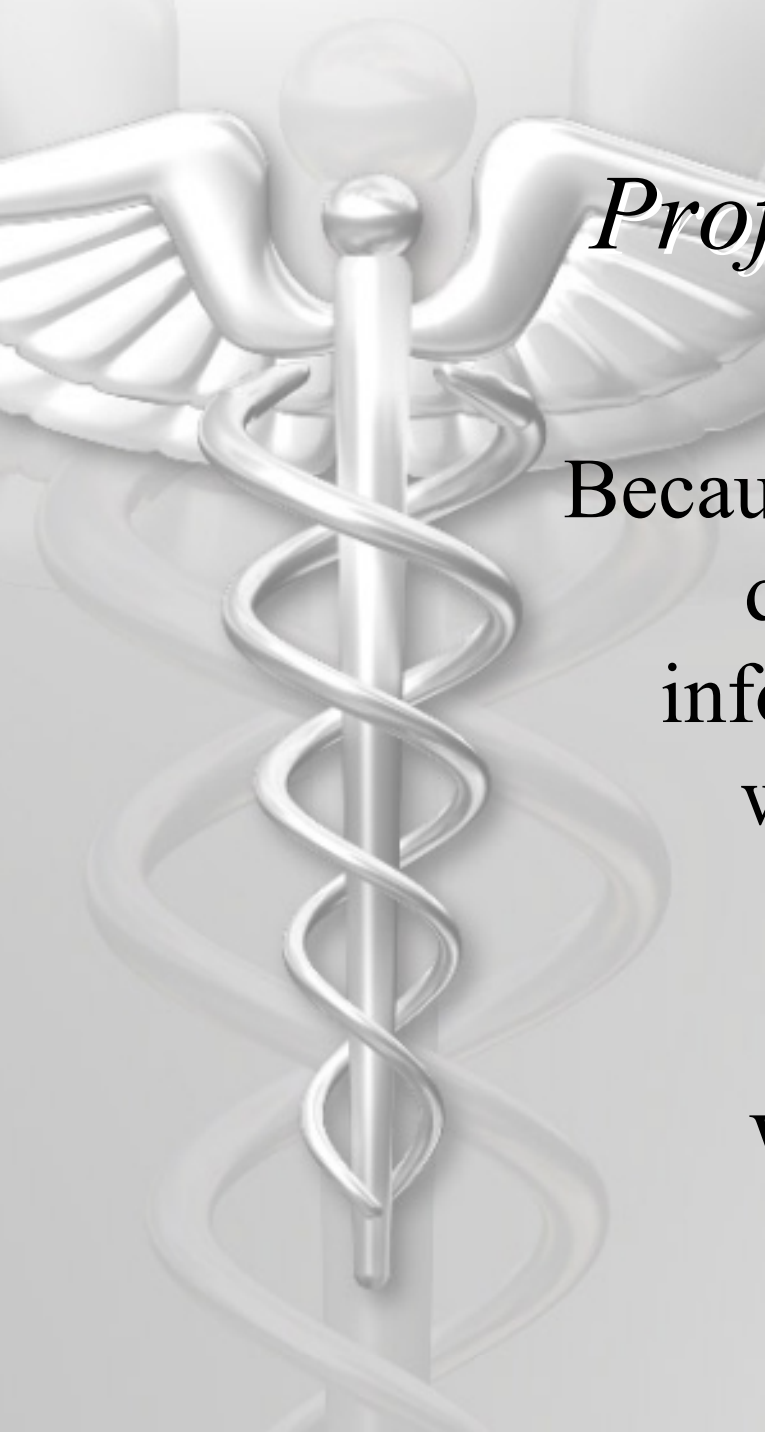
→ “Replicating” the practice of experts

- ◆ quickest, but may not distinguish evidence-based from ego-based recommendations



Help vs. Harm model .

- ◆ Probability of help:
 $ARR \text{ (embolus)} \times f_{\sim\text{risk}} \times f_{\sim\text{resp}} = 5.1\%$
- ◆ Probability of harm:
 $ARI \text{ (haemorrhage)} \times f_{\sim\text{harm}} = 10\%$
- ◆ My patient's Likelihood of Being Helped vs. Harmed [LHH] is: (5.1% to 10%)
or 2 to 1 against action!
- ◆ ...or is it ? Has to be right



Roles of Library Professionals in Evidence Based Medicine

Because of the time constraints and demands for higher quality information the need for quality well organized information increases

What are your thoughts?