

EVIDENCE BASED MEDICINE
SERIES
INTRODUCTION

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EBM

SOURCE

- http://www.cebm.net/critical_appraisal.asp.
- EBM
<http://www.cebm.utoronto.ca/teach/materials/caworksheets.htm>
- The foundation skills program for Egyptian Fellowship Trainees
- Executive board of the health ministers' council, 2020
- King Fahd national library cataloging-in-publication data

INTRODUCTION

In daily practice the need for valid information about diagnosis, prevention, treatment, prognosis, and harm are growing.

□ It is estimated that, on average, a clinician would need an answer for **5** questions for **every** in-patient and for **2** questions for every **3** out-patients.

□ The answer for such questions must be based on **solid research evidence** rather than on **opinion, speculations,** or even **past "undocumented and untested" experiences.**

□ The commonest **questions that arise** are:

- ❖ **What is the best diagnostic modality to ask for ?**
- ❖ **What is the best treatment should I prescribe ?**
- ❖ **Given the large number of NSAIDs in the market, which is best for relieving arthritis or back pain ?**
- ❖ **With the appearance of the exercise ECHO technique, should a cardiologist shift from doing exercise ECG to exercise ECHO for diagnosing significant coronary heart disease ?**

- ❑ In reality the answers to these questions, for the same patient, usually differ from one clinician to another even in the same institution as clinicians are used to base their decisions on subjective rather than objective standards.

The Traditional Method of Medical Practice

1. Knowledge

2. Reading

3. Experience

**4. Experts and
peers opinions**

WHAT IS THE BASIS OF YOUR MEDICAL PRACTICE?

(Check all that apply)

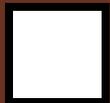
- A. Training, clinical experience and consultation with other professionals
- B. Convincing evidence (non-experimental) from articles, case reports, product literature, etc.
- C. Preferences of the patient
- D. Active search of Randomized Controlled Trials, Systematic Reviews, Meta-Analysis Reports

WHAT IS THE BASIS OF YOUR MEDICAL PRACTICE?

EXCELLENT!



A. Training, clinical experience and consultation with other professionals



B. Convincing evidence (non-experimental) from articles, case reports, product literature, etc.

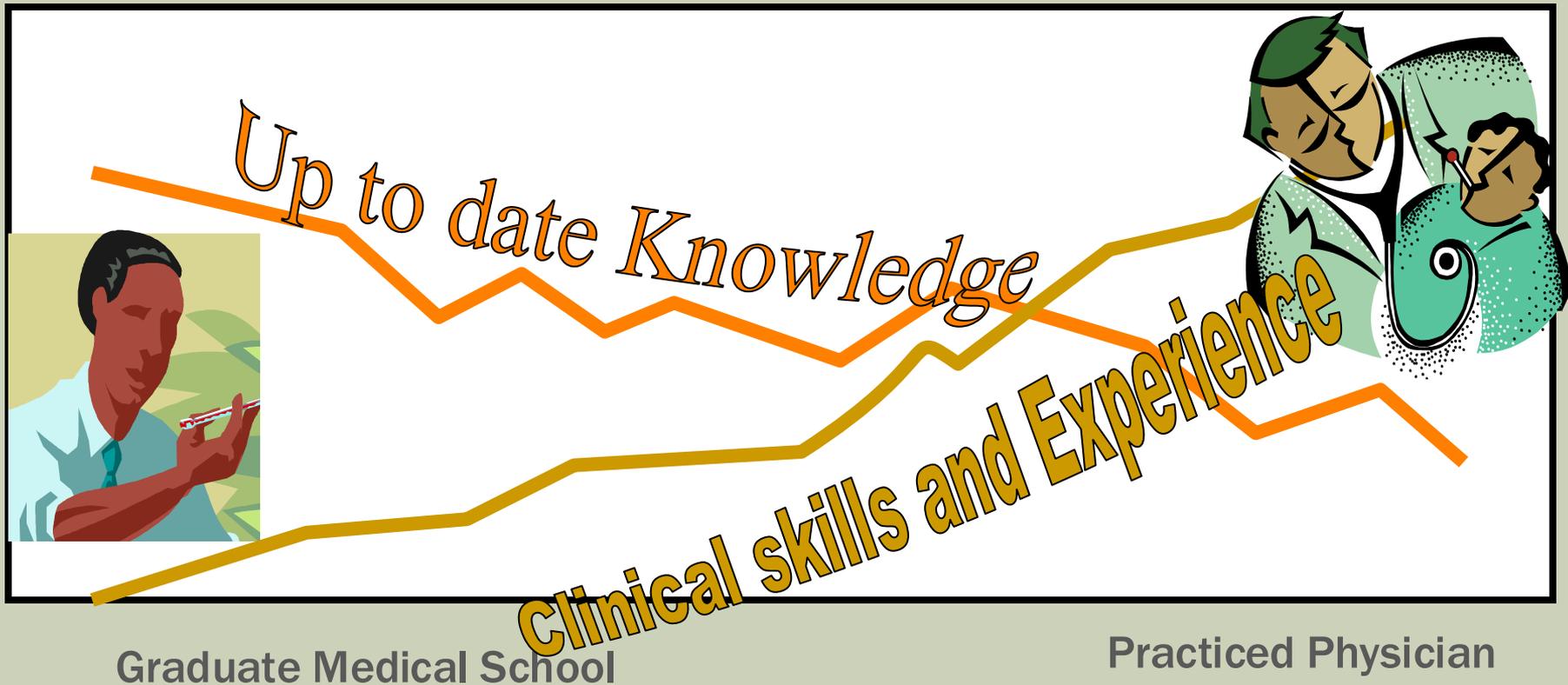


C. Preferences of the patient



D. Active search of Randomized Controlled Trials, Systematic Reviews, Meta-Analysis Reports

BUT... Past knowledge and practice might be outdated or inadequate



WHAT IS THE BASIS OF YOUR MEDICAL PRACTICE?

FANTASTIC!

- Training, clinical experience and consultation with other professionals
- Convincing evidence (non-experimental) from articles, case reports, product literature, etc.
- Preferences of the patient
- Active search of Randomized Controlled Trials, Systematic Reviews, Meta-Analysis reports

BUT... This evidence may be biased, outdated, incorrect, or not applicable to your patient



JOURNALS (1987 to present)



ARTICLES



ADVERTISEMENTS

WHAT IS THE BASIS OF YOUR MEDICAL PRACTICE?

WONDERFUL!

- A. Training, clinical experience and consultation with other professionals
 - B. Convincing evidence (non-experimental) from articles, case reports, product literature, etc.
 - C. Preferences of the patient
 - D. Active search of Randomized Controlled Trials, Systematic Reviews, Meta-Analysis reports
- } Mutual Respect +
Shared Goals =
Better Cooperation and
Compliance

The patient should be involved in
all important decisions
But this is NOT always an easy task!



And conflicts WILL occur!

No salt?
Lose weight?
Forget it!
Just give me a pill!

*I WON'T take that medicine...
The side effects are
INTOLERABLE!*

But doctor, I DO want
to have children!



And conflicts WILL occur!

No salt?
Lose weight?
Forget it!
Just give me a pill!

*I WON'T take that medicine...
The side effects are
*INTOLERABLE!**

But doctor, I DO want
to have children!



Education about current alternatives and risks is often
needed... *for both the Patient and the Doctor!*

Wow...
I never knew that high
blood pressure could be
so dangerous at my age!

Yes, I'd like to try that
new medication!

I'll discuss those risks
with my husband.



**Education about current alternatives and risks is often
needed... *for both the Patient and the Doctor!***

WHAT IS THE BASIS OF YOUR MEDICAL PRACTICE?

WOW!!! SUPERB!!!



A. Training, clinical experience and consultation with other professionals



B. Convincing evidence (non-experimental) from articles, case reports, product literature, etc.

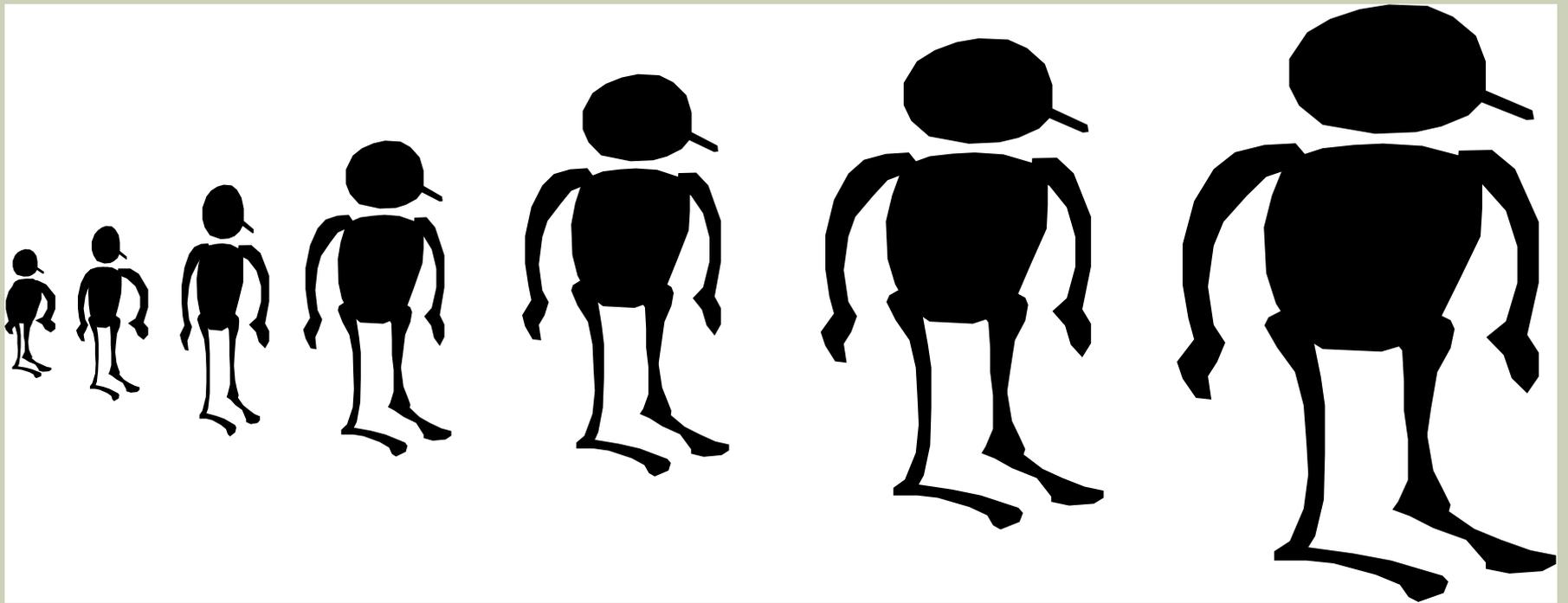


C. Preferences of the patient



D. Active search of Randomized Controlled Trials, Systematic Reviews, Meta-Analysis reports

But... A practice based exclusively on science and math is effective only if your patients are robots!



Don't forget to allow for individual human differences and personal preferences!

WHAT IS THE BASIS OF YOUR MEDICAL PRACTICE?

If you checked all 4 items...



A. Training, clinical experience and consultation with other professionals



B. Convincing evidence (non-experimental) from articles, case reports, product literature, etc.



C. Preferences of the patient



D. Active search of Randomized Controlled Trials, Systematic Reviews, Meta-Analysis reports

You are practicing EVIDENCE BASED MEDICINE!

CONGRATULATIONS!



A. Training, clinical experience and consultation with other professionals



B. Convincing evidence (non-experimental) from articles, case reports, product literature, etc.



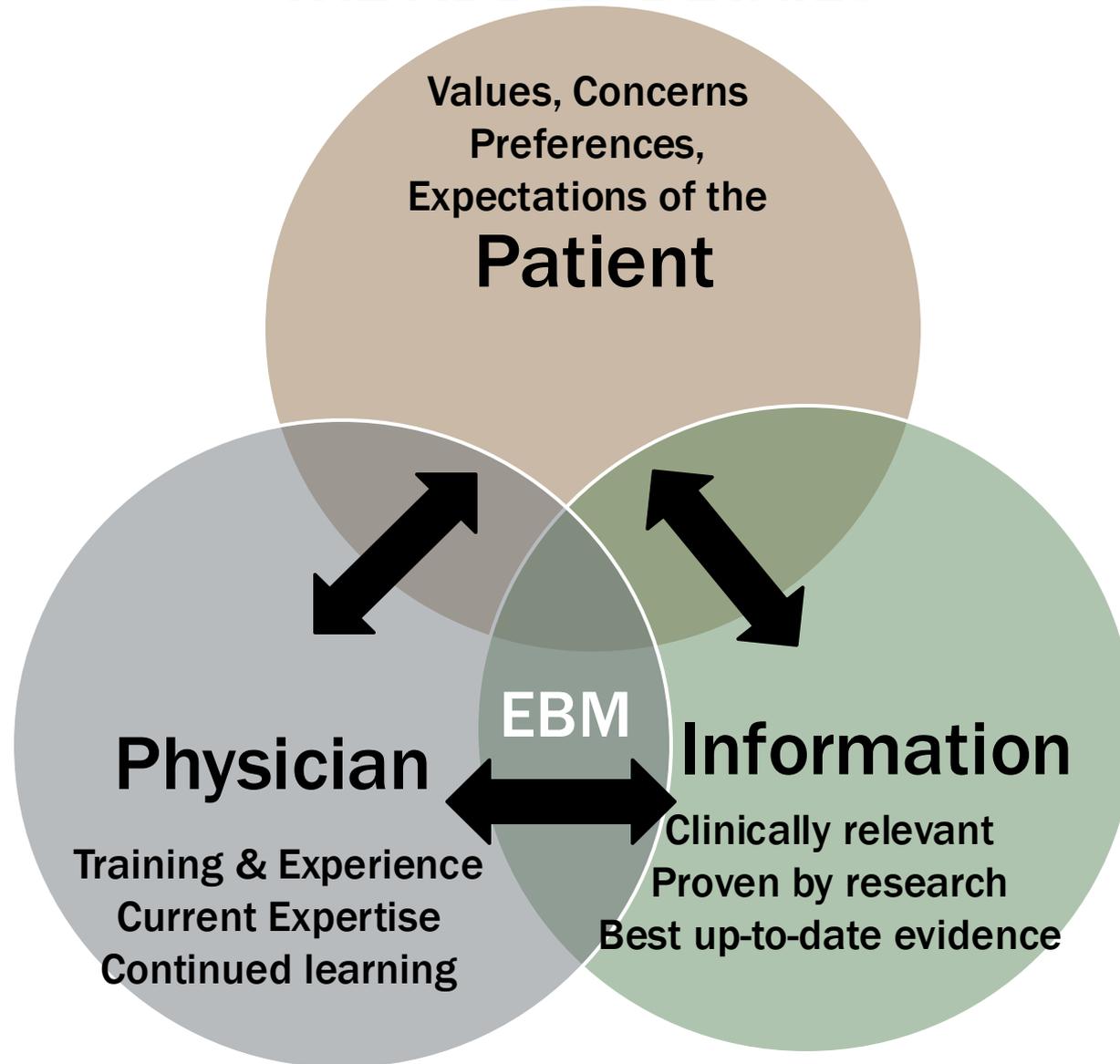
C. Preferences of the patient



D. Active search of Randomized Controlled Trials, Systematic Reviews, Meta-Analysis reports



THE ADDED DETAILS



Steps of EBM?



6 As

1. **A**ssess Patient
2. **A**sk clinical question
3. **A**cquire the evidence
4. **A**ppraise the evidence
5. **A**pply the best evidence
6. **A**ssess your performance

TYPES OF CLINICAL QUESTIONS

1. Background questions

- Two Components
- 1. A question root with a verb
- 2. Condition.

2. Foreground questions

- Four Components
- PICO

BACKGROUND AND FOREGROUND QUESTIONS (ALL PART OF EBM)

FOREGROUND QUESTIONS

NEW POSSIBILITIES
INDEFINITE ANSWERS

“Where do we want to go,
and how else might
we get there?”

“Where are we now?
And which way are we headed?”

**BASIC & CONCRETE
BACKGROUND QUESTIONS**

STUDENT

GRAD

EXPERT

1.BACKGROUND QUESTIONS:

Example :

“what is acute appendicitis?”

1. A question root with a verb e.g. **what is**...?
2. Some aspect of the disorder itself (e.g. appendicitis)

Another example:

What causes pneumonia? How do we tap ascites?

2. FOREGROUND QUESTIONS:

Asking for specific knowledge about how to diagnose a case. Other specific questions might address a specific treatment option for a disease. Prognosis of a condition or harm related to certain exposure .

Example :

If abdominal ultrasound could be of help in establishing the diagnosis ?

PICO

EXAMPLE

- Nadia is 67 years old and has a history of congestive heart failure brought on by several myocardial infarctions. She has been hospitalized twice within the last 6 months for worsening of heart failure. Now she remains in normal sinus rhythm. She is extremely diligent about taking her medications (enalapril, aspirin and simvastatin) and wants desperately to stay out of the hospital. You think she should also be taking digoxin but you are not certain if this will help in keeping her out of the hospital. You decide to research this question before her next visit.

1.BACKGROUND QUESTIONS

- 1. What can cause congestive heart failure?
- 2. How does myocardial infarction cause congestive heart failure?
- 3. How do you treat congestive heart failure?
- These questions ask for general knowledge about the disorder and specify the two components (question root with a verb and condition). Therefore, they are **well-built background questions**.

2.FOREGROUND QUESTIONS:

- In elderly patients with congestive heart failure, is digoxin plus standards of care, effective in reducing the need for re-hospitalization?
- This question asks for specific knowledge about managing the patient presented in the scenario
Therefore, it is a foreground question **(PICO)**

Steps of EBM?



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Steps of EBM? Asking clinical question?

6 As

PICO

Patient

Intervention

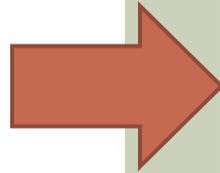
Comparison

Outcomes

PICO

P

PATIENT



“Patient” refers to the **person** presenting with the problem, or more simply, to the **problem** itself. Both concepts are important in searching.

I

INTER-
VENTION

C

COMPARISON

O

OUTCOME

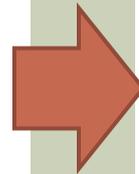
PICO

P

PATIENT

I

INTER-
VENTION



C

COMPARISON

O

OUTCOME

“**Intervention**” refers to the action taken in response to the problem. This is often a drug or surgical procedure, but it can take many forms”

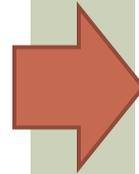
PICO

P

PATIENT

I

INTER-
VENTION



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“**Intervention**” refers to the action taken in response to the problem. This is often a drug or surgical procedure, but it can take many forms”

PICO

P

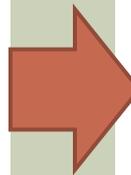
PATIENT

I

INTER-
VENTION

C

COMPARISON



O

OUTCOME

“**Comparison**” refers to the benchmark against which the intervention is measured. Often it refers to **another treatment, no treatment, or a placebo.**

PICO

P

PATIENT

I

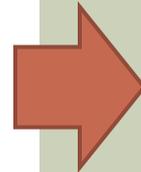
INTER-
VENTION

C

COMPARISON

O

OUTCOME



“**Outcome**” refers to the anticipated **result** of the intervention.

EXAMPLE

Is there any evidence to support laser treatment as an effective therapy for lymphedema?

USING THE PICO MODEL

- P** → Lymphedema
- I** → Laser treatment
- C** → None specified
- O** → Reduction of symptoms, healing

CONSTRUCT AN ANSWERABLE QUESTION

Hassan, a 56 year old man, comes in for repeat prescription for his chronic **hypertension**.

- He is on **Atenolol** 50 mg per day.
- His wife, who is diabetic for the last 3 years, was started on **Capoten** tablets last month because she developed high blood pressure.

Hassan asked you: can he be shifted to Capoten too?

CONSTRUCT AN ANSWERABLE QUESTION

- In elderly hypertensive males (**P**), would Capoten (**I**) compared to Atenelol (**C**) result in better blood pressure control (**O**)?

ETIOLOGY AND RISK QUESTIONS

WHAT CAUSES A DISEASE OR HEALTH CONDITION?

- Questions deal with harmful outcomes of an activity or exposure (public health issues)
- Develop a clinical question for the case:
Susan is a smoker and just found out that she is 3 months pregnant. She quit smoking immediately. But she is worried if her developing baby was harmed and if the baby is at risk for having developmental problems. She is asking you if smoking during the first trimester can harm her baby?

ETIOLOGY OR RISK QUESTIONS

- P-babies of mothers who smoke
I-smoking in first trimester
C-nothing
O-increase risk of developmental problems
- Question: Are babies of mothers who smoke during their first trimester at an increased risk of developmental disabilities?

Steps of EBM?



6 As

1. *A*ssess Patient
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6. *A*ssess your performance

EBM RESOURCES

When encountered with a foreground clinical question, which needs to be answered, one may find the answer by:

- 1- searching **pre appraised Evidence Based Medicine resources** (e.g. **The Cochrane Library**)
- 2- Searching **traditional (non-appraised) resources** (e.g. **Medline**) and then appraising the search results.
- 3- Questions that do not have an answer in either might be good points for primary research

Accessing the Cochrane Library

- **Via the Cochrane Collaboration,**

web site: <http://www.Cochrane.org>

- **Via the Cochrane Library web site:**

<http://www.thecochranelibrary.com>

THANKS