



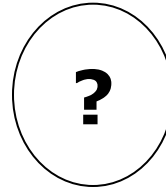
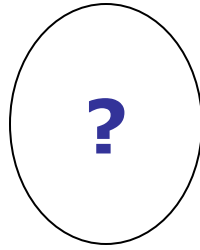
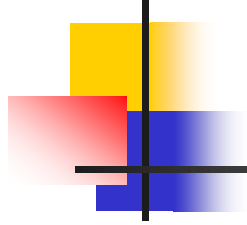
**STATE UNIVERSITY OF MEDICINE AND  
PHARMACY "NICOLAE TESTEMITANU"**

**DEPARTMENT of  
MANAGEMENT AND PSYCHOLOGY**

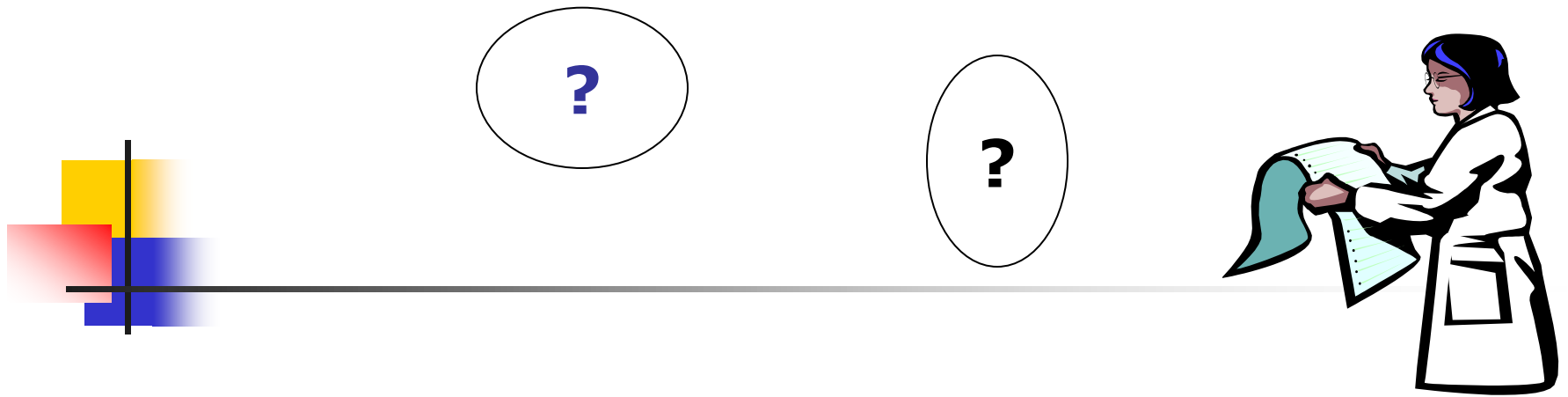
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# **INTRODUCTION TO THE EVIDENCE-BASED MEDICINE**

**Larisa Spinei  
d.h.ş.m., profesor universitar**



- **How do we know that the treatment will be effective ?**
- **How do we know that the diagnostic method used is the best ?**
- **What is the medical, social prognosis?**



- **How do we know that we have selected the right clinical management?**
- **How do we know that the selected method is the most effective and does not endanger the patient's life?**



# EBM

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- **It's not a new science**
- **It is a new direction in the technology of collecting, analyzing and interpreting scientific information**
- **It is closely related to clinical pharmacology**
- **It is not limited to performing RCT<sub>s</sub> analysis**
- **Its principles are useful in any field of medicine**



# EBM

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- **By using EBM principles for improving health care and increasing the satisfaction of medical workers and patients to set standards**



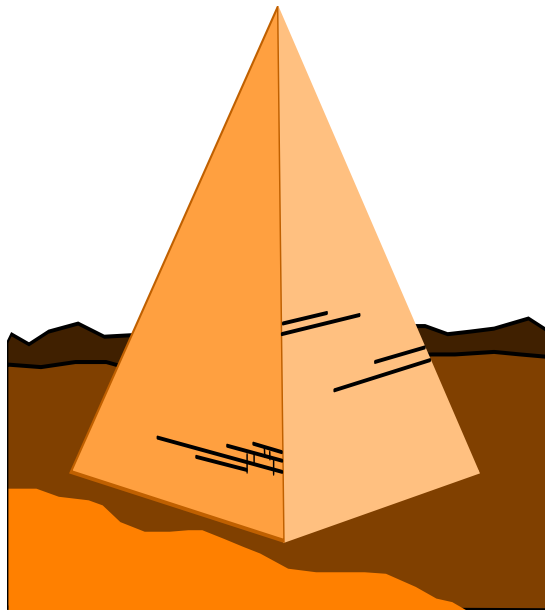
# STANDARDIZATION ALLOW

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- **Tighter evidence of medicines / drugs**
- **Proper use of medical technology**
- **Introduction of electronic medical records**
- **Development and use of clinical protocols**
- **Development and use of clinical protocols**

# WHY THE EBM APPEARED ? (1)

500 m



- Increasing volume of scientific information

15 thousand scientific journals  
10 million scientific articles

- Rapid aging of traditional sources of information



## WHY THE EBM APPEARED ? (2)

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- **Introduction of new complex technologies in medicine, precise methods of diagnosis**
- **Changing the structure of morbidity**
- **the size of the expenses in providing medical care**





## **WHY THE MBD APPEARED ? (3)**

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- **Intensification of the doctor's activity and complexity of clinical decision making**
- **Humanizing society, with an emphasis on self-confidence and self-sufficiency of the individual**
- **Informatization and computerization**
- **Patients well acquainted with "medicine"**



# What prevents EBM

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## Medical errors


- **Excessive application**
- **Insufficient application**
- **Unreasonable application**



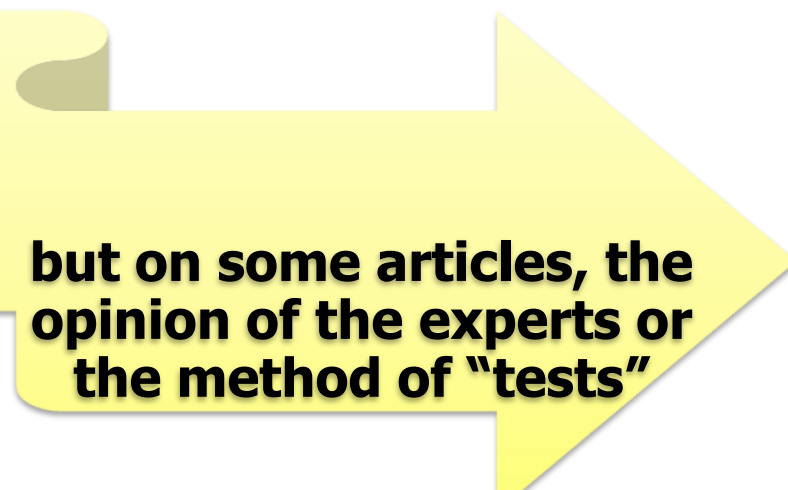
# EBM

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- In 1972 Archie Cochrane, epidemiologist, found that most clinical decisions are based on:



**not on scientific  
research or systematic  
review**



**but on some articles, the  
opinion of the experts or  
the method of "tests"**



# EBM: short history (1)

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- 1940 - The first randomized trials (TBC and streptomycin)
- 1960 – Tragedy with thalidomide
- 1962 - US organizes Committee for drug and food control, carrying out RCT<sub>s</sub> for newly developed drugs
- 1971 – Archie Cochran – insufficient scientific evidence on treatment methods
- 1980-90 – the need to include systematic review data in clinical protocols



## EBM: short history (2)

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- 1994 - Oxford, I Cochrane colloquium
- 1994 - the notion (term) “EBM”
- 1996 - most GB doctors know what means EBM; the publications appear in journals
- 1999 - BMJ a published “EBM – compendium” (ex. SUA ½ mln.)
- 2001 – Editions in Germany, Spain, Russia, Japan



# PURPOSES DEFINITION

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- ... Solving the health problem by **knowing** some possible solutions
- EBM is useful for selecting **the best solution existing**
- **... We have to determine what we want**
  - The best medical, economic or political solution
  - What strategy, tactic do you want to use
- **... to be pleased to find the best solution**

# EVIDENCE-BASED MEDICINE



**“... conscientious, accurate and judicious use of the best current evidence for making decisions about the individual care of each patient ... provides for the integration of individual clinical experience with the best available clinical evidence”**

David Sackett

BMJ 1996;312:70-71

EBM principles should also be used for technology  
assessment and decision making



# The six steps of EBM - I

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## Transformation of the clinical problem in question from 4 components

Patient / Problem	(P)	Description of the target patient or disease
Intervention	(I)	Diagnostic test, risk factors, method of treatment
Control	(C)	Control group (relevant for studies testing treatments, risk factors)
Outcome	(O)	The clinical outcome is of interest to you and your patient.



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This approach is called **“PICO”**







## The six steps of EBM - II

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- Finding the answer to the question from 4 components based only on **INTERNAL DOCUMENTS**
- **Internal proof:**
  - Academic knowledge
  - Experience gained during the practice
  - Information obtained from the individual patient

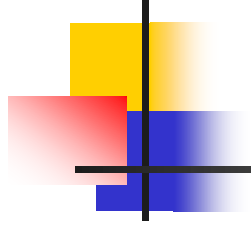


# Questions for the evaluation of **INTERNAL DOCUMENTS**

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1. What I do?
2. What do I do?
3. Does it achieve what it does for its intended purpose?
4. Are there better / more acceptable ways to achieve this?

# **INTERNAL DOCUMENTS:** are they enough?



**You cannot solve a problem  
having the same mentality you  
had when you created the  
problem**



## The six steps of EBM - III

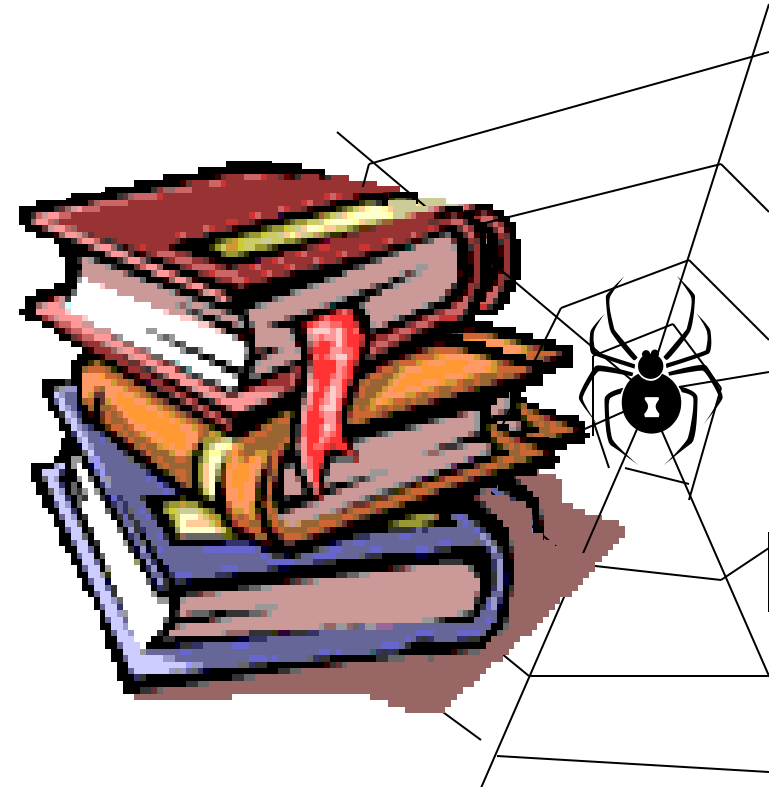
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**Search and find  
EXTERNAL EVIDENCE to  
answer the 4 - component  
question**

## The six steps of EBM - III

- **What is external evidence?**

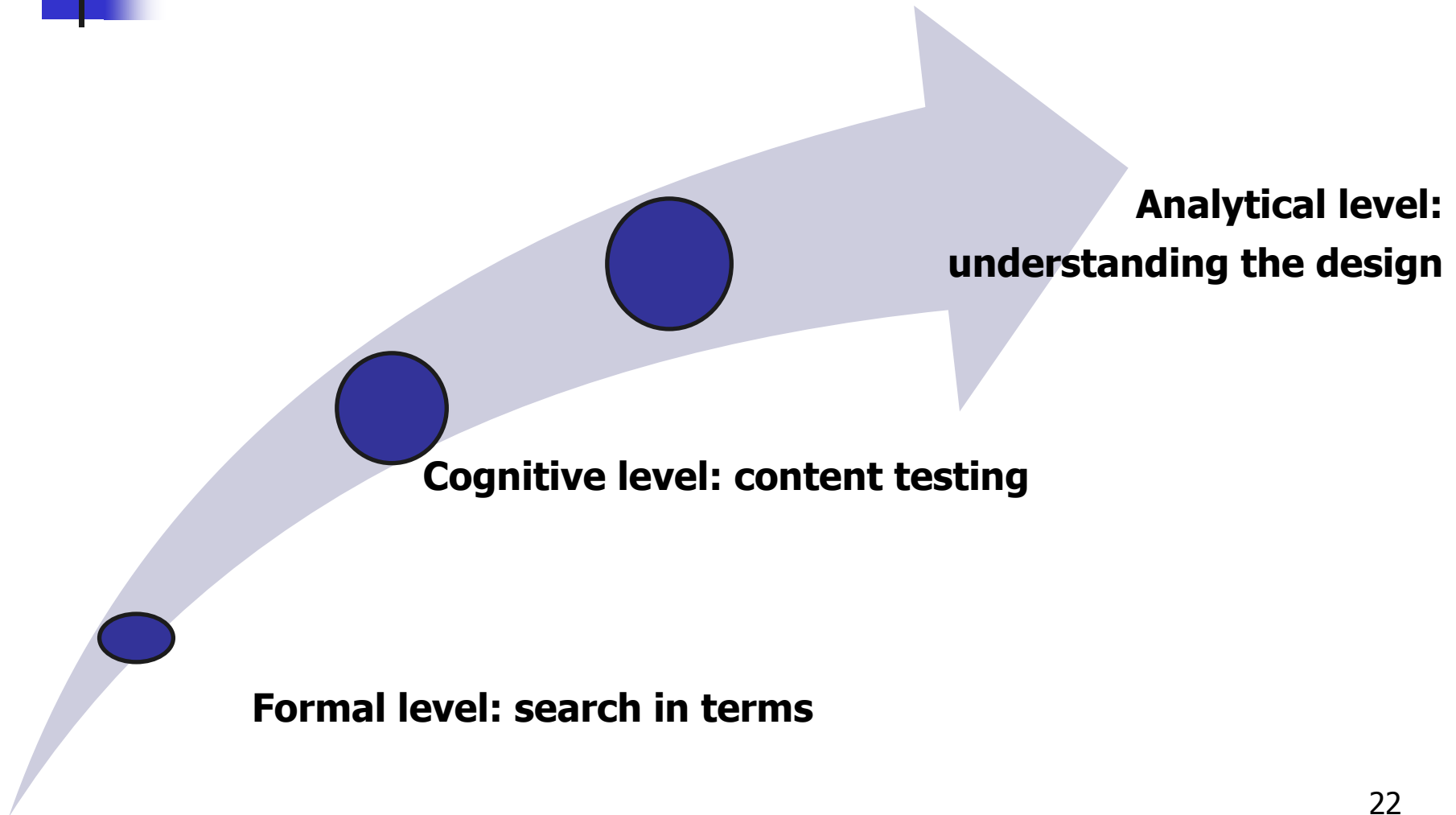
**Experienced colleagues,  
Medline, case reports,  
Cochrane reviews,  
randomized controlled  
trials, manuals, The  
Lancet, ...**





# Levels of "external evidence"

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## WE NEVER HAVE A TIME TO READ !

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- **“... doctor should read 10 journals, 70 articles a month ...”**

*Sackett D.L. (1985)*

- **“... 15 articles 365 days a year ...”**

*McCrory D.C. (2002)*

- **The time available to a doctor - less than 1 hour a week**



# **WE NEVER HAVE A TIME TO READ !**

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- **The medical literature is vast, disorganized and erroneous**
- **The information doubles every 2 years**
- **6000 articles in Obstetrics and Gynecology are published annually - a dedicated physician should read over 20 articles per day**
- **95% of articles in medical journals do not even meet a minimum of quality criteria and clinical relevance**





## The six steps of EBM - IV

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**Critical evaluation of the external evidence found**

- **Validity**
- **Clinical relevance**
- **Applicability**



# CRITICAL ASSESSMENT EXTERNAL EVIDENCE FINDED

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- **POEM** - Patient Oriented Evidence that Matters, “Important Evidence Based on Patient Outcomes”
- It is cohesive with problems in medical practice, it has the potential to modify the practical activity
  - The character of pain
  - Sleep quality
  - Mortality, morbidity



# CRITICAL ASSESSMENT EXTERNAL EVIDENCE FINDED

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- **DOE** - Disease Oriented Evidence, “Evidence based on the characteristics of the disease”
  - It is based on intermediate results or the characteristics of the disease
  - It should not change or serve as an element of conduct in medical practice
    - Urinary flow rate
    - Microelement concentration

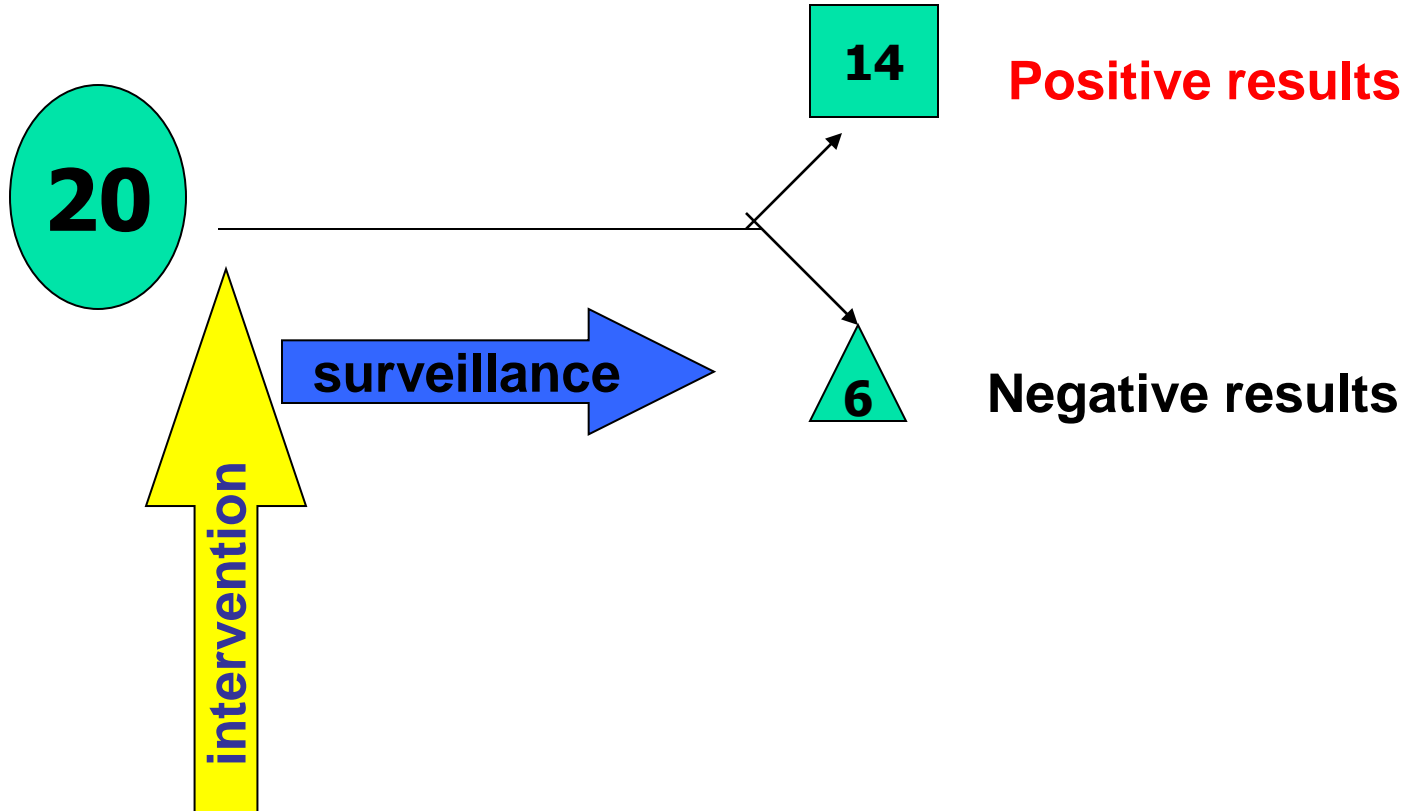


# CRITICAL ASSESSMENT EXTERNAL EVIDENCE FINDED

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- **POE** - Patient Oriented Evidence, “Evidence Based on Patient Outcomes”
  - Results obtained from the patient
  - *The findings do not have the potential to modify the practical activity*

# Design of "typical" research in medicine





# POEM and DOE

	<b>POEM</b>	<b>DOE</b>
<b>Typical</b>	Read them!	Error induce
<b>Not typical</b>	Read them in free time	they are useless



## The six steps of EBM

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- **What do I not currently do what I should do?**
- **What I'm currently doing is what I shouldn't do?**



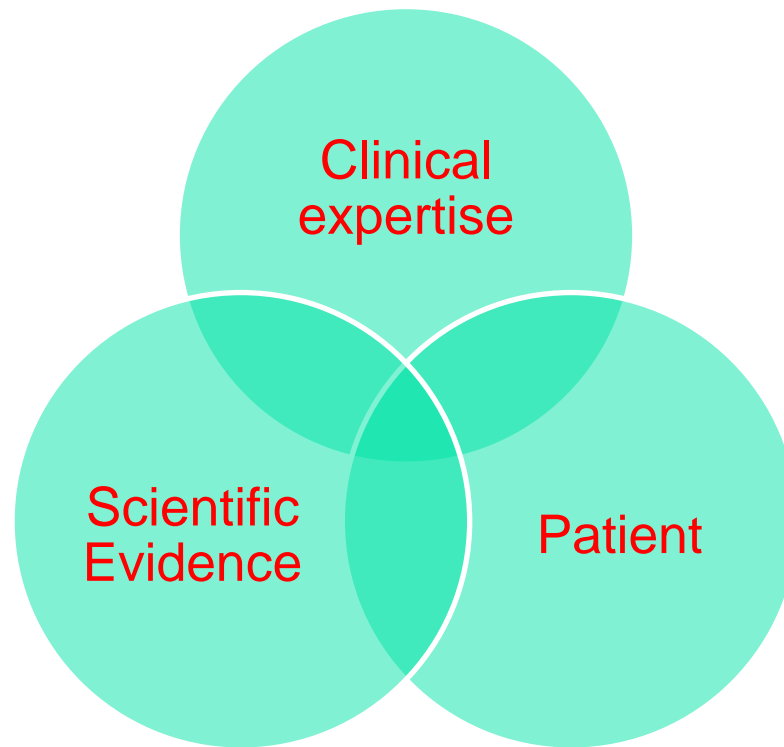
## The six steps of EBM - V

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- **Integration EXTERNAL EVIDENCE in INTERNAL EVIDENCE**
- **You have to decide** whether or not the external evidence will change the internal evidence - it is a political decision !!!



# Transposition of evidence from research into practice





# The six steps of EBM

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- **Transforming the clinical problem into a question of 4 components**
- **Search for the answer to the question of 4 components based only on INTERNAL EVIDENCE**
- **EXTERNAL EVIDENCE search and finding to answer the 4-component question**
- **Critical evaluation of the EXTERNAL EVIDENCE found**
- **The integration of EXTERNAL EVIDENCE into INTERNAL EVIDENCE**
- **Evaluation of the result**



# EVIDENCE-BASED MEDICINE

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**“Not all clinicians need to evaluate the evidence from zero (scratch), but everyone must have some skills”**

**G.Guyatt** et al. *BMJ* 2000;320:954-955



# EBM LIMITATIONS

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- **EBM is intended to solve only therapeutic problems, or at least this is the most widespread area**
- **EBM cannot substitute for individual clinical experience when it comes to testing a diagnostic hypothesis**



# EBM LIMITATIONS

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- **the EBM products are mainly developed in English, which limits access to the latest data**
- **the some tools (ex. Cochrane Library) have a high cost**



# EBM LIMITATIONS

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- **EBM never refers to the patient, it refers to thousands of patients**
- **It is scheduled to treat individual patient**
- **It takes time to be learned and practiced**



## **ADVANTAGES FOR THE PRACTICAL MEDICAL**

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- **It allows to understand the methodology, the scientific research process**
- **Familiarize the doctor with research methods**
- **Develop critical thinking**
- **It allows the doctor to identify the "gaps" in the training**



# ADVANTAGES FOR THE PACIENT

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- **Better communication between doctor and patient**
- **Better patient compliance**
- **Better patient satisfaction**





## IS EBM EASILY ACCEPTED?

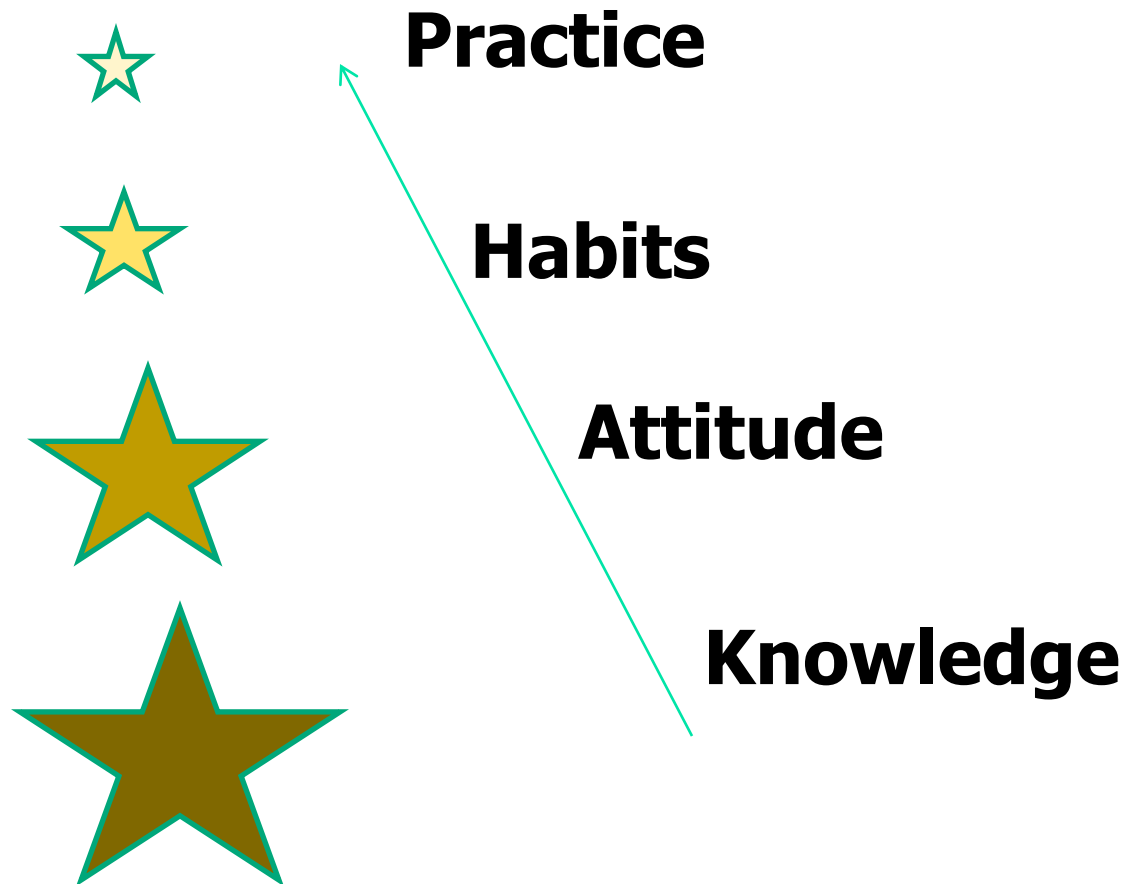
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- ⇒ **12 RCTs with a total number of patients over 3000 demonstrated the efficacy of corticosteroids in women at high risk of preterm birth**
- ⇒ **Only 12-18% of women who gave birth to children 501-1500g received this treatment (US)**

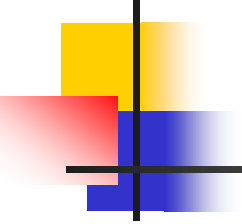


# WHY IS EBM NOT EASILY ACCEPTED?

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# SUMMARY

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- EBM offers strategies and tactics for rational **decision making**.
  - EBM guarantees the **freedom of the medical decision** when it is properly understood and applied
  - MBD would have considerable **effects** on the **quality of health care** if both policy and medicine used EBM. **But only if both!**