



# Introduction To Evidence-Based Practice

Keith Posley, MD

Lauren Maggio, MS (LIS)



# Goals & Objectives

- Define Evidence-Based Medicine (EBM)
- Articulate the four steps of EBP
- Learn to formulate “answerable” clinical questions
- Know where to find student EBP information/educational resources on LaneConnex
- Use an EBP information resource



# Agenda

- Intro to EBM 40 minutes
- Small Groups 50 minutes
  - Developing Clinical Questions
  - Translating your question to an answer—  
Searching with Lauren
- Course Evaluation



# What is Evidence-Based Medicine?



# What is Evidence-Based Medicine (EBM) ?

## *EBM is not:*

- Disease-based medicine
- All about guidelines
- Cookbook medicine



# The New England Journal of Medicine

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## THE EFFECT OF SPIRONOLACTONE ON MORBIDITY AND MORTALITY IN PATIENTS WITH SEVERE HEART FAILURE

BERTRAM PITT, M.D., FAIEZ ZANNAD, M.D., WILLEM J. REMME, M.D., ROBERT CODY, M.D., ALAIN CASTAIGNE, M.D.,  
ALFONSO PEREZ, M.D., JOLIE PALENSKY, M.S., AND JANET WITTES, PH.D.,  
FOR THE RANDOMIZED ALDACTONE EVALUATION STUDY INVESTIGATORS\*



*The* NEW ENGLAND JOURNAL *of* MEDICINE

ORIGINAL ARTICLE

# Rates of Hyperkalemia after Publication of the Randomized Aldactone Evaluation Study

David N. Juurlink, M.D., Ph.D., Muhammad M. Mamdani, Pharm.D., M.P.H.,  
Douglas S. Lee, M.D., Alexander Kopp, B.A., Peter C. Austin, Ph.D.,  
Andreas Laupacis, M.D., and Donald A. Redelmeier, M.D.

# What is Evidence-Based Medicine?





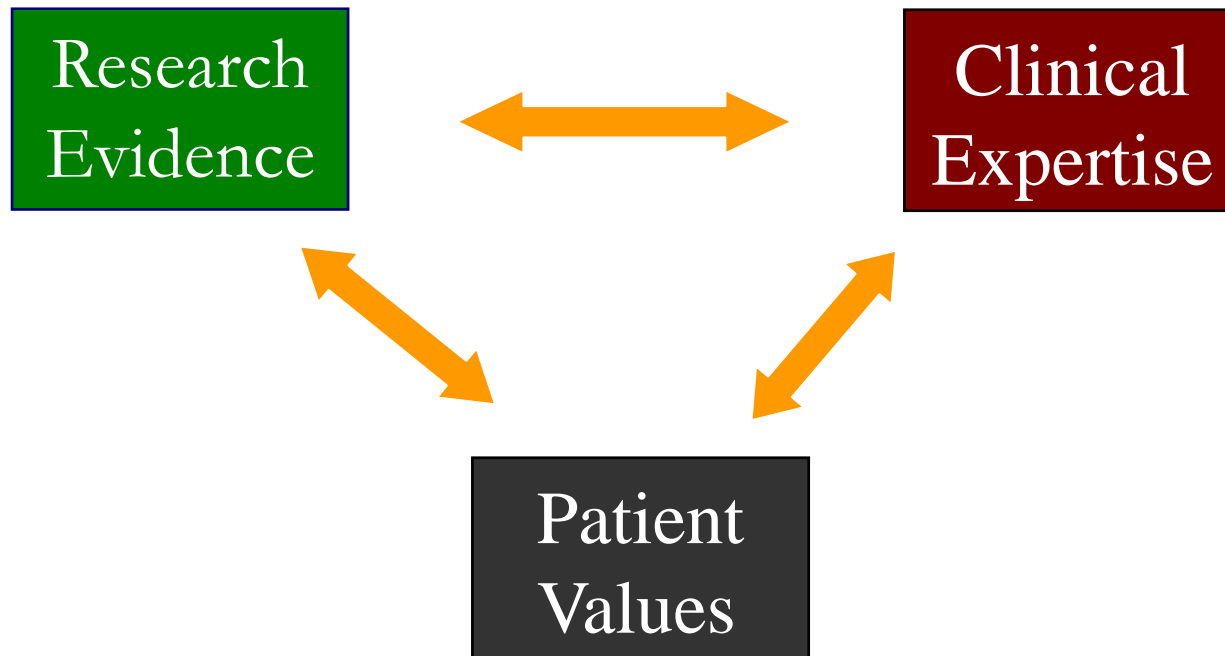


# What is Evidence-Based Practice?

- EBP is the integration of best research evidence with clinical expertise and patient values to guide medical decision-making
- EBP employs a process that provides a framework for both good patient care and effective medical education
- EBP promotes lifelong learning



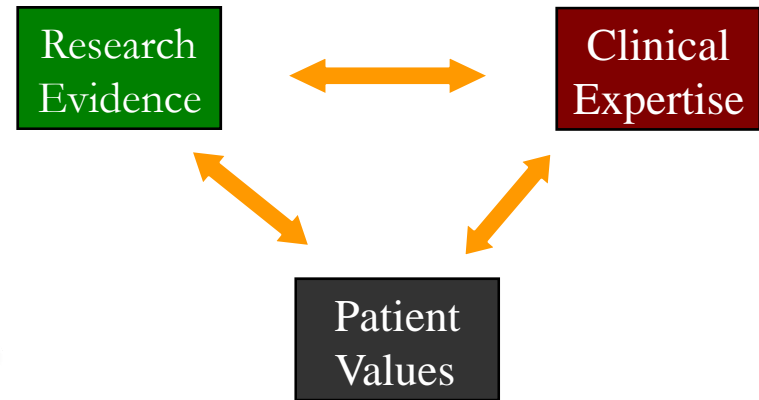
# What is EBP?



- ***Evidence alone is not enough!***



# EBP is a Process



## Remember the 4 A's

- Ask: A focused clinical question
- Acquire: The best evidence you can find
- Appraise: Appraise that evidence
- Apply: To patient care



# Information Literacy

- “To be information literate, a person must be able to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information”
  - Recognize need for information
  - Locate it
  - Evaluate it
  - Use it effectively



## Evidence-Based Practice

Ask

Acquire

Appraise

Apply

## Information Literacy

Recognize need for information

Locate it

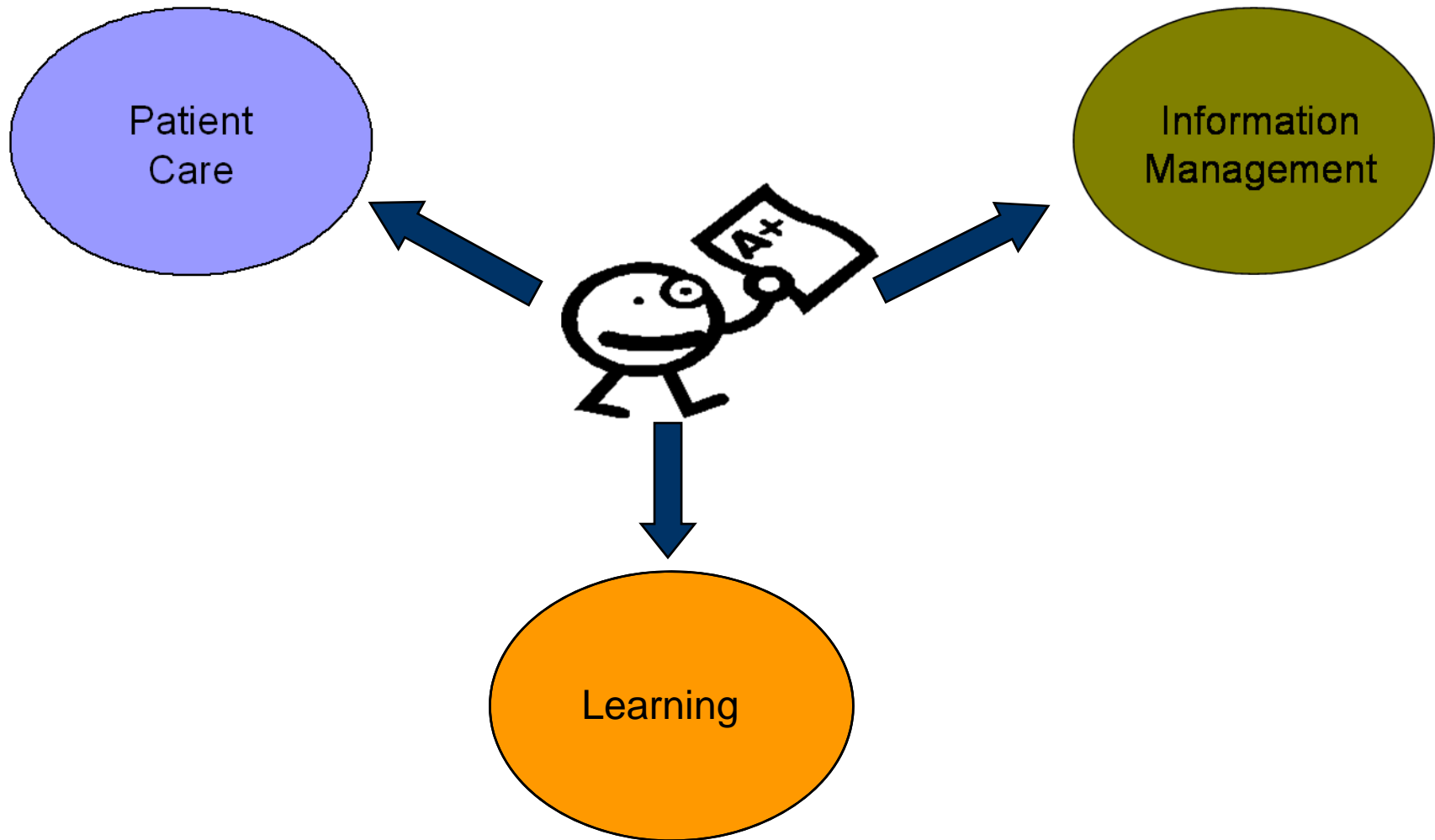
Evaluate it

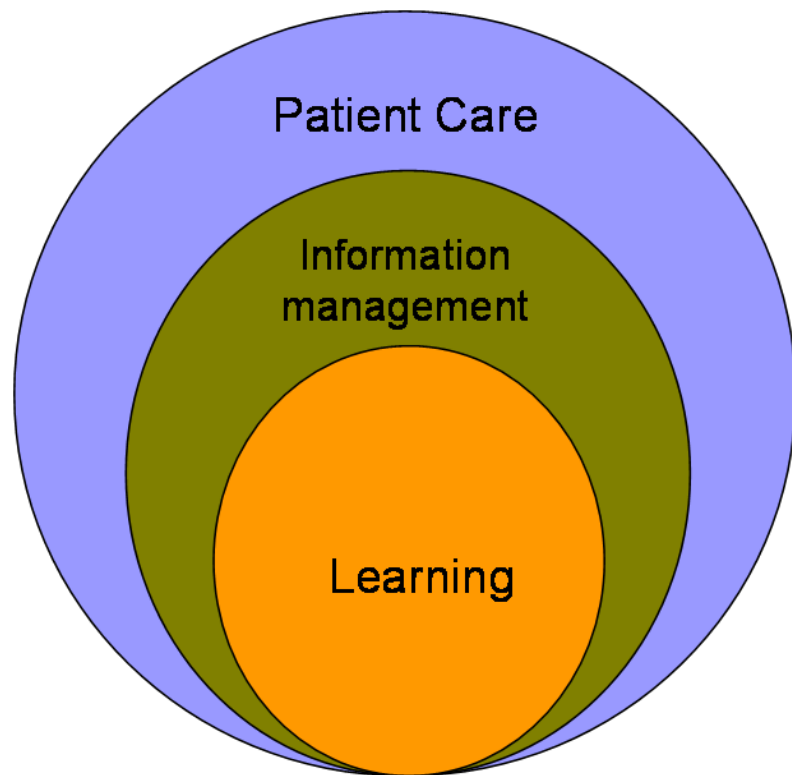
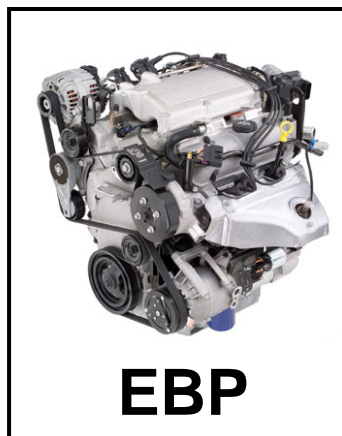
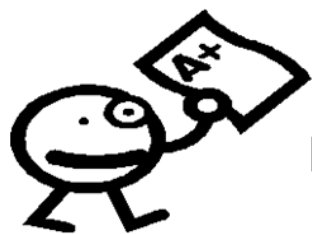
Use it effectively



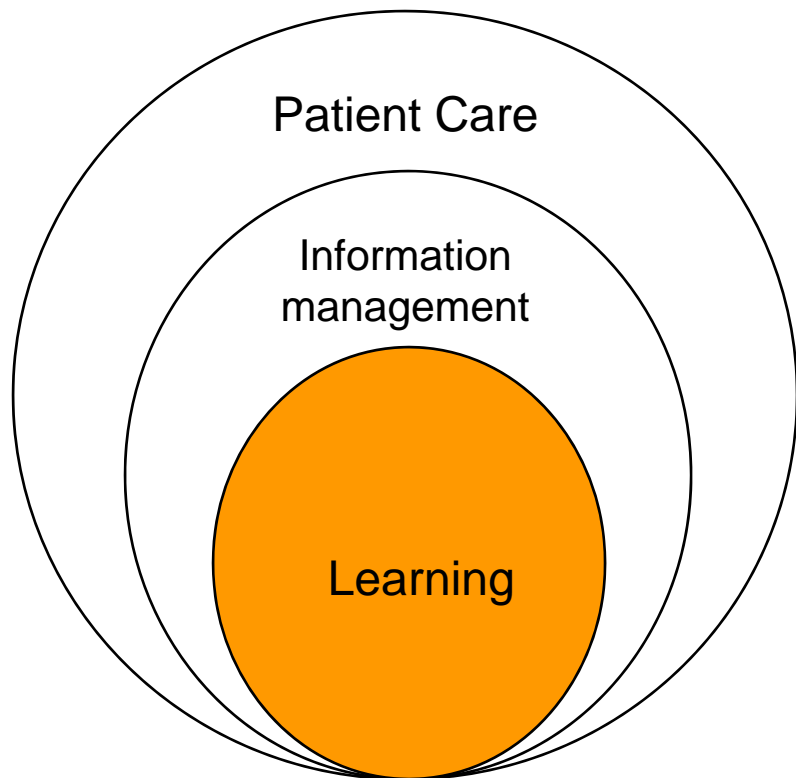
# Why is EBP such a big deal?

- Patient Care
- Information management
- Medical Education











## Pedagogy: Content driven, teacher-centered

The learner

*Dependent.* Teacher directs what, when, how a subject is learned and tests that it has been learned

The learner's experience

*Of little worth.* Hence teaching methods are didactic

Readiness to learn

*People learn what society expects them to.* So that the curriculum is standardized.

Orientation to learning

*Acquisition of subject matter.* Curriculum organized by subjects.



## **Pedagogy: Content driven, teacher-centered**

## **Andragogy: Process driven, learner centered**

The learner

*Dependent. Teacher directs what, when, how a subject is learned and tests that it has been learned*

*Moves towards independence. Self-directing. Teacher encourages and nurtures this movement*

The learner's experience

*Of little worth. Hence teaching methods are didactic*

*A rich resource for learning. Hence teaching methods include discussion, problem-solving etc.*

Readiness to learn

*People learn what society expects them to. So that the curriculum is standardized.*

*People learn what they need to know, so that learning programs organized around life application.*

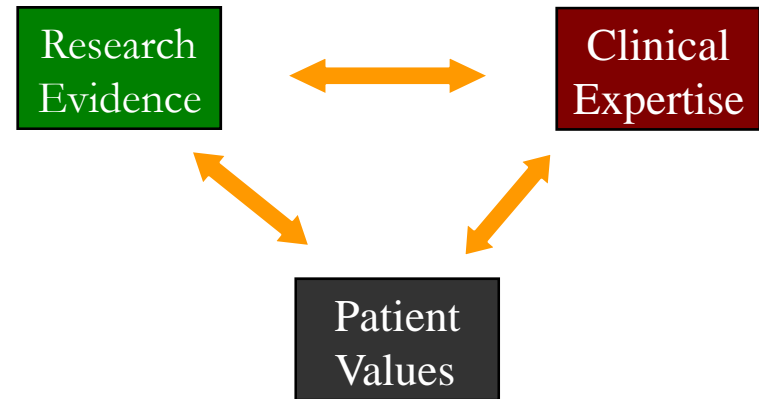
Orientation to learning

*Acquisition of subject matter. Curriculum organized by subjects.*

*Learning experiences should be based around experiences, since people are performance centered in their learning*



# EBP is a Process

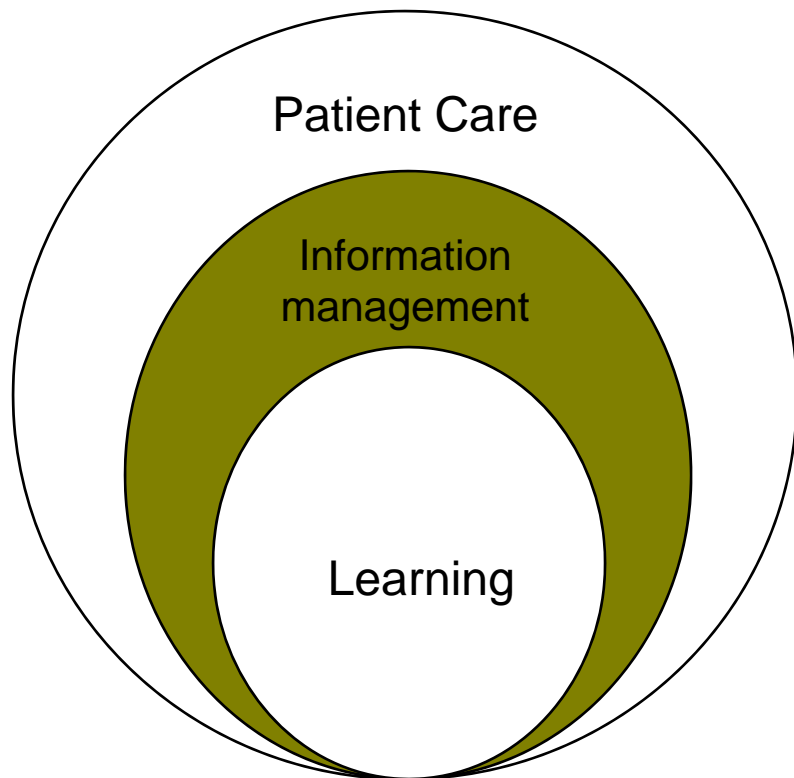


- **Ask**: A focused clinical question
- **Acquire**: The best evidence you can find
- **Appraise**: Appraise that evidence
- **Apply**: To patient care



# EBP and Adult Learning Theory

- EBP as an educational paradigm lets the learner set the agenda
- EBP focuses on application, rather than acquisition, of knowledge
- EBP puts a lower value on authority
  - Stresses independent assessment of the evidence



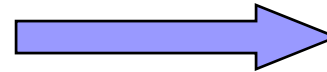


# Information Management

Work of getting information

+

Limited Time



Information  
needs not met



# MD information needs survey

(Covell, D.G. et. al. Ann Intern Med 1985; 103: 596-9)

- MD survey: estimated 1-2 questions per week, found answers in journals or textbooks
- Observed same MD's: generated up to 16 questions per half-day clinic, tended to ask colleagues or do nothing
- Provided answers for observed MD's: changed clinical plan 25% of time





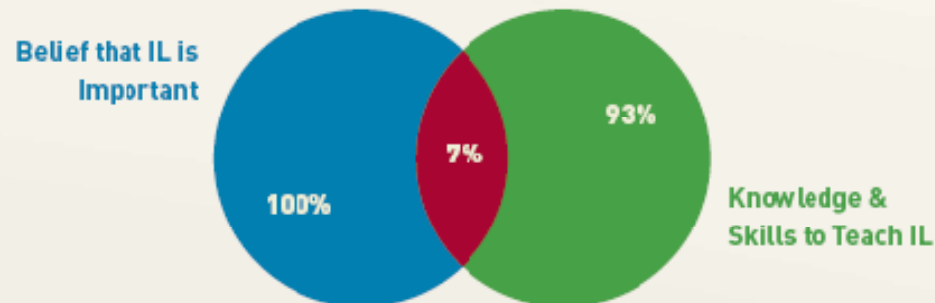
## AN ONLINE SURVEY OF E4C FACULTY

### Information Literacy is IMPORTANT in supporting lifelong learning

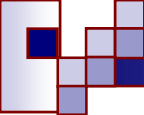
86%	Strongly Agree
14%	Agree
0%	Disagree
0%	Strongly Disagree

### Please rate your Information Literacy skills

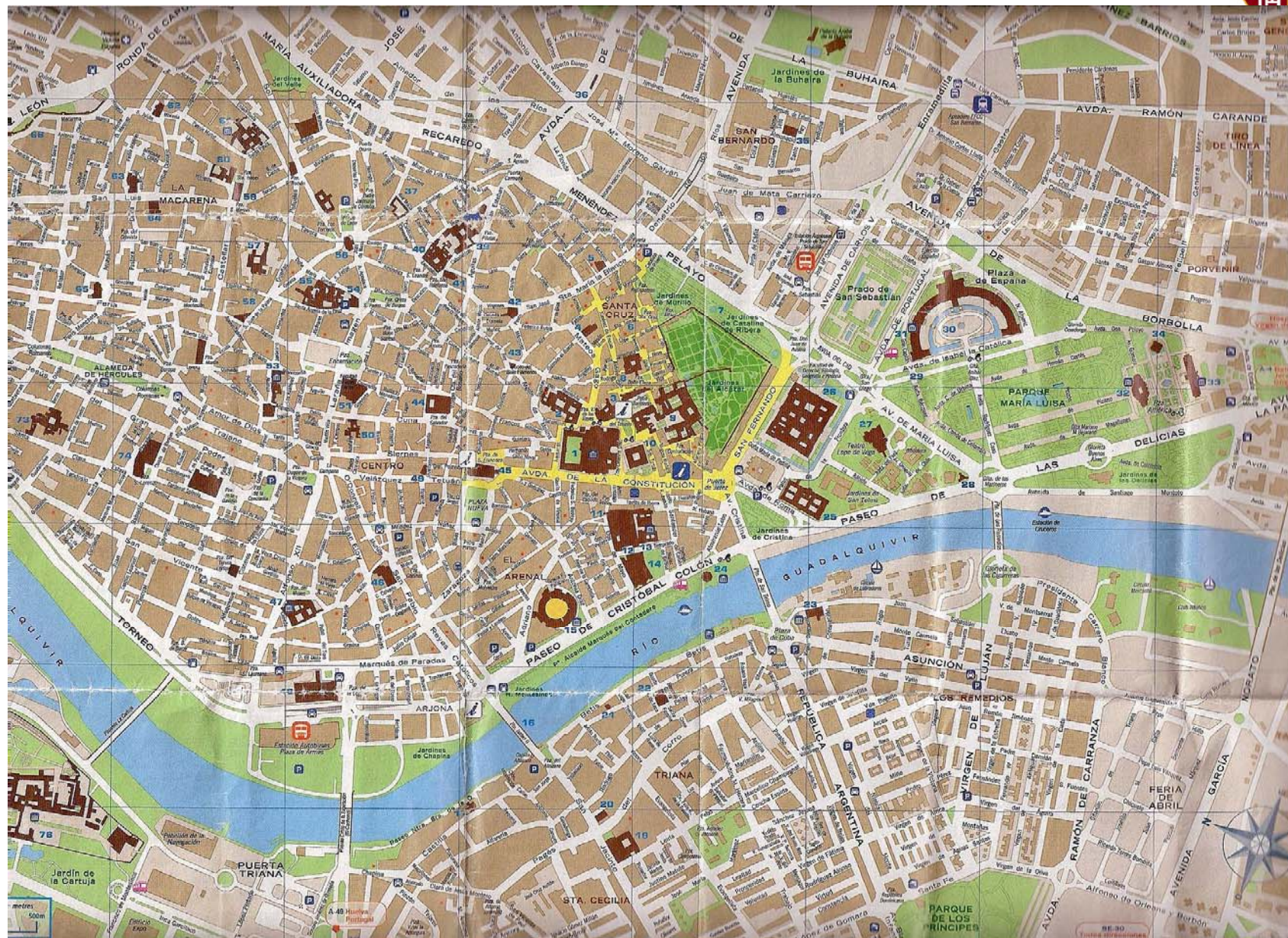
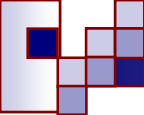
29%	<b>Beginner:</b> I do not know what this means and do not know what skills are associated with Information Literacy.
64%	<b>Intermediate:</b> I consider myself to be Information Literate but do not have the knowledge and skills to teach others in this domain.
7%	<b>Advanced:</b> I can teach others and evaluate their competency.

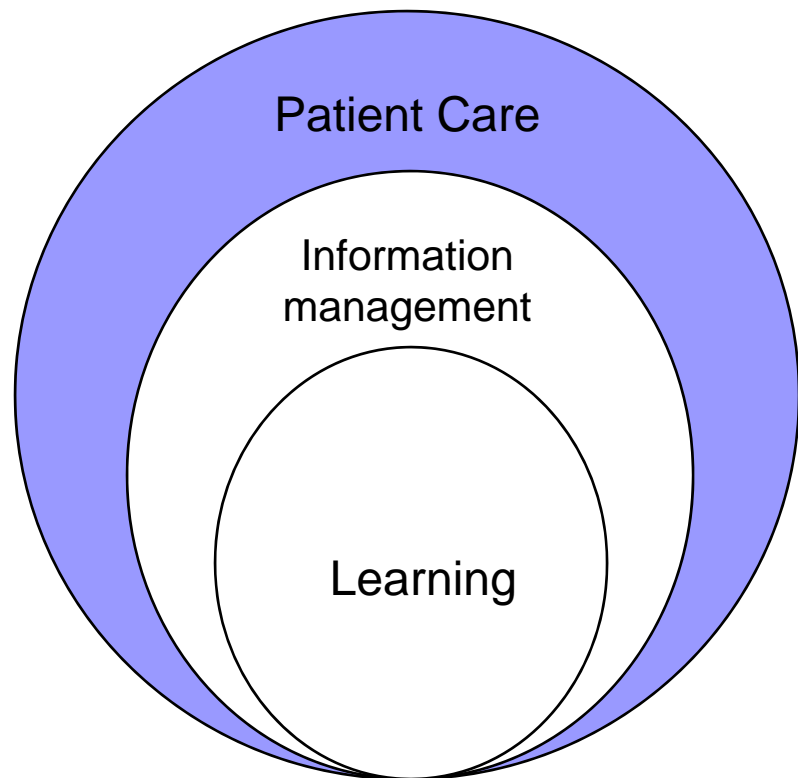
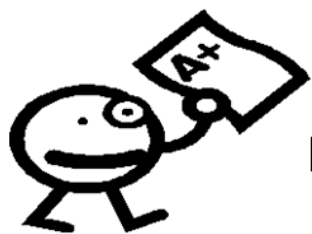


*While all E4C faculty feel that IL is important, only a small minority of them feel they can effectively teach IL skills.*



$$\text{Usefulness of medical information} = \frac{\text{Relevance x validity}}{\text{Work}}$$







82 year old woman with severe dementia is brought in from her nursing home for fever and SOB.

PMHx:

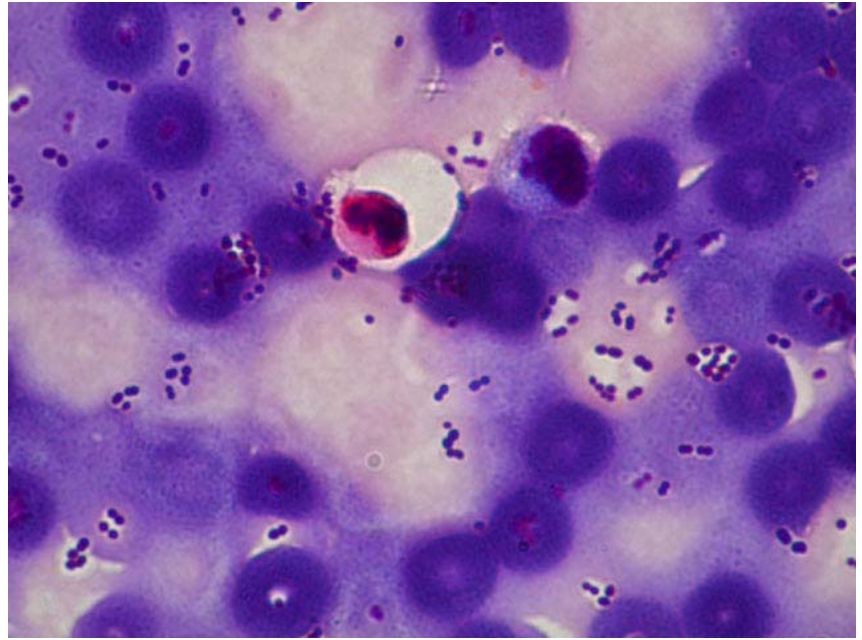
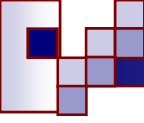
- Severe dementia, bed-bound and non-verbal. Able to eat with assistance but dependent for all ADL's
- High blood pressure

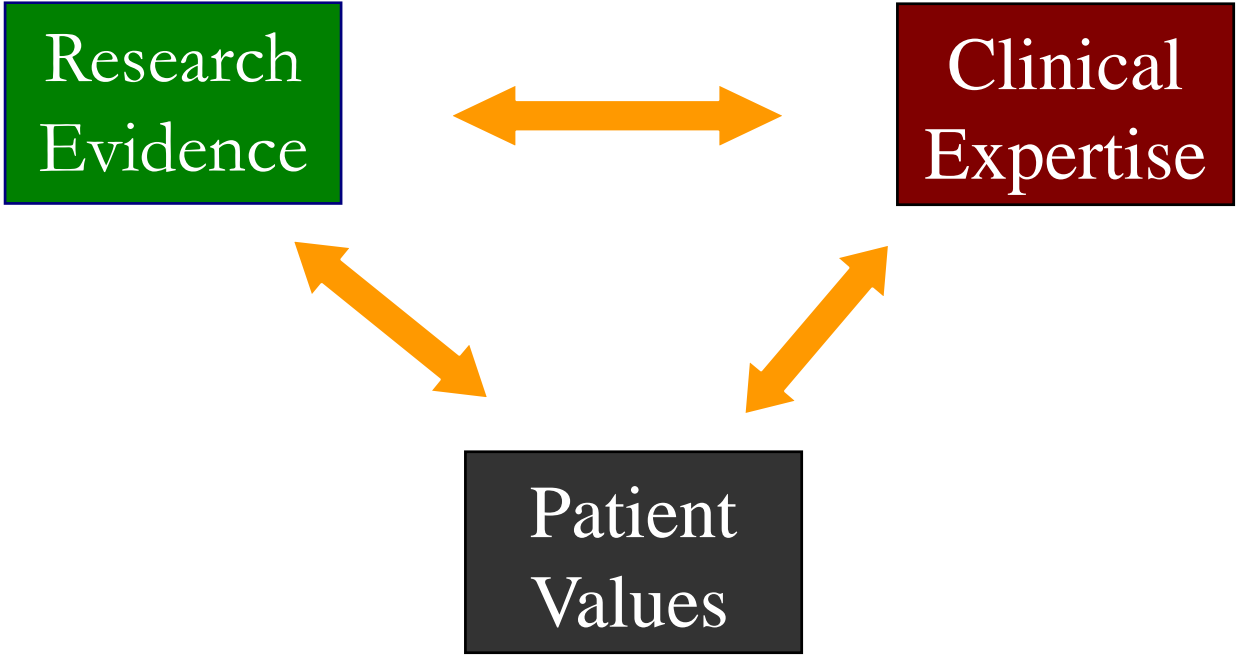
SHx:

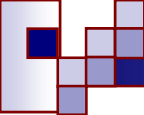
Widowed, living in nursing home, former pianist for San Francisco Symphony

PE:

Very thin, pale, chronically ill appearing  
T 101°, BP 110/50, HR 120, RR 33, SaO<sub>2</sub> 83% RA



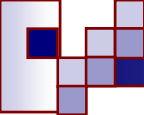




Evidence-Based Practice
Ask
Acquire
Appraise
Apply

Information Literacy
Recognize need for information
Locate it
Evaluate it
Use it effectively





Good questions are the backbone of practicing EBM. It takes practice to ask the well-formulated question.



# Ask Questions Strategically

## Background Questions

- Ask for general knowledge about a disorder
- Has two essential components
  1. A question root (what, who, why, where, etc.) with a verb
  2. A disorder or aspect of a disorder
- Examples:
  - How do you work up shortness of breath?
  - What kind of lung damage can be caused by cigarette smoking?



# Foreground Questions

- Asks for specific knowledge
- Usually refer to patients
- Three (or four) components
  1. The patient (or problem) of interest
  2. The main intervention – “an exposure”
  3. A comparison intervention (if relevant)
  4. The clinical outcome of interest



# Foreground Questions

- Asks for specific knowledge
- Usually refer to patients
- Three (or four) components
  - P The patient (or problem) of interest
  - I The main intervention – “an exposure”
  - C A comparison intervention (if relevant)
  - O The clinical outcome of interest



# ASK....

<u>Element</u>	<u>Tips</u>	<u>Specific example</u>
<b>P</b> atient or Problem	Starting with your patient ask “How would I describe a group of patients similar to mine?”	“In a 58 year old female with CAD and hyperlipidemia . . .”
<b>I</b> ntervention (or exposure)	Ask “Which main intervention am I considering?” (treatment/prevention, diagnosis, prognosis)	“. . . Do HMG Co A Reductase Inhibitors . . .”
<b>C</b> omparison intervention	Ask “What is the main alternative to compare with the intervention?”	“. . . As compared to no treatment. . . “
<b>O</b> utcome	Ask “What can I hope to accomplish?” or “What could this exposure really affect?”	“. . . Decrease the risk of MI and/or death?”



# Why are PICO questions *good* questions?

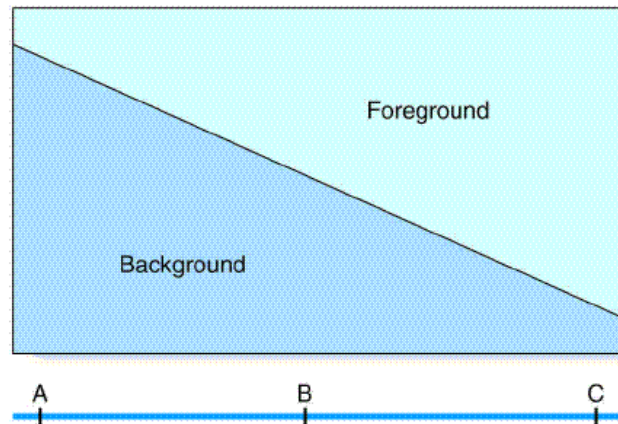
- PICO helps focus scarce learning time on evidence directly relevant to patient's needs and our particular knowledge needs
- PICO forces the learner to choose their own agenda
- PICO helps facilitate the literature search
- PICO questions are answerable, reinforcing the satisfaction of finding evidence that makes us better, more effective clinicians



# Foreground Questions

## ■ Examples:

- For former smokers, how long do they remain at risk for lung cancer compared to never smokers?
- In a patient with a history of smoking and shortness of breath, how good is a chest x-ray in comparison to a CT scan in detecting lung cancer?
  - How about prolonging survival from lung cancer?
- For a patient with COPD, what is the impact on symptoms and mortality of combination long-acting beta-agonist and inhaled corticosteroids vs. the inhaled corticosteroid alone?





# Remember “P-I-C-O”

**P** – Patient

**I** – Intervention

**C** – Comparison

**O** – Outcome





## ■ Transition to Searching

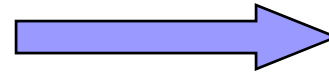


# ACQUIRE...

Work of getting information

+

Limited Time



Information  
needs not met

- Expert opinion
- Review articles
- Textbooks
- Up-to-date



# Summary

EBP is a set of meta-skills that foster effective patterns of life-long learning and patient-centered medical decision-making

- **Ask**: A focused clinical question
- **Acquire**: The best evidence you can find
- **Appraise**: The evidence for validity and impact
- **Apply**: To patient care

