Evidence Based Medicine

PICO question and Study Type

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Learning Objectives

At the end of this session, participants will be able to:

- ✓ Understand basic concepts of EBM for clinical practice
- ✓ Develop an answerable clinical question
- ✓ Know the type of study that should match clinical questions

Clinical Scenario

A 72-year-old man with a dysphagic stroke is currently being fed through a percutaneous gastrostomy tube. During feedings, he frequently desaturates from his baseline oxygen saturation of 95% to 88%. On occasions, he accumulates secretions in his upper airways. On physical exam, the patient is breathing comfortably, has basilar crackles and some diffuse wheezing. He receives ipratropium bromide nebulizers and tracheal suctioning. The nurses note that tracheal secretions sometimes "look like the tube feedings".

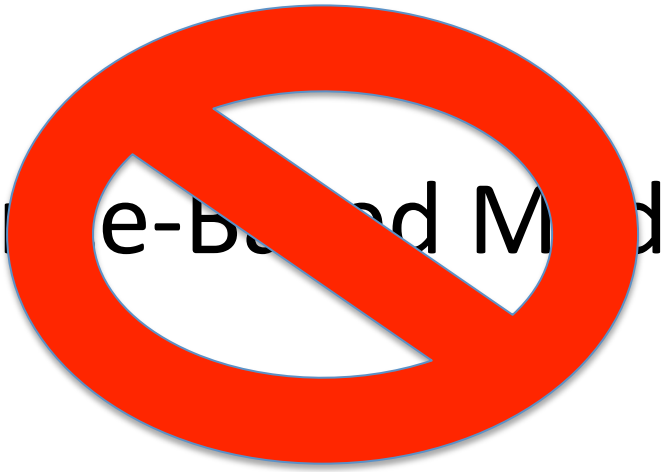
Clinical Scenario

The patient has been producing liquid stools. Since the stroke, he has been bedridden in a low-pressure bed, but has developed a large sacral ulcer. A plastic surgeon has recommended a diverting colostomy to allow for better wound healing, since the wound frequently gets soiled. In the meantime, the patient gets wet to dry dressings and biweekly surgical debridement.

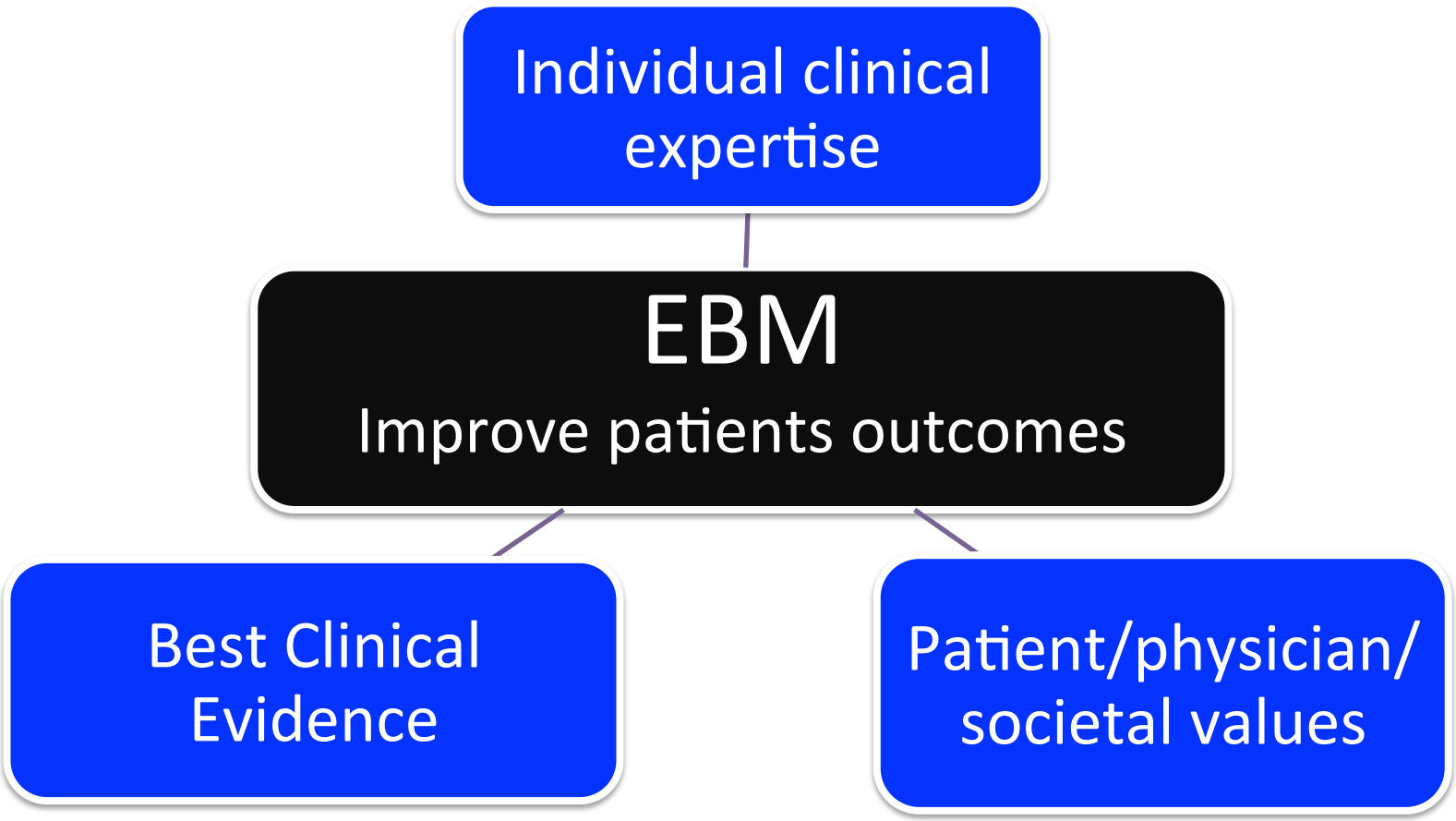
- ✓ **Were these decisions appropriate?**
- ✓ **Are you comfortable with these decisions?**
- ✓ **If you were caring for this patient would you make the same decisions?**

EBM

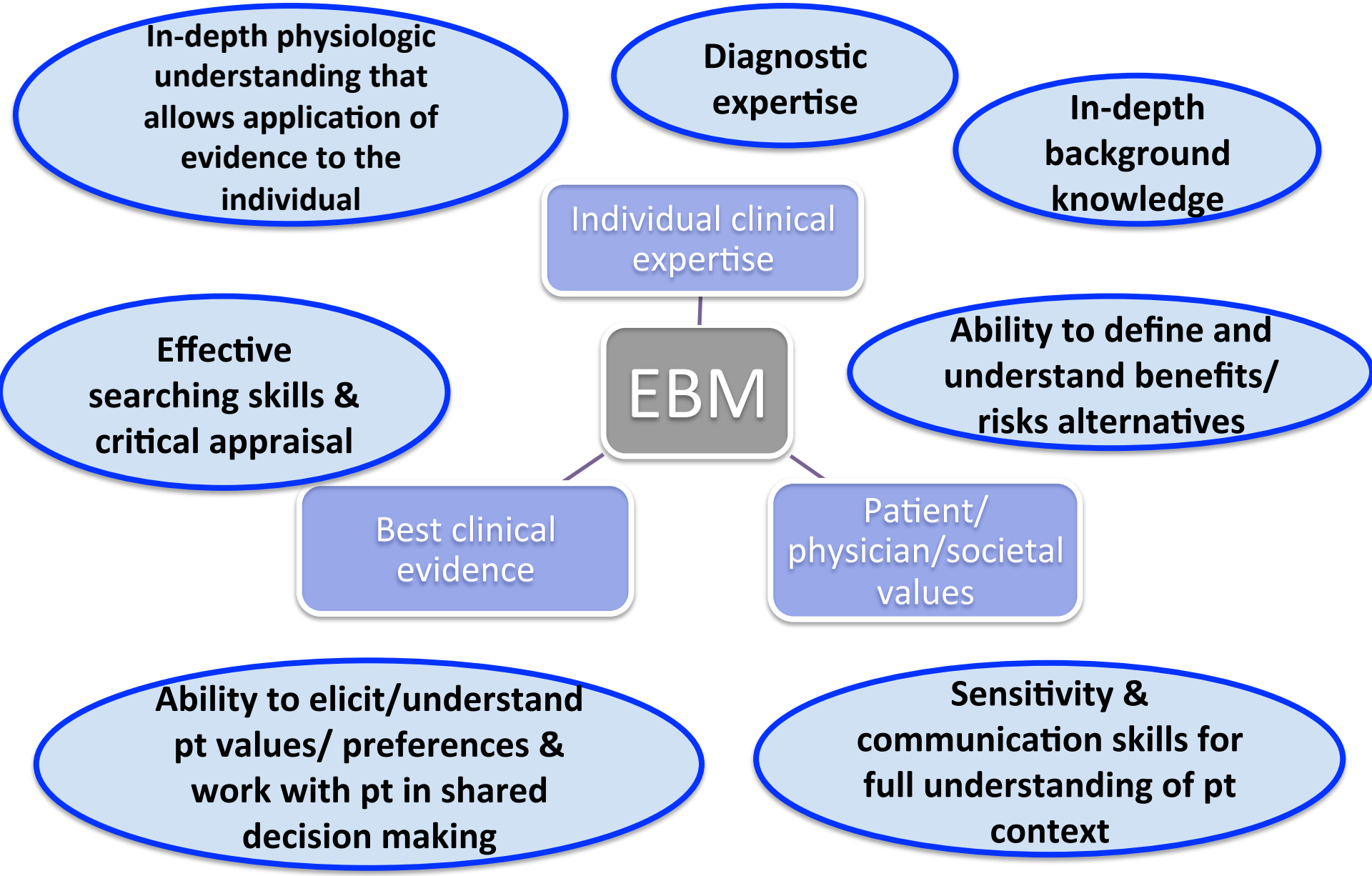
Evidence-**B**ased **M**edicine



What is EBM?


Individual clinical expertise
EBM
Improve patients outcomes
Best Clinical Evidence
Patient/physician/ societal values

What is EBM?


In-depth physiologic understanding that allows application of evidence to the individual
Diagnostic expertise
In-depth background knowledge
Individual clinical expertise
EBM
Effective searching skills & critical appraisal
Ability to define and understand benefits/ risks alternatives
Best clinical evidence
Patient/ physician/societal values
Ability to elicit/understand pt values/ preferences & work with pt in shared decision making
Sensitivity & communication skills for full understanding of pt context

Clinical Expertise

An intensive care specialist, developed a lesion on his lip shortly before an important presentation. He was concerned and, wondering whether he should take acyclovir, proceeded to spend the next 30 minutes searching for and evaluating the highest-quality evidence. When he began to discuss his remaining uncertainty with his partner, an experienced dentist, she cut short the discussion by exclaiming, “But, my dear, that isn’t herpes!”

Patient Values

88 y/o woman with constriction of Right mainstem bronchus by primary lung cancer, leading to progressive dyspnea.

- ✓ Critical review of evidence suggests that bronchial stenting can relieve symptoms (but does not prolong survival).

- ✓ Patient does not want a procedure, and elects to go home on supplemental oxygen and morphine.

Goal of EBM

Make the best possible decisions for and with our patients.

What is not EBM?

- ✓Algorithm-based (“Cook-book”) medicine
- ✓Only RCT’s and meta-analyses
- ✓Only criticizing papers

Why Practicing EBM?

- ✓ Medical research is continually discovering improved treatment methods and therapies.
- ✓ Research findings are often delayed in being implemented into clinical practice.

Who Needs EBM?

- ✓ Do you plan to see patients?
- ✓ Do you plan to help patients make the best decisions for their health?
- ✓ Do you plan to teach?
- ✓ Do you plan to do research?
- ✓ Do you have family members who look to you for medical advice?

EBM Elements: *4 A's*

- ✓ **Ask:** An answerable clinical question
- ✓ **Acquire:** Search for the best evidence
- ✓ **Appraise:** Critically appraise the evidence
- ✓ **Apply:** Evaluate application to your patient

Incorporating Evidence into Practice

- Clinical dilemma
  - Recognize opportunity to apply evidence (the need to make a clinical decision)
  - Know what kind of information is needed
- Well-built clinical question
  - Focus the question and define search terms
- Literature search
  - Choose a database and search strategy
- Critical Appraisal:
  - Validity
  - Results
  - Applicable
- Making the decision
  - Evidence must be used with clinical judgment

Incorporating Evidence into Practice

an answerable clinical question

- ✓ Clinical dilemma
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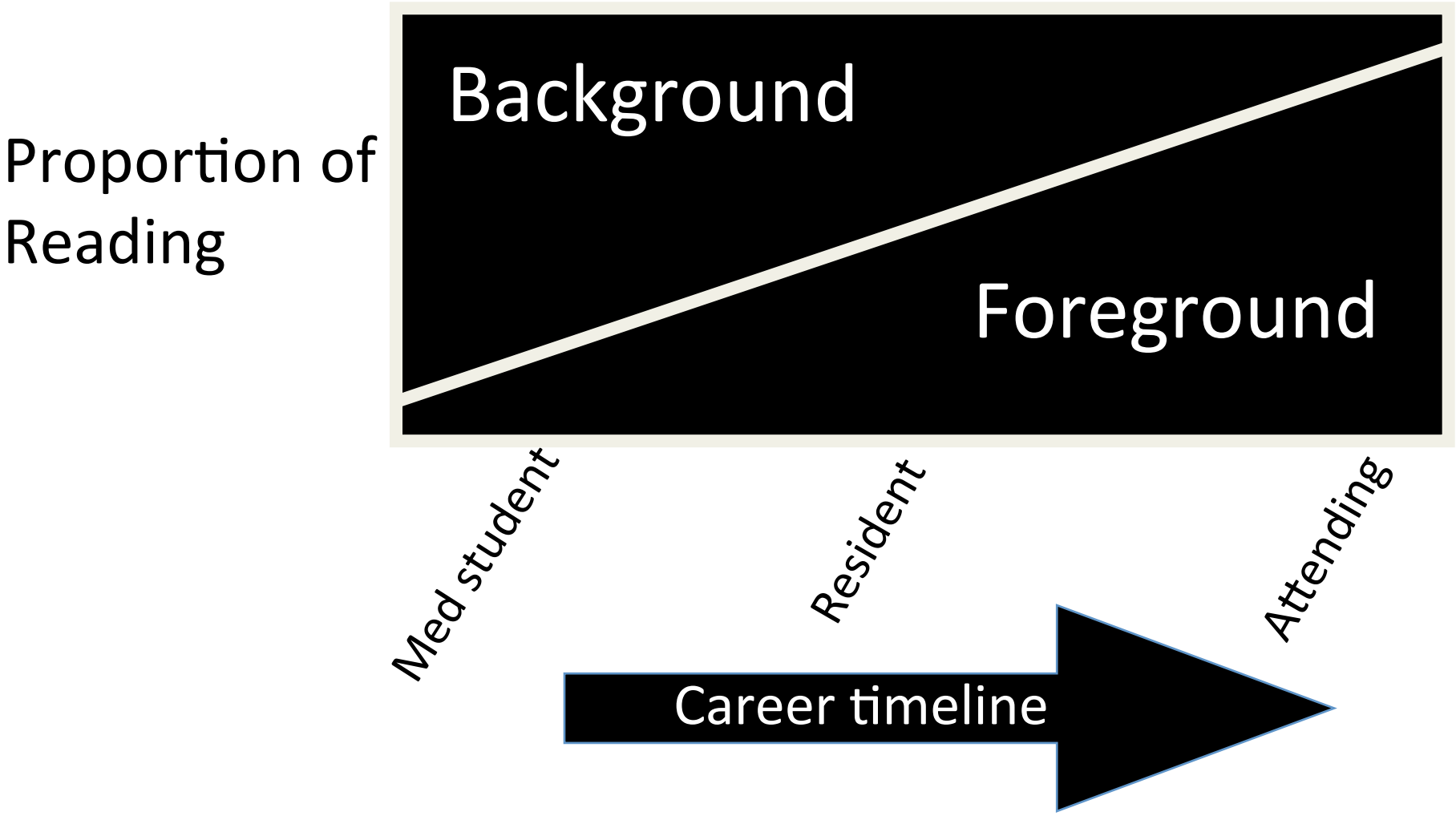
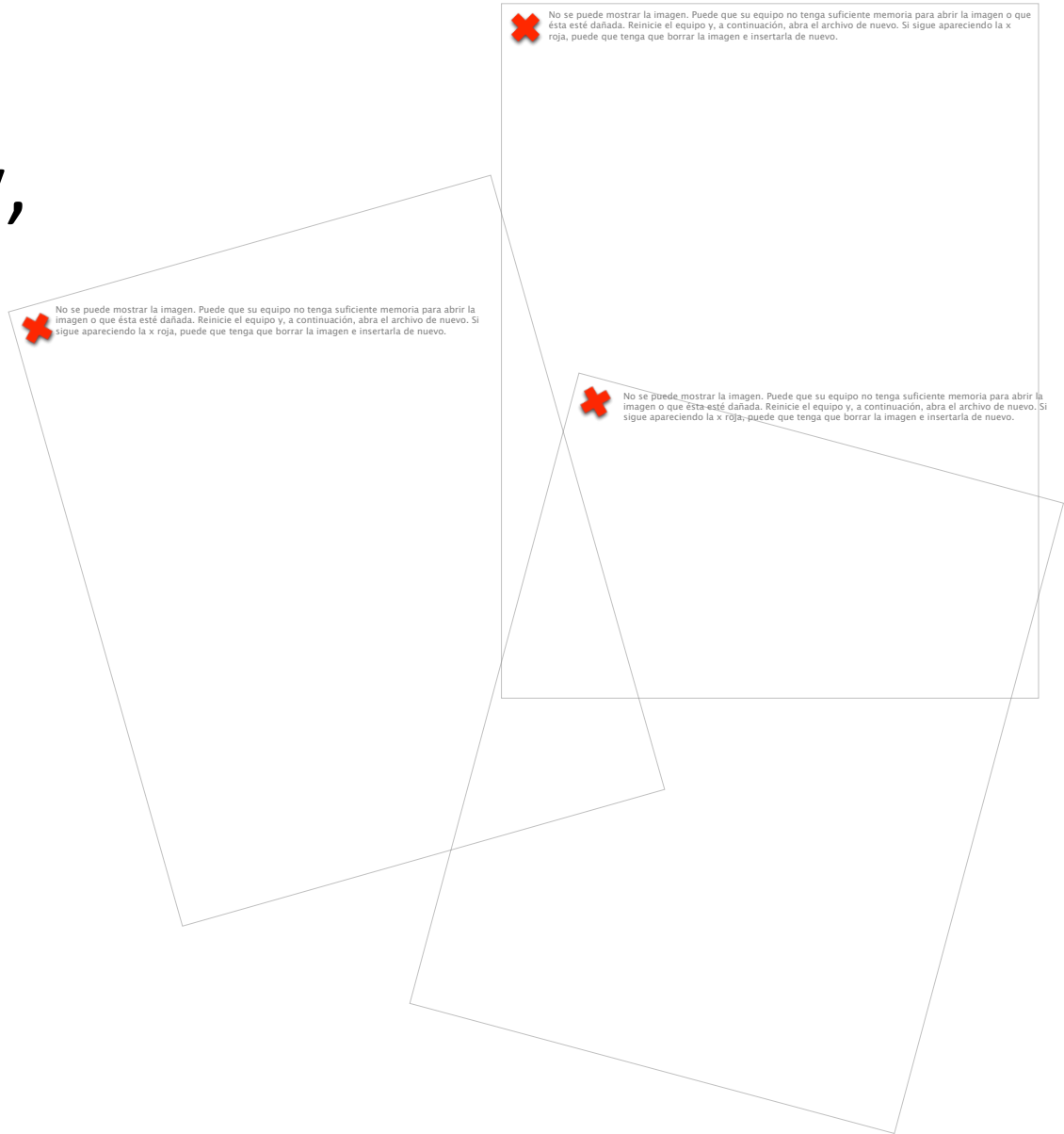
Background vs. Foreground Questions



Background Questions

How, When, Why, Who, What…

- ✓Pathophysiology
- ✓Clinical manifestations
- ✓Epidemiology



Foreground Questions

Clinical evidence

- ✓Diagnosis
- ✓Prognosis
- ✓Therapy
- ✓Prevention

PICO Format:

Components of a Well-Built Foreground Clinical Question

Patient/Population: detailed

Intervention (or exposure): therapy, diagnostic test, "the variable"

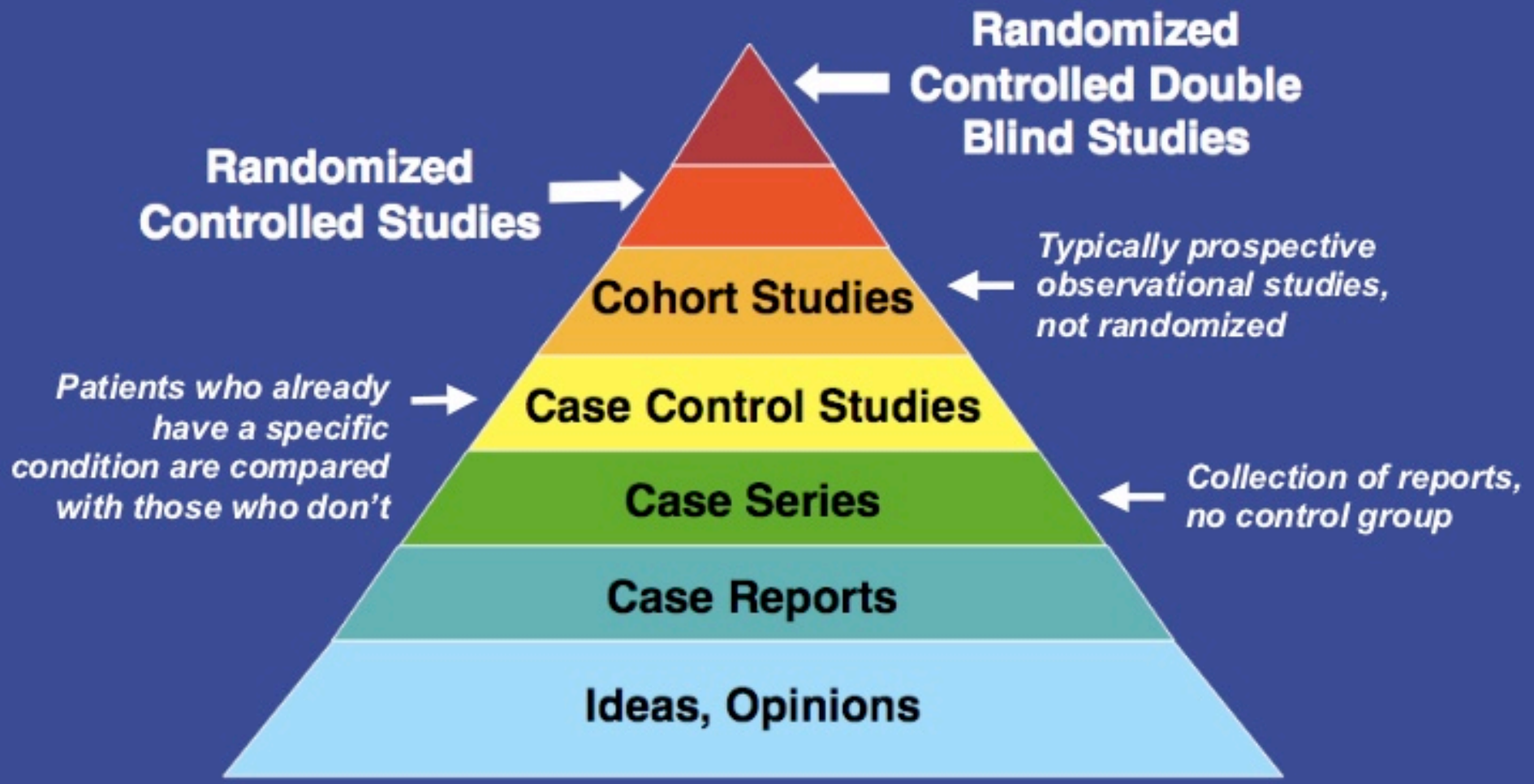
Comparison Intervention: "the control"

Outcome(s): difference in performance of the interventions, "the results"

Type of Question/Article

- ✓ Therapy- RCT or Meta-Analysis (M-A)
- ✓ Diagnosis- RCT, possibly M-A
- ✓ Prognosis- Cohort, possibly M-A
- ✓ Harm- Case/Control, Cohort, possibly RCT or M-A

Evidence-Based Pyramid



Incorporating Evidence into Practice

BMJ Best Practice

Your instant second opinion

- ✓ Literature search
  - Choose a database and search strategy

PubMed

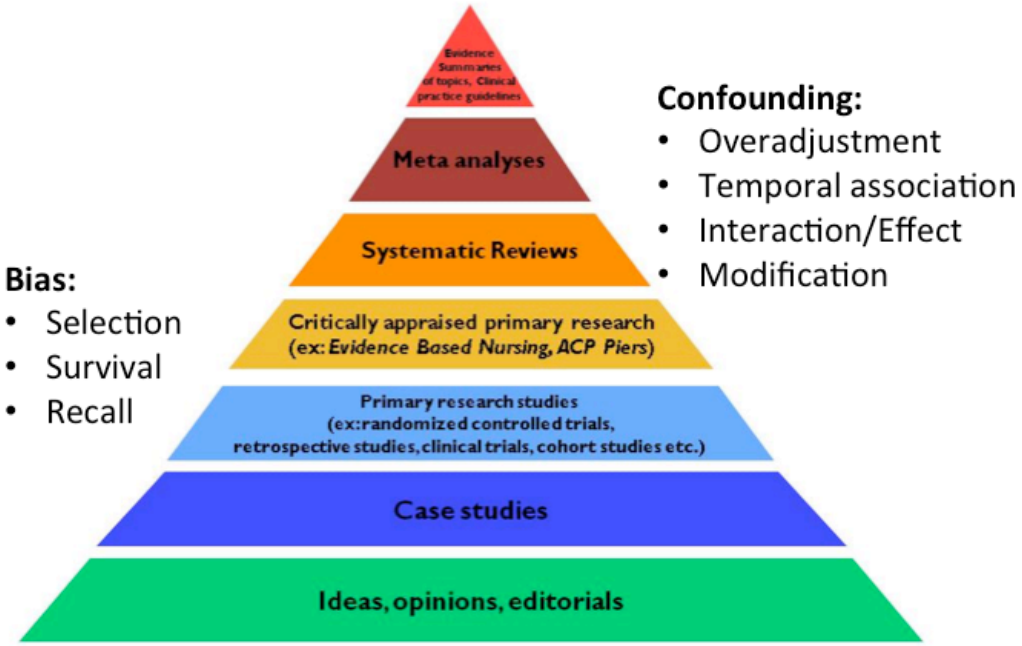
THE COCHRANE COLLABORATION

Resource Listing

Information Source	Examples	Advantages	Disadvantages
Internet	Google.com	quick and simple easy to read	lack of depth difficult to assess quality of information
Textbooks	*Harrison's Principles of Internal Medicine* UpToDate MD Consult	excellent sources for background information	often not truly current too general for most foreground questions
Secondary journals	*ACP Journal Club* *Evidence-Based Medicine*	prescreened information for relevance and methodologic quality	limited scope
Prefiltered sources	Best Evidence Clinical Evidence Cochrane Library	prefiltered for methodologic strength	limited scope
Unfiltered databases	MEDLINE PubMed	comprehensive sources of foreground information	complex and unwieldy difficult to search

Incorporating Evidence into Practice

- ✓ Critical appraisal
  - – Validity
    - Is the evidence valid?
  - – Results
    - Clinically significant?
    - Statistically significant?
  - – Applicable
    - Useful for your patient and/or practice



Incorporating Evidence into Practice

✓ Making the decision

– Evidence must be used with clinical judgment

88 y/o woman with constriction of Right mainstem bronchus by primary lung cancer, leading to progressive dyspnea.

✓Critical review of evidence suggests that bronchial stenting can relieve symptoms (but does not prolong survival).

✓Patient does not want a procedure, and elects to go home on supplemental oxygen and morphine.

Summary

- ✓ EBM is about making the best decisions for our patients
- ✓ Medical knowledge is always advancing
- ✓ We must constantly re-evaluate our care practices to stay ahead of the curve

Summary

- ✓ The type of question guides where to look for answers: *Background vs Foreground*
- ✓ PICO components focus the question & direct the search strategy

Summary

Incorporating Evidence into Practice

- Clinical dilemma
  - Recognize opportunity to apply evidence (the need to make a clinical decision)
  - Know what kind of information is needed
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References

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