Asking Answerable Clinical Questions

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Objectives

- **Ask**: Formulate clinical questions using a framework that facilitates finding answers.
- **Acquire**:
  - Become familiar with the hierarchy of evidence (research design)
    - Explain why randomization is important in therapy studies.
    - Describe at least two observational study designs.
    - List the advantages and limitations of observational studies.
  - Become familiar with a categorization scheme for evidence-based resources
- Recognize teaching skills that help learners become proficient at asking questions

Case 1

- Mr. Craig T. is a 65 y.o. man who is contending with multiple health conditions – obesity, diabetes mellitus type 2, atrial fibrillation, mild COPD, postherpetic neuralgia. He quit smoking since last visit and you praise him for his efforts.
- As part of routine preventive care, you recommend a screening abdominal ultrasound to assess for abdominal aortic aneurism (AAA).
- Ever the minimalist, Mr. T would like to forgo this procedure. "Is it really necessary doc? I just don't want to know about bad things."

From the Clinicians Perspective

- What clinical questions arise about this patients situations and AAA?

Categorization of Clinical Questions

- Background questions
  - Cover *general* information
- Foreground questions
  - Focus on *specific, patient-related* information

Content of Clinical Questions

Category	Content
Background	Therapy Diagnosis Harm or Etiology
Foreground	Prognosis

Anatomy of a Background Question

- What
- How
- Where
- When
- Who
- Why

→

- Disorder
- Syndrome
- Finding
- Health state
- Concern

Background Questions Examples

- How common are abdominal aortic aneurisms in older people?
- How big does a AAA to be before it bursts?
- Are there certain types of people who are more likely to have AAA?

Acquire the Best Available Evidence – Background Questions

- Textbooks (including UpToDate, PIER)
- Drug compendia
- Consultants, colleagues
- Guidelines

Anatomy of a Foreground Question

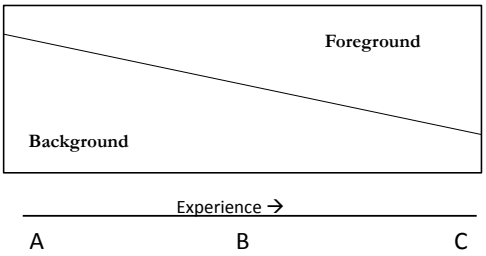
- **P** Patient or population
  - Start with your patient, balance precision with brevity
- **I** Intervention/exposure (risk or prognostic factor)
  - What is the main intervention I am considering? Be specific
- **C** Comparison
  - What is the main alternative to compare with the intervention? Be specific
- **O** Outcome
  - What would this exposure really affect, what do I care about?

(Content: Therapy, Diagnosis, Prognosis, Cost-effectiveness)

Foreground Questions Example

- In adult patients with a history of tobacco use (P), does screening for AAA with ultrasound (I) compared with not screening (C) result in a decrease in overall mortality (O)?

Background vs. Foreground



Clinical Questions

- Why should we be explicit in framing foreground clinical questions?
  - This really drives the search:
    - Start the search with the **P** or **I**
    - Being explicit about **C** helps if you are trying to decide if new treatment is better than "standard or care"
      - Also helps you clarify surrogate vs. patient important outcomes
    - Drives what type of resource should you use
    - Drives what article type to look for (therapy, prognosis, harm…)
    - Makes searching more efficient
  - More likely to search the literature if you've taken trouble to officially identify questions

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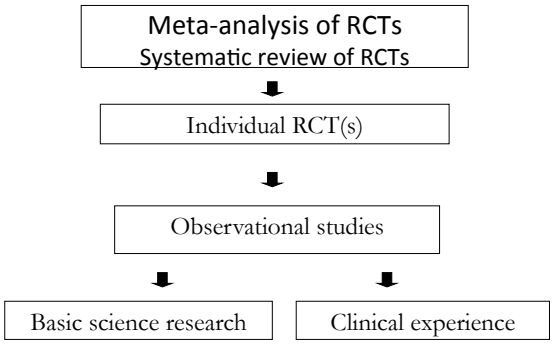
Acquire the Best Available Evidence – Foreground Questions

implies a hierarchy of evidence

Hierarchy of Evidence



Hierarchy of Evidence

Trial Design	When is this Used	Method
Systematic Review of RCT's	Effect of a therapeutic or preventive intervention, also accuracy of a diagnostic test	RCT1, RCT2, RCT3 → Pooled result
Randomized Controlled Trial	Effects of a therapeutic or preventive intervention	Sample → Intervention → Yes / No; Sample → Randomization → Control → Yes / No
Observational Studies: Cohort	Risk Factors (causes) Prognosis, Clinical Course	Sample → Exposed → Yes / No; Sample → Not exposed → Yes / No
Observational Studies: Case-control	Risk Factors (causes)	Diseased pts, Non-diseased → Retrospectively access exposure history in diseased and non-diseased pts

Quality of the Evidence (GRADE System)

Quality of evidence	Study Design
High quality (⊕⊕⊕⊕)	Randomized trial
Moderate quality (⊕⊕⊕)	
Low quality (⊕⊕)	Observational studies
Very low quality (⊕)	

Menopausal Hormone Therapy

- In post-menopausal women, MHT was the standard of care for the prevention of cardiovascular events prior to 2002.
- Women's Health Initiative (July 2002) found that women who were treated with premarin did *worse* than those who were not treated.

Quality of the Evidence for Menopausal Hormone Therapy

	1992	2002
CHD	Suspected benefit ⊕OOO	Confirmed harm ⊕⊕⊕⊕
Hip fracture	Suspected benefit ⊕OOO	Confirmed benefit ⊕⊕⊕⊕
Colorectal cancer	Suspected benefit ⊕OOO	Confirmed benefit ⊕⊕⊕⊕
Breast cancer	Suspected harm ⊕OOO	Confirmed harm ⊕⊕⊕⊕
Stroke	Suspected harm ⊕OOO	Confirmed harm ⊕⊕⊕⊕
Thrombosis	Suspected harm ⊕OOO	Confirmed harm ⊕⊕⊕⊕
Gall bladder disease	Suspected harm ⊕OOO	Confirmed harm ⊕⊕⊕⊕

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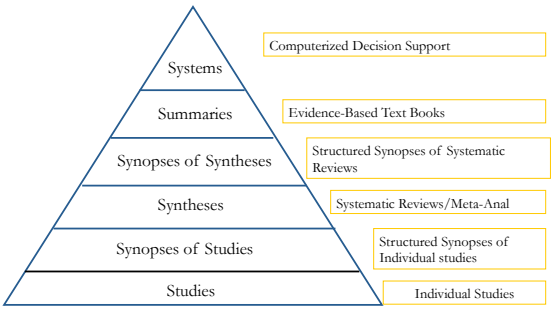
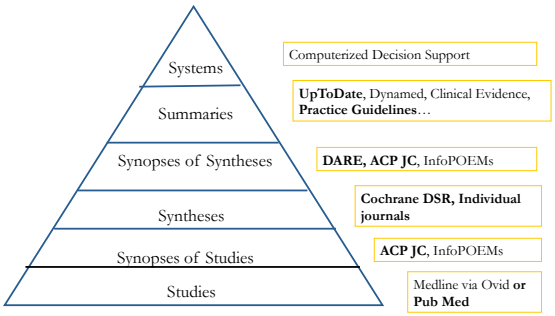
Information Resource Hierarchy: The 6S Model



Haynes RB. *ACP J Club.* Sept 2009;151(3):JC3-2

The 6S Model



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Problems

- No trials on the condition or treatment you are interested in
- Trials don't include patients like yours
- Trials of whole practice interventions are hard to do
- Outcomes assessed are often subjective and potentially less reliable

Problems

- The wrong formulation of product is used or treatment is delivered in a way inconsistent with how you use it
- Lack of resources, lack of time, lack of buy in from your colleagues
- Negotiating the blend of evidence with traditional teachings

Teaching Clinical Questions

- Model specific behaviors
- Recognize potential questions in the learners patient presentations
- Select the question that best fits the needs of the leaner at that moment
- Guide the learner in transforming knowledge gaps into well formulated clinical questions
- Assess learners performance and skill in asking pertinent and answerable questions

Teaching Clinical Questions

- Consider assigning EBM Educational Prescriptions

Describe the patient problem:
Foreground Clinical Question:
P
I
C
O
Presentation will cover:
How did you search
What did you find
Appraisal of the study validity
How will the evidence alter your management
Barriers to completing this EBM prescription