

Asking answerable questions



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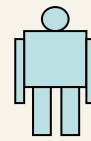
Tampa, Florida USA



Fundamentals of Evidence generation



Patient dilemma

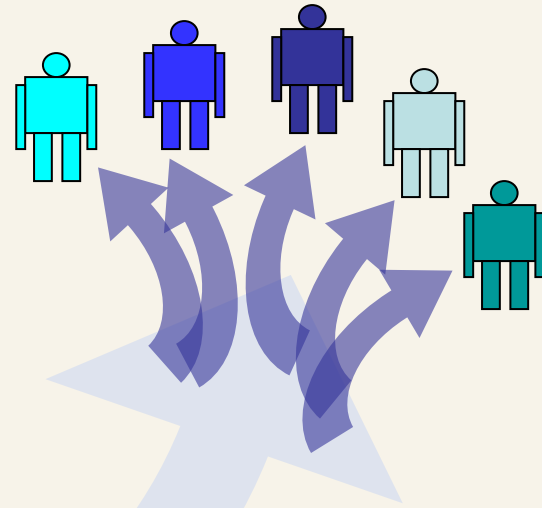


Ask

Act & Assess

Acquire

Principles of evidence-based practice



Appraise

Hierarchy of evidence

Apply

Evidence alone does not decide – combine with other knowledge and values

Courtesy: Dr. Richardson

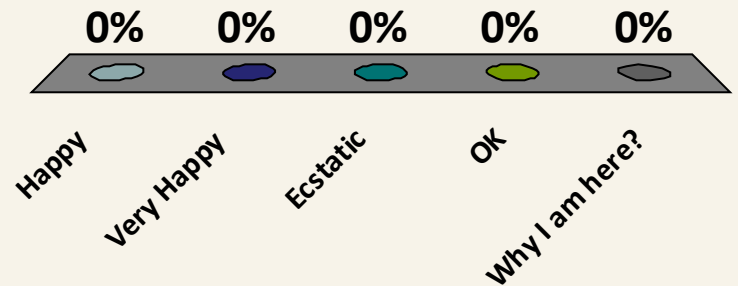
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CENTER FOR EVIDENCE
BASED MEDICINE

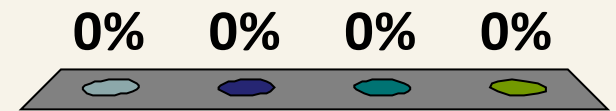
How I feel today?

1. Happy
2. Very Happy
3. Ecstatic
4. OK
5. Why I am here?



Which study design provides most unbiased answers on question related to efficacy competing treatments

1. Cohort study
2. Cross-sectional study
3. Case series
4. Randomized controlled trial



Cohort study

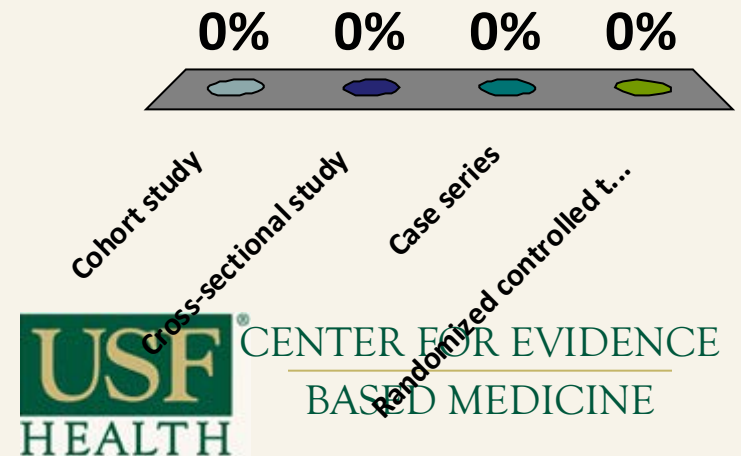
Cross-sectional study

Case series

Randomized controlled t...

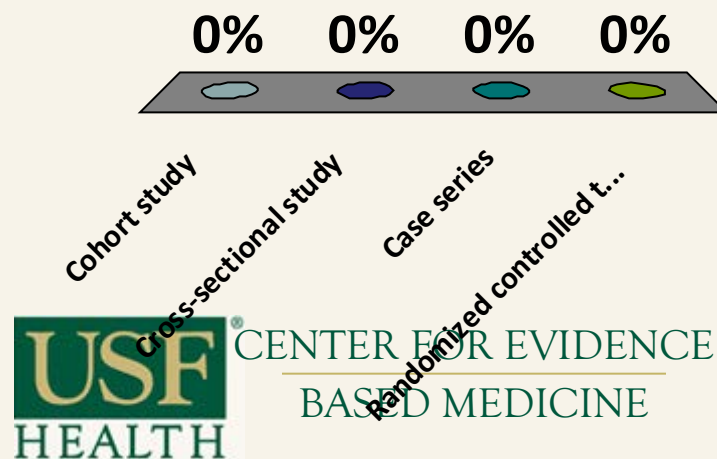
Which study design provides most unbiased answers on question related to diagnostic accuracy of compared tests?

1. Cohort study
2. Cross-sectional study
3. Case series
4. Randomized controlled trial



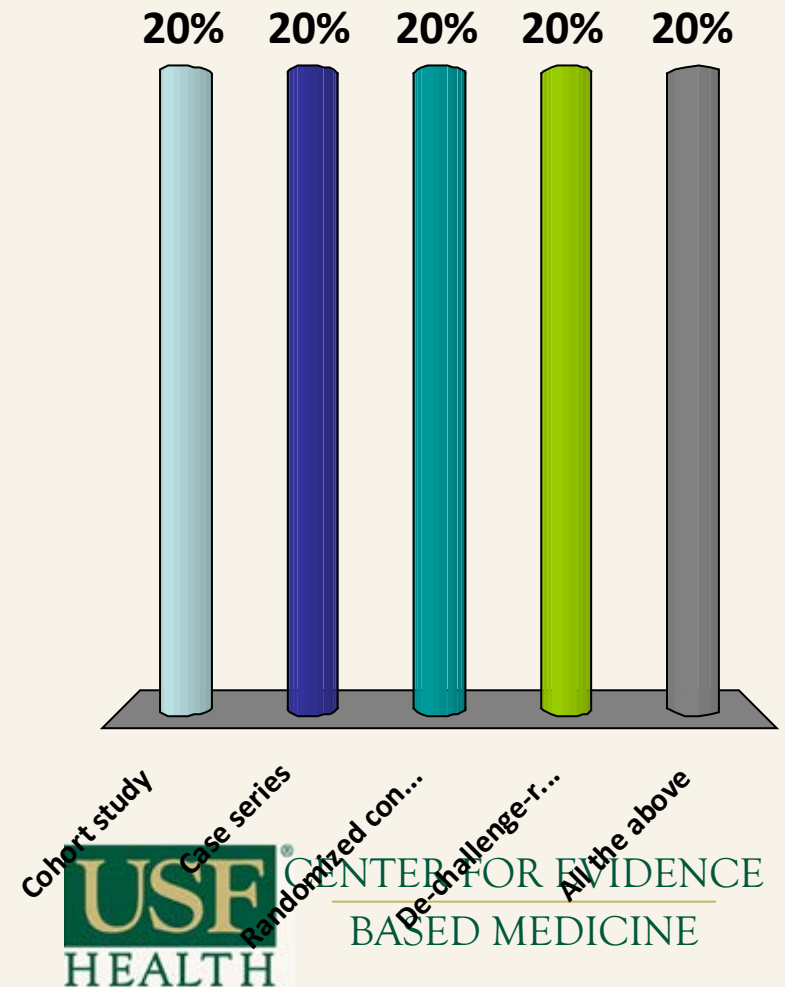
Which study design provides most unbiased answers on question related to prognosis?

1. Cohort study
2. Cross-sectional study
3. Case series
4. Randomized controlled trial



Which study design provides most unbiased answers on question related to harms?

1. Cohort study
2. Case series
3. Randomized controlled trial
4. De-challenge-re-challenge study
5. All the above



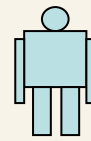
Navigating the study design maze

- **Q1. What was the aim of the study?**
 - To simply describe a population (PO questions) descriptive
 - To quantify the relationship between factors analytic.
- **Q2. If analytic, was the intervention randomly allocated?**
 - Yes? RCT
 - No? Observational study
- For observational studies the main types will then depend on the timing of the measurement of outcome, so our third question is:
- **Q3. When were the outcomes determined?**
 - Some time after the exposure or intervention? cohort study ('prospective study')
 - At the same time as the exposure or intervention? cross sectional study or survey
 - Before the exposure was determined? case-control study ('retrospective study' based on recall of the exposure)

Fundamentals of Evidence generation



Patient dilemma

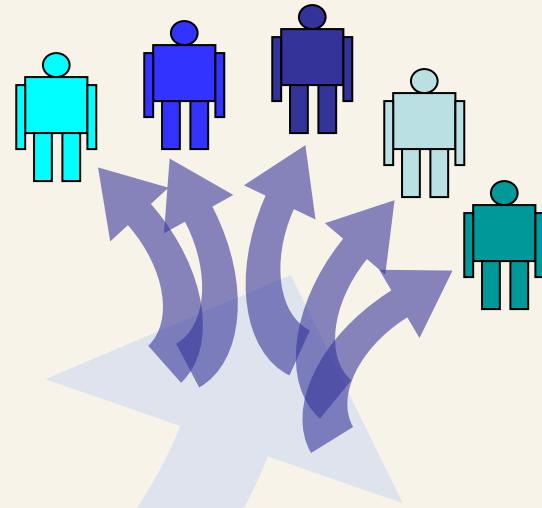


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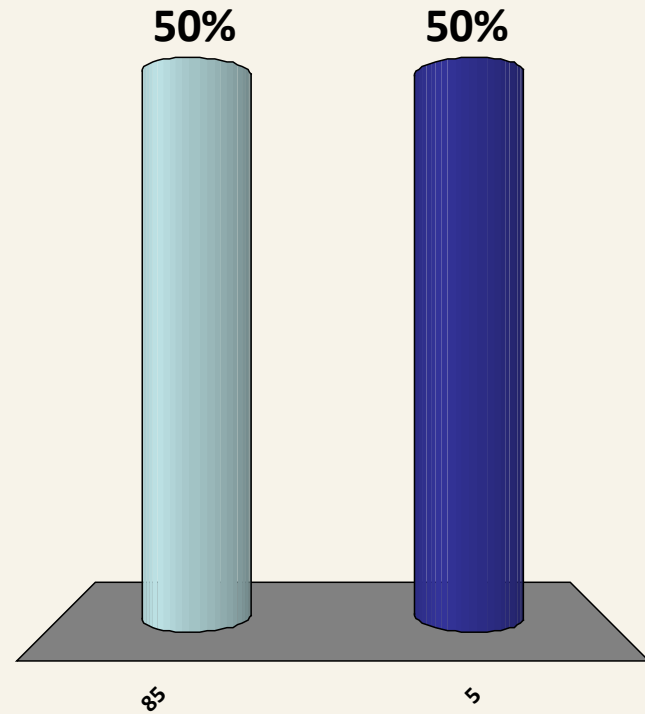


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$$20 - 3 \times 5 =$$

1. 85

2. 5



We'll peer into ...

- Identifying the model to create a well-built question
- Have some fun reviewing clinical scenarios and building questions!



What Pushes Us ... ?

Toward

- curiosity
- Prove colleagues wrong
- Keeps coming up
- Risk of patient harm
- Want to do better
- Anxiety
- Avoid litigation
- Internet informed patient

Away

Time

We already know the answer

Fatigue

Access

Inferiority complex-anxiety-
afraid of admitting
knowledge gaps

Cynical

Laziness

Lack of support

Previous failure at searching

Lack of resources

No one else does it

Fear of change

Courtesy: Dr. Richardson

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How does it feel ... ?

To know an answer?

To NOT know an answer?

Emotions in Not Knowing

<u>Ready to ...</u>	<u>Feeling</u>	<u>Behaviors</u>
Flee	Fear	Leave Invisible
Fight	Anger	Disrupt Undermine
Cry for help	Distress	Stop trying Body stress
Withdraw	Sadness	Inattention Detachment

Courtesy: Dr. Richardson

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Emotions in Knowing

- **Satisfaction: Self image of “knower” meets reality of “knew this”**
- **Curiosity: the wind in the sails**
- **Joy: knowing and/or learning brings benefits to others**
- **“Zero gravity” or “flow”: when learning engages the mind fully without self consciousness**

Source of questions

- Majority deal with Diagnosis and Therapy
 - 50% on Therapy
 - 25% diagnosis
- Survey of ambulatory clerkship
 - 97% of questions covered these 2 domains

*J Gen Intern Med.*2001; 16 :244 –249

Do the questions get answered?

- Study evaluating family physicians
 - about 3.2 questions for every 10 patients seen.
 - questions pursued only one third of the time
 - less than 2 minutes devoted to finding each answer
 - useful information found 80% of the time

BMJ. 2002;324:1–7

Primary barrier

- **Difficulty with the question format.**
 - question often vague
 - open to interpretation

Pay attention.....

- Put yourself in this situation
- Listen to the presentation
- Listed to the “inner thoughts” of this learner listening to the presentation

Clinical Scenario



'Hoot Groups' Task



- **Groups of 2**
- **Describe:**
 - **Questions that can arise from this case**
- **Write it down**
- **Be ready to report in 3 minutes**

What you noticed ?

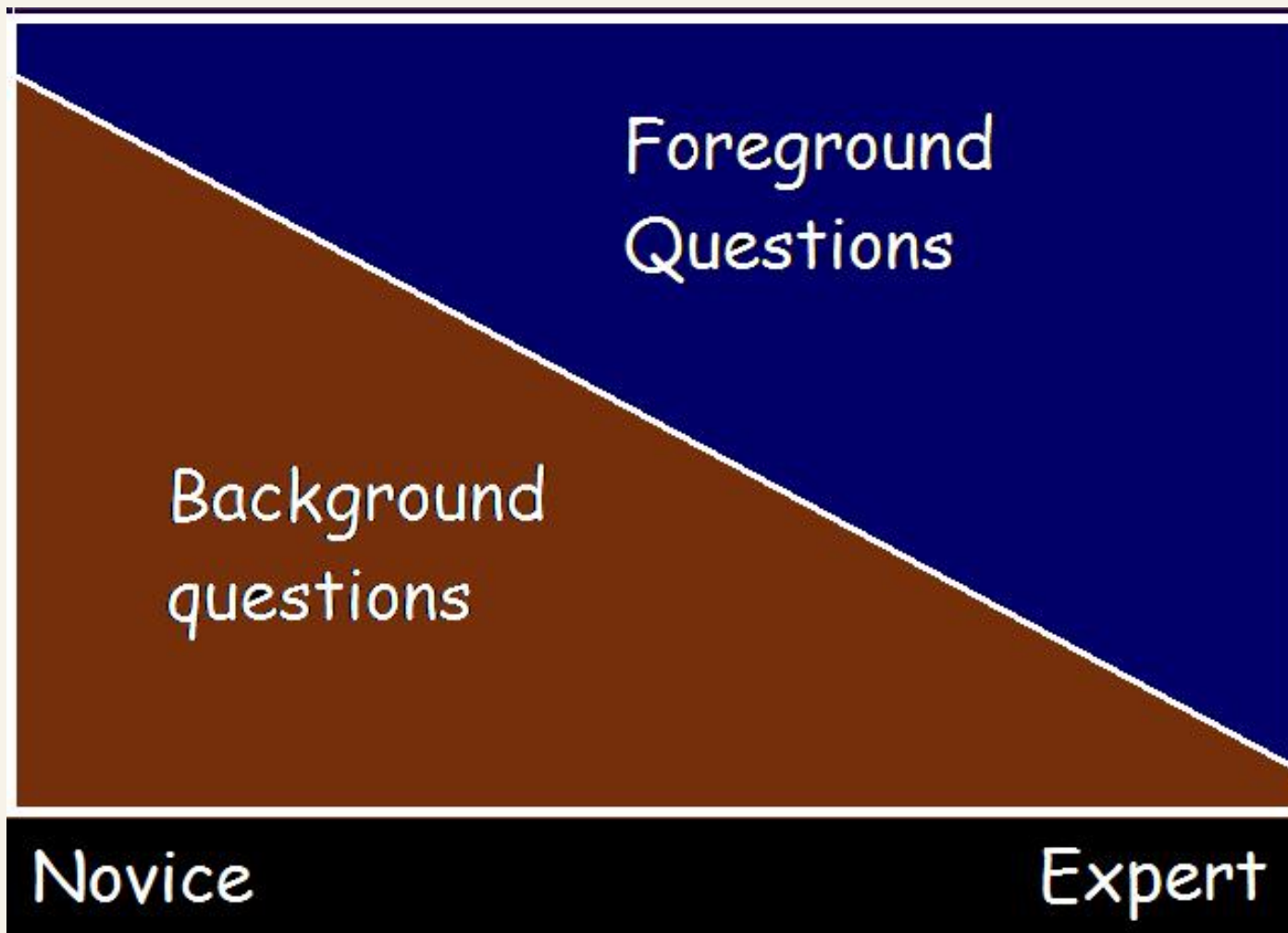
‘Background’ and ‘Foreground’ Questions

- Background question
 - general knowledge or “facts” (questions often starting with who, what, when, why, which)
- General questions about
 - Conditions
 - Illnesses
 - Syndromes/patterns of disease
 - pathophysiology
- 2 components:
 - a. Root* + Verb: “What causes ...”
 - b. Condition: “... High BP?”

'Background' and 'Foreground' Questions

- Foreground questions
 - About patient care decisions and actions
 - Relationships between a patient and condition
 - exposure (therapeutic, diagnostic) and an outcome.
 - Generally very detailed
 - Best answered with the information contained in published research studies

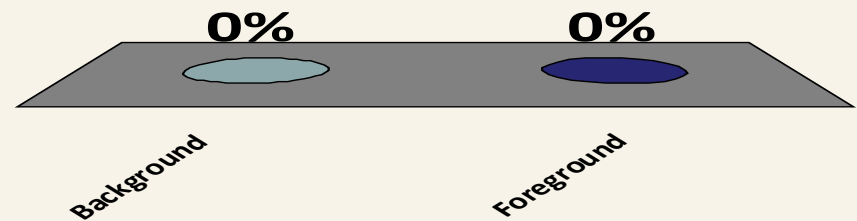
Background and Foreground Questions



Background vs Foreground Questions

What Causes gastroenteritis?

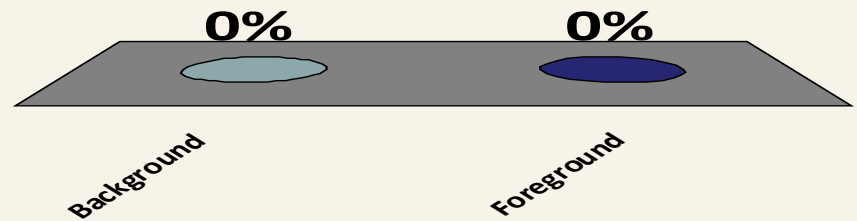
1. Background
2. Foreground



Background vs Foreground Questions

Is oral rehydration as effective as IV rehydration?

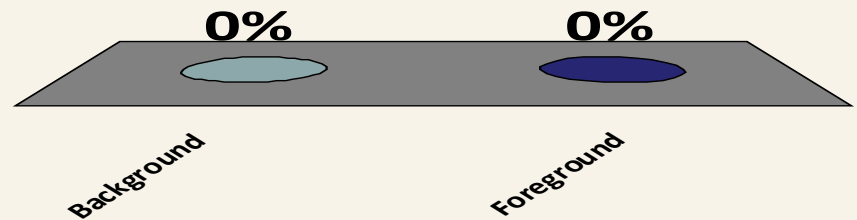
1. Background
2. Foreground



Background vs Foreground Questions

How to tell if patient is dehydrated?

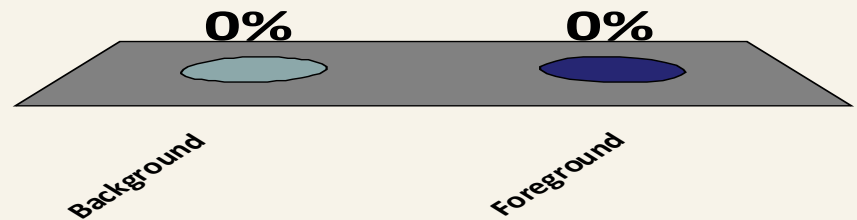
1. Background
2. Foreground



Background vs Foreground Questions

What are the symptoms of otitis media?

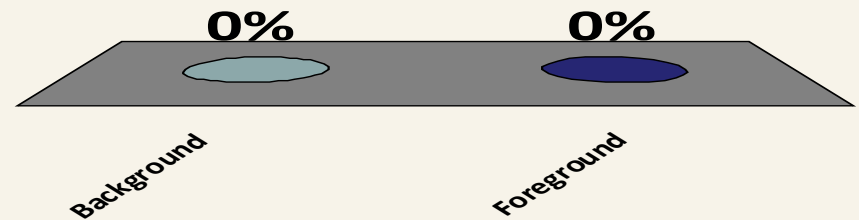
1. Background
2. Foreground



Background vs Foreground Questions

Can I effectively treat otitis media with a shorter course of antibiotics?

1. Background
2. Foreground



Formulating a well-built focused clinical question

The anatomy of a focused question

HEAD

ARMS



LEGS

PICO (T.S) Model for Clinical Questions

P	Patient , Population or Problem	How would I describe a group of patients similar to mine?
I	Intervention, Prognostic factor, or Exposure	Which main intervention, prognostic factor, or exposure am I considering?
C	Comparison to Intervention (if appropriate)	What is the alternative?
O	Outcome you would like to achieve or measure	What can I hope to accomplish?
T	What type of question are you asking	What is the action domain (Treatment, diagnosis, prognosis, harm)
S	Type of study you want to find	What would be the best study design?

Remember.....

- Limits of PICO (TS)
 - Not all components applicable all the time
 - Pico is a model not a rigid structure

Clinical Scenario #1

- On morning rounds in the Hem/Onc unit, a first year resident turns to you for consultation. She wants to discuss options for managing moderate nausea and vomiting that result following chemotherapy. She shares an experience a relative had taking ginger when prochlorperazine didn't provide effective relief and asks for your input.

'Hoot Groups' Task



- **Groups of 2**
- **Discuss**
 - What is your clinical question in PICO format?
 - What type of clinical question is this?
 - What is the best study design to answer that clinical question?
- **Write it down**
- **Be ready to report to group**
- **Return in 2 minutes**

An answerable clinical question

P Patients receiving chemotherapy experiencing nausea & vomiting

I Ginger

C Prochlorperazine

O Reduction in nausea & vomiting

T Therapy/Treatment

S RCT/Systematic review of RCTs

Question

In patients receiving chemotherapy who are experiencing moderate nausea and vomiting is the use of ginger as effective as prochlorperazine in reducing nausea and vomiting?

Clinical scenario #2

Traditionally, clinicians have used a conservative approach to the diagnostic evaluation of head-injured infants, arguing that infants are at increased risk of intracranial injury (ICI) and that symptoms or signs of brain injury may not be reliably present in those with ICI. A number of previous studies have reported that a significant fraction of ICIs in infants occur in patients with a normal neurological status and with no signs or symptoms of brain injury. You want to see how well clinical features predict ICI in infants.

- **What is your clinical question in PICO format?**
- **What type of clinical question is this?**
- **What is the best study design to answer this type of clinical question?**

An answerable clinical question

P Children with head injury

I CT Scan

C Clinical findings

O Diagnosis of intracranial hemorrhage

T Diagnosis

S Cross-sectional study/Systematic review of cross-sectional studies

Question

Among children with minor head injury does the use of CT scan versus other clinical findings affect identification and diagnosis of intracranial hemorrhage?

Clinical scenario #3

A 2-year-old patient presents with a 12-month history of recurrent wheezing, cough, dyspnea, and mucopurulent nasal discharge. There are no smokers in the household, and all pets have been removed. Antibiotics and antihistamines have been tried without sustained benefit. Physical examination demonstrates normal growth and normal vital signs. Thick yellow nasal discharge is noted, and bilateral expiratory wheezes are heard on chest auscultation.

'Hoot Groups' Task



- **Groups of 2**
- **Discuss**
 - What is your clinical question in PICO format?
 - What type of clinical question is this?
 - What is the best study design to answer that clinical question?
- **Write it down**
- **Be ready to report to group**
- **Return in 2 minutes**

An answerable clinical question

P Toddlers with nasal discharge

I Antibiotics

C -

O Probability of recurrence

T Prognosis

S Cohort study/Systematic review of cohort studies

Question

Among toddlers with recurrent nasal discharge does the use of antibiotics affect the probability of recurrence?

Clinical scenario #4

Working on the Developmental Assessment Team for school-aged children of mothers who used cocaine during their pregnancy, you are interested in learning the developmental outcomes for these children as they begin school compared to children not exposed to cocaine during pregnancy.

- **What is your clinical question in PICO format?**
- **What type of clinical question is this?**
- **What is the best study design to answer this type of clinical question?**

An answerable clinical question

P Otherwise healthy children

I Exposure in utero to cocaine

C Children not exposed to cocaine

O Increased incidence of learning disabilities

T Harm/Etiology

S Cohort or case-control study/Systematic review of cohort/case-control studies

Question

Do otherwise

healthy children (controlling for confounding factors) **exposed in utero to cocaine**, compared to **children not exposed to cocaine** have **increased incidence of learning disabilities?**

FAQ: Why Bother? 1

- **Relevant to clinical needs**
- **Relevant to learning needs**
- **Plan searches**
- **Recognize answers**
- **Awaken curiosity**
- **In teaching, improve comprehension**
- **In referral, improve communication**
- **Have some fun!**

Any evidence?

Courtesy: Dr. Richardson

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FAQ: Why Bother? 2

RCT: ↑ explicitness of questions

Villaneuva et al BMC MI/DM 2001; 1: 4.

RCT: ↑ frequency of searches

Cabell et al JGIM 2001; 16: 838.

Before-After Trial: ↑ precision of search

Booth et al Bull MLA 2000; 88: 239.

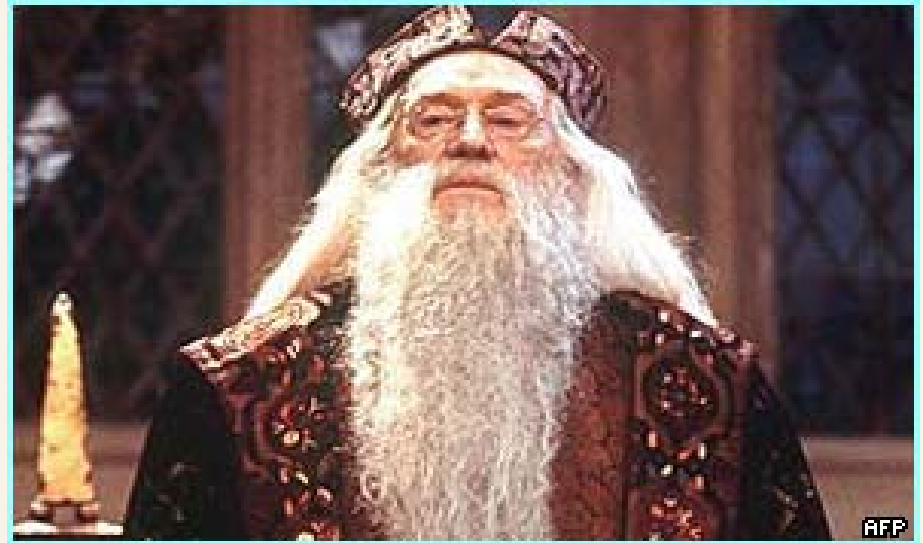
RCT: ↑ quality of search, evidence found

Rosenberg J R Coll Phys L 1998; 32: 557.

FAQ: How Long ... ?

- **Proficient? Quickly**
 - **Mastery? Lifetime**

 - **Human expertise takes >10,000 hours, >10 years**
- **Deliberate practice**



Courtesy: Dr. Richardson

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Questions: Take 'Em Home

- **Believe Q's rule**
- **Q's are chances to learn and to use evidence**
- **Recognize Q's**
 - **Background**
 - **Foreground**
- **Select Q wisely**
 - **Match to Resources**



Thank you

Questions?

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