

Craig Mellis MBBS MPH MD FRACP
Associate Dean, Head of School
Central Clinical School, Faculty of Medicine
Royal Prince Alfred Hospital & University
of Sydney

Peter Greenberg MD PhD FRACP
Dept General Medicine, Royal
Melbourne Hospital and Schools
of Medicine and Population Health,
University of Melbourne

One who asks a question is a fool for five minutes;

One who does not ask a question remains a fool forever.

Ruth Sladek BA, MPH
Researcher, Knowledge Translation
Palliative & Supportive Services
Flinders University

Lynden Roberts MBBS PhD FRACP
Rheumatologist & General Physician
Director of Physician Training
Townsville Hospital & James Cook
University

Structure of workshop

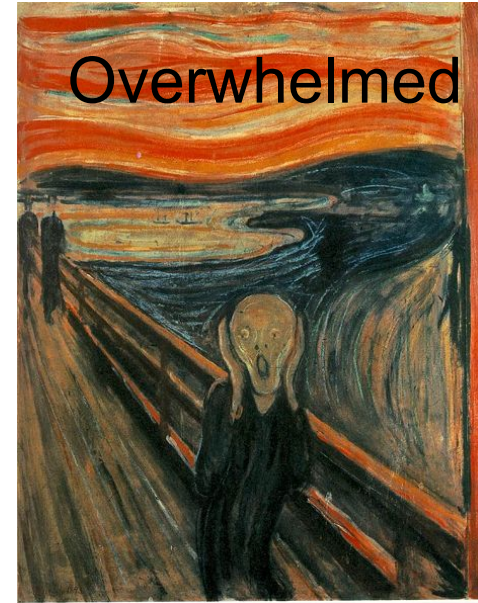
- Overview and introduction to asking questions (LR)
- “Break-out” groups – practice asking well-built questions (CM, PG, LR, RS)
- Answering questions – where to find the information most efficiently (RS)
- Wrap-up (CM)



Driven mad

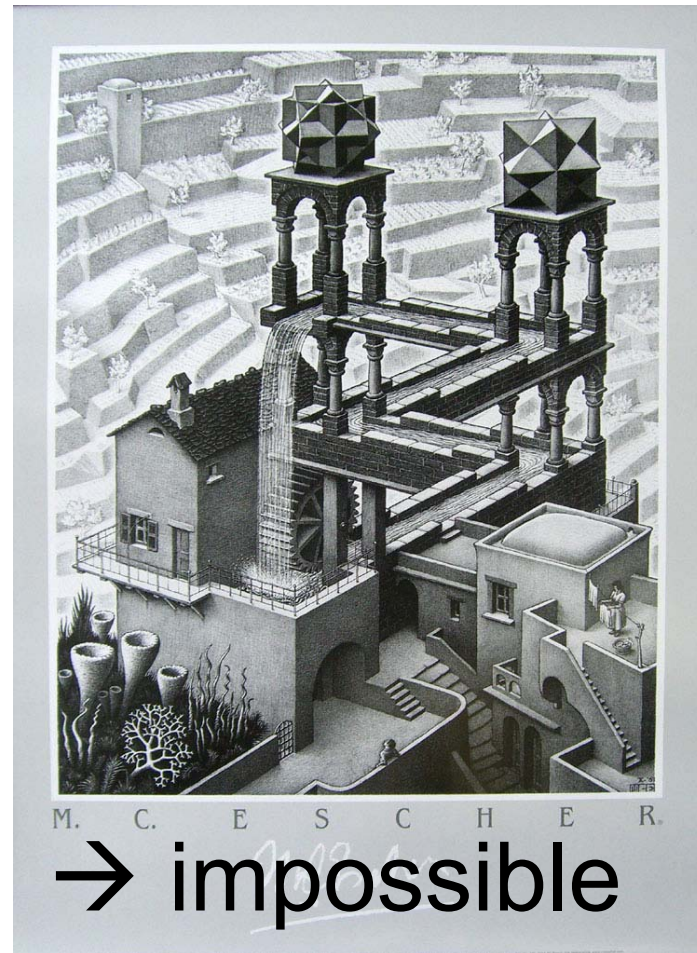
by rapid advances
in medical
knowledge?

Do you
feel

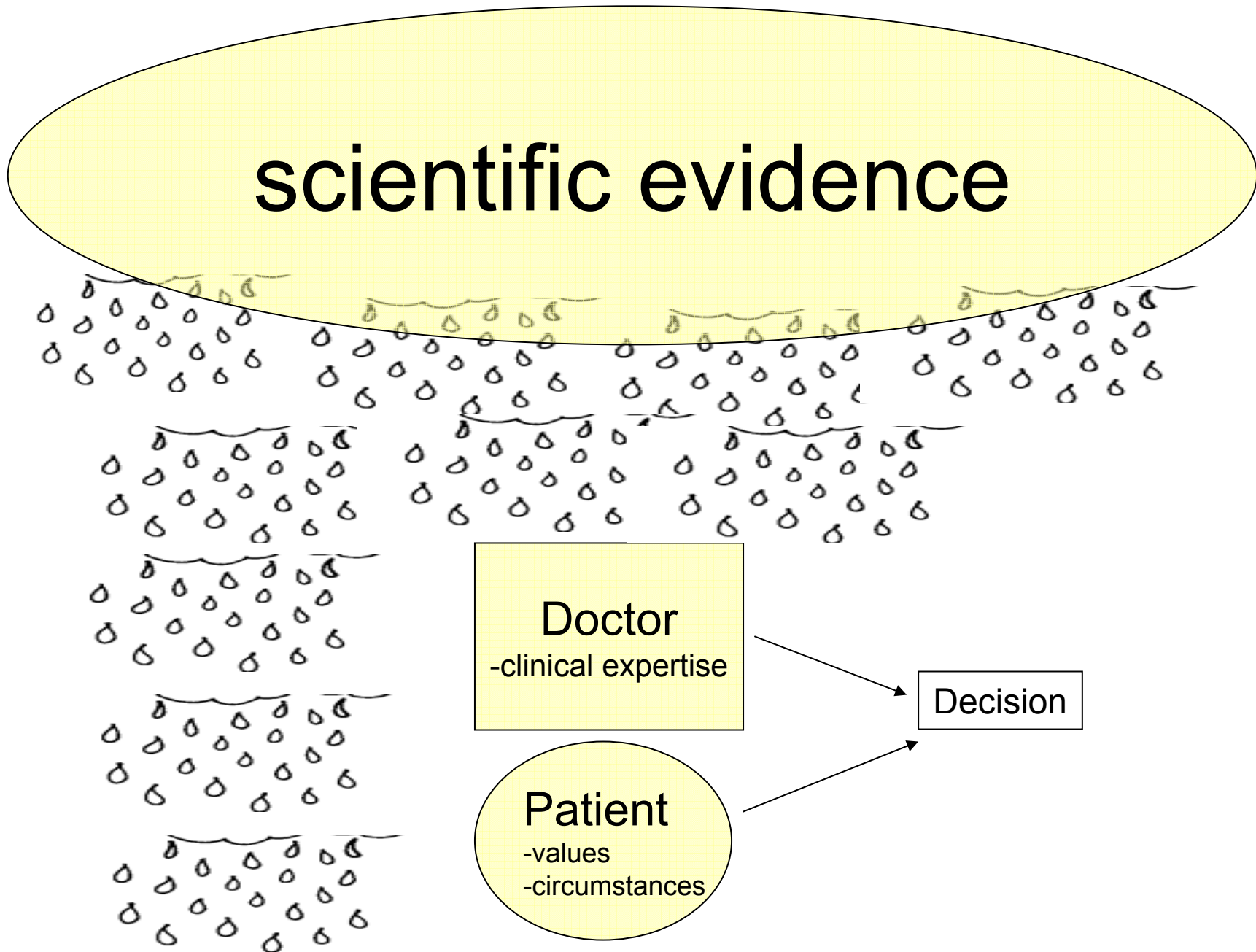


It's not surprising

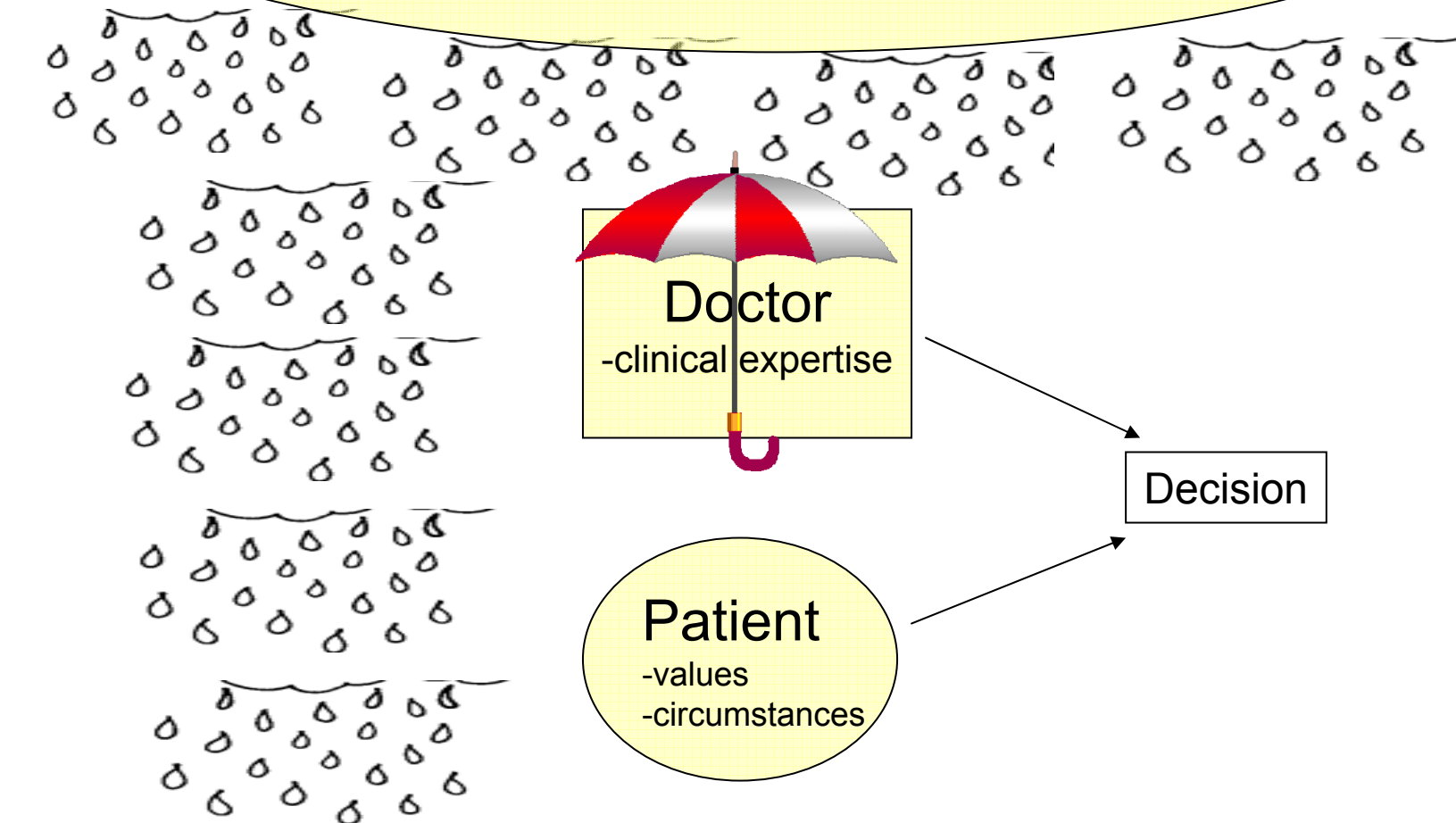
- 40360 current ongoing unpublished clinical trials in the *metaRegister of Controlled Trials*
 - Assuming you already know everything, to just keep up from now → 22 critical appraisals/day



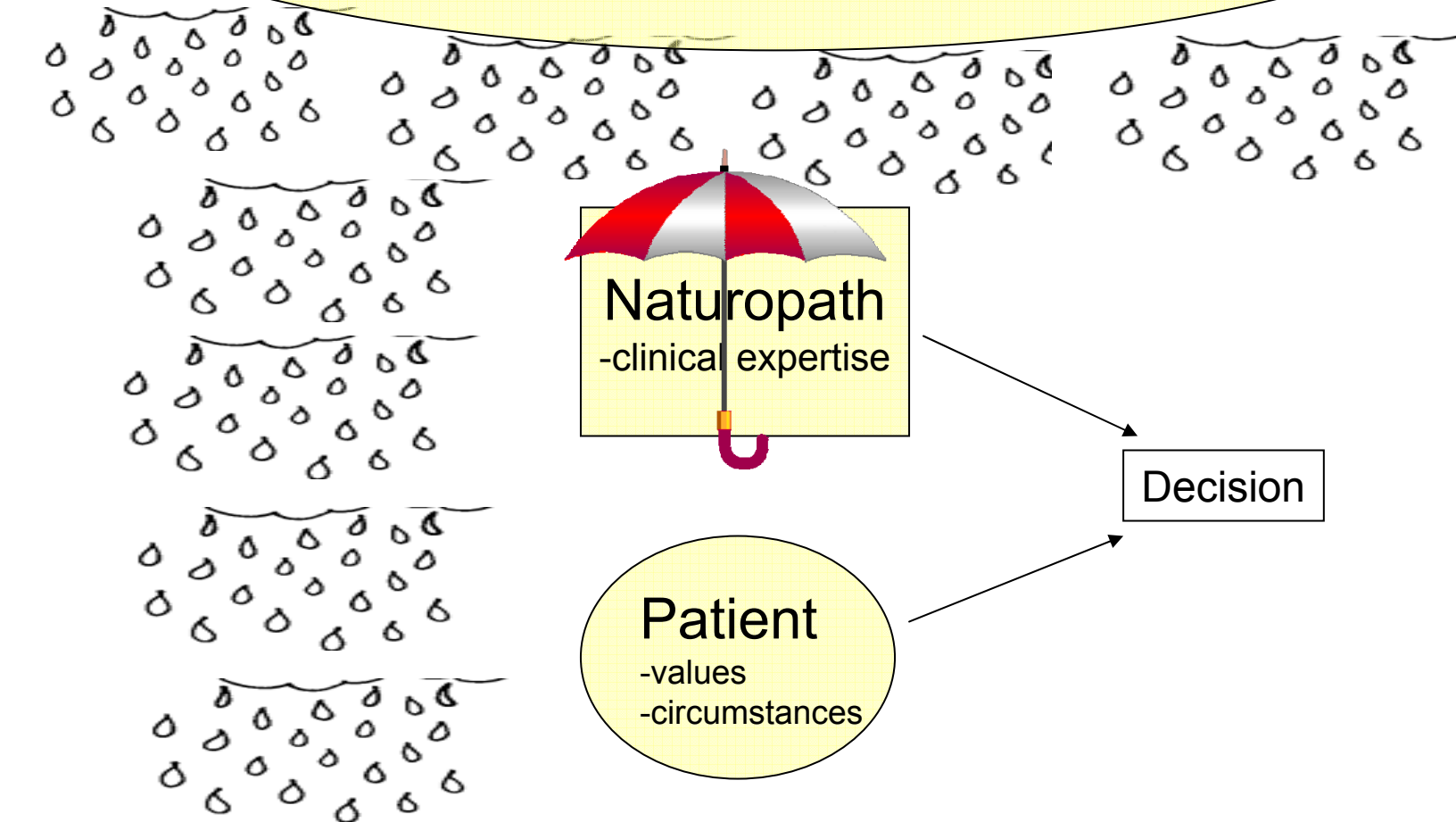
scientific evidence



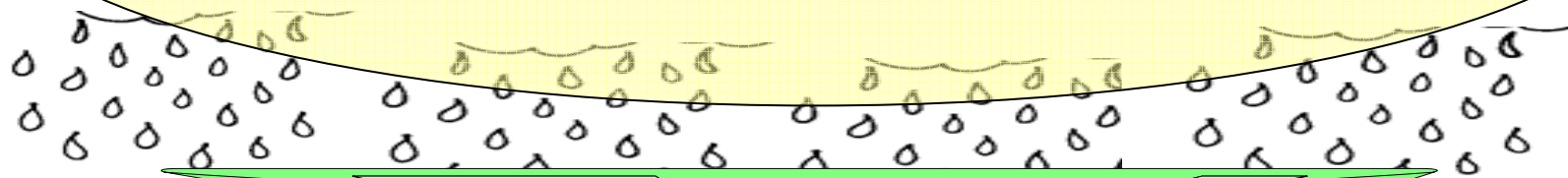
scientific evidence



scientific evidence



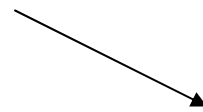
scientific evidence



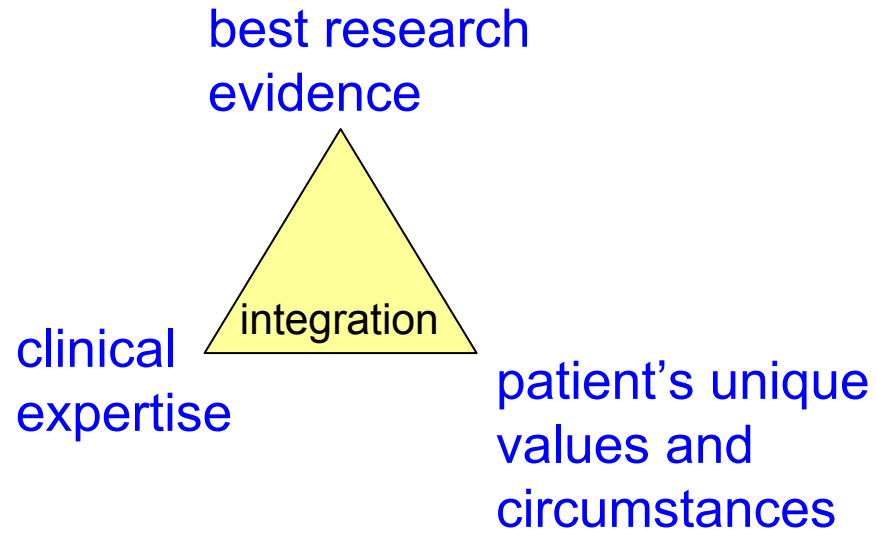
Doctor
-clinical expertise

Patient
-values
-circumstances

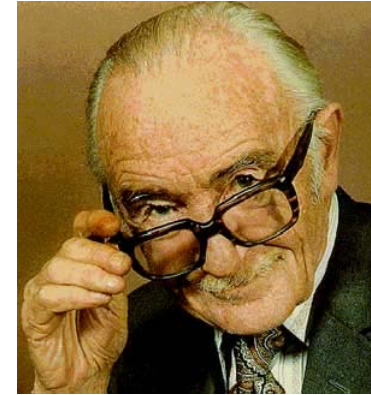
Decision



EBM Definition: a trinity



EBM - the 5 steps



- *Step 1: asking* - converting the need for information (about prevention, diagnosis, prognosis, therapy, causation, etc.) into an **well-built question**
- *Step 2: searching* for the best evidence with which to answer that question
- *Step 3: critically appraising* that evidence for its validity (closeness to the truth), impact (size of the effect), and applicability (usefulness in our clinical practice)
- *Step 4: integrating* the critical appraisal with our clinical expertise and with our patient's unique biology, values, and circumstances
- *Step 5: evaluating* our effectiveness and efficiency in executing steps 1–4 and seeking ways to improve them both for next time

Pitfalls in the pursuit of knowledge

Buddha

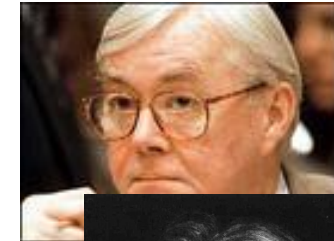
- “believe nothing just because
- » a wise person said it
 - » a belief is generally held
 - » it is said in ancient books
 - » it is said to be of the divine

believe only what you yourself test and judge to be true”



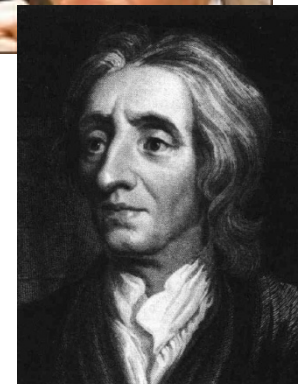
Daniel Patrick Moynihan

“Everyone is entitled to their own opinion, but not their own facts”



John Locke

“It is one thing to show a man that he is in error, and another to put him in possession of truth”





But surely...
“Doctors must know!”



- Unrealistically high expectations of knowledge
- Acknowledging ignorance is disapproved

Human reactions to knowing and not knowing

Patient's condition requires knowledge we know we possess

→ cognitive resonance



Patient's condition requires knowledge we don't know we lack

→ undisturbed ignorance



Patient's condition requires knowledge we know we lack

→ cognitive dissonance



Cognitive dissonance – we know we don't know

- Adaptive response
 - Motivator for learning
 - Well-built clinical question
 - Search and answer

→ new knowledge

- Maladaptive response
 - Denial
 - Anger
 - Fear
 - Shame

→ personal dissatisfaction
& poor clinical care



Asking well-built questions



A recent clinical round at the Townsville Hospital

- 23yo indigenous woman
 - dyspnoea, fever, cough and sputum
 - recent knee surgery
 - D-Dimer +ve
 - VQ scan 2 matched defects
 - CTPA - filling defects consistent with pulmonary embolism

Medical students' questions

1. What is the best test for diagnosing pulmonary embolism in indigenous patients?
2. How does knee surgery predispose to DVT?
3. Why isn't Plavix® used to prevent further pulmonary emboli?

Medical registrars' questions

1. In patients presenting to the emergency department with dyspnoea, how do the diagnostic accuracies of CTPA and VQ scan for diagnosis of PE, compare with a reference standard?
2. In patients undergoing knee surgery, does more prolonged prophylaxis with low molecular weight heparin prevent DVT more effectively than peri-operative prophylaxis?
3. In young patients with acute pulmonary embolism, does thrombolysis improve mortality over 2 years compared to placebo?

Background questions for Background Knowledge

who/what/when/where/why/how



(verb)



aspect of condition

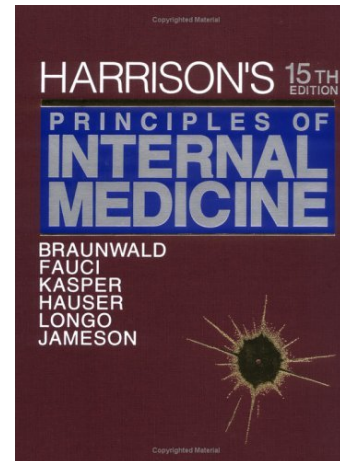
pathophysiology/diagnosis/treatment/prognosis etc

Medical students' questions

What is the best test for diagnosing pulmonary embolism in indigenous patients?

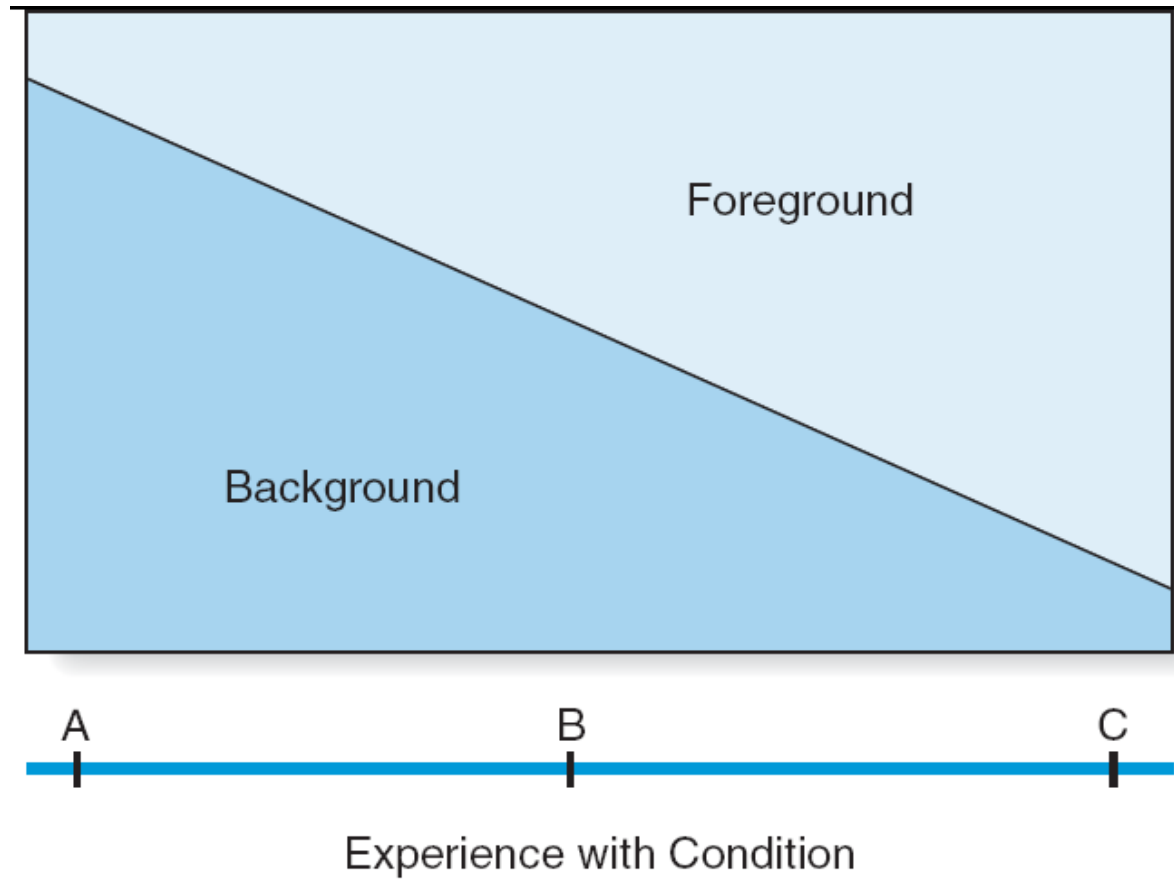
Background questions

*Most easily answered in
updated textbook
(electronic).*



Foreground Questions

- More **specific questions** about how to care for **this patient** → ‘foreground knowledge’
- Well-built foreground questions have 3-5 **components** (PICOT format)
- Careful framing of the question greatly **improves** the quality and utility of **the answer**.



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PICO(T) format

- P – Population (or patients' problem)
- I – Intervention (eg. exposure, a diagnostic test, a prognostic factor, a treatment, a patient perception etc)
- C – Comparison
- O – Outcome
- T – Time

PICOT

In patients presenting to the emergency department with dyspnoea, how do the diagnostic accuracies of CTPA and VQ scan for diagnosis of PE, compare with a reference standard?

PICOT- Population

In patients presenting to the emergency department with dyspnoea, how do the diagnostic accuracies of CTPA and VQ scan for diagnosis of PE, compare with a reference standard?

PICOT- Intervention

In patients presenting to the emergency department with dyspnoea, how do the **diagnostic accuracies of CTPA and VQ scan** for diagnosis of PE, compare with a reference standard?

PICOT- Comparison

In patients presenting to the emergency department with dyspnoea, how do the diagnostic accuracies of CTPA and VQ scan for diagnosis of PE, compare with a **reference standard**?

PICOT- Outcome

In patients presenting to the emergency department with dyspnoea, how do the diagnostic accuracies of CTPA and VQ scan **for diagnosis of PE**, compare with a reference standard?

PICOT- Time

In patients presenting to the emergency department with dyspnoea (onset 48 hours?), how do the diagnostic accuracies of CTPA and VQ scan (done within 12 hours?) for diagnosis of PE, compare with a reference standard?

Why ask well built questions? – the evidence

- Practicing EBM improves EBM skills
 - Villanueva EV, Burrows EA, Fennessy PA, Rajendran M, Anderson JN. Improving question formulation for use in evidence appraisal in a tertiary care setting: a randomised controlled trial. BMC Med Inf Decis Making 2001; 1: 4.
 - Resident utilization of information technology. J Gen Intern Med 2001; 16: 838–44
- Asking well-built questions increases chance of a useful answer from specialty colleagues
 - Bergus GR, Randall CS, Sinift SD, Rosenthal DM. Does the structure of clinical questions affect the outcome of curbside consultations with specialty colleagues? Arch Fam Med 2000; 9: 541–7.

Why ask well built questions? – the experience

- More efficient use of scarce reading time
 - Directly relevant to our patients
 - Directly relevant to our own learning needs
 - The form of the answer is suggested by good qs
 - Well-built question suggests most efficient search strategy
- Reawakens curiosity and excitement in learning
- Rebuilds sense of confidence and mastery

Acknowledgements

- Richardson WS. Ask, and ye shall retrieve [EBM note]. Evidence-Based Medicine 1998;3:100–1.
- Richardson WS, Wilson MC, Nishikawa J, Hayward RSA. The well-built clinical question: a key to evidence-based decisions [editorial]. ACP J Club 1995;123: A12–A13
- Straus, S. et al “Evidence Based Medicine (3rd Edition) How to Practice and Teach EBM” Churchill Livingstone 2005.
- Guyatt, G., Rennie, D. Users' Guides to the Medical Literature: A manual of Evidence Based Clinical Practice. The American Medical Association. 2002.
- Quotes and images: <http://en.wikipedia.org> and other www sites.

