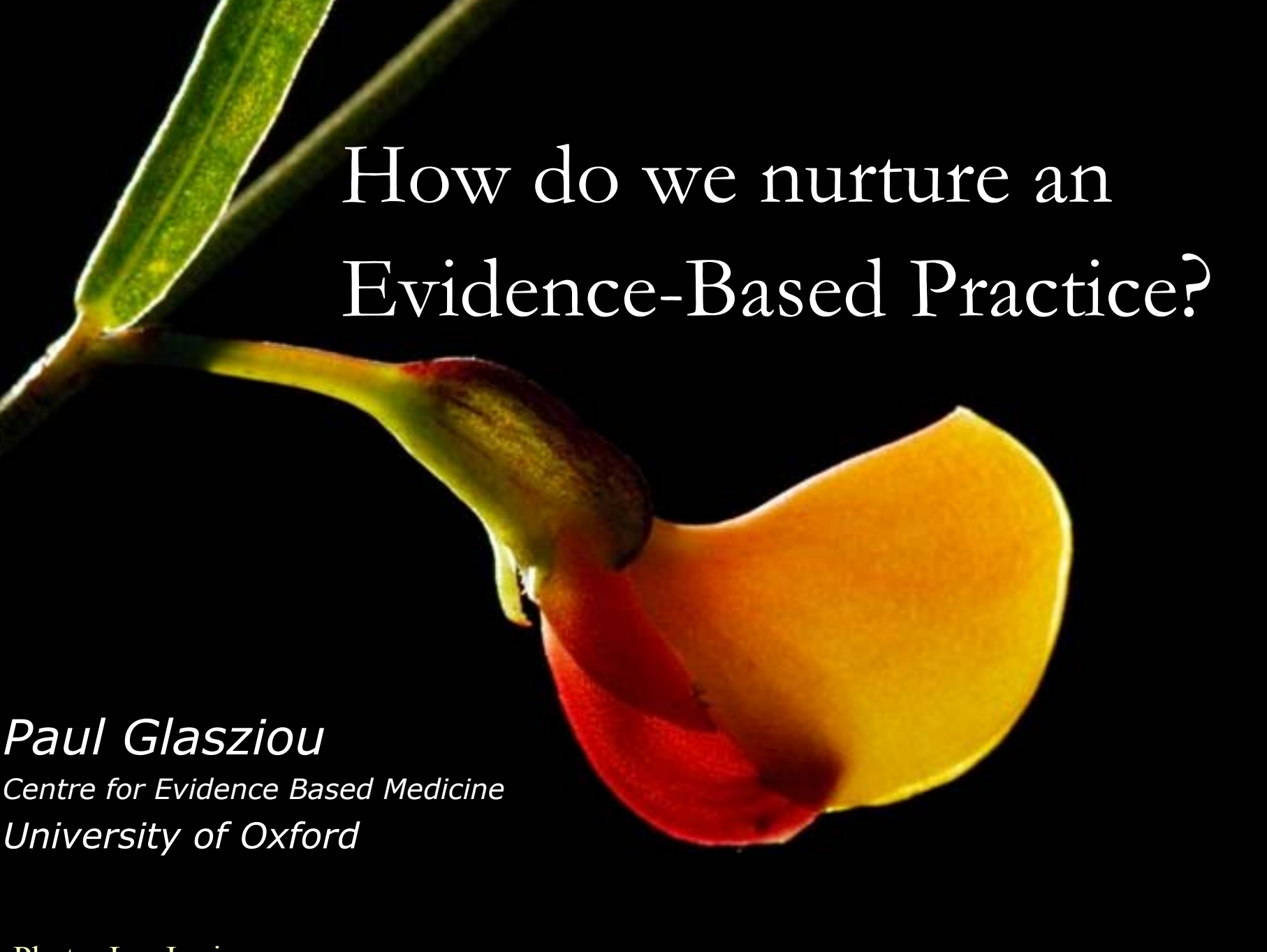
NOTES

- Get Rooms for final slide directions
- Put PICO up on whiteboard
- Orient to pack
- Announcements



How do we nurture an Evidence-Based Practice?

Paul Glasziou
Centre for Evidence Based Medicine
University of Oxford

I am here to learn EBM because ….

1. I am working in clinical practice
2. I will help others use evidence
3. I am working on evidence resources (reviews, guidelines, reports , …)
4. I will teach EBM

My current job is …

1. Mostly working with patients
2. Mostly research
3. Mostly working with information

How to you keep up to date?

- How do you learn about and decide to change clinical practice

- Consider
  - Where do issues / questions come from?
  - How do you check the validity of the information?
  - How do you organise the change?

How to you keep up to date?

- List all your educational activities
- Rank them from most to least time
- Then for your top activities/sources:
  - Where do questions come from?
  - How is the information selected?
  - Is the information appraised

Scene 1

- WHY EBM??

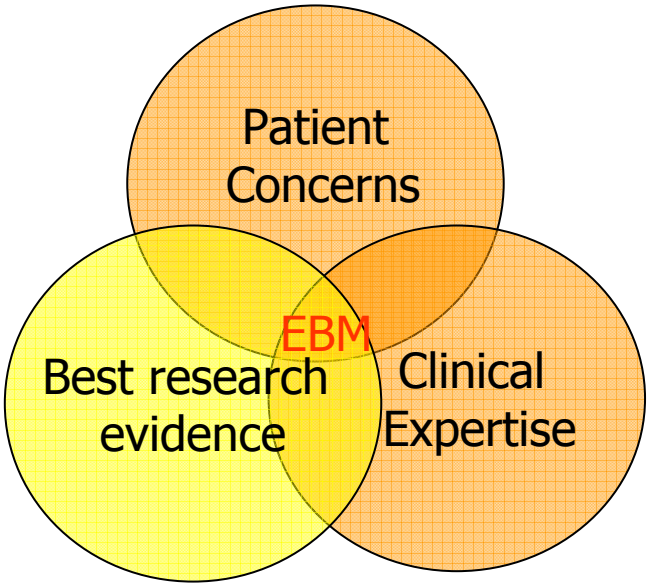
Introductory Lecture: Objectives

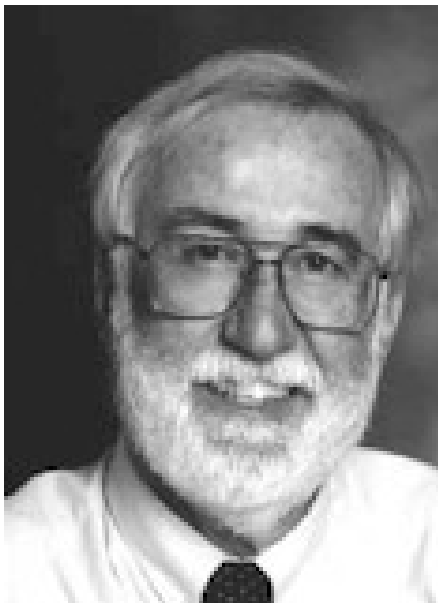
- **Why** evidence-based medicine?
- **How** can we keep up to date?
- **What** is a well built clinical question?

What is evidence-based medicine?

"Evidence-based medicine is the integration of best research evidence with clinical expertise and patient values"

- *Dave Sackett*





JASPA*

(Journal associated score of personal angst)

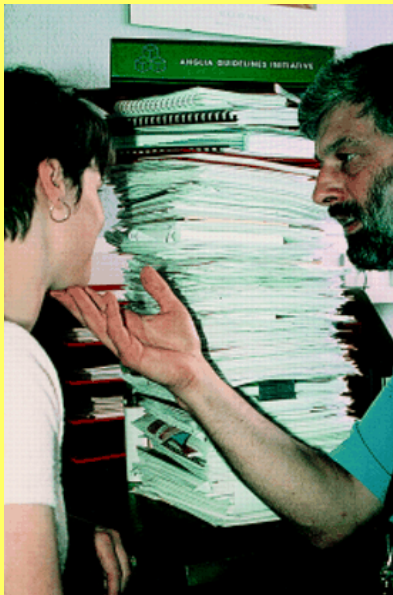
J: Are you ambivalent about renewing your **JOURNAL** subscriptions?

A: Do you feel **ANGER** towards prolific authors?

S: Do you ever use journals to help you **SLEEP**?

P: Are you surrounded by **PILES of PERIODICALS**?

A: Do you feel **ANXIOUS** when journals arrive?



0 (?liar)
1-3 (normal range)
>3 (sick; at risk for polythenia gravis and related conditions)

* Modified from: BMJ 1995;311:1666-1668

Size of Medical Knowledge

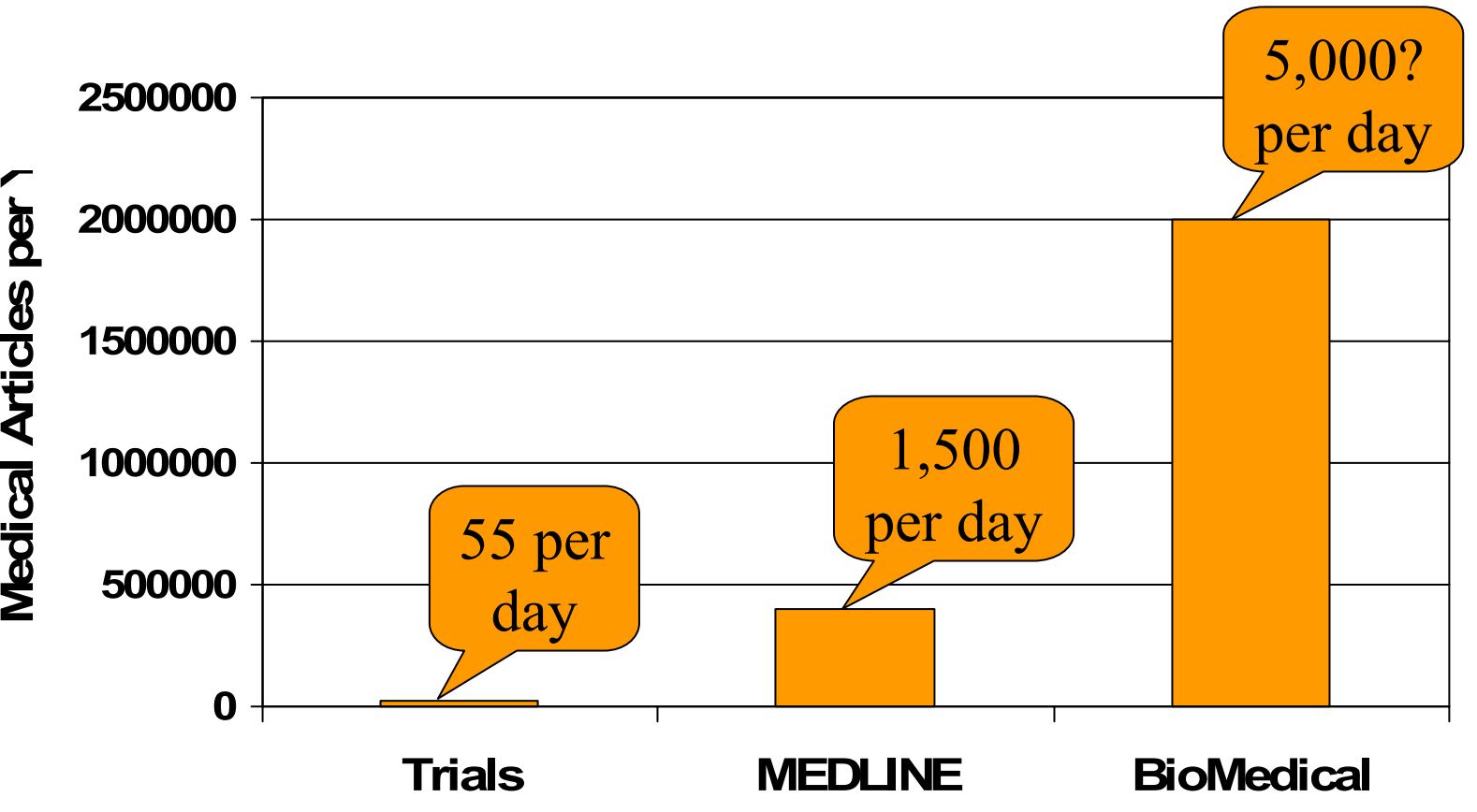
- NLM MetaThesaurus
  - 875,255 concepts
  - 2.14 million concept names
- Diagnosis Pro
  - 9,200 diseases
  - 20,000 abnormaliti[illegible], signs, lab, X-ray,)
  - 3,200 drugs (cf FDAs 18,283 products)

1 per day for 25 years

The research-to-awareness gap

Rule 31 – Review the World Literature Fortnightly*

*"Kill as Few Patients as Possible" - Oscar London



Which pill prevents strokes?

Are RCTs always needed for treatment questions?

- Some immediate & dramatic effects don't need RCTs*

- Example:
- Child with nasal foreign body
  - Dislodged with Parent Kiss method
  - Case series of success 15/19
    - Botma J Laryngol Otol 2000

* Glasziou, Chalmers, McCullough in preparation

Clinicians are not equipped to tell good from bad research

- BMJ study of 607 reviewers
  - 14 deliberate errors inserted
- Detection rates
  - On average <3 of 9 major errors detected
  - Poor Randomisation (by name or day) - 47%
  - Not intention-to-treat analysis - 22%
  - Poor response rate - 41%

Schroter S et al, accepted for Clinical Trials

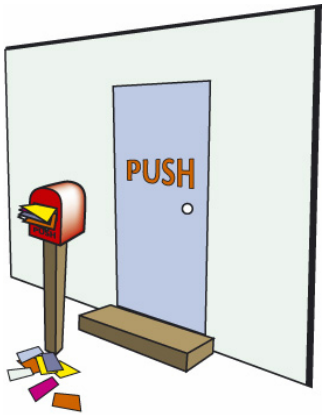
Keeping up to date
Is it Mission Impossible?

Bluegreenblog 2006

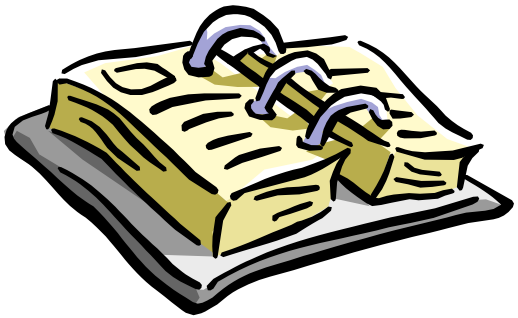
Scene 1

- HOW DO WE DO IT?

How can we keep up to date?
The push & pull methods



Read an evidence-based abstraction journal



Keep a logbook of your own clinical questions

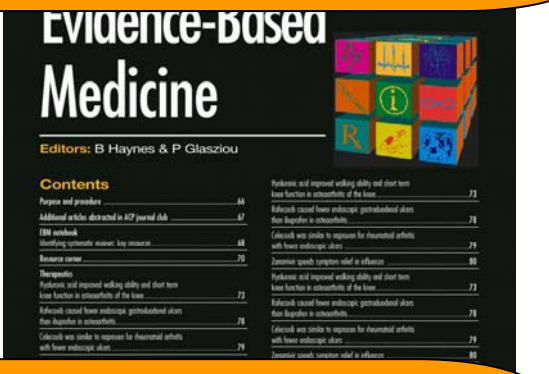
EBM can help to filter journal reading

How much is valid AND relevant?

PROCESS

- 120+ journals scanned
  - 50,000 articles
- Is it **valid**? (<5%)
  - Intervention: RCT
  - Prognosis: inception cohort
  - Etc
- Is it **relevant?**
  - 6-12 GPs & specialists asked:
    Relevant? Newsworthy?
- < 0.5% selected

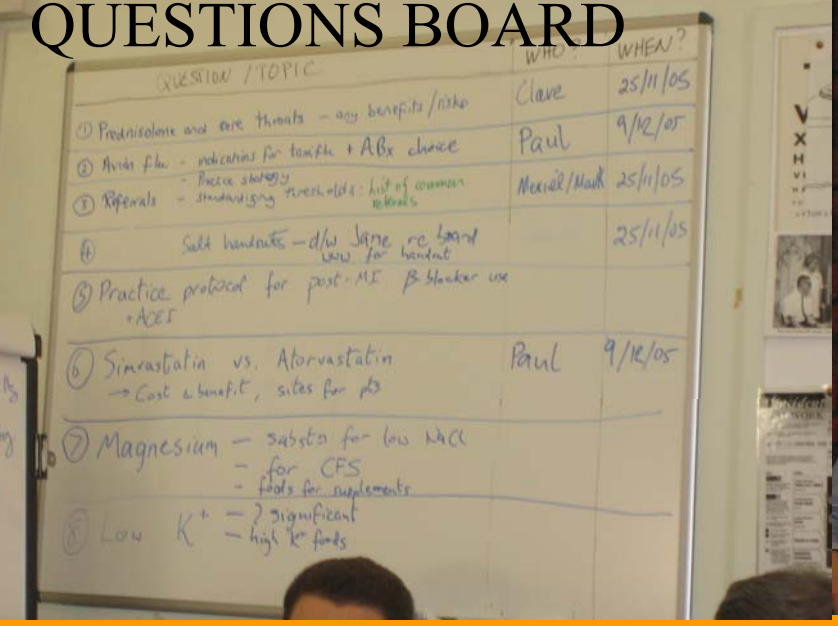
Number Needed to Read is 20+



Number Needed to Read is 200+

www.evidence-basedmedicine.com

QUESTIONS BOARD



EBM is a team activity

Example Questions

- Are antidepressants safe in adolescents?
- Is atenolol OK for hypertension?
- Should all diabetics take aspirin?
- Do probiotics prevent AB diarrhoea?
- Does ‘bibliotherapy’ help depression?
- The impact of Tamiflu on flu?

How to answer clinical questions: the 4 steps of EBM

1. Formulate an answerable question
2. Track down the best evidence
3. Critically appraise the evidence
4. Individualise, based clinical expertise and patient concerns

5. Evaluate our effectiveness and efficiency
   - keep a record; improve the process

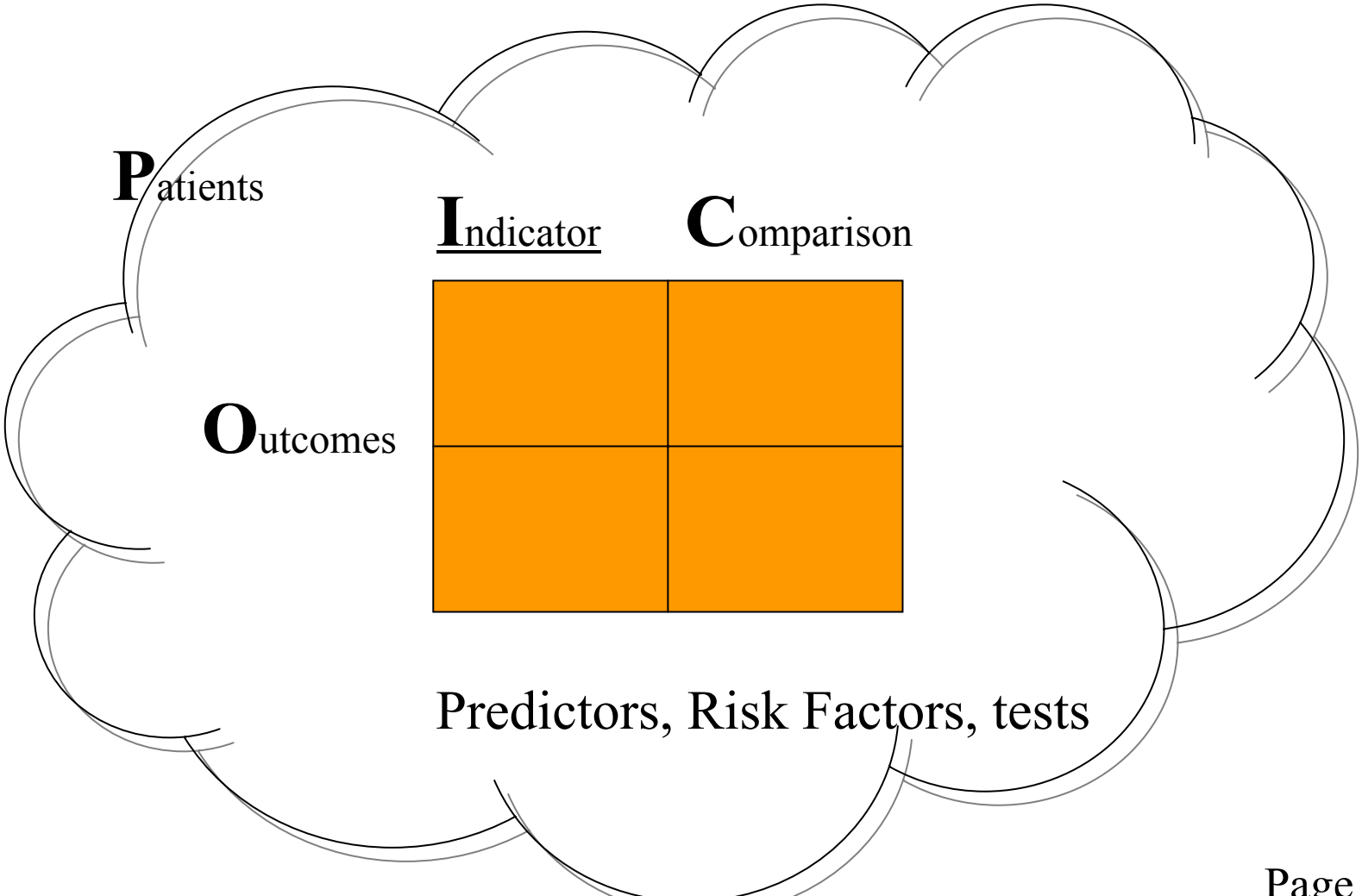
Scene 1

- Formulating Questions

Step 1. Identify questions
What are your questions?

- Write down some recent health care problem or issues
  - What were the critical questions?

Step 1: Formulate an answerable clinical question (PICO)



Step1: Formulate an answerable question

- Population
  - In women without HPV
- Indicator/Intervention
  - Does HPV vaccine
- Comparator
  - Compared with no treatment
- Outcome
  - Reduce rates of CIN?

- P - What factors are essential?
- I - Specific intervention or class?
- C - Compared to nothing or standard treatment
- O - Patient relevant outcomes? Short-term or long term?

HPV Vaccine

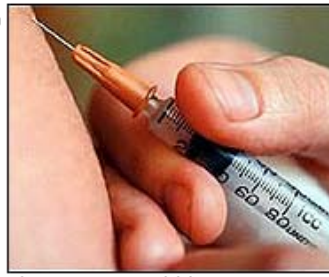
- What is the PICO?
  - Patients
  - Intervention
  - Comparator
  - Outcome

Last Updated: Friday, 7 October 2005, 04:31 GMT 05:31 UK

E-mail this to a friend Printable version

Cervical cancer jab 'in a year'

A vaccine shown to be 100% effective against two virus strains that cause most cervical cancer could be available within a year, say manufacturers.



The vaccine could be given to gi as young as 10 to 13

Gardasil worked against the sexually transmitted human papillomavirus (HPV).

Some 12,167 women aged 16 to 23 from 13 countries, including the UK, took part in the drug company study.

Researchers believe a vaccine could work best if given befo adolescence, but critics fear this could encourage under-ag sex.

Merck's vaccine is in head-to-head competition with a rival from UK-based GlaxoSmithKline called Cervarix.

Cervical cancer kills 274,000 women worldwide every year, including 1,120 in the UK.

The two-year Future II trial found Gardasil was 100% effective at preventing early stage cancers and pre-cancerous abnormalities caused by the two key strains HPV - the 16 and 18 strains - which cause 70% of cervical cancers.

Similar results were previously seen in a smaller trial of 277 women.

Dr Anne Szarewski, clinical consultant at Cancer Research UK, said: "These results add to the mounting evidence that cervical cancer vaccines offer

"These results add to th mounting evidence that cervical cancer vaccines offer great promise for the future"

Dr Anne Szarewski, Cancer

HPV Vaccine

- How do we know that it works?

News Front Page
World
UK
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Programmes
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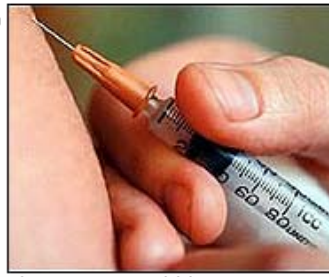

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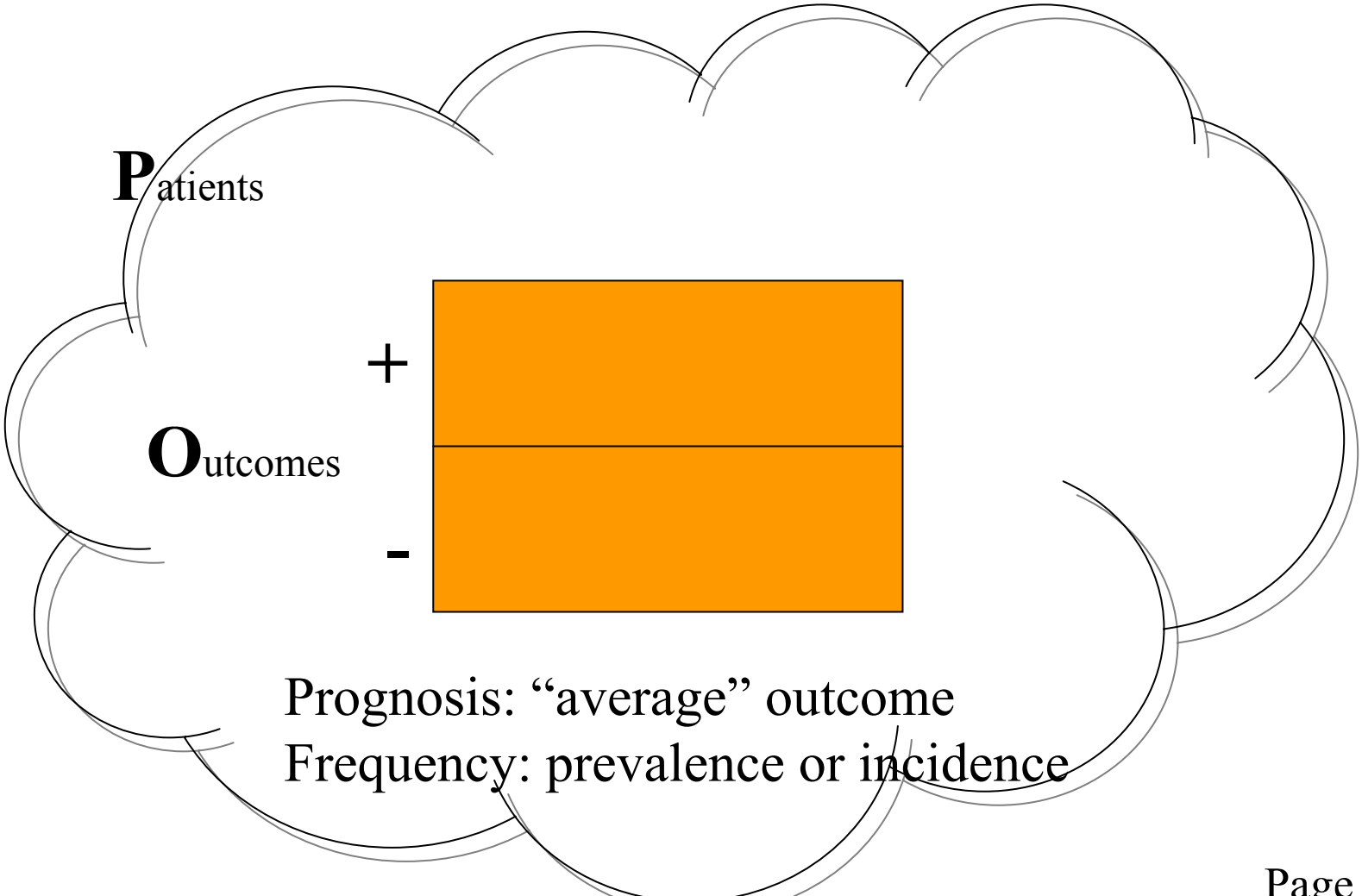
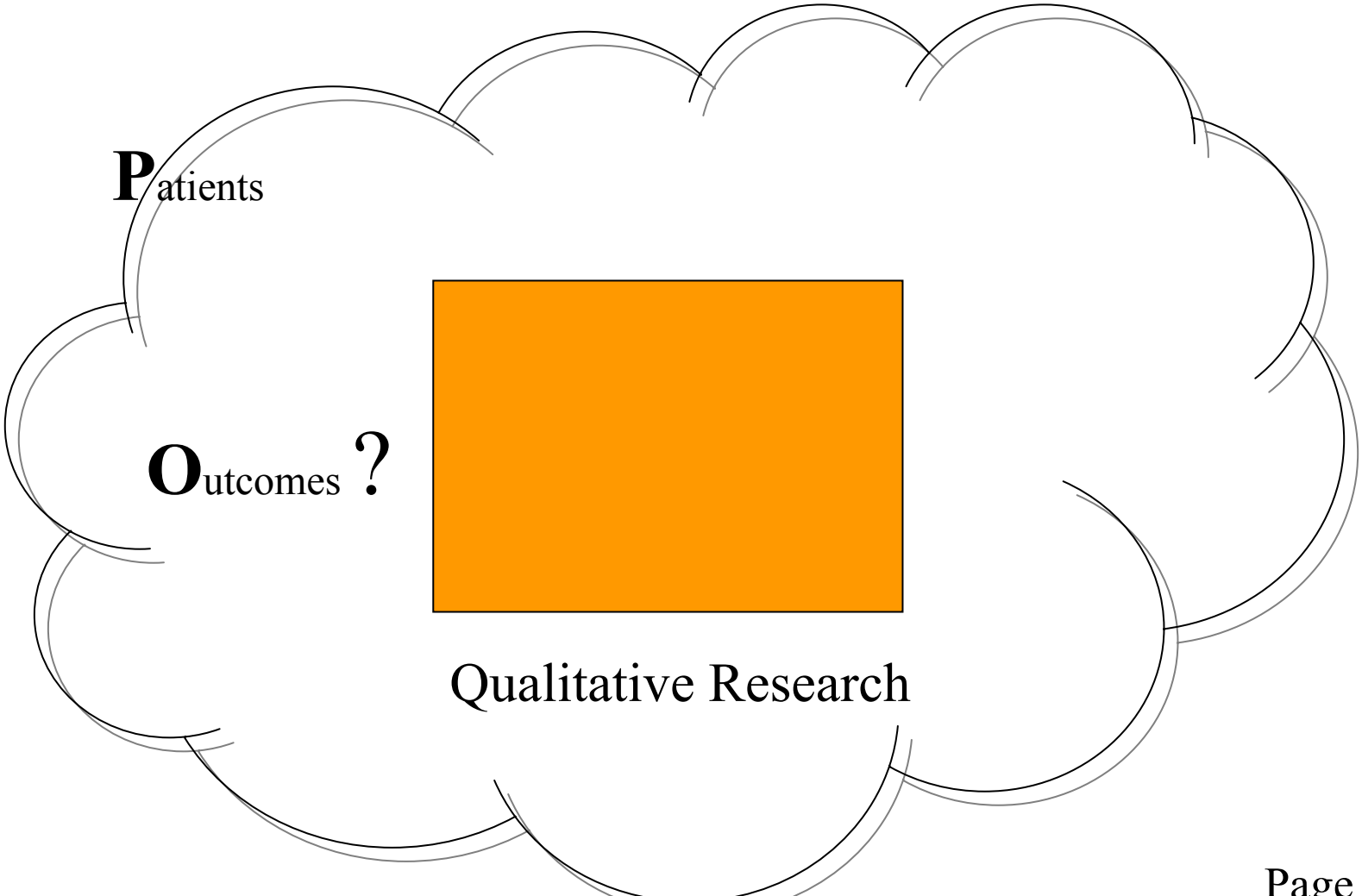
Dr Anne Szarewski, Cancer

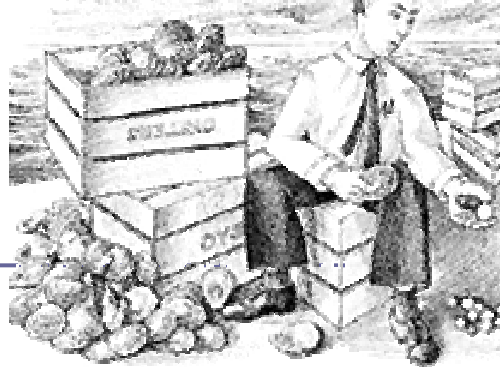
Step 1: Formulate an answerable clinical question (PO)



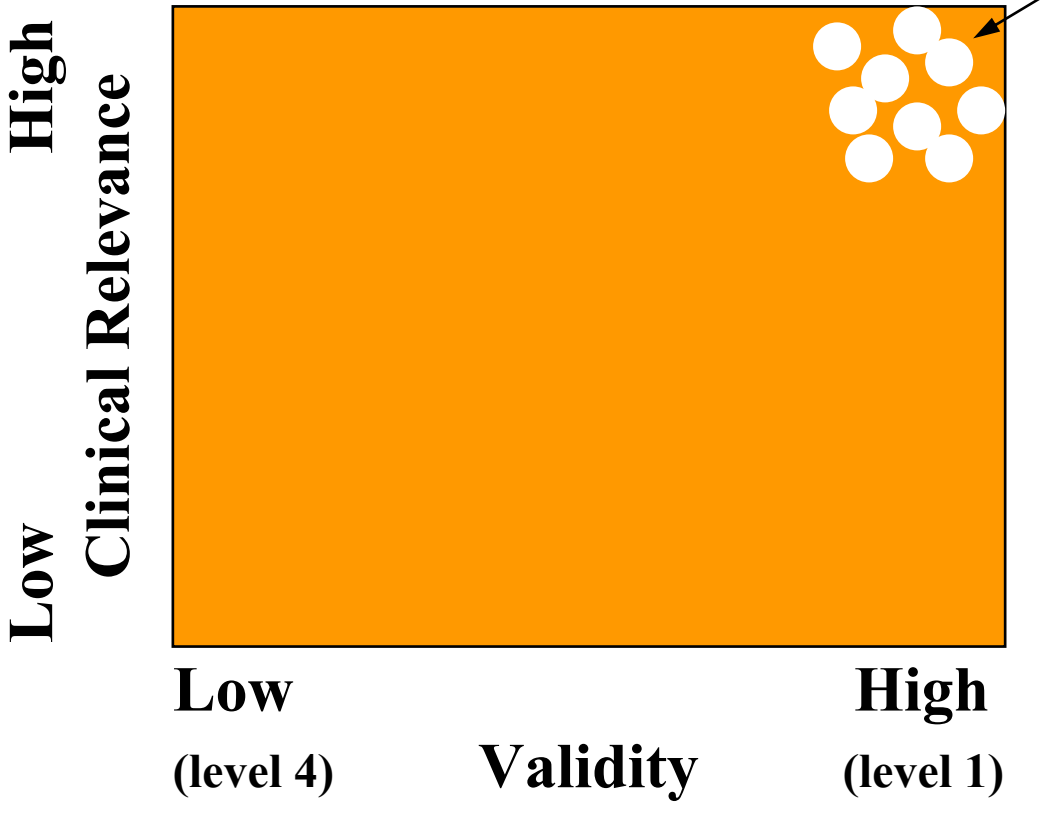
Step 1: Formulate an answerable clinical question (PO?)



Step 2: Track down the best evidence



PEARLS:
high quality, relevant studies



The "best" evidence depends on the type of clinical question

1. What are the phenomena/thoughts?
   - Observation (e.g., qualitative research)
2. What is frequency of the problem? (FREQUENCY)
   - Random (or consecutive) sample
3. Does this person have the problem? (DIAGNOSIS)
   - Random (or consecutive) sample with Gold Standard
4. Who will get the problem? (PROGNOSIS)
   - Follow-up of inception cohort
5. How can we alleviate the problem? (INTERVENTION/THERAPY)
   - Randomised controlled trial

The best evidence for different types of question

Level	Treatment	Prognosis	Diagnosis
I			
II	Randomised trial	Inception Cohort	Cross sectional
III			

The best evidence for different types of question

Level	Treatment	Prognosis	Diagnosis
I	*Systematic Review of …*	*Systematic Review of …*	*Systematic Review of …*
II	Randomised trial	Inception Cohort	Cross sectional
III			

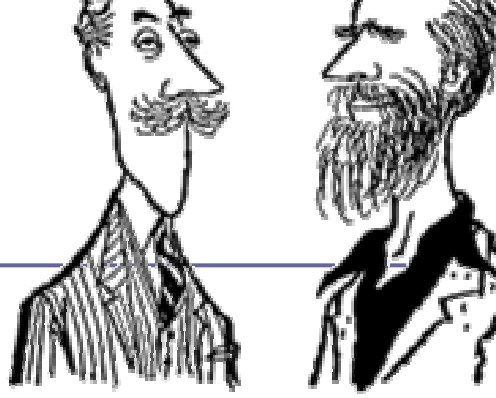
"Levels of evidence" are used to guide our search

LEVELS OF EVIDENCE FOR INTERVENTIONS

- Evidence obtained from a **systematic review** of all relevant randomised trials.
- Evidence obtained from at least one properly-designed **randomised controlled trial**.
- Evidence from well-controlled trials that are not randomised; or well-designed **cohort** or case-control studies; or multiple time series (with or without the intervention).
- **Opinions** of respected authorities; based on clinical experience; descriptive studies; or reports of expert committees.

(modified from NHMRC)

Levels of Evidence for Anecdote-based medicine



- Level I: Beardy old gent from royal college
- Level II: Doctor with air of credibility and honest face
- Level III: Academic with mad stare
- Level IV: NHS manager with trust in financial crisis

Where to now?

- Room on Group sheet
  - Room 7, 8, 9 here
  - Room 5, 6 follow Olive & Mary
- TEA/COFFEE
- Back here for lecture
- Lunch

Step 3: Appraisal checklist - **RAMMbo**

1. **R**ecruitment
   - Who did the subjects represent?
2. **A**llocation
   - Was the assignment to treatments randomised?
   - Were the groups similar at the trial's start?
3. **M**aintainence
   - Were the groups treated equally?
   - Were outcomes ascertained & analysed for most patients?
4. **M**easurements
   - Were patients and clinicians "**b**linded" to treatment? OR
   - Were measurements **o**bjective & standardised?

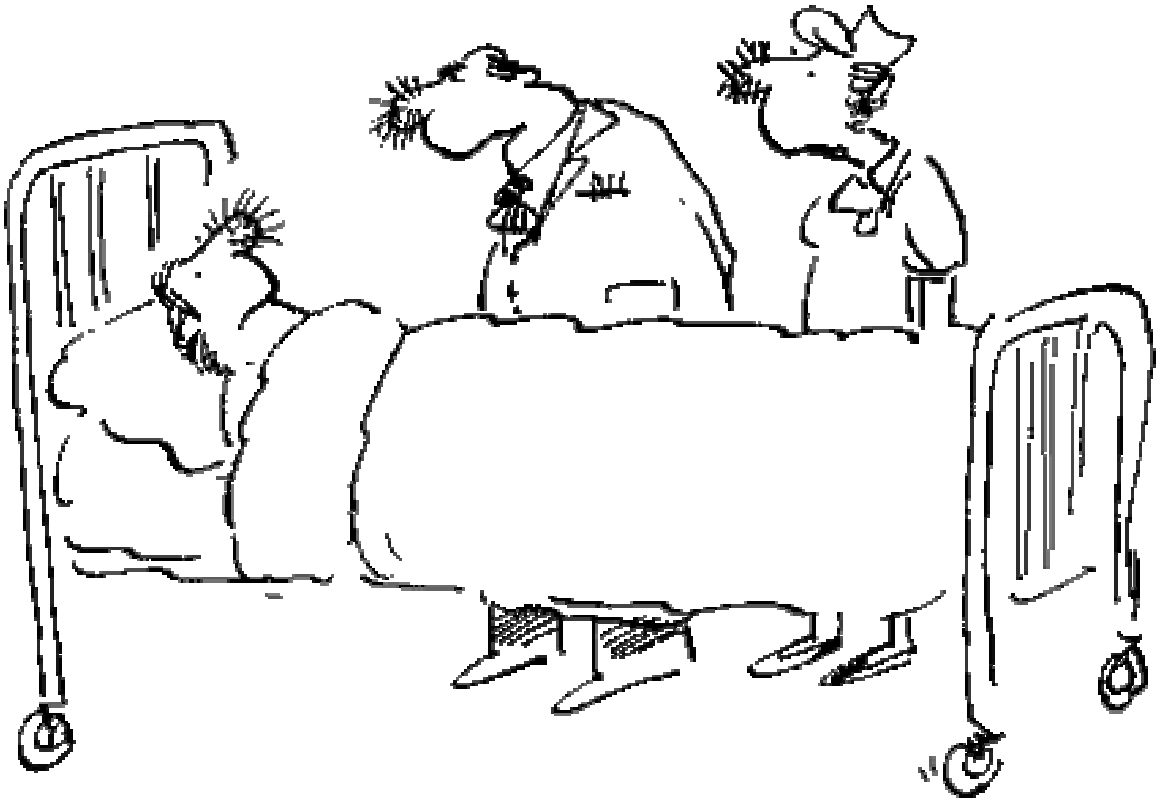
Study statistics (p-values & confidence intervals)

Guyatt. JAMA, 1993

Step 4: Apply the results to the patient

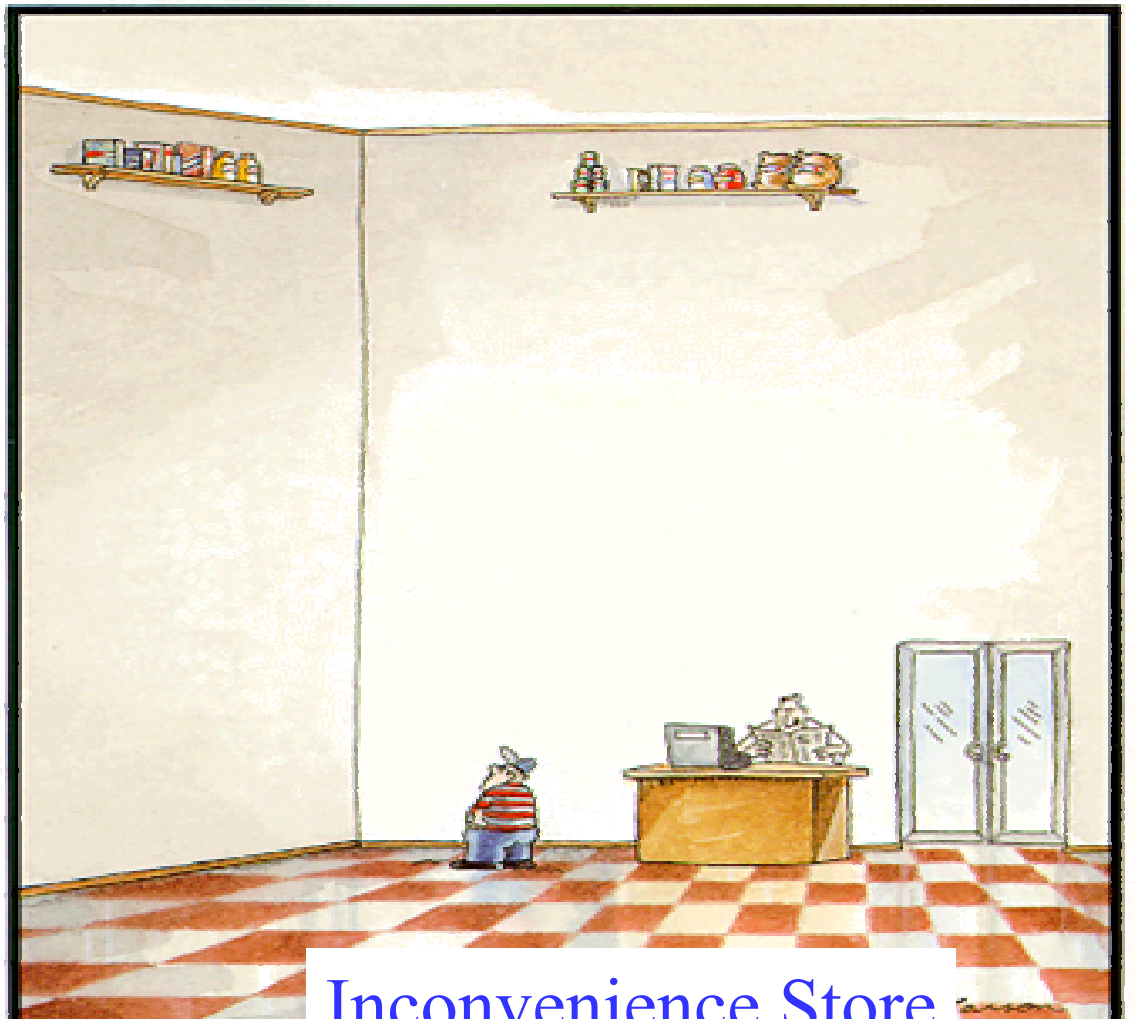
- How do the benefits and harms weigh up in this patient?
  - High or lower risk than the study population?
  - Patients circumstances, concerns and goals

Step 0: Recognising that we don't know



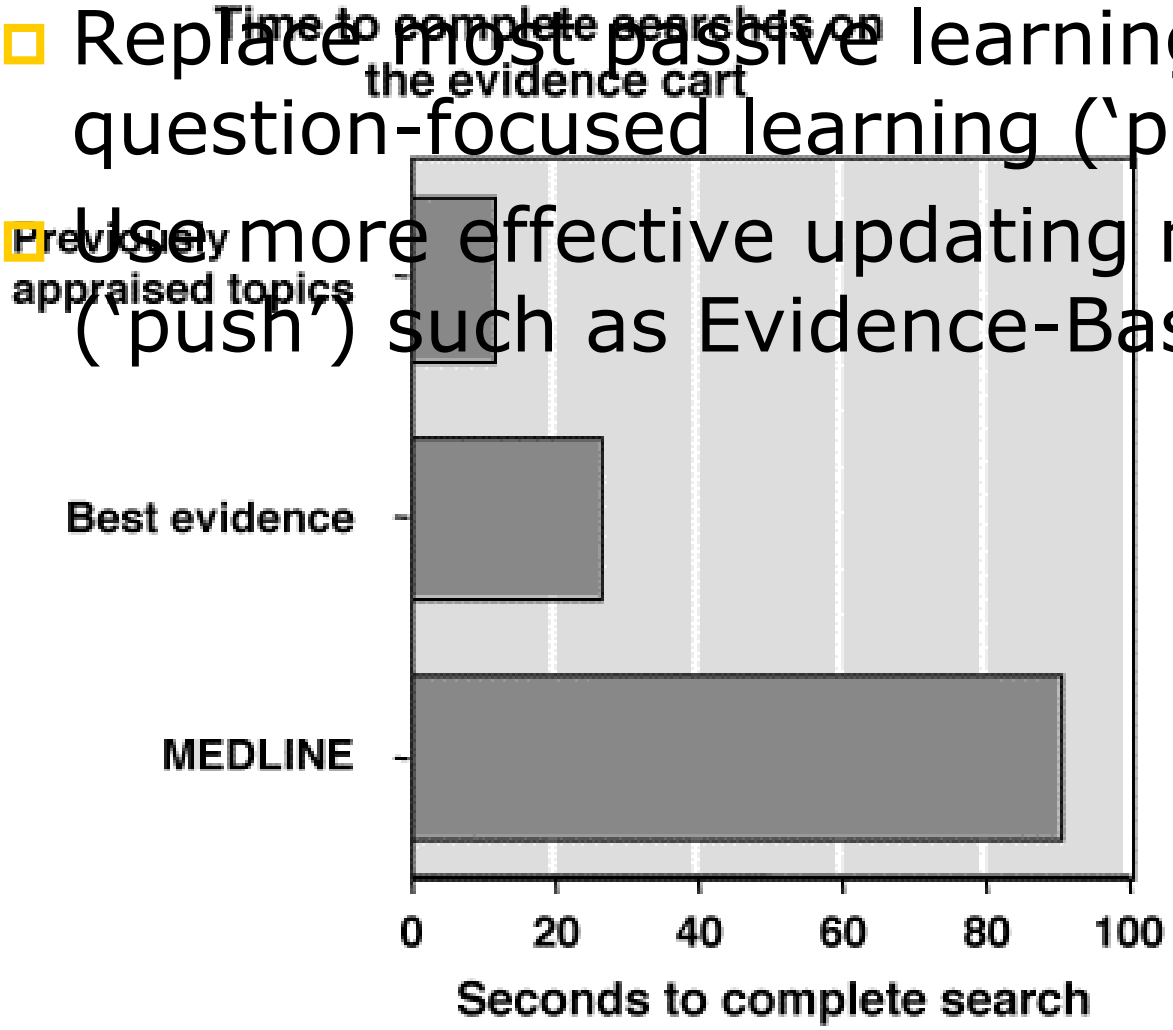
"We don't know what it is, but we do know it's contagious."

Barrier 2: information at the point of decision making (in under 2 minutes!)



Barrier 4: Lack of Time?

- Replace most passive learning with question-focused learning ('pull')
- Use more effective updating methods ('push') such as Evidence-Based journals



Straus, JAMA 1999

EBP Workshop - program

1. Plenary: What is Evidence-based practice?
1. **Small group Tutorial: Asking well-formulated questions**
   - Morning Tea
2. Plenary: Finding the best studies (searching basics)
2. Lab Tutorial: Cochrane and PubMed Searching (hands-on)

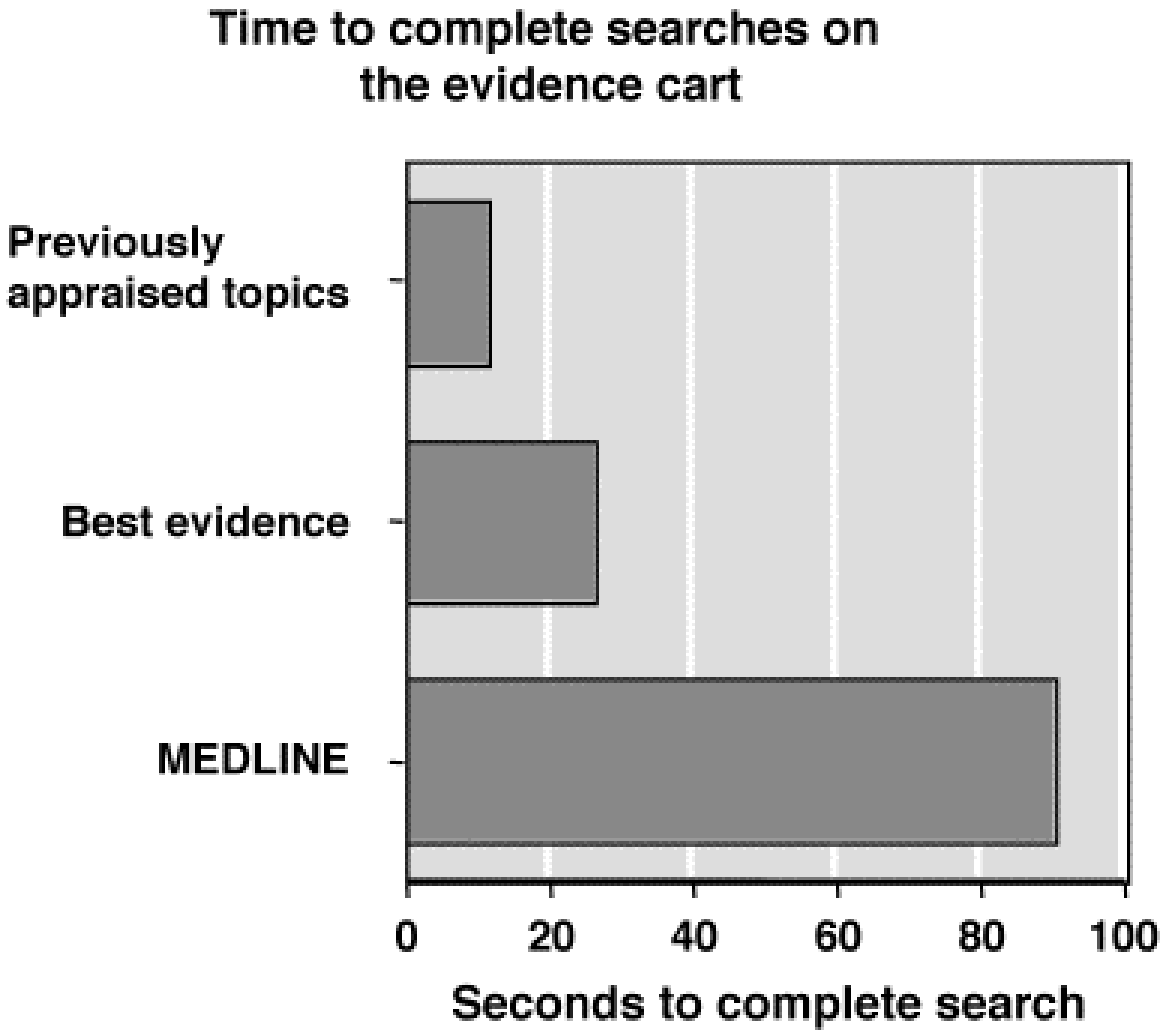
   - Lunch

3. Plenary: Rapid Critical Appraisal of intervention studies
3. Small group tutorial: What did you find? (report back)
   - Afternoon Tea
4. Small group tutorial: Critical Appraisal of intervention studies
- Where to from here? / evaluation/ Close

Session 2: question formulation

- AIM = each person has 2 questions to take to the computer searching session
- PROCESS
  - Introductions - name, background
  - Do first question together
  - Work on questions in pairs
    - 1-2 in notes
    - 1-2 of your own questions
  - Work together again

Barrier 4: Time
Is it feasible?



Straus, JAMA 1999

What About Guidelines?

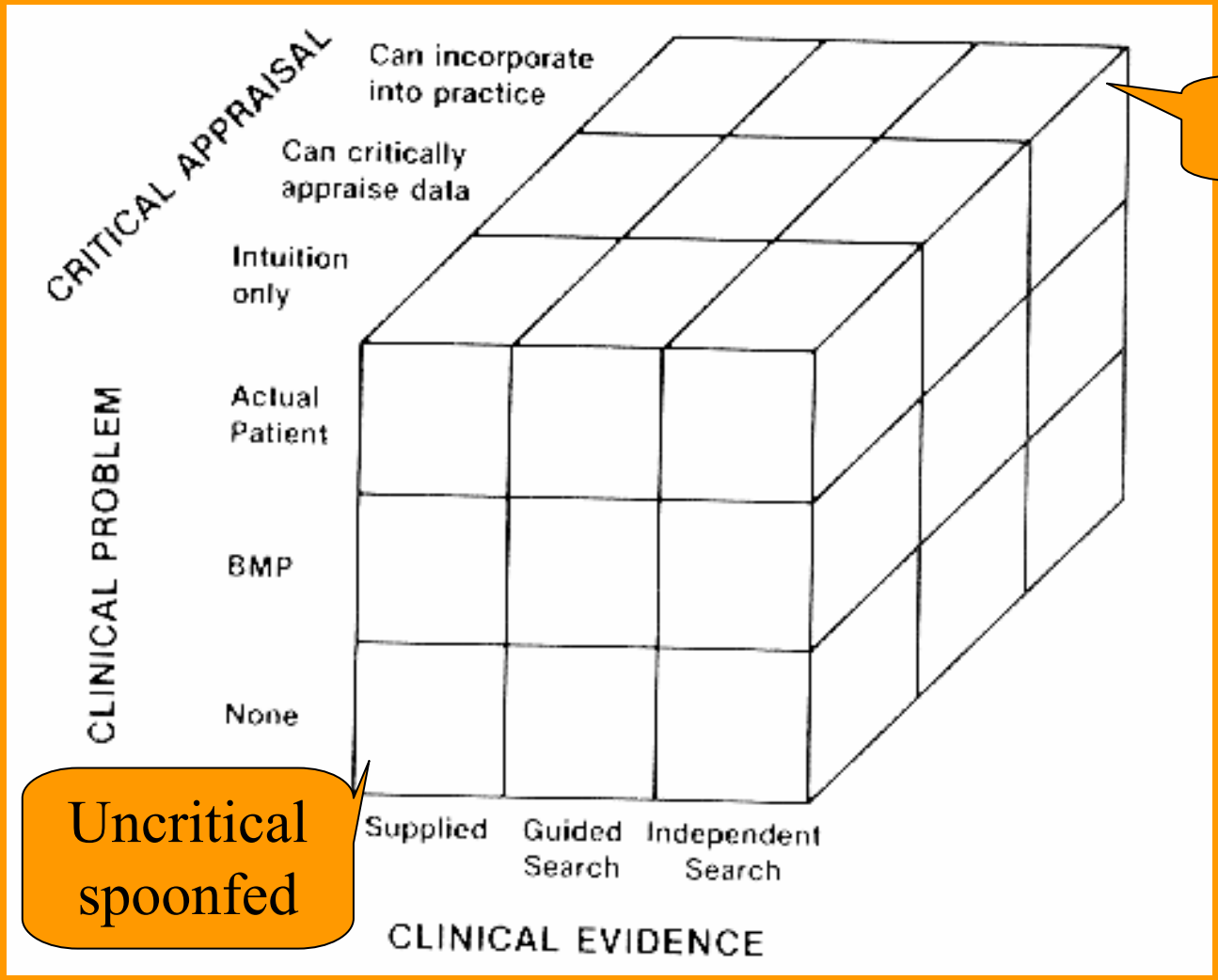
Stack of 855 guidelines in a UK general practice
(BMJ 1998;317:862-863)

- OK for common problems:
  - Evidenced-based
  - Well indexed
  - Common format
  - Allow individualized assessment of risk and benefits
- Search for EB guidelines to answer specific questions

Balance your information: "Pull" and "Push" methods

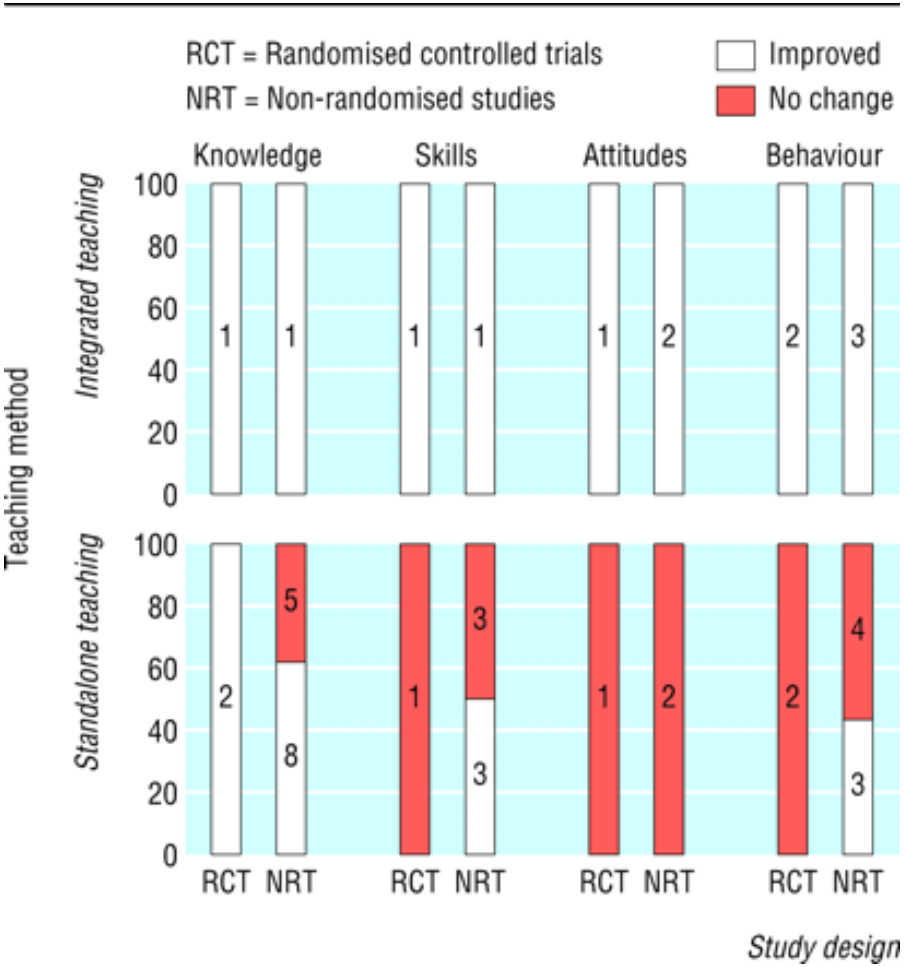
- "Pull" relevant information when need
  - Question; search; appraise; apply
  - Cochrane Library; PubMed; Best Evidence; …
- "Push" new relevant and valid results
  - Journals (all clinical questions)
    - Evidence-Based Medicine Journals
    - POEMs in American Family Physician (Patient Oriented Evidence that Matters)
  - Books
    - BMJs "*Clinical Evidence*" – 2 issues / year

Where do your activities lie on "the cube"?



Teaching EBM: a systematic review of 23 controlled studies

- Integrated teaching
  - Real patients
  - Current problems
- Results in better
  - Knowledge
  - Skills
  - Attitudes
  - Behaviour



Coomarasamy, BMJ 2004;329:1017

EBM workshop aims

- To find, appraise, and apply research to answer one of your clinical questions

- Steps of EBM
  1. Formulate an answerable question
  2. Track down the best evidence
  3. Critically appraise the evidence
  4. Apply & personalize the evidence

Question session: aims

- Practice PICOs
  - Set scenarios
  - Own patients or problems
- Finish session with
  - 1 set question
  - 1+ own question

- How would you do this? (Steps, process, time)

Is bed rest ever helpful?

A systematic review of trials*

- 10 trials of bed rest after spinal puncture
  - no change in headache with bed rest
  - Increase in back pain
- Protocols in UK neurology units - 80% still recommend bed rest after LP

  Serpell M, BMJ 1998;316:1709–10
- …evidence of harm available for 17 years preceding…

*Allen, Glasziou, Del Mar, Lancet, 1999

JASPA*

(Journal associated score of personal angst)

J: Are you ambivalent about renewing your **JOURNAL** subscriptions?

A: Do you feel **ANGER** towards prolific authors?

S: Do you ever use journals to help you **SLEEP**?

P: Are you surrounded by **PILES of PERIODICALS**?

A: Do you feel **ANXIOUS** when journals arrive?

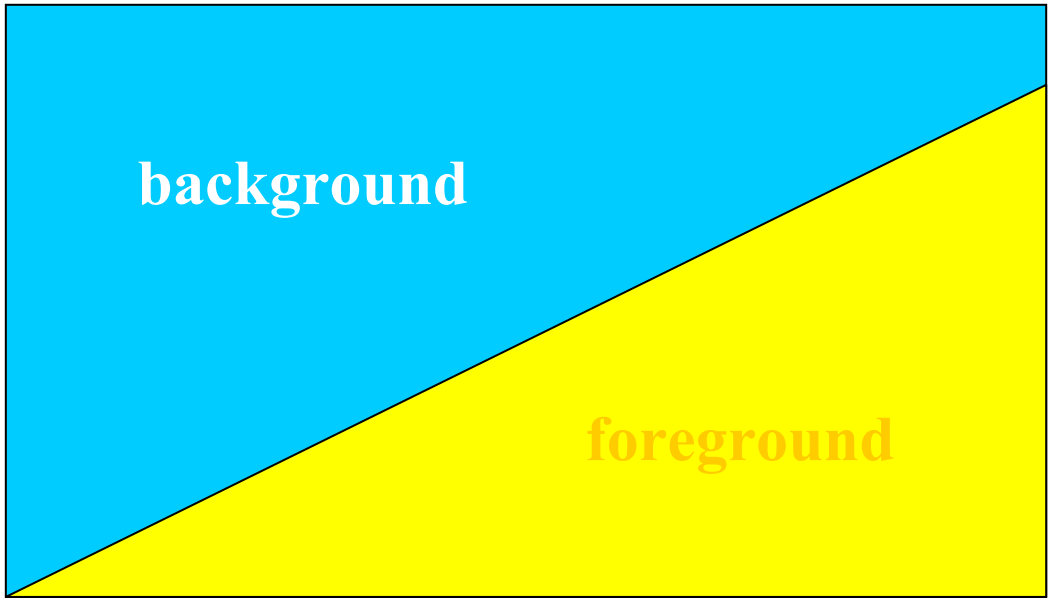
* Modified from: BMJ 1995;311:1666-1668

Educational Activities

- Journals
- Grand rounds
- Conferences
- Guidelines
- Discussion with colleagues
- supervision
- Textbooks
- pubmed
- research

Types of questions

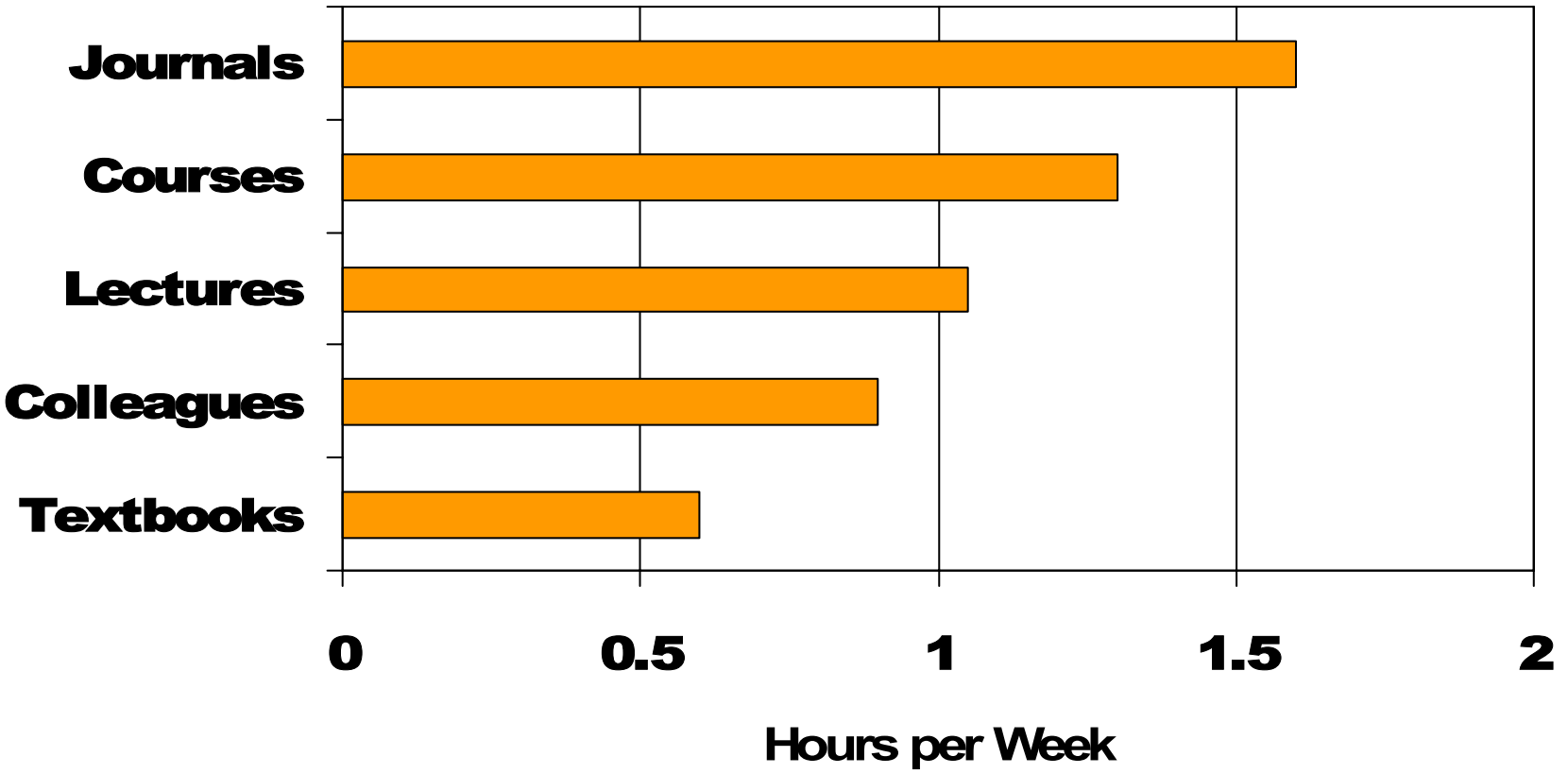
- Background: what, where, why, how?
- Foreground: diagnosis, prognosis, treatment, …



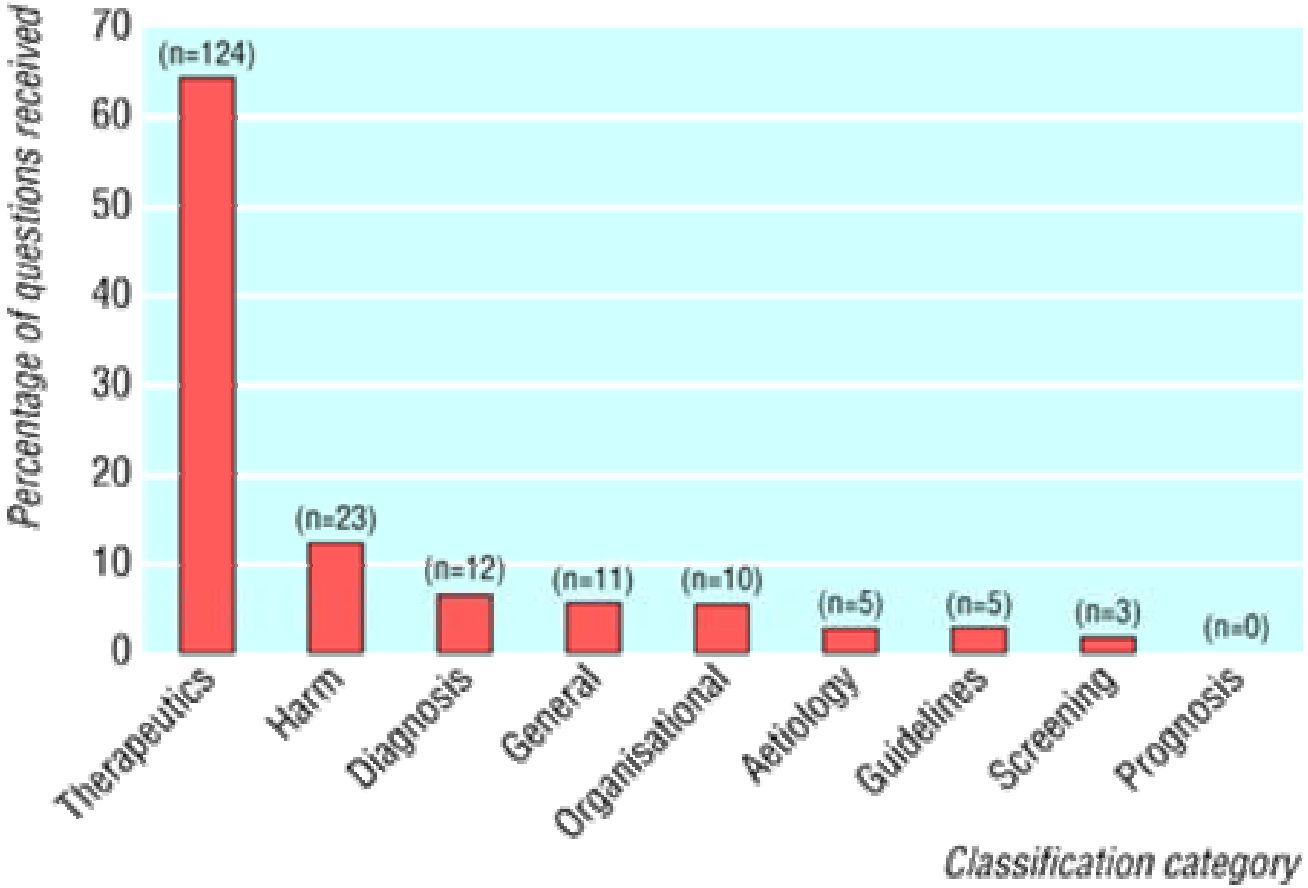
Step1: Formulate an answerable question (PICO)

- Population
- Indicator (intervention, test, etc)
- Comparator
- Outcome

Typical education activities



Frequency of Questions



Brassey et al. BMJ 2001:322:529-530.

Edits

- See below

Intern's never get answers to most of their clinical questions

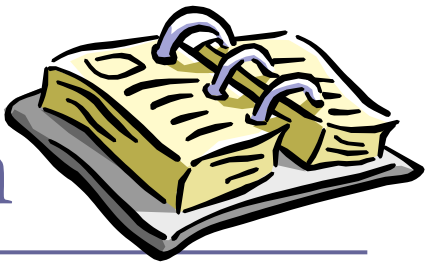
- Setting: 64 residents at 2 New Haven hospitals
- Method: Interviewed after 401 consultations
- Questions
  - Asked 280 questions (2 per 3 patients)
  - Pursued an answer for 80 questions (29%)
  - Not pursued because
    - Lack of time
    - Forgot the question
- Sources of answers
  - Textbooks (31%), articles (21%), consultants (17%)

Green, Am J Med 2000

Intern's never get answers to most of their clinical questions

- Important questions are NEVER answered
- When answered, the information is likely to be neither the best nor up-to-date

Keeping up to Date by "Just in Time" Education



- Shift focus to your current problems
  - Relevant to YOUR practice
  - More memorable (and practice changed)
  - Up to date
- But Four Barriers
  - Admitting we don't know
  - Skills in obtaining current best evidence
  - Evidence Resources at the point of care
  - Time

Keeping it simple
2 mnemonic EBM

www.cebm.net

	Author:		Ref:	
	Description		Numbers	
Question	**P**atients			
	Intervention			
	Comparator			
			CER (%)	IER (%)
	Outcomes	1		
		2		
Appraisal	**R**andomized			
	Ascertainment			
	Measures			
Outcomes	RD ifference	CER – EER		
	RRR	RD/CER		
	NNT	1/RD		

Clinical Bottom-line:

Further Actions: