

# The Epidemiology of Ignorance

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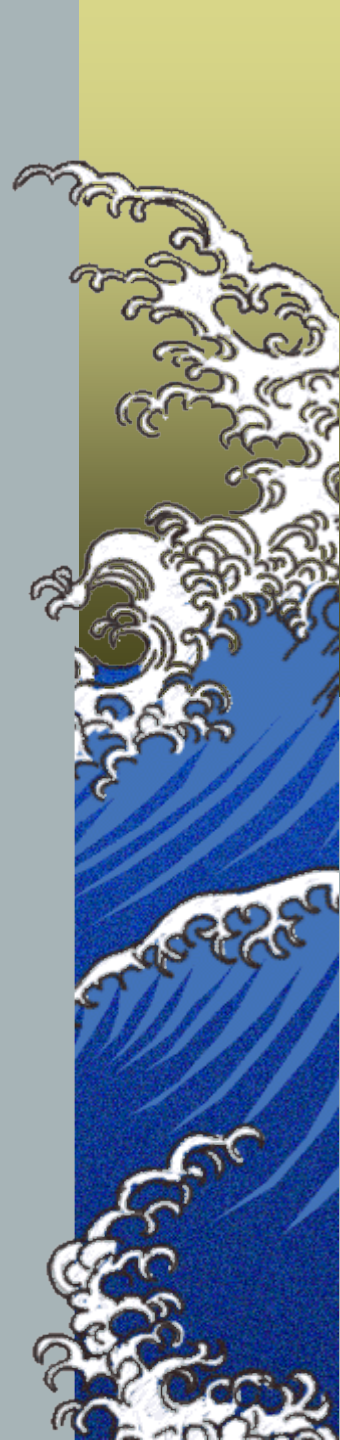




# Knowledge Gaps

between what is known and what is done

- ▶ *What are the “gaps” between research and practice?*
- ▶ *Why do such “gaps” exist?*
- ▶ *How can we close a specific gap?*
- ▶ *How can we close **all** gaps?*





# Knowledge Gaps

between what is known and what is done

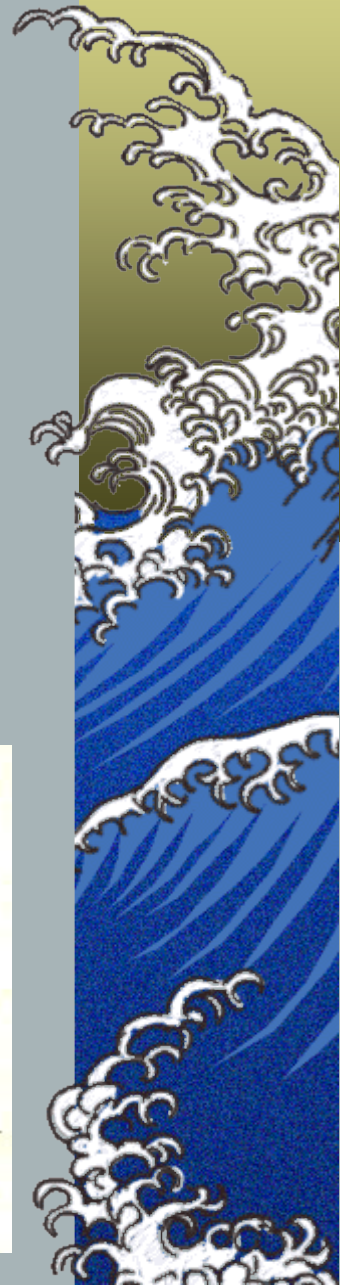
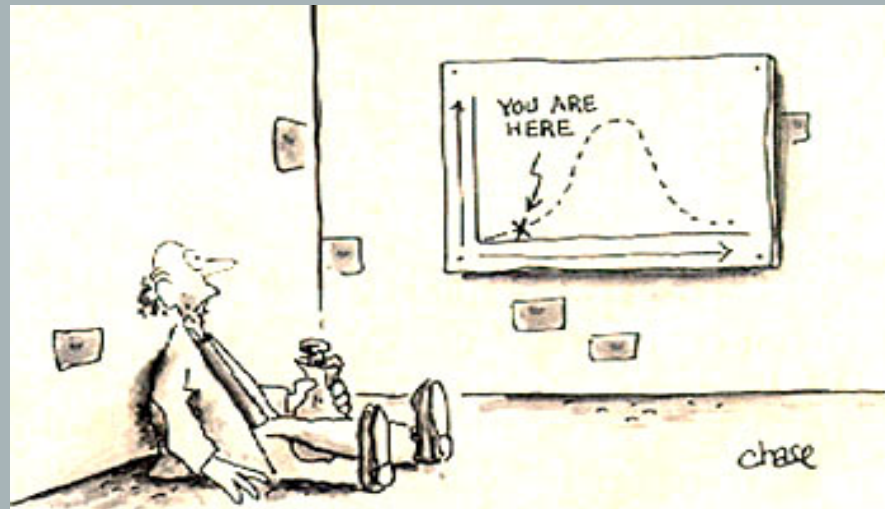
- ★ *What “gaps” between research and practice are you involved in?*





# The Epidemiology of Ignorance in Health Care

- ★ *What do we know about what we know?*
  - ★ *Prevalence & Incidence*
  - ★ *Aetiology/Causation*
  - ★ *Prognosis*
  - ★ *Treatment*





# Is bed rest ever helpful?

A systematic review of trials\*

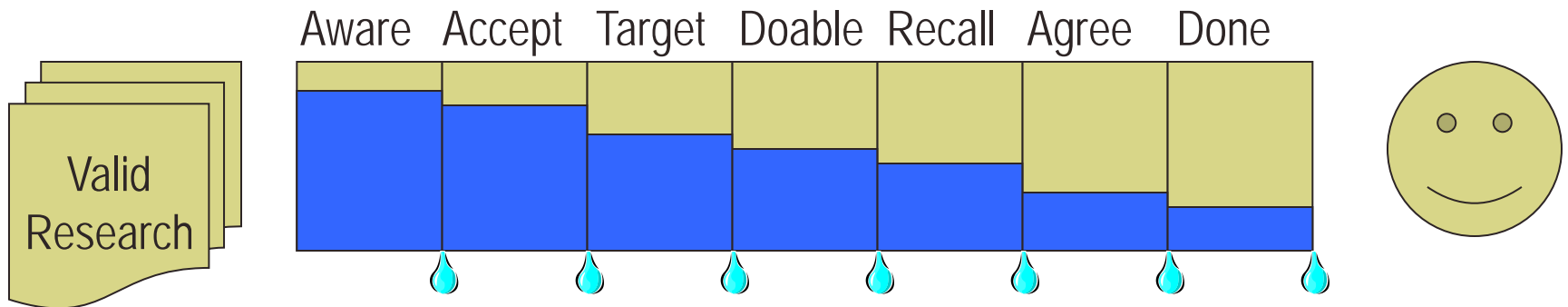


- ▲ *10 trials of bed rest after spinal puncture*
  - ▲ *no change in headache with bed rest*
  - ▲ *Increase in back pain*
- ▲ *Protocols in UK neurology units - 80% still recommend bed rest after LP*
- ▲ *...evidence of harm available for 17 years preceding...*

*Serpell M, BMJ 1998;316:1709-10*

\*Allen, Glasziou, Del Mar. Lancet, 1999

# Many “Leaks” from research & practice



If 80% achieved at each stage then  
 $0.8 \times 0.8 \times 0.8 \times 0.8 \times 0.8 \times 0.8 \times 0.8 = 0.21$



Another case of  
"economy" class  
syndrome.  
Shouldn't everyone  
take an aspirin and  
wear stockings?

© 1992-'994 P. SCHWADRON



What do you think about "flight socks?"



# Knowledge Gaps

between what is known and what is done

▲ *What “gaps” between research and practice are you involved in?*

▲ *Why does the “gap” exist?*

▲ *(list several possibles causes)*

Not  
Organised

0
---

Aware

1
---

Accept

2
---

Target

3
---

Doable

4
---

Recall

5
---

Agree

6
---

Done

7
---





# Causes

1. Too much information
2. Too much information
3. Too much information



# 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?*

*YOUR SCORE? (0 TO 5)*

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

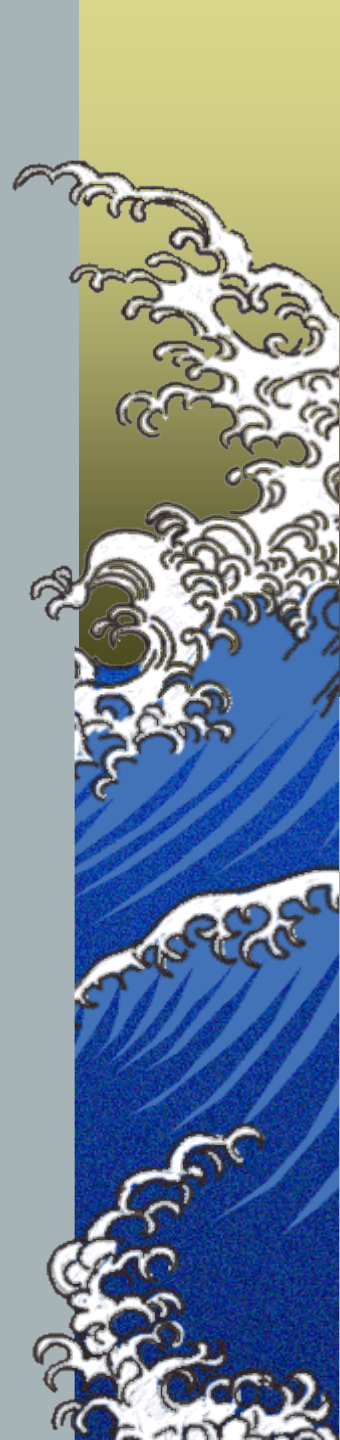
## ▲ *NLM MetaThesaurus*

- ▲ 875,255 concepts
- ▲ 2.14 million concept names

## ▲ *Diagnosis Pro*

- ▲ 9,200 diseases
- ▲ 20,000 abnormalities (symptoms, signs, lab, X-ray,)
- ▲ 3,200 drugs (cf FDAs 18,283 products)

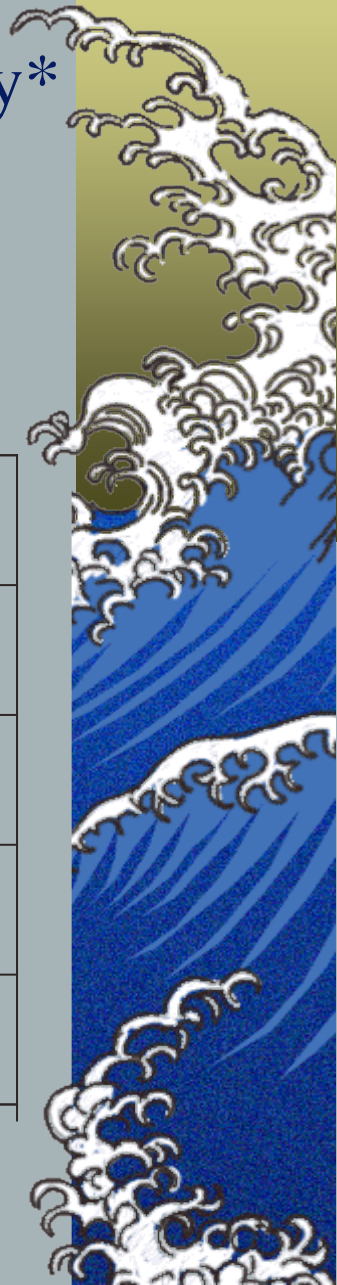
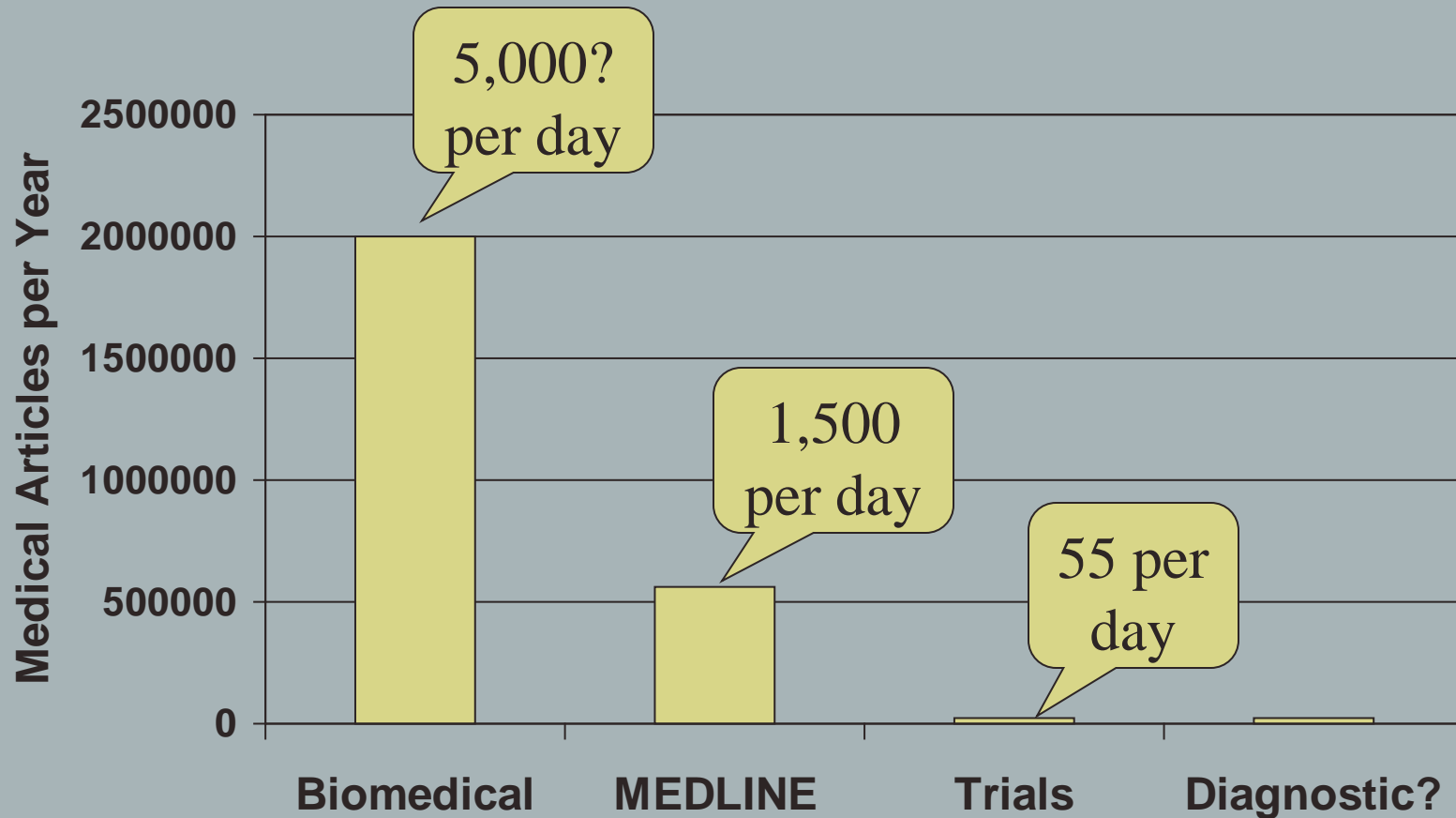
1 per day for  
25 years





# Rule 31 – Review the World Literature Fortnightly\*

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





# And the information we need is widely scattered

## Studies of BNP in MEDLINE

Natriuretic Peptide 10,110

MeSH BNP 2,204

PubMed: Clinical Queries

broad 799

narrow 82

Our systematic review  
Of BNP accuracy for the  
Diagnosis of heart failure

20 studies qualified;  
Found in 16 journals

Age Ageing

Am J Med

Br Heart J

[BMJ 3](#)

Circulation

Clin Cardiol

Clin Chem Acta

Eur J Heart Fail

Hypertension

JAMA

J Card Fail

J Hypertens

[Lancet 3](#)

N Engl J Med

Rev Esp Cardiol

Rev Port Cardiol

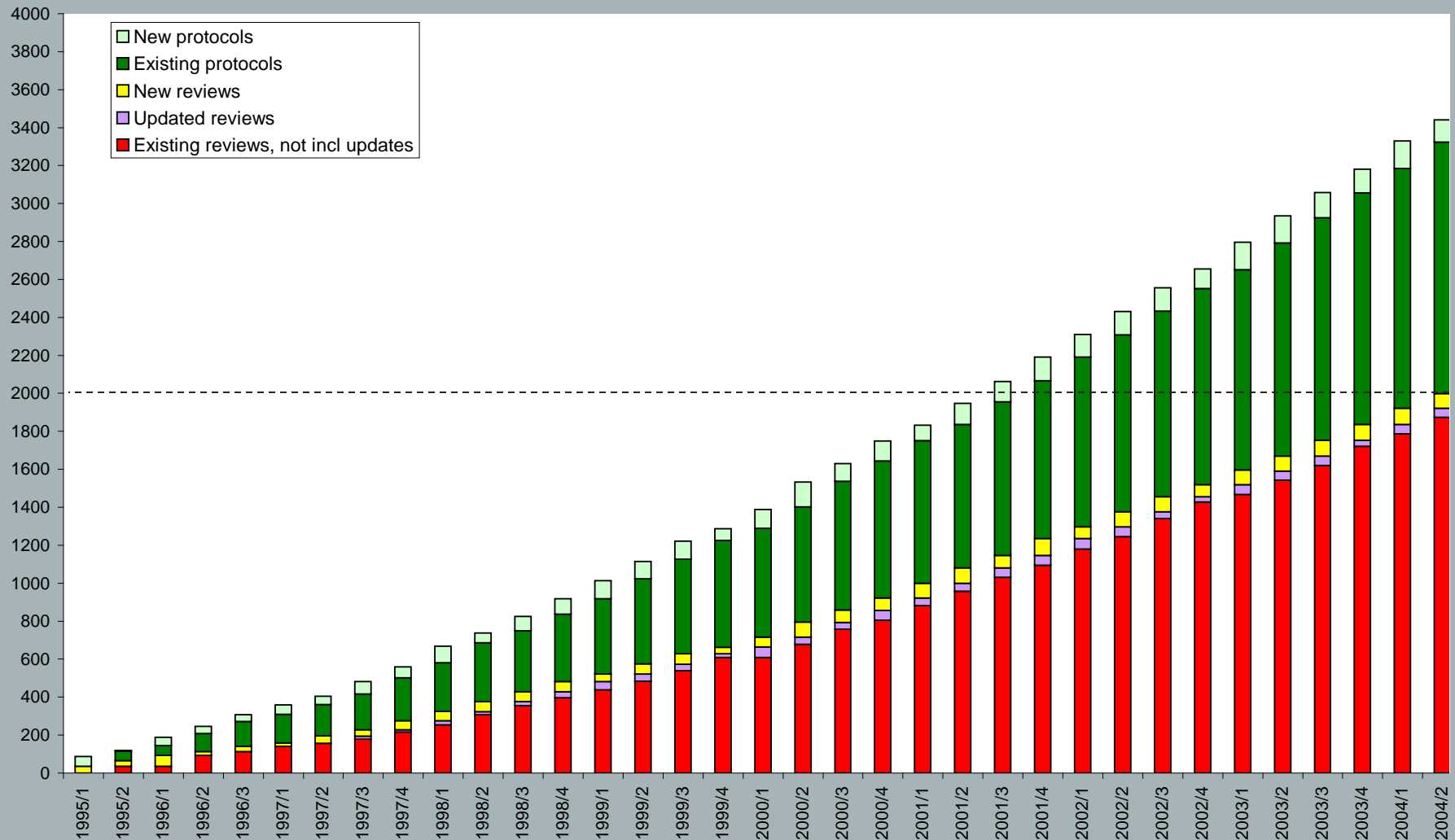


# Organising I:

## systematic reviews - 20% done for therapy

Reviews and protocols for reviews on  
*The Cochrane Database of Systematic Reviews*  
Issue 1/2005

Alderson, 2005







# Knowledge Gaps

between what is known and what is done

- ▶ *What “gaps” between research and practice are you involved in?*
- ▶ *Why does the “gap” exist?*
- ▶ *What would you do to “fix” the gap?*

Not  
Organised

0

Aware

1

Accept

2

Target

3

Doable

4

Recall

5

Agree

6

Done

7





# The Prognosis of Ignorance is Poor

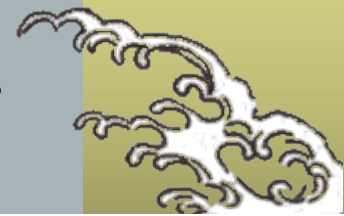
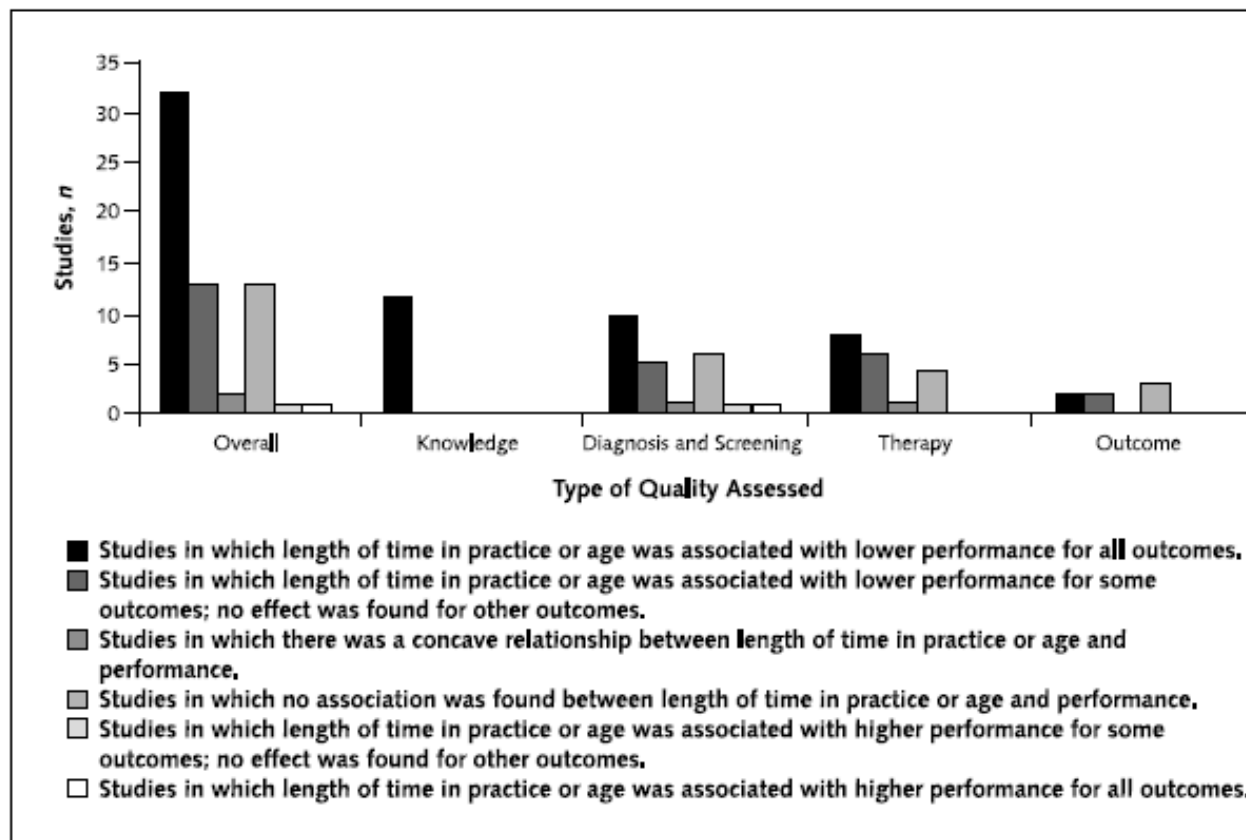
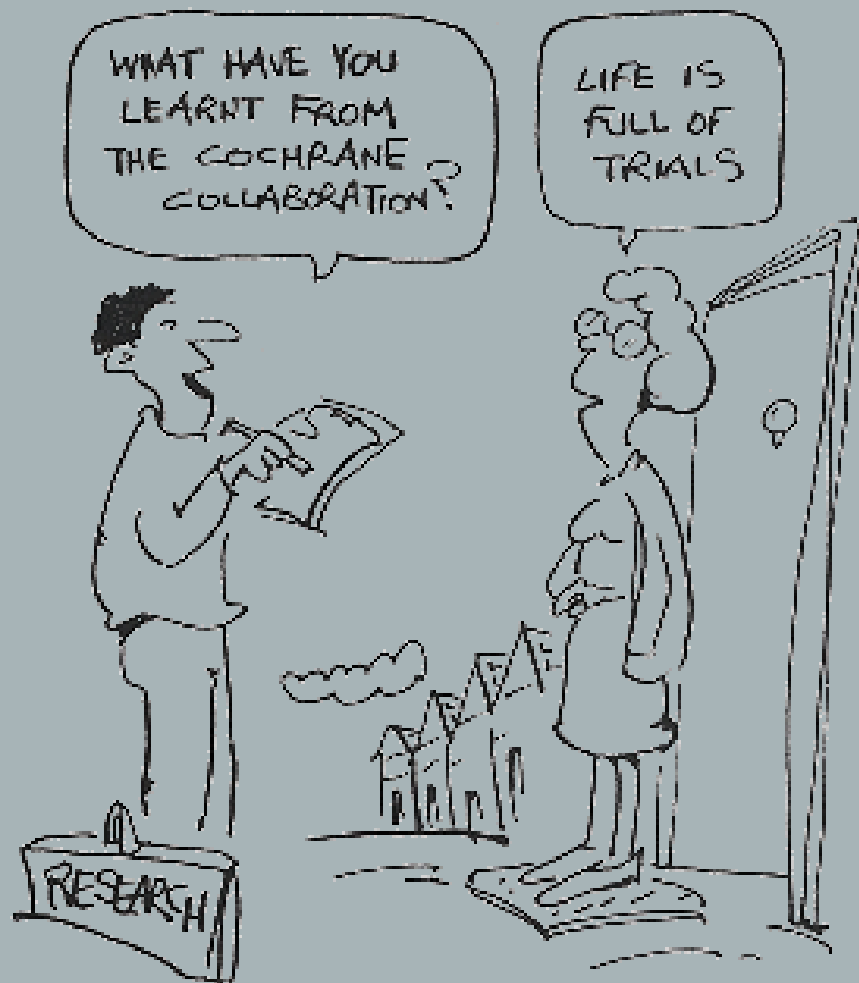


Figure 2. Distribution of study results relating physician age to clinical performance in various domains.





# Prevention & Treatment



Myth,  
opinion, poor  
research

### Evidence-Based Medicine

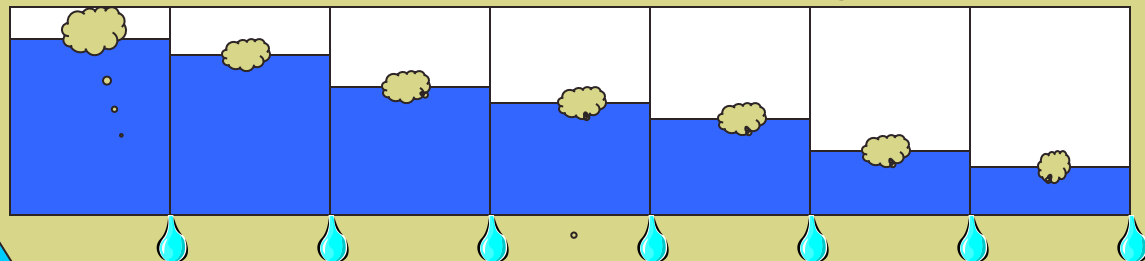
- Questioning
- Skills in EBM
- Evidence Resources
- Time (substitution)

### Patient Choice

- Decision Aids
- Education
- Compliance aids

Where is your  
main activity?

Aware Accepted Applicable Able Acted on Agreed Adhered to



### Quality Improvement

- Skills
- Systems

Research Synthesis,  
Guidelines, EBJs, ...

Systems

(bottomline +/- ref)

Synopses

(user summary of research)

Systematic Reviews & CATs

(search; appraise; synthesis)

Studies

(primary research studies: sound & unsound)



# *“Just in Time” learning: Intern’s information needs*

- ▶ *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%)*

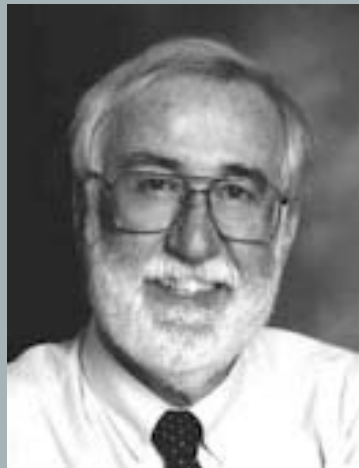




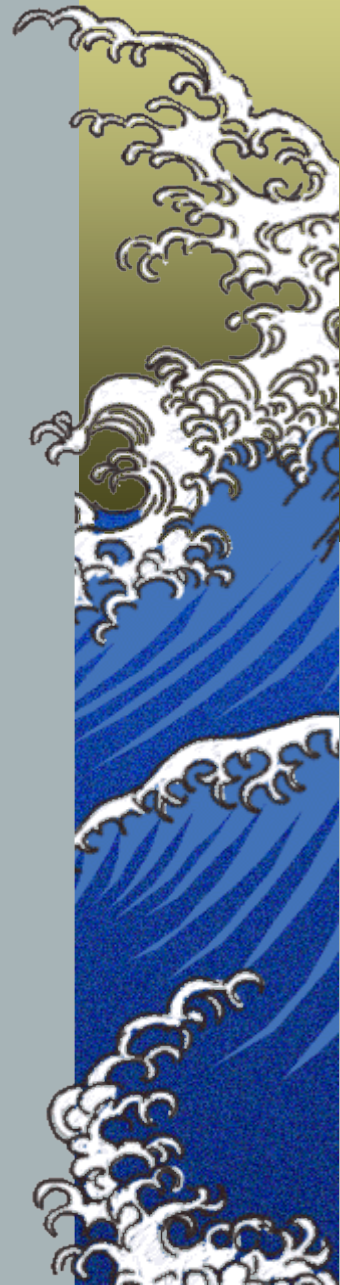
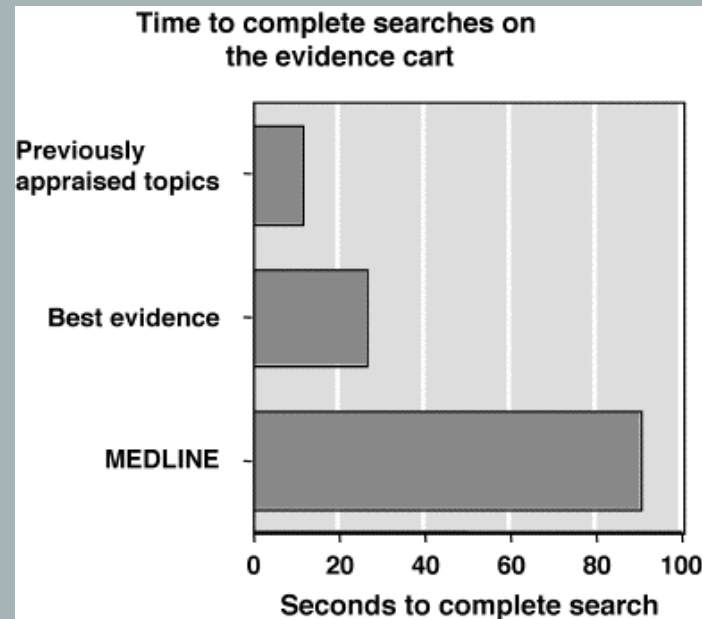
# “Just in Time” learning

## The EBM Approach to Education

- *Shift focus to current patient problems*  
(“just in time” education)
  - *Relevant to YOUR practice*
  - *Memorable – and behaviour changed!*
  - *Up to date*
- *Skills and resources for best current answers*



Dave Sackett







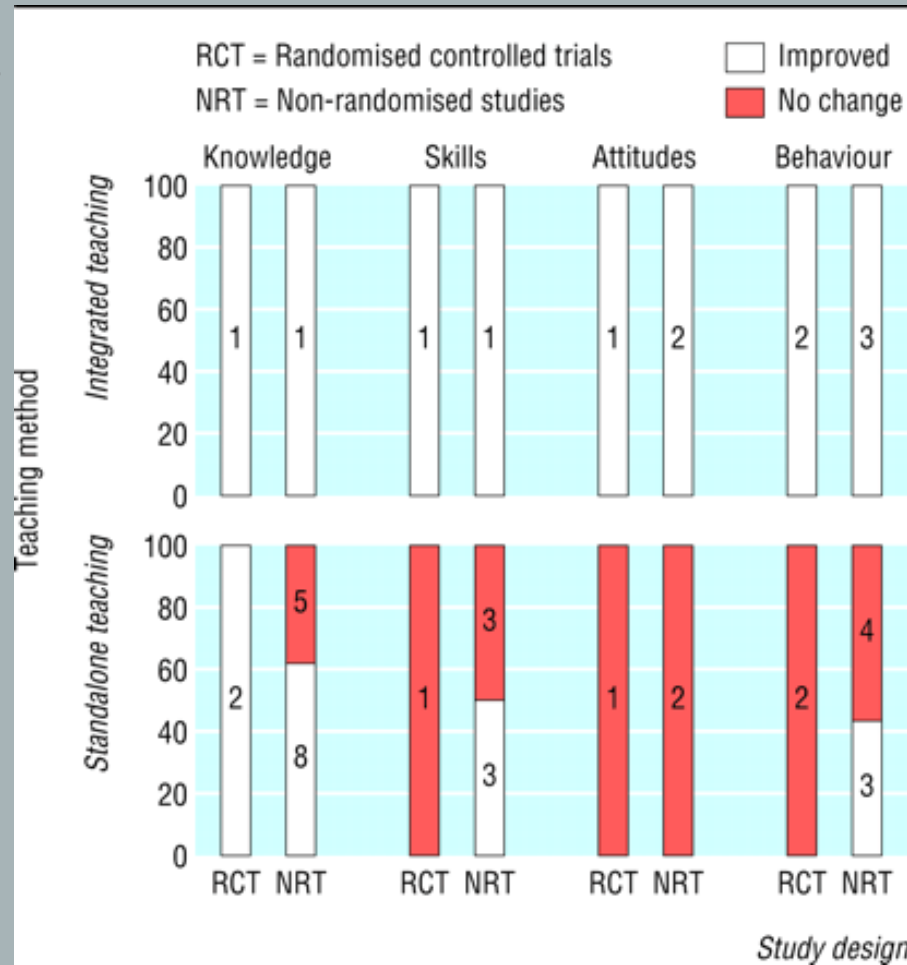
# Teaching EBM: a systematic review of 23 controlled studies

## ▲ *Integrated teaching*

- ▲ *Real patients*
- ▲ *Current problems*

## ▲ *Results in better*

- ▲ *Knowledge*
- ▲ *Skills*
- ▲ *Attitudes*
- ▲ *Behaviour*





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◆ ◆ ◆

## BACKGROUND

## Implications for practice

Interactive workshops can improve professional practice. Lectures alone are unlikely to change professional practice



# Dissemination and diffusion

## What do we know?

- ★ *Roger's work in rural sociology*
- ★ *Greenhalgh T, et al. A systematic review of the literature on diffusion, dissemination and sustainability of innovations in health service delivery and organisation. London, NHSSDO Programme, 2004*
- ★ *EPOC reviews*

