Developing a best medical practice resource
Timely access & use of clinical research evidence

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What will I tell you

- Illustrate project aims
- Context of project
- What we have achieved so far
- What needs to be done

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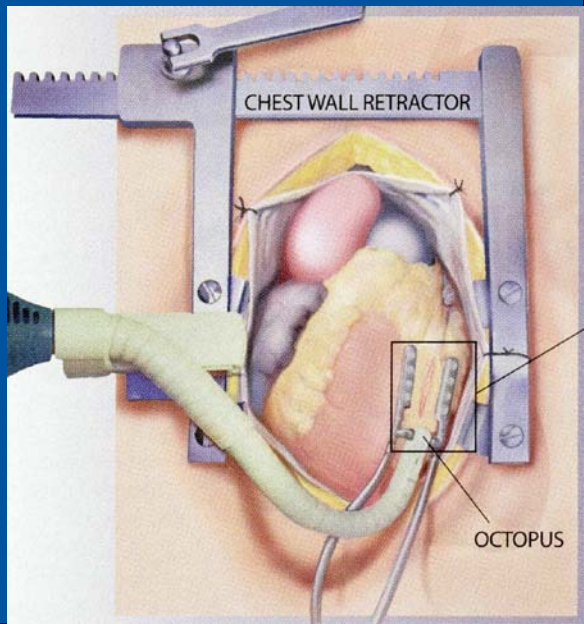
Project aims

Imagine….

- It is November 2, 2010
- Your on shift at the outpatient clinic
- As a resident in cardiology

Here comes your next patient …

- A 74 year old academic fellow who still enjoys his consultancies at the university
- In 2005 he has had coronary bypass surgery (4 vessels)
- He visits for his yearly clinical check-up
- You know him as a “fear-avoider”



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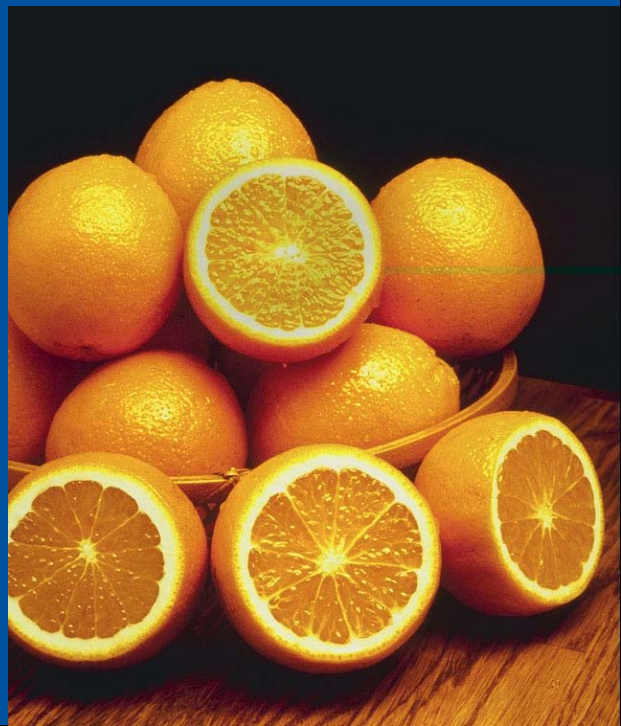
You ask him ….

- How he is doing
- If he feels well
- And whether he is still worried about his condition



He asserts to feel fine

- His wife, his 2 daughters and his 4 grand children are doing fine also

But then he adds that…

- Lately he may feel short of breath and somewhat tired (e.g. after a flight of stairs)
- And most recently he has noticed a vague pulsating feeling in his belly regularly

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Examining him reveals….

- A slightly elevated hart rate
- A minor increase in blood pressure
- Some cardiac murmur
- A soft and normal abdomen on palpation
- Yet he feels the vague pulsation (but no pain)

His electronic patient record….

Includes

- A note on a murmur, from a year ago
- Nothing about shortness of breath or tiredness
- Nothing about abdominal pulsations

You add the following

- Complaints: cardiac murmur and abdominal pulsation
- Outcome: mitral valve regurgitation ??
- Management plan: US echo

This because you think ….

- He possibly suffers from mitral valve regurgitation

And therefore you consider ….

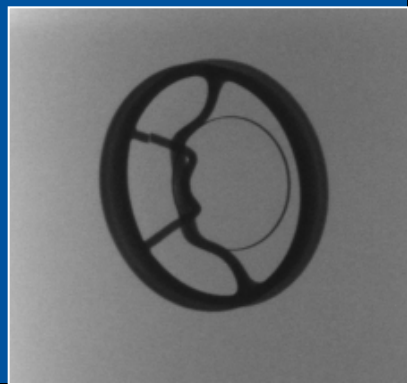
- US Echography → Diagnostic management
- Severity staging → Prognostic risk stratification

That is, when leakage is found

- Surgery → Therapeutic management

That is, when the condition is severe enough

- Valve repair; implant rigid or flexible ring
- Replace valve (bio or artificial)



But is echo accurate enough?

- You then click the query button
  - Top right in the screen electronic patient record
- An automatically completed search field pops-up
  - Suggested search tags
    - Complaints: “cardiac murmur” “abdominal pulsation”
    - Outcome: “mitral valve” “regurgitation”
    - Management: “US echo”
- You then
    - Confirm the suggested tags
    - Tag the field ‘diagnosis’
    - Add “accuracy”
- Next you click ‘search’

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What happens next?

A left side bar pops-up presenting

- 6 graded clinical recommendations
- 2 look relevant

The predictive accuracy of

- ➔US echo for cardiac murmur
- ➔Abdominal pulsations in abdominal aortic aneurysm

When you click on “recommendation link”

- A new window opens
- Presenting a best evidence summary

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Best evidence summary

- A summary of best original clinical research evidence contains
  - A graded clinical recommendation
  - An informative title
  - Structured abstract (max 10 sentences)
  - Text body (max 1200 words)
  - Evidence tables (relevance, validity, effect estimates)
  - Accurate flow chart (results of selection)
  - Exact search syntax (terms, dates, results)

  - 5 star rating of previous end-users
    - Relevance & clinical impact
  - Wiki-like document-history facilities
  - Thumbnails: original research publications

It is a plausible scenario

1. A repository of best evidence summaries including clinical recommendations

2. Running at background
   - Directly linked to electronic patient records
   - Automated text-rich search facilities

3. All possible on a handheld system (fully wifi-fied)

Where summaries come from?

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We hold a database with such summaries

- Diagnostic, prognostic, therapeutic management queries
- Foreground questions from clinicians

These summaries are made by interns

- Final year medical students
  - Utrecht Medical school
- We learned them to make these

Best evidence summary database

- Currently contains 765 summaries

  300 interns ➔ 450 summaries per year

  March 24, 2005: 1st summary uploaded

Website handling

- Uploading & review of summaries
- Quality assurance: blinded peer review
  - Each intern systematically reviews 6 summary
  - Each summary is graded by 4 interns

    (5-star rating scale)

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Utrecht, The Netherlands

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Utrecht Medical School

One of the larger (of 7 MS) in the Netherlands

- 300 medical students per year

- 6-year Ba-Ma curriculum
  - CanMeds competencies
  - subsequent intensive core modules (**Σ** 400 hrs)

Clinical Epidemiology (CE)

Undergraduate BA level

- 6-wk module at end of 2nd year, ~ 240 hrs
  ~100 hrs student-teacher contact time

Principles of CE research: knowledge *production*

- Problem based learning tactics
- Questioning; design of study; appraisal
- Design of data-collection & data-analysis

- Beforehand ~ 20 hrs primed in basics
  Questioning & searching skills

Evidence Based Medicine

Undergraduate **MA** level (during clinical rotation)

- 6-wk module at end of 5th year, ~ 100 hrs
  ~ 50 hrs student-teacher contact time

Contemporary EBM tactics (Sicily statement)

- Principles of knowledge *application*
  - Problem based learning tactics
  - Questioning; searching & appraisal
  - Summary, recommendation

Evidence Based Practice

Post-graduate level (during internship)

- 6th yr: 24-wk module, ~ 40 hrs

~ 12 hrs student-teacher contact time

Fill knowledge gaps; problem solving skills

- Student couple gets 3 educational prescriptions
  - Assignment: write evidence summary
  - Point-of-care clinical questions
    - Clinical diagnostic management decisions
    - Prognostic risk stratification
    - Therapeutic management decisions

Educational approach
Acquiring EBP knowledge and skills

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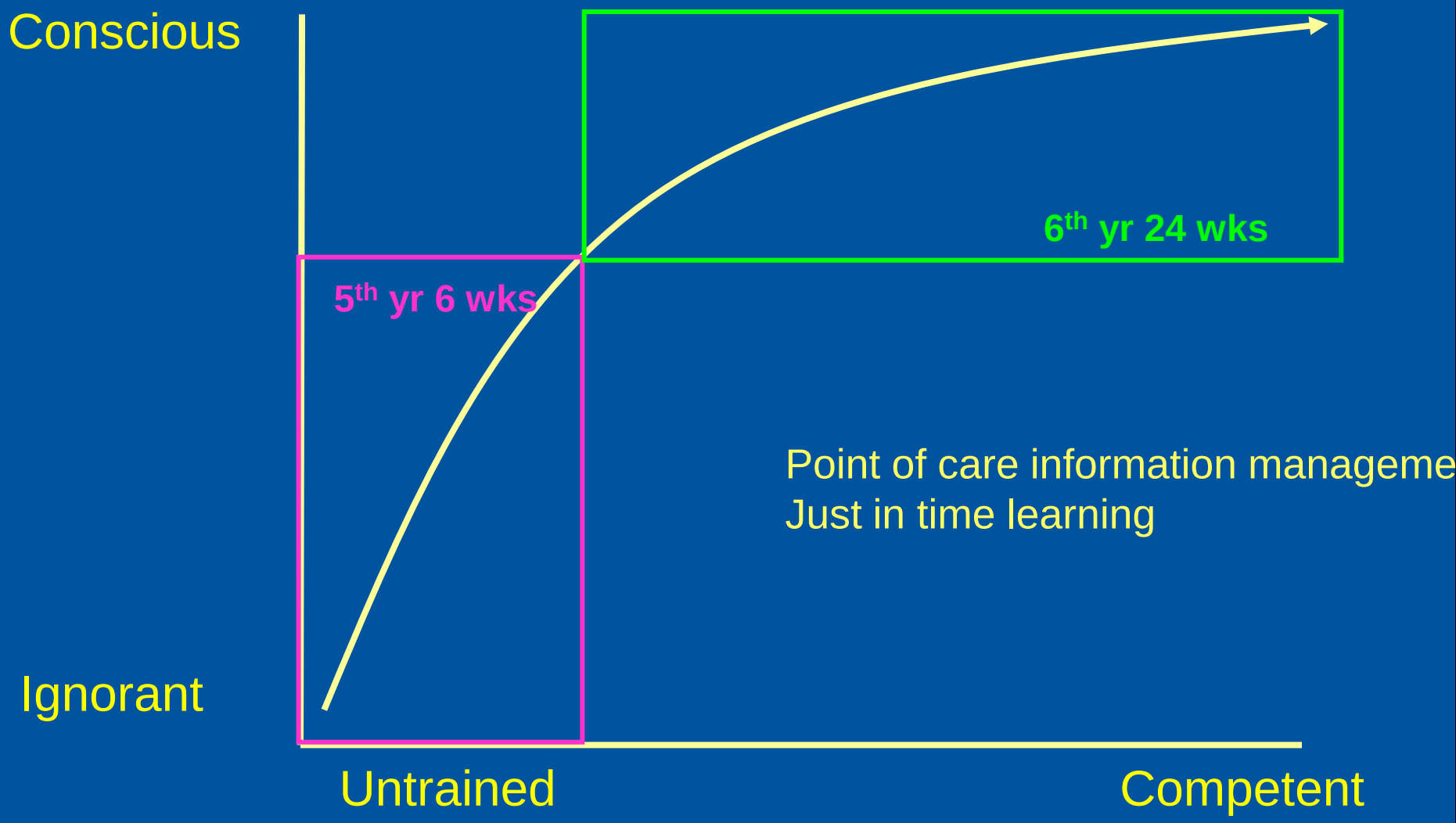


What is next?

This academic year

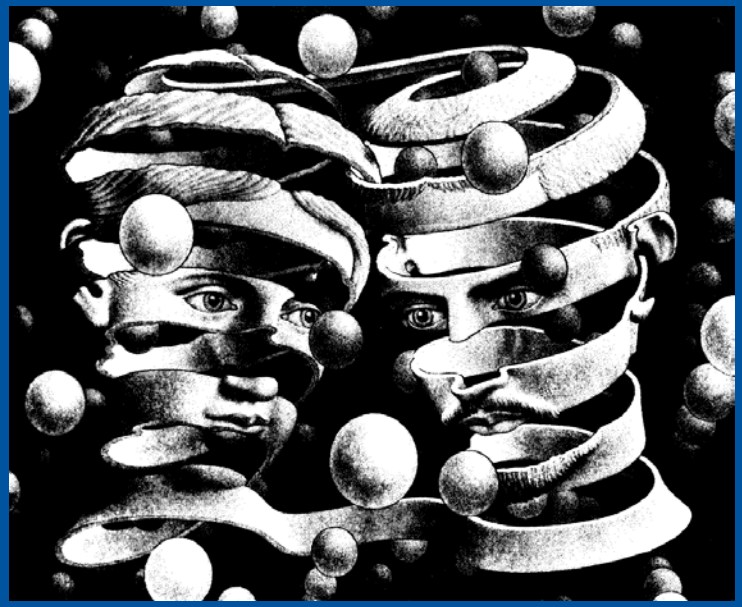
- Launch new website (interactive & moderated)
  - Clinicians provide foreground questions
  - Clinical scenario: educational prescription
- Adapt & optimise search facilities
- Convert PDF summaries into XML format

What is next?

Next academic year

- Link to Electronic Patient Records
  - ICT, pilot study
- Improvement in quality assurance
  - With help of clinicians using database
    - 5 star-rating: applicability & usefulness
    - Comments on documents

Interested?



We search for….

Collaboration

- Develop
- Test
- Use

Exchange of expertise & experience

- Optimise curriculum
- E-learning, blended approach

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Thank you for your attention

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Educational approach

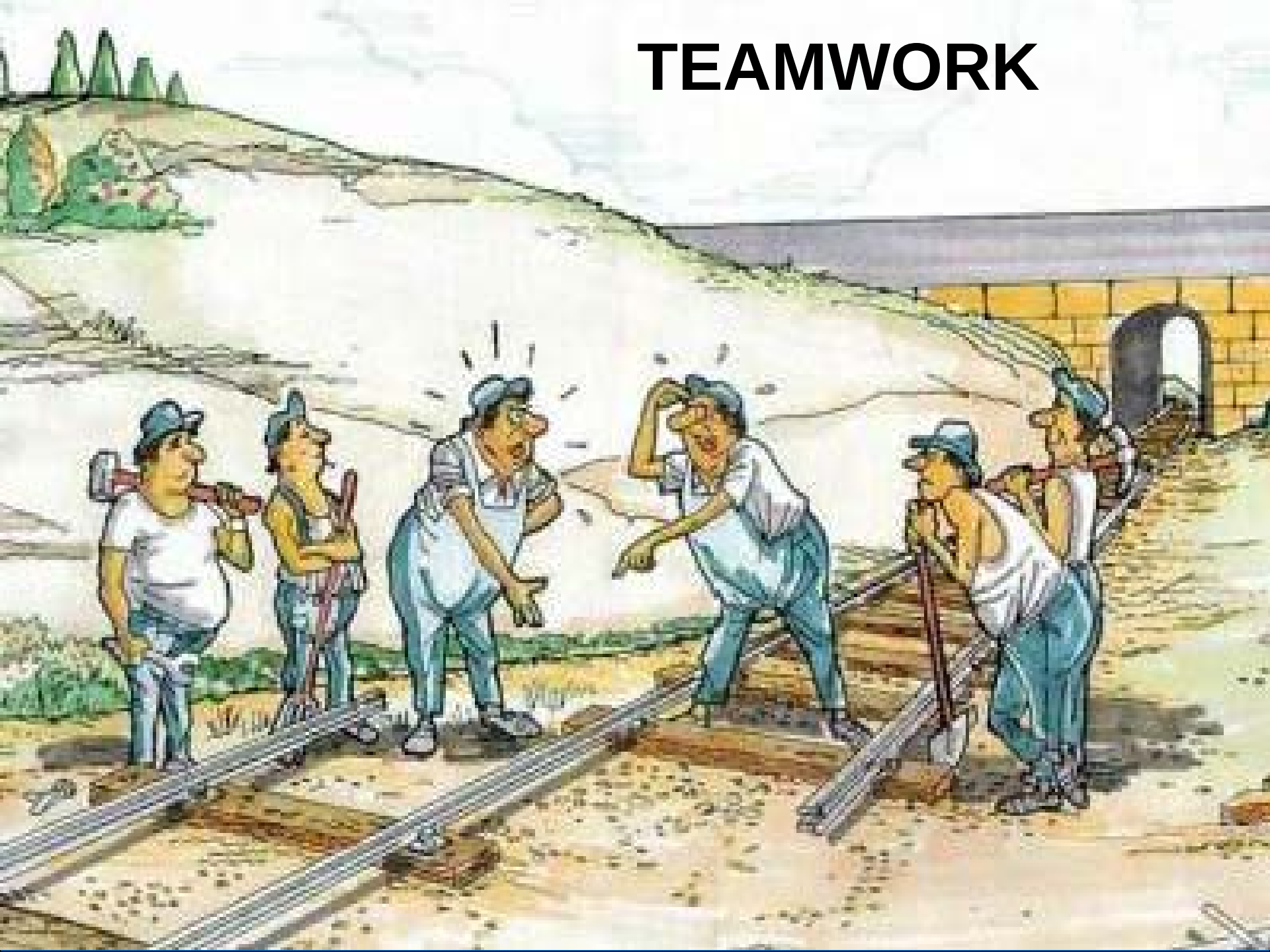
Skills & knowledge for

- Point of care information management
- Just in time learning

Action education

- Learning by doing
- Few plenary lectures
- Workshops with practical assignments
- Supervised teaching small working groups
- Expert meetings: student presentations & discussion

TEAMWORK



EBP course Part 1 (week 1)

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Acquire knowledge & skills

- Analyse clinical case scenario
- Define & motivate clinical question
- SWOT medical textbooks
  - Scrutinise for evidence
  - Similarities & differences?
  - Dated knowledge?

Product

- Tabulate results

EBP course Part 2 (week 2)

Acquire knowledge & skills

- Locate original publications

  PubMed, Embase, CINAHL, Web of Science
- Pre-select on relevance for question

  Occurrence relation: Determinant-outcome

Products

- Describe search methods & criteria for selection
- Tabulate search terms & results
- Give flowchart for selection

EBP course Part 3 (week 3)

Acquire knowledge & skills

- Appraise relevance of pre-selected titles

  Reduce “numbers needed to read”

  Could patient have been a study participant?

  Domain, determinant, outcome (PICO)

Products

- Describe methods
- Tabulate results

  Sort by relevance

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EBP course Part 4 (week 4)

Acquire knowledge & skills

- Appraise validity: likelihood of bias
  - Blinding
  - Standardisation
  - Missing-data
  - Treatment allocation

Products

- Tabulate results
  - Sort by validity

EBP course Part 5 (week 5)

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Acquire knowledge & skills

- Extract summary data

  Estimates of effect & se

Products

- Tabulate evidence

  Sort by direction & size of effect

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Part 6 EBP course (week 6)

Acquire knowledge & skills

- Expert meeting
  - Oral presentation, discussion

Products

- Write an Evidence Based Case Report
  - Upload document to website for peer review

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Be flexible, avoid critical nihilism

Accept lower relevance & validity