

# Opportunities and Barriers to teaching Evidence Based Occupational Medicine – UK Perspective

8<sup>th</sup> EASOM Summer School  
28th August 2008 – Amsterdam AMC

Adele Pilkington, Raymond Agius,  
Janet Gibson , Adrian Hirst, Clare Rayner, Susan Turner

Occupational & Environmental Health Research Group, School of Translational Medicine, Faculty of Medical and Human Sciences,

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## Evidence based Occupational Medicine

- The integration of the best available research evidence, clinical expertise, with varied organisational needs
- Requires: asking, acquiring, appraising, applying and assessing.
- Need to understand:
  - who are the learners,
  - what interventions are appropriate,
  - what are the desired outcomes.

# Successful EBM

- Links new knowledge to old
- Addresses needs of learner and workplace realities
- Proceeds at the pace of the learner
- Provides opportunity for reflection
- Blend of learning methods
- Multidisciplinary input
- Provides balance of knowledge and practice
- Integrates research evidence in problem solving
- Learning seen as a positive experience

*Straus et al 2004. BMJ; 329: 1029–1032.*

## Potential barriers to teaching Occupational EBM

- Time - students mostly in full time employment
- Distance – within and beyond UK
- Variety of workplace experience and access
- Variety of learning styles and prior learning experience
- Preferred learning resources
- Current limits of evidence base in occupational medicine
- No consensus approach
- Limited financial resources

# Opportunities for teaching Occupational EBM

- Existing distributed learning course based on pedagogic development and published work of COEH staff
- New Faculty of Occupational medicine training syllabus
- Systematic review of available evidence in the peer-reviewed literature (e.g. Gallagher et al 2007; Occ. Med 57: 342).
- Survey of postgraduate students (Moore et al 2008, in preparation).
- Input from British Occupational Hygiene Society, Health & Safety Executive, Industry Working Group Participants
- THOR and THOR-GP data

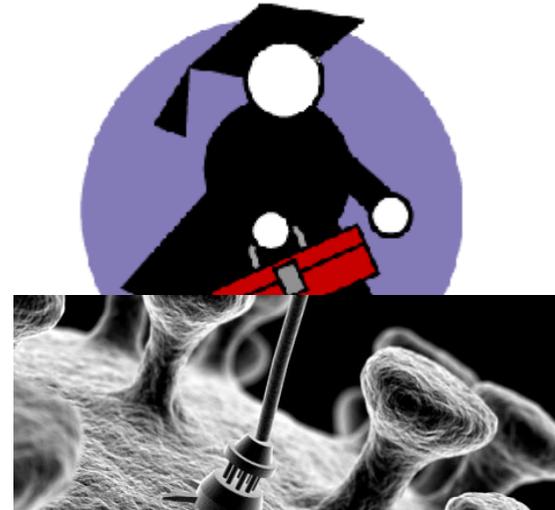
## Evaluating learner needs & pedagogic development

To determine distributed learning method preferred:

- Unit converted to online format -interactive text and practical exercises
- Occ. medicine & hygiene students -paper-based and online versions.
- 68% response – most internet users, 78% access at home and work, Opinion overwhelmingly positive
- Prefer MCQs and online photo exercises, dislike interactive functions asking for words to complete paragraphs
- 67% wanted blend of learning modalities (paper-based supplemented with interactive online exercises) – and that's what we give them.

# Ensuring appropriate interventions

- Increased blend of delivery media e.g.
  - VLE -> Web CT -> Blackboard
  - Updated format of written materials
  - Online assessment
  - New 'face to face' interactions
  - Online discussion groups
- New components to the syllabus e.g.
  - Global aspects of OH
  - Rehabilitation
  - Leadership and teamwork
  - Work place based assessment
- Revised presentations of syllabus e.g.
  - Problem based learning
  - Broader research focus
  - Spiral learning



## Presenting levels of evidence

- **A1** Strong evidence from at least one systematic review
- **A2** Strong evidence from at least one randomised controlled trial
- **B** Evidence from other well-designed experimental studies
- **C** Evidence from well designed non-experimental studies
- **D** Expert opinion

*On-line exercises* – choice of 5 responses and feedback

- Q. According to experts, stress at work can be relieved by reducing the amount of computer work Answer =D
- Q. In a study involving 50 participants of a fitness programme, after just a month they were all fitter Answer =C
- Q. 300 people were randomly distributed between a group that participated in a fitness programme and a group that did not . After a month, the 'fitness group' were fitter. Answer = A2

# Searching for answers

- **P** for Patient,
- **I** for Intervention
- **C** for Control
- **O** for Outcome

*Drag and drop* on-line exercises: **Formulate in PICO terms**

- A thirty-year old employee at the sewage treatment plant has a colleague with Hepatitis A. He wonders whether this could be caused by the work.
- A 45-year old teacher suffering from burnout wants to know which treatment offers him the lowest risk of a long-term disability. What does the company doctor advise?

### Removing Paint by Grinding



CONTENTS

1. Aircraft Body Panel
2. Description of the Operation
3. Applying Paint by Brushing
4. Applying Paint by Spraying
5. Removing Paint by Grinding

MENU SIZE

PAGE

#### HAVE A GO

Q

Removing this MDI paint by grinding may result in exposure to what potential hazards?

- Lead, Cadmium and other metal pigments in the paint
- Heat
- Vibration
- Grinding dust
- Aluminium dust
- Isocyanate compounds
- Toluene, Xylene and other solvent vapours from the paint
- Paint mist
- Noise

A

[Click here to check your score and highlight the correct options](#)

# Appraising evidence

- R** Fair *recruitment*
- A** Fair *allocation*
- M** Fair *maintenance*
- M** Fair *measurement*
- b** *Blinded* subjects and assessors
- o** *Objective* outcome measures

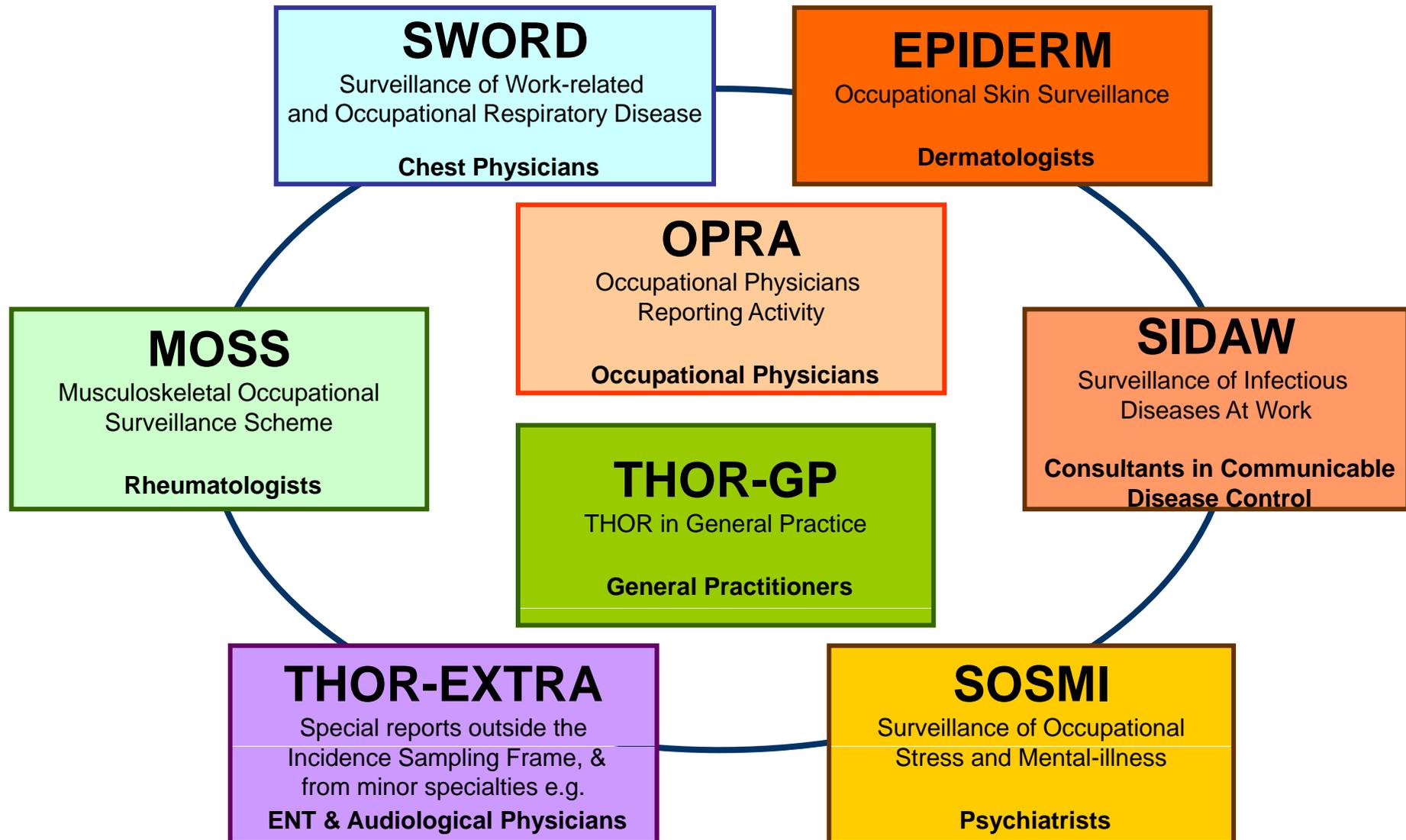
- On line exercises highlighting elements of RAMMbo
- Assess how well the research method prevents bias and confounding
- Although designed for RCTs can be adapted for use in observational studies

# Integration of Research and Academic Training

- ensures education is 'cutting edge',
- provides more resources for building the 'evidence base'
- encourages students to engage in research activities



# THOR & THOR- GP



# Summary of uses for THOR data

## Analyse by:

- Disease
- Occupation & Industry
- Causative agent/ task/ event

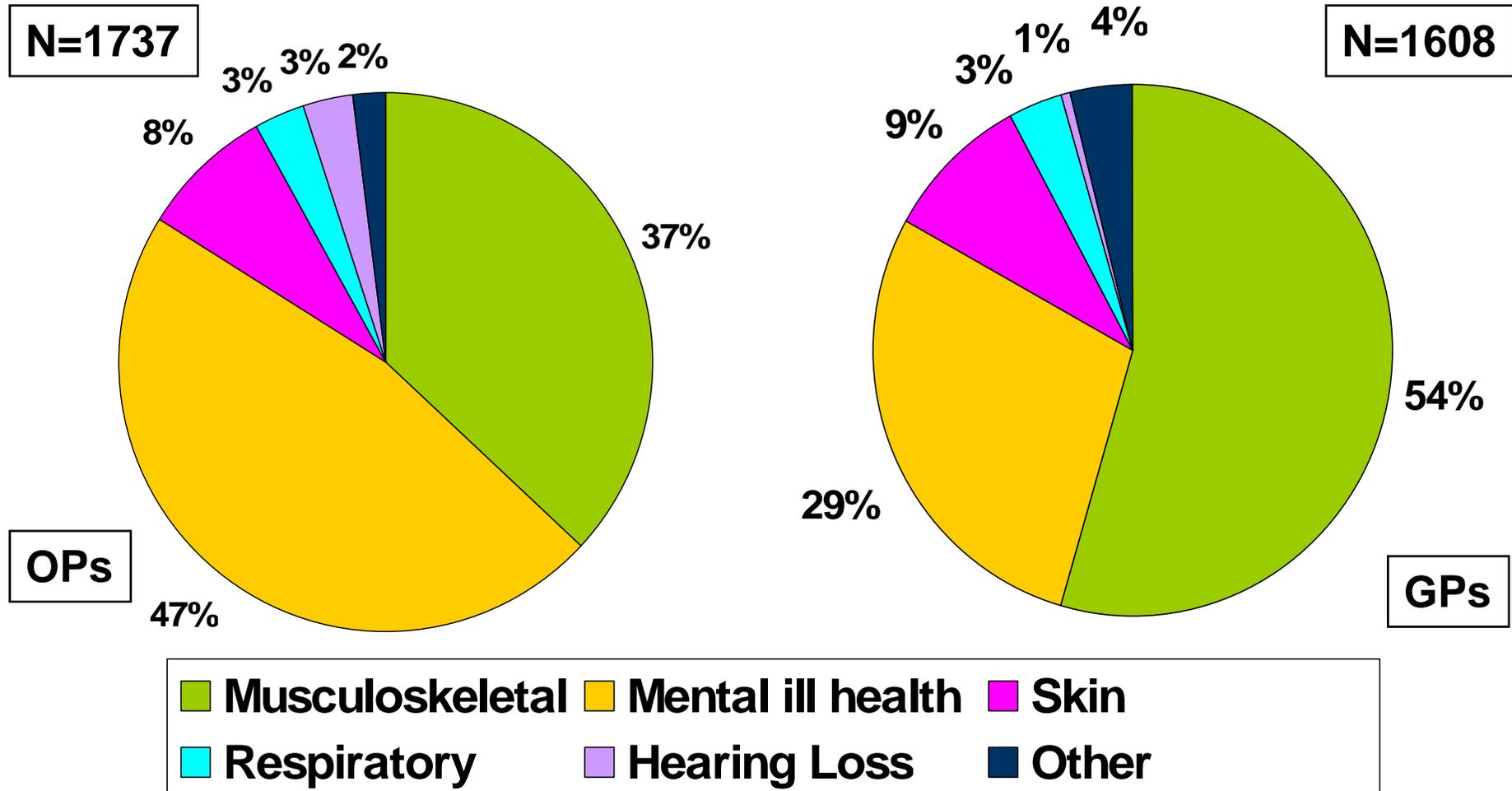
## Investigate reporting physician practices:

- Reporter behaviour
- Referral patterns e.g. GPs to specialists (THOR-GP)
- Diagnostic preferences
- Sick note certification

Look at disease and exposure trends

Identify new hazards in the work place

## Reflecting on varied 'workplace' experience : Diagnostic categories reported by GPs & OPs 2006



## Proposed benefits of current teaching methods

- Learning credits 'carried forward' - non-specialist build on learning later
- 'Spiral learning' subjects revisited thus work towards higher competency
- Enhances knowledge base, workplace skills, and challenges attitudes
- Self-directed remote learning with supervisor feedback and peer support
- Blend of learning methods and multidisciplinary interaction
- Opportunity to integrate research evidence into problem solving
- Opportunity for students to ask research questions, acquire and appraise data, apply research methodology and assess research outcomes

## Evaluating outcomes and feedback

- Student feedback suggests positive learning experience
- Multidisciplinary advisory committee
- Student academic performance
- Links with other academic centres and industry groups
- Procedure for ongoing update and reappraisal of teaching material



Thank you for your attention

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Any questions?

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