

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

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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?

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

INTERACTIVE PHOTO EXERCISE

Removing Paint by Grinding



HAVE A GO



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



[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

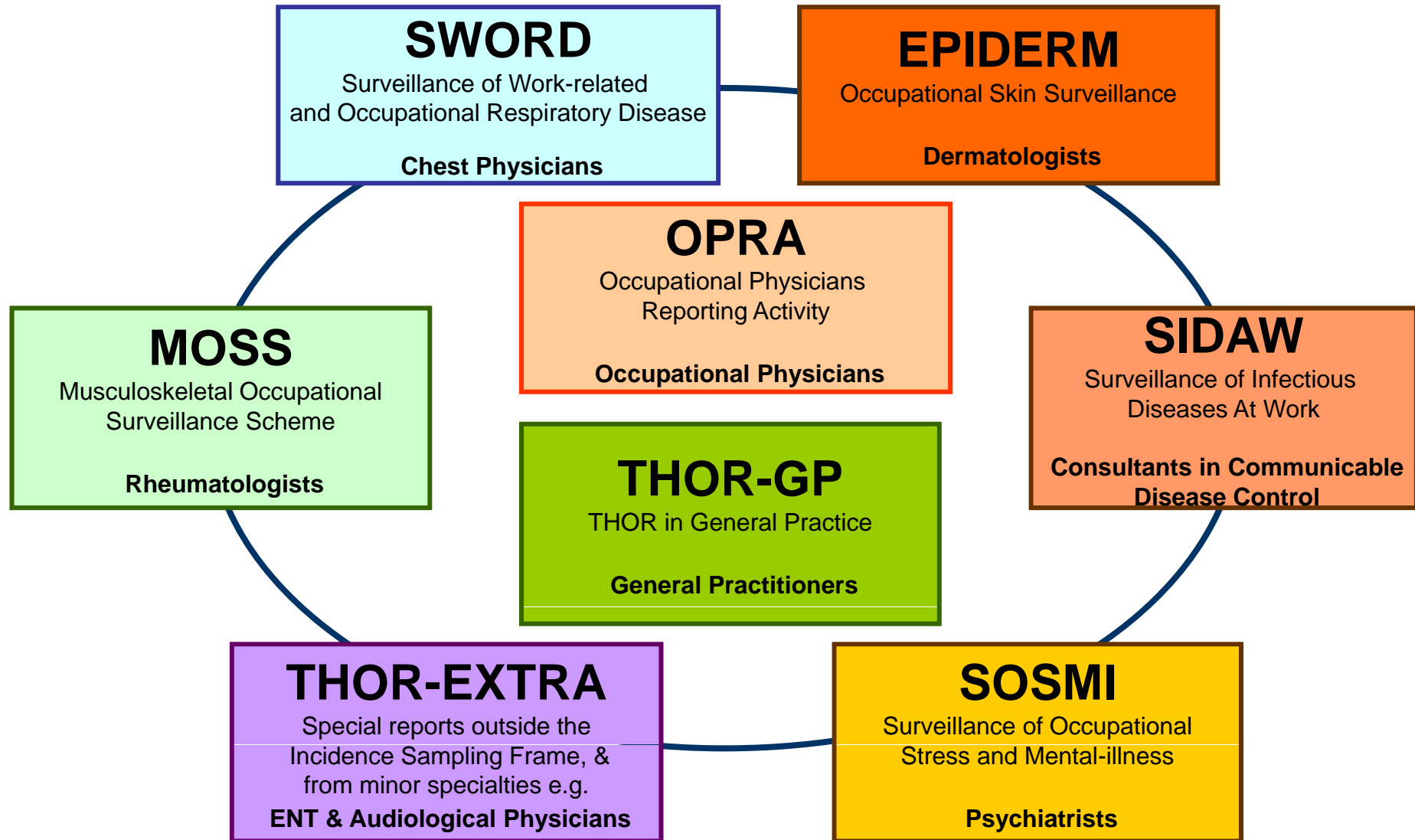
- On line exercises highlighting elements of RAMMbo
- Assess how well the research method prevents bias and confounding
- Although designed for RCTs can be adapted for use in observational studies

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

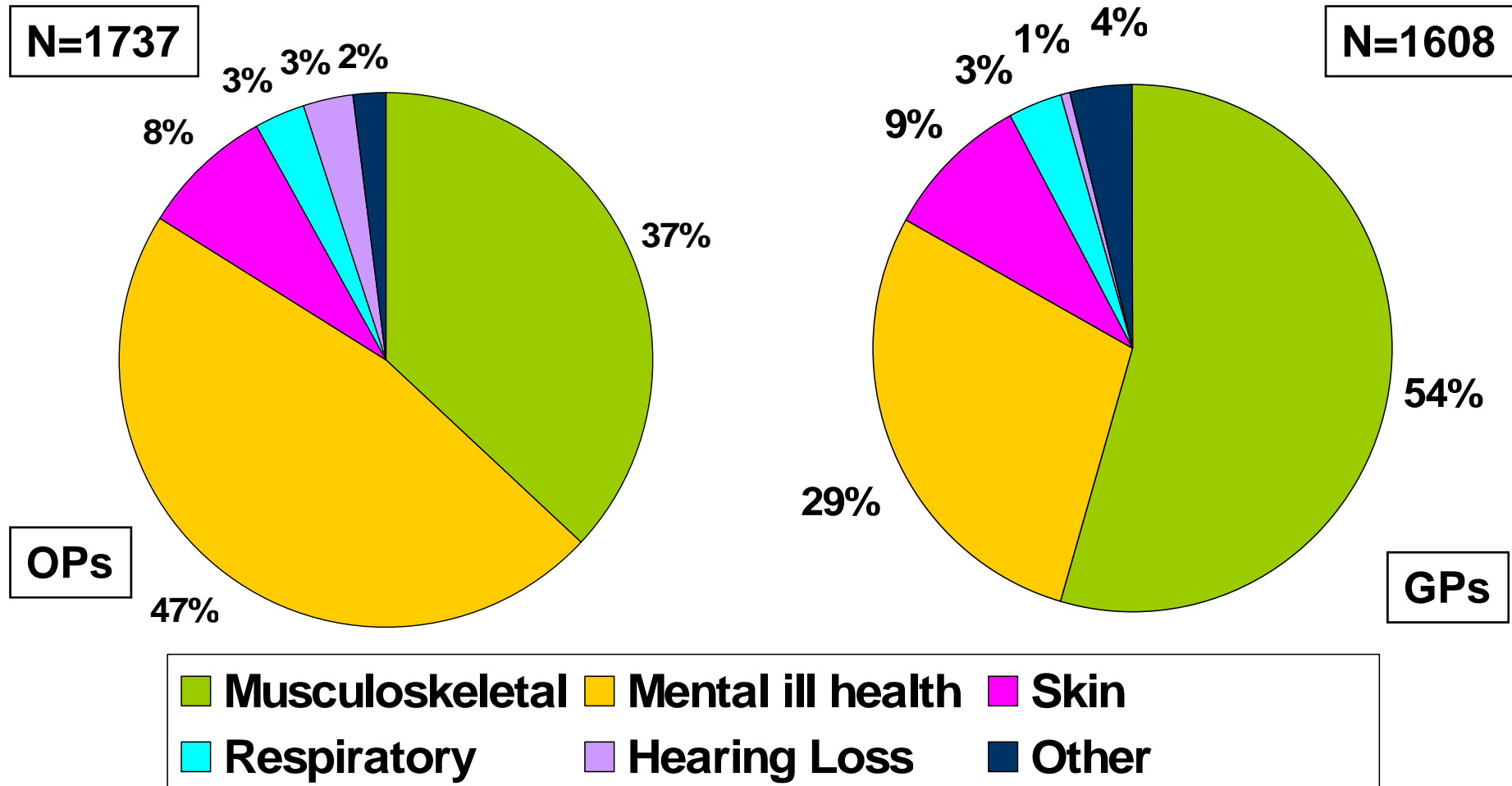
Investigate reporting physician practices:

- 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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