Peer assessed medicines management OSCE for student nurses- a strategy to enhance safe medicines management practice

Dr Allison Wiseman
School of Health Sciences
University of Surrey, UK
Overview

• Background to medicines management safety
• The evidence
• Conceptualisation of medicines management learning – theory and practice
• Mixed methods study
• Reliability of peer assessed proforma - criterion & global scores
• How students construct their assessments of peers performance
• Implications for practice, research and education
What the literature shows about students experiences of medicines management in practice?

- Variable levels of supervision in practice
- Students and mentors perceptions they lack pharmacology knowledge
- Medicines management lacks integration into the curriculum
- Students want more time for medicines management learning in practice
- Students feel vulnerable when undertaking medicines management
- No national assessment proforma / method
- Medicines management OSCEs use task based approaches to assessment

So what about numeracy assessment?

- Pass mark boundaries vary nationally and internationally
- Assessments do not continue throughout training internationally
- Computerised interactive learning helps student learning
- Largely separate from other aspects of medicines management
Theoretical and practical aspects of medicines management

**Taught theoretical input**
- Bioscience
- Law & ethics
- Policy and guidelines
- Pharmacokinetics & pharmacodynamics
- Drug groups in health & disease
- Documentation
- Numeracy

**Practical skills**
- Simulated clinical learning experiences
- Simulated medicines administration
- Learning in practice
- Mentor support
Deficiencies in educational preparation in practice at HEI
- non integrated approach to medicines management education

Non adherence to policy by student

Deficiency in student’s numeracy skills

Deficiencies in knowledge contextualisation

Mentor’s deficiencies in medicines management knowledge and skills

Deficiencies in mentor’s numeracy skills

Poor role modelling by mentor

Mentor workload

Mentor failing to fail students who are not proficient in medicines management

Lack of time to supervise students undertaking medicines management

A conceptual map of the factors affecting safe medicines management for student nurses
Peer assessed Medicines Management OSCEs (PAMMO)

**Why**

• Simulation advocated internationally and nationally
• Variability in role modelling in practice
• Integrated approach to medicines management learning and assessment
• Summative OSCEs resource intensive
• Peer assessment helps students socially construct their learning and assessment

**How**

• Design a peer assessed medicines management OSCE
• Filmed students undertaking PAMMO
• Peer students observe video vignettes & assess peers
Holistic model of skills acquisition

- Scenario development
- Reflection
- Exploration
- Modelling
- Scaffolding
- Objectives
- Complexity
- Facilitation
- Case studies
- Cues
- Debriefing
- Communication skills
- Proficiency
- Self confidence
- Problem solving
- Decision making
- Articulation
- Critical thinking
- Competence
- Judgement
- Learning
Explanatory sequential design

The basic procedures for implementing an explanatory sequential mixed methods design (adapted from Creswell & Plano-Clark, 2011: 84)

<table>
<thead>
<tr>
<th>Step 1</th>
<th>Design and implement the quantitative strand</th>
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<tbody>
<tr>
<td></td>
<td>Design and implement research question</td>
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<td>Determine the quantitative approach: Descriptive using peer assessed medicines management OSCE proforma &amp; simulation effectiveness tool</td>
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<td>Identify the quantitative sample: pre registration nursing students</td>
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<td>Collect data</td>
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<td>Analyse data using descriptive and inferential statistics</td>
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<thead>
<tr>
<th>Step 2</th>
<th>Design and implement qualitative strand</th>
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<tr>
<td></td>
<td>Identify research questions</td>
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<td>Determine qualitative approach: Focus group interviews</td>
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<td>Purposefully select a qualitative sample that will help to explain the quantitative results</td>
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<td>Collect the focus group data using an interview guide developed from the quantitative results</td>
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<td>Transcribe and analyse the data using theme development to answer the mixed methods questions</td>
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<th>Step 3</th>
<th>Interpret and connect the results</th>
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<td>Summarise and interpret the quantitative results</td>
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<td></td>
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<td>Discuss the extent and ways that the qualitative results help explain the quantitative results</td>
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PAMMO design

Development
• Blue printing
• Team of experts (Nurse Educators & Practitioners)

Based upon
• NMC standards for medicines management (2007 & 2009)
• Local organisational policy
• Best practice guidance
• Tested in simulation
Results

• Communication

• Preparation for MM

• Medicines calculations

• Dispenses medication
PAMMO Results contd.

- Drug knowledge
- Administration of medication
- Pass/refer scores
- Global scores
Judgement making and PAMMO

Students based their judgements of safe practice on

• Normative and prescriptive theories of decision making
• PAMMO assessment criteria
• The standards and policies supporting safe MM practice
• Descriptive decision making
• Their own experience of MM in practice
• The participants experiences of MM OSCEs in a simulated practice learning environment
• The emotions associated with MM and assessing others
Barriers to escalating concerns — Patient Safety strategy 2014/15 (UK) says & study participants
Social constructivism

Cognitive continuum 9 modes (Standing 2010)

- Intuition
  - Tacit knowledge
- Associative
- Matched
- Accumulative
- Constructive
- Reflective
  - Pre-reflective
  - Quasi-reflective
  - Reflective
- Personal factors
  - Knowledge
  - Expectations
  - Attitudes
  - Self directedness
  - (Andragogy)
- Behavioural factors
  - Skilfulness
  - Practice
  - Self Efficacy
- Environmental
  - Social norms
  - Influence on & of others
  - Access to peers
- System aided
  - Cognitive learning
  - Evidence based practice
  - Policy
  - PAMMO
- Peer aided
  - Social cognitive theory
  - Social learning theory
- Critical thinking
  - Critical review of experiential and research evidence
  - Critical thinking skills
  - Critical appraisal skills
- System aided
  - Cognitive learning
  - Evidence based practice
  - Policy
  - PAMMO
- Critical review of experiential and research evidence
- Critical thinking skills
- Critical appraisal skills
- Influences
  - Critical thinking skills
  - Critical appraisal skills

Medicines management

Task Structure

- Intuition
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Cognition
- Source knowledge
- Learning theories

Analysis
- Explicit

Manipulation of variables

Time Process

High

Low

High

Low

Accountability

Professional code of conduct

Ethics committee approval
Taking the work forward

• Larger interdisciplinary study in pre-registration healthcare
• Explore the judgement and decision making processes used by mentors to assess students safe MM practice
• Support for MM competence / proficiency in practice
• Use in training registrants
• Can be adapted for other disciplines
Acknowledgements

• My supervisors
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Further reading


Greener R (2014) Understanding adverse drug reactions- an overview *Nurse prescribing* 12, 4, 189-195


Lewis T (2004) Using NO TEARS tool for medication review *BMJ* 329, 7463, 434

