TRANSVAGINAL ULTRASOUND SIMULATION: CAN IT REPLACE INITIAL PATIENT TRAINING FOR DOCTORS?

Presented by Cathy Williams – Advanced Practitioner in Ultrasound, Royal Sussex County Hospital, Brighton.

Image: Adapted from: MedaPhor, n.d.
CO-AUTHORS
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- **Becky Mulloy** – Advanced Practitioner in Ultrasound and Ex-Lecturer at City University.
- **Gill Harrison** – Programme Leader, Ultrasound, City University London.
- **Jennifer Edie** – Senior Lecturer, City University London.
- **Dave Flinton** – Programme Manager, Radiography, City University London.

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Funded by:

[Logo: Brighton and Sussex University Hospitals NHS Trust]

[Logo: The College of Radiographers Industry Partnership Scheme Supporting Radiography Research]
RESEARCH QUESTIONS

Primary Question:

Secondary question:
RESEARCH QUESTIONS

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• How does simulation compare with traditional clinical training for learning basic TVUS?

Secondary question:
RESEARCH QUESTIONS

Primary Question:
- How does simulation compare with traditional clinical training for learning basic TVUS?

Secondary question:
- Does simulation affect confidence to progress to TVUS scanning in the clinical situation?
Operator dependent examination

Lack of time/capacity to train doctors

New TVUS simulator unveiled in 2010 (Medgadget, 2010)

UK wide shortage of Sonographers (The Society and College of Radiographers, 2009)

Simulation has been successful in other industries (Donaldson, 2009, p. 51)

TVUS most requested gynae imaging exam (Heer et al, 2004, p. 440)
ScanTrainer

Image: Adapted from: MedaPhor, n.d.
METHODOLOGY

Mixed Method Study Design
Secondary Research

Quantitative
Qualitative

Questionnaire
Semi-structured Interviews
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Non equivalent control group
pre-test-

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Qualitative

Semi-structured Interviews
Questionnaire

Secondary Research

Question = PART 2
METHODOLOGY

Mixed Method Study Design

Primary Research Question = PART 1

Secondary Research Question = PART 2

Quantitative

- Non equivalent control group
- pre-test-post-test design

Qualitative

- Questionnaire
- Semi-structured interviews
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- Primary Research Question = PART 1

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Friday, 4 January 13
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**Primary Research Question** = PART 1

**Secondary Research Question** = PART 2

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- Pre-test-post-test design

**Qualitative**
- Questionnaire
- Semi-structured Interviews

Friday, 4 January 13
QUANTITATIVE RESULTS

- **SAMPLE** – 11 doctors, 9 completed study.
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• **PRE-TEST** – No significant difference in the average scores of the two groups (u = 12, p = 0.6623).
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• **SAMPLE** – 11 doctors, 9 completed study.

• **PRE-TEST** – No significant difference in the average scores of the two groups (u = 12, p = 0.6623).

• **POST-TEST** – Simulator group had a higher average for overall assessment score (by 8%) and each of its five sections (by 3 – 21%). None of these results were statistically significant (p = 0.0556 – 1).
Participants’ answers to the question asking if use of the ScanTrainer could help increase a trainee’s confidence level prior to attempting a real TVUS scan.
ANALYSIS

• **No significant differences** – similar conclusions reached by Knudson and Sisley (2000) and Stather et al (2011).
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- **Comparison of average scores indicates simulation may be more effective than clinical training** – replicates findings of studies investigating virtual reality simulators ability to teach laparoscopic skills (Gurusamy et al; 2009, Larsen et al, 2009; Lucas et al 2008).
ANALYSIS

• Simulator group felt more confident in altering the controls and assessing the anatomy – may explain why they outperformed the control group in post-test.
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• Improved patient experience due to reduced anxiety of trainee and possible reduction in
CONCLUSION

• Study lacks power.
• Statistical results suggest the two methods are equal in teaching ability.
• Comparison of average scores suggests initial simulation training may be more effective than clinical training.
• Training on the ScanTrainer was found to positively affect novice scanners confidence.
• Increased confidence may positively affect the patient’s experience of being scanned by a trainee.
RECOMMENDATIONS

1. Repeat multiple centre trials
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2. Research assessing the effect on patient outcomes of prior training on the ScanTrainer.
REFERENCES

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Any questions?