Impact of an Ultrasound Curriculum for Undergraduate Medical Education:

Assessment of a 16-week First-Year Curriculum
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The authors have nothing to disclose
INTRODUCTION

- Point of care ultrasound is the emerging standard of care in many specialties.
- Cohesive curricular integration of imaging is lacking at many medical schools.
- Creation of a modern, hands-on US curriculum enables students to learn fundamentals and provides early exposure to radiology.
A 16-week ultrasound curriculum consisting of:

- 6 Regionally-based modules
- Didactic & hands-on sessions
- Integrated into the Human Anatomy course

**Materials and Methods**

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<th>Knobology</th>
<th>MSK-Knee</th>
<th>Neck</th>
<th>Thorax</th>
<th>Abdomen</th>
<th>Pelvis</th>
<th>OSCE</th>
<th>Intro And Back</th>
<th>Upper Limb</th>
<th>Head And Neck</th>
<th>Thorax</th>
<th>Abdomen</th>
<th>Pelvis</th>
<th>Lower Limb</th>
<th>Study</th>
<th>Finals</th>
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<td>GPT</td>
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<td>OPEN</td>
<td>Quiz</td>
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GPT = Gel Phantom Trainers
Open = Proctored self scanning
OFF = No ultrasound rotations
SP = Standardized Patients or Soft Cadavers
OSCE = Objective Structured Clinical Examination
MATERIALS AND METHODS

- Quantitative assessment with a PRE- and POST-course test that evaluated:
  - Principles of US physics
  - Image recognition and acquisition
  - Knowledge of US anatomy
  - Basic US machine functionality (‘Knobology’)
Materials and Methods

- Scores were analyzed using a student’s t-test.

- Qualitative assessment of the course’s utility and perceived educational value generated from the anonymous student surveys provided at the end of the course.
AVERAGE EXAM SCORE

![Average Exam Score Chart]

- Pre-Test: Score (%)
- Post-test: Score (%)

Difference: $< 0.0001$

***Significant difference***
RESULTS

☐ The first year medical students scored, on average:
  ☐ PRE-test = 36.3 %
  ☐ POST-test = 70.9%

☐ A statistically significant improvement (p < 0.001) in the participants’ knowledge regarding the basic concepts and understanding of ultrasound.
US ENHANCED THE HUMAN ANATOMY COURSE

RESULTS:

142/149 felt that US enhanced their understanding of anatomy.
US ENHANCED MY MEDICAL EDUCATION

RESULTS:

148/149 students felt that the US curriculum enhanced their medical education.
I would like more US training throughout my medical education.

Results:

\( \frac{143}{149} \) requested more US education throughout their remaining undergraduate medical education.
Are you considering a career in Radiology?

- Not at all
- Maybe
- Somewhat
- Most likely
- Definitely

Pre-test vs. Post-test
Radiology interconnects medical disciplines and a functional understanding has become essential to clinical practice.

Cohesive curricular integration of imaging is lacking at many medical schools.
Our US curriculum is an effective tool to introduce radiologic concepts into undergraduate medical education and significantly improves basic knowledge of US.

Integration of US into undergraduate medical education enhances undergraduate medical students’ technical ability, their understanding of the utility of imaging and improves perceptions of the field of Radiology.
The Future of E-learning in Radiology

- Vertical Integration throughout the Undergraduate Medical Curriculum.
THANK YOU!

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