Evaluating Obstetrics and Gynecology Residents Surgical Skill Using Baseline Endoscopic Simulation

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Evaluating Obstetrics and Gynecology Residents Surgical Skill Using Baseline Endoscopic Simulation

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Introduction

- Simulation improves various technical skills such as dexterity, efficiency, and psychomotor skills which are vital for endoscopic surgery. (1)
- Physicians participating in virtual reality (VR) training performed faster and more efficient surgeries than by those who had not completed this program. (2)
- Simulation provides efficient and realistic practice in a secure, relaxed, safe, and affordable environment. (1)
- A program was implemented at LVHN in 2016, where OB/GYN residents completed annual testing on surgical simulation equipment.
- Now in its third year, the study has shown an improvement between surgical residency year and simulation testing performance.

Purpose: Evaluate the performance and progress of residents using various endoscopic module in a simulation setting

Methods

- Testing was conducted in a multi-disciplinary Surgical Education Enter (SEC) at LVHN.
- OB/GYN Residents (PGY1-PGY4 + outgoing chief residents) were tested in various areas of surgical skill – emulating clinical practice – over a three year period.

Results

<table>
<thead>
<tr>
<th>PGY</th>
<th>Total Score (total data)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PGY1</td>
<td>(n=15)</td>
</tr>
<tr>
<td>PGY2</td>
<td>(n=14)</td>
</tr>
<tr>
<td>PGY3</td>
<td>(n=16)</td>
</tr>
<tr>
<td>PGY4</td>
<td>(n=15)</td>
</tr>
<tr>
<td>PGY5</td>
<td>(n=12)</td>
</tr>
</tbody>
</table>

- Correlation Coefficients further confirms study findings.
  - Simbionix Lap mentor vs PGY = -0.912
  - Endoscopic Box Trainers vs PGY = -0.983
  - Mimic Robot vs PGY = -0.918

- Box trainers show strongest improvement and are the cheapest and most efficient way to simulation surgical skills.

Discussion

- Generally, the residents improve scores each year although this improvement plateaus later in training.
  - More experience = Improvement on exercise
  - More practice = Improved speed, dexterity, efficiency
- Correlation Coefficients further confirms study findings.
  - Simbionix Lap mentor vs PGY = -0.912
  - Endoscopic Box Trainers vs PGY = -0.983
  - Mimic Robot vs PGY = -0.918

Conclusion

- Simulation performance is effective in discriminating between level of training and experiential level.
- Box trainers are simple, effective, affordable training option for surgical programs.
- Shows residents areas of needed improvement and motivates residents to practice technical skills
- Limitations/Bias/Challenges:
  - Fatigued residents, distractions in testing environment, equipment failure, motivation of resident
- Future Research:
  - Establish Curriculum/Goals/ Minimum criteria for performance based on level of training
  - Evaluate correlation between simulated performance and patient outcomes in the clinical setting

References: