Does Variability Among Surgical Skills Diminish Throughout Residency Training? Analysis of a 5-Task Simulation Curriculum Starting Day 1

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Background
- Surgical simulation, such as Fundamentals of Laparoscopic Surgery (FLS), has been shown to improve operative performance.
- However, simulation curriculums are not standardized amongst surgical programs.
- Our aim was to institute a 5-task curriculum to improve and assess surgical technical skills longitudinally during internship.

Methods
- Tasks completed by 1st year surgical residents:
  - Suturing
  - Knot Tying
  - Vascular Anastomosis
  - FLS Peg Transfer
  - FLS Intracorporeal Suturing
- Prior to the initial assessment, participants watched a demonstrative video outlining each task.
- The point-based scoring system was generated from successful completion of task components.
- Assessments occurred just before residency, mid-year and at the end of the academic year.

Results
- Figure 1. Participant demographics.

<table>
<thead>
<tr>
<th>Type</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>5</td>
<td>26.3%</td>
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<tr>
<td>Intern Type</td>
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<tr>
<td>Categorical</td>
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<tr>
<td>Non-designated Fellow</td>
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<td>10.5%</td>
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<tr>
<td>Plastic</td>
<td>2</td>
<td>10.5%</td>
</tr>
<tr>
<td>Urology</td>
<td>4</td>
<td>21.2%</td>
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<tr>
<td>Interventional Radiology</td>
<td>3</td>
<td>15.8%</td>
</tr>
</tbody>
</table>
- Completed ≥ 1 Core Rotation Prior to Mid-year Assessment: 18 (94.7%)

- Figure 2. Improvement in the FLS-PEG task over time with decreased variability among participants.
- Figure 3. Task scores improve and variation amongst participant scores decrease over time.
- Figure 4. Total knot tying scores within different resident categories show progression towards the median over time.

Conclusions
- 1st year residents showed improvement in each task over periodic assessments during their first year.
- As residents were exposed to the same surgical training, the variability among their surgical skills diminished.
- Instituting a standardized curriculum at the start intern year allows for early supplementation of surgical skills training and longitudinal assessments of involved residents.

References