Mean 3.4

All Together Now! A Mixed-methods Evaluation of Interprofessional Point-of-Care Ultrasound Training

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Background

• Point-of-care ultrasound (POCUS) refers to the use of portable ultrasound technology by clinicians to make real-time management decisions.
• POCUS education is rapidly expanding in medical schools (1) and internal medicine (IM) residency programs (2), but lack of trained faculty is a major barrier to broader adaptation (1-2).
• Interprofessional education (IPE) (3) and peer-led teaching (4-5) have potential advantages to standard, faculty-led teaching, including curricular sustainability when teaching resources are limited.

Assessment & Analysis

• Objective structured clinical exam of image acquisition skills (107 point scale):
  • Technique
  • Image quality
  • Anatomical identification
• Pre- and post-survey of attitudes towards IPE (6-7) and stereotypes towards other professional groups (8) taken from previously published questionnaires and analyzed via Wilcoxon signed-rank test.
• Post-intervention focus group interviews of residents and DMS coaches with qualitative analysis using grounded theory methodology.

Intervention

• Participants: First-year internal medicine (IM) residents (n=24)
• Coaches: Diagnostic Medical Sonography (DMS) students (n=6)
• Train-the-trainer Session for DMS coaches:
  • POCUS background
  • Principles of adult learning
  • Coaching & feedback strategies
  • Coaching simulation cases
• IPE POCUS Workshops
  • Flipped classroom with pre-course instructional videos
  • Description of DMS training program
  • Hands-on scanning of live model with DMS coach
  • Room, machine, and patient set-up
  • Right and left kidney for evaluation of hydronephrosis
  • Bladder volume estimation
  • Gallbladder for evaluation of cholecystitis
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Results

Abdominal POCUS Objective Structured Clinical Exam Scores

<table>
<thead>
<tr>
<th>Exam Section (Available Points)</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Image Quiz (13)</td>
<td>12.3</td>
<td>0.9</td>
</tr>
<tr>
<td>Exam Prep (18)</td>
<td>16.8</td>
<td>1.4</td>
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<tr>
<td>R Kidney (18)</td>
<td>17</td>
<td>1.1</td>
</tr>
<tr>
<td>L Kidney (18)</td>
<td>16.4</td>
<td>1.8</td>
</tr>
<tr>
<td>Bladder (16)</td>
<td>14.9</td>
<td>1.0</td>
</tr>
<tr>
<td>Gallbladder (24)</td>
<td>20.4</td>
<td>3.4</td>
</tr>
<tr>
<td>Total Score (107)</td>
<td>97.7</td>
<td>5.2</td>
</tr>
</tbody>
</table>

Academic ability 3.71 0.86 4.33 0.57 <0.01
Professional competence 4.21 0.72 4.54 0.51 <0.00
Interpersonal skills 4.00 0.93 4.54 0.59 <0.00
Leadership abilities 3.33 0.82 4.04 0.81 <0.00
The ability to work independently 4.08 0.65 4.54 0.59 <0.01
The ability to be a team player 3.96 0.75 4.50 0.86 <0.00
The ability to make decisions 3.29 0.96 4.17 0.76 <0.00
Practical skills 4.29 0.86 4.79 0.42 <0.00
Confidence 4.17 0.64 4.46 0.59 <0.00
Teaching skills 3.63 0.74 4.29 0.77 <0.00

Discussion

• Near-peer, interprofessional education is an effective pedagogy for teaching resident physicians abdominal POCUS skills.
• This approach can improve participants’ perceptions towards interprofessional collaboration, dispel stereotypes amongst health professionals, and provide leadership development opportunities for DMS students.
• IPE is a feasible strategy to integrate POCUS education when faculty expertise is limited.

References