The Feasibility of the Use of Video Capture, Feedback Process in the Obstetrics and Gynecology Residents

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The feasibility of the use of a VideoCapture, feedback process in the surgical training of obstetrics and gynecology residents

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Background

- Operative training and technical skills are important in OBGYN residency training to assure residents can operate independently and to assure patient safety.
- Previous models to assure competency in the operating room have included simulation training, tallying case numbers, and peer evaluation, none of which have been well validated.
- Video capture technology offers opportunity to better and more objectively monitor and assess surgical performance, and perhaps predict patient outcomes.
- Use of VideoCapture footage may improve the technical skill of residents through external feedback channels and as a tool for self-assessment.
- Our primary goal was to assess the feasibility of SimCapture® system as a method of recording and assessing surgical performance of residents.

Methods

- Protocol reviewed by IRB and considered exempt as educational protocol.
- Video captured resident surgical performance and as primary surgeon for various procedures in OBGYN over 6 week period.
- Oriented to the use of SimCapture...• Industry review of the technology and capabilities
  • Piloted the technology and process in the Simulation Lab using high fidelity simulators (Symbionix, Mimic)
  • Proctored cases in OR with investigating attendings
  • Independently recorded cases in OR using video capture, feedback process (see figure 1)

Results

- Number of cases recorded for each procedure

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Number of cases recorded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hysteroscopy</td>
<td>1</td>
</tr>
<tr>
<td>Robotic Hysterectomy</td>
<td>3</td>
</tr>
<tr>
<td>Section</td>
<td>7</td>
</tr>
<tr>
<td>STS</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
</tr>
</tbody>
</table>

- Percentage of cases we recorded

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Recorded</th>
<th>Missed</th>
<th>Total</th>
<th>Percent Recorded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hysteroscopy</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>100%</td>
</tr>
<tr>
<td>Robotic Hysterectomy</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>100%</td>
</tr>
<tr>
<td>Section</td>
<td>7</td>
<td>0</td>
<td>7</td>
<td>100%</td>
</tr>
<tr>
<td>STS</td>
<td>5</td>
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<td>5</td>
<td>100%</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>0</td>
<td>20</td>
<td>100%</td>
</tr>
</tbody>
</table>

- Summary of feasibility form results

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Average time to set up equipment</th>
<th>Average time to disassemble equipment</th>
<th>Average time to debrief</th>
<th>Percent of cases where debrief occurred</th>
<th>Percent of cases where resident was receptive to process</th>
<th>Percent of cases where attending was receptive to process</th>
<th>Percent of cases where OR staff was receptive to process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hysteroscopy</td>
<td>5.7 min</td>
<td>3.2 min</td>
<td>3.6 min</td>
<td>91%</td>
<td>97%</td>
<td>95%</td>
<td>97%</td>
</tr>
<tr>
<td>Robotic Hysterectomy</td>
<td>5.9 min</td>
<td>3.4 min</td>
<td>3.6 min</td>
<td>91%</td>
<td>97%</td>
<td>95%</td>
<td>97%</td>
</tr>
<tr>
<td>Section</td>
<td>6.0 min</td>
<td>4.2 min</td>
<td>4.5 min</td>
<td>91%</td>
<td>97%</td>
<td>95%</td>
<td>97%</td>
</tr>
<tr>
<td>STS</td>
<td>6.3 min</td>
<td>4.5 min</td>
<td>4.8 min</td>
<td>91%</td>
<td>97%</td>
<td>95%</td>
<td>97%</td>
</tr>
<tr>
<td>Total</td>
<td>5.9 min</td>
<td>3.4 min</td>
<td>3.6 min</td>
<td>91%</td>
<td>97%</td>
<td>95%</td>
<td>97%</td>
</tr>
</tbody>
</table>

- Debriefing occurs where resident and attending discuss the residents performance

Conclusion

- Process was feasible and well accepted
  • Improved efficiency with experience and over time
  • Increased acceptance of surgeons and staff over time
  • Effective tool to record both endoscopic and open cases
  • Created video capture files able to be sent and evaluated by blinded experts

- Obstacles included
  • Technology (missing components to system, last minute alterations in surgical schedules, residents not operating as primary surgeon, resident and attending not having time to debrief)
  • Positive responses from staff
  • Nurses welcoming (eg. adjusting camera for team…)

- Innovations necessary to make process more effective
  • Attaching camera to IV pole
  • Need methods of better assessing vaginal surgical cases

References


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