Video Coaching
Investigation and Implementation of a Novel Tool for Simulation Education

MERMAID Series
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OB/GYN/RS
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Disclosures

- I have no disclosures
“All coaching is, is taking a player where he can’t take himself.”

- Bill McCartney
A coach is someone who tells you what you don’t want to hear, who has you see what you don’t want to see, so that you can be who you have always known you could be.

Tom Landry
Outline

- Background/What is Coaching?
- Current State of Surgical Education
- Video Coaching Study
- Novel Changes in Surgical Simulation Program at Magee
- Future Steps
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“Coach”

noun

a) A private tutor

b) One who instructs or trains; one who instructs players in the fundamentals of a sport and directs team strategy
“Coach”

verb

“To instruct, direct or prompt”
Coaching is a PROCESS

- Aims to facilitate performance enhancement by identifying, focusing on and achieving specific goals
- Widely accepted tool across many disciplines for professional development
  - Sports/Athletics
  - Business
  - {Education}
  - {Health care}

“New-Age” Coaching Model

- Based upon adult learning and psychological concepts
- Foster self-directed learning through
  - Performance evaluation/feedback
  - Goal clarification
  - Collaborative problem solving
  - Action planning for future

Cavanagh, et al. Evidence-Based Coaching Volume 1: Theory, Research and Practice from the Behavioral Sciences; 2015
MONITOR

MODIFY

EVALUATE

BEHAVIOR CHANGE

Carver, et al. On the Self-Regulation of Behavior, 2005
Side note...

- Can’t help but think how this aligns with our transition to competency-based evaluations??!!
Outline

- Background/What is Coaching?
- Current Challenges of Surgical Education
- Video Coaching Study
- Novel Changes in Surgical Simulation Program at Magee
- Future Steps
Challenges of Surgical Education

- Work-hour restrictions
- Financial pressures
  - Focus on higher quality/volume
  - De-emphasis on teaching
- Increased focus on non-surgical alternatives

Surgical Education: Hysterectomy

- Decrease in number of hysterectomies

Wright, et al Obstet Gynecol 2013
Surgical Education: Hysterectomy

- Increase in technology/modes of hysterectomy

Smaller Pieces of the Hysterectomy Pie

Current Challenges in Resident Surgical Education

Samantha J. Pulliam, MD, and Lori R. Berkowitz, MD

Surgical Education: Hysterectomy

- Non-surgical alternatives
  - IUD
  - Endometrial ablation
  - UFE
  - HIFU
Surgical Education: Simulation

- Historically box trainer and exercises
  - Acquire skills
  - Low risk environment
- Repetitive practice translates to improved real-life surgical skills
- VR no better than simple box trainer for simple tasks

Surgical Education: Simulation

- At MAGEE
  - 2000 – access to box trainers
    - Minimal oversight
    - No organized activities/exercises
  - 2008 - Introduced FLS (Fundamentals of Laparoscopic Surgery)
FLS - Background

- Society of American Gastrointestinal and Endoscopic Surgeons (SAGES) developed FLS in 1990s
- Comprehensive program designed to teach cognitive and psychomotor aspects unique to laparoscopic surgery
- In 2005, SAGES partnered with American College of Surgeons (ACS) and FLS became first fully developed competency tool for surgeons
FLS - Background

- Designed by Dr. Gerald Fried
- Based on the MISTELS program (McGill Inanimate System for Training and Evaluation of Laparoscopic Skills)
- Extensive reliability and validity testing

www.flsprogram.org
FLS Manual Skills - Objectives

- 5 Basic Technical Skills
  - Depth perception
  - Feel for tissue
  - Ambidexterity
  - Manipulation of objects through constraints of a trocar
  - Cut/suture
FLS Manual Skills – Set Up
Surgical Education: Simulation

- At MAGEE
  - 2011 – Longitudinal FLS Curriculum Established
  - 2013 – Studied/validated a vaginal cuff model
Outline

- Background/What is Coaching?
- Current Challenges of Surgical Education
- **Video Coaching Study**
- Novel Changes in Surgical Simulation Program at Magee
- Future Steps
Impact of Video Coaching on Gynecologic Resident Laparoscopic Suturing: A Randomized Controlled Trial

Noah B. Rindos, MD, Minhnoi Wroble-Biglan, PhD, Amanda Ecker, MD, Ted T. Lee, MD, Nicole M. Donnellan, MD

DOI: http://dx.doi.org/10.1016/j.jmig.2016.12.020
Purpose and Hypothesis

• PURPOSE
  • Assess the impact of video-based coaching on OB/GYN resident laparoscopic suturing skills

• HYPOTHESIS
  • Coaching will enhance surgical skill acquisition, thereby providing another tool for a simulation curriculum
Methods

- 20 MWH OB/GYN residents undergoing l/s simulation curriculum were video-recorded performing suturing task
- Residents randomized to standard curriculum or standard curriculum plus weekly video coaching
- Primary outcome measure was comparison of weekly GOALS scores of the suturing task
Methods

- Upload video of suture task
Methods

GROW Model

Goal
- What is the purpose of the session?
- What would be the most valuable topic of focus?

Reality
- What is the current situation? (Self-assessment using global rating scales and video-based feedback from the coach)

Options
- What could you do to improve in those areas?
- If you could implement only one of these options in the next procedure, what would it be?
- Describe how you would implement this option?

Wrap-up
- What are the challenges to implementing this change and how to overcome them?
- Action plan—What will you do, when?
## GOALS

### Table 1: Global Assessment of Laparoscopic Surgery Scoring System

<table>
<thead>
<tr>
<th>Domains</th>
<th>Anchor Descriptors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depth Perception</td>
<td>Constantly overshooting target, hits backstop, wide swings, slow to correct</td>
</tr>
<tr>
<td></td>
<td>Some overshooting or missing plane but corrects quickly</td>
</tr>
<tr>
<td></td>
<td>Accurately directs instruments in correct plane to target</td>
</tr>
<tr>
<td>Bimanual Dexterity</td>
<td>Use of one hand, ignoring nondominant hand, poor coordination between hands</td>
</tr>
<tr>
<td></td>
<td>Use of both hands but does not optimize interactions between hands to facilitate conduct of operation</td>
</tr>
<tr>
<td></td>
<td>Expertly uses both hands in a complementary manner to provide optimal working exposure</td>
</tr>
<tr>
<td>Efficiency</td>
<td>Uncertain, much wasted effort, many tentative motions, constantly changing focus of operation, or persisting at a task without progress</td>
</tr>
<tr>
<td></td>
<td>Slow, but planned and reasonably organized</td>
</tr>
<tr>
<td></td>
<td>Confident, efficient and safe conduct of operation, maintaining focus on component of procedure until better done by another approach</td>
</tr>
<tr>
<td>Tissue Handling</td>
<td>Rough, tears tissue by excessive traction, injures adjacent structures, poor control of coagulation device (recoil), grasper frequently slips off</td>
</tr>
<tr>
<td></td>
<td>Handles tissues reasonably well, with some minor trauma to adjacent tissues, eg, coagulation of liver, causes unnecessary liver bleeding, occasional slipping of grasper</td>
</tr>
<tr>
<td></td>
<td>Handles tissues very well with appropriate traction on tissues and negligible injury of adjacent structures. Uses energy sources appropriately but not excessively</td>
</tr>
<tr>
<td>Autonomy</td>
<td>Unable to complete entire procedure, even in a straightforward case and with extensive verbal guidance</td>
</tr>
<tr>
<td></td>
<td>Able to complete operation safely with moderate prompting</td>
</tr>
<tr>
<td></td>
<td>Able to complete operation independently without prompting</td>
</tr>
</tbody>
</table>

Adapted from Vassiliou et al, American Journal of Surgery, with permission.
# Results

Table 1. Demographics and Surgical Experience of Participants by Training Method

<table>
<thead>
<tr>
<th></th>
<th>Standard Curriculum + Coached</th>
<th>Standard Curriculum</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PGY 1</td>
<td>PGY 2</td>
</tr>
<tr>
<td>Participants</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Sex</td>
<td>3F, 1M</td>
<td>4F, 0M</td>
</tr>
<tr>
<td>TLH assists</td>
<td>0.14 (0-1)</td>
<td>1.5 (0-6)</td>
</tr>
<tr>
<td>TLH surgery</td>
<td>0.75 (0-3)</td>
<td>1.5 (0-2)</td>
</tr>
<tr>
<td>Age</td>
<td>28.6 (26 – 34)</td>
<td></td>
</tr>
<tr>
<td>FLS Certified</td>
<td>3 (33.3%)</td>
<td></td>
</tr>
</tbody>
</table>

PGY, postgraduate year; TLH, total laparoscopic hysterectomy; F, female, M, Male. FLS, Fundamentals of Laparoscopic Surgery; Data are as n (%) or mean (range)

Results

![Graph showing GOALS+ scores for different groups over weeks]

Week of Training:
- Week 1
- Week 2
- Week 3
- Week 4

Groups:
- PGY 1
- PGY 2
- PGY 3 & 4

Results

Results

A

Average GOALS+ Score

Week 1  Week 2  Week 3  Week 4

Standard PGY1&2  Standard PGY3&4  Coached PGY1&2  Coached PGY3&4

Results

B

![Graph showing average GOALS+ score over weeks of training.](Image)

Conclusions

- Video-based coaching has the greatest impact EARLY in a NOVICE learner’s skill acquisition
- Video-based coaching offers an easy, affordable and effective tool for simulation training curricula
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Additions to Simulation

- MIS/Urogyn R3 and Inpatient Gyn R3
  - Operates 1x/week for 5 weeks
  - Establish procedural goals for rotation
  - Review suturing video x2, 2-handed operating x2

- MIGS Fellows
  - Operates 1x/week throughout year
  - Deconstruct tasks of basic procedures
  - Video-based coaching and self-learning video review
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Future Steps....

- For MWH and me...
- For YOU...
  - Role in other ACGME specialties
  - Role in undergraduate medicine
“Each person holds so much power within themselves that needs to be let out. Sometimes they just need a little nudge, a little direction, a little support, a little coaching, and the greatest things can happen.”

-Pete Carroll
Thank you!