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Inter Rater Reliability of Using Video Capture Technology and OPRS as a New Assessment for Surgical Competency in Ob/Gyn Residencies

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Background

- Technical skill is critical in the operating room and assessing surgical skill, technique, and procedure knowledge is critical in most procedural based specialties.
- A variety of different evaluation tools have been advocated for the assessment of surgical performance
- Operative performance Rating Scales (OPRS) have been studied and validated as an effective assessment tool in other surgical specialties, but not in the OBGYN setting
- Recent literature has confirmed the effectiveness of using video taped operative footage and peer evaluation as an effective and objective evaluation tool, and as a predictor of patient outcome and safety

Methodology

- Using SimCapture® videocapture technology, residents from a single OBGYN training program at 3 levels of training were filmed participating and performing common surgical procedures (Cesarean sections, Hysteroscopy, Laparoscopy, Robotic Hysterectomy).
- Immediately following the procedure, standard evaluation forms were completed by residents and attending surgeons; this included traditionally used operative Milestone Surveys and newly developed OBGYN-specific OPRS evaluation tools
- After the resident and attending surgeons completed the evaluation forms, a debrief occurred, during which the resident and attending discussed areas that went optimally and potential areas for improvement, using the OPRS evaluation tool
- A standardized equation was developed to determine the resident's OPRS and milestone scores

Appendix #3 LVHN Operative Performance Rating System (OPRS)

CESAREAN SECTION

Evaluator:	Resident:
Resident Level:	Case #:
Date of Procedure:	Time Procedure Was Completed:
Date Assessment Was Completed:	Time Assessment Was Initiated:

Please rate the resident's performance during this operative procedure. For most criteria, the caption above each criterion provides descriptive anchors for 1-5 (the 5 points on the rating scale). "NA" (not applicable) should only be selected when the resident did not perform that part of the procedure.

Case Difficulty	1	2	3	4	5
Straightforward anatomy, few related prior surgeries or treatment (Primary Procedure)			Intermediate difficulty (Repeat x 2 or more, obesity, placenta previa, VBAC, etc)		Abnormal anatomy, extensive pathology, related prior surgeries or treatment (Cesarean x2-4), morbid obesity, Anemia, Dissection, Dysfunctional incision

Preparation - Case and OR	Fair 1	Good 2	Very Good 3	Excellent 4	NA
Pre understanding patient history, indications and alternatives for cesarean, and anticipated in patient L&D experience prep		Reasonable understanding patient history, indications and alternatives for cesarean, and anticipated in patient L&D experience prep		Exceptional understanding patient history, indications and alternatives for cesarean, and anticipated in patient L&D experience prep	

Figure 1: Example OPRS Form

Version 09/2013 The Obstetrics and Gynecology Milestones: Obstetrics, ACGME Report Worksheet

Obstetrical Technical Skills - Patient Care	Level 1	Level 2	Level 3	Level 4	Level 5
Level 1	Demonstrates basic surgical principles, including use of universal precautions and aseptic technique	Performs basic obstetrical skills, including: <ul style="list-style-type: none">• ultrasound to obtain fetal biometry• spontaneous vaginal delivery• ultrasound for assessment of fetal number, lie, presentation, viability, and placental location	Performs obstetrical procedures, including: <ul style="list-style-type: none">• ultrasound to obtain fetal biometry• biophysical profile• repair of second degree perineal or vaginal lacerations• primary cesarean section• uterine evacuation in the second trimester (e.g., induction, postpartum curettage)	Educates and supervises lower-level residents in performing obstetrical procedures	Applies innovative and complex approaches obstetrical care and implements treatment plans based on emerging evidence
Level 2	Performs basic procedures, including specimen examination and cervical examination			Performs complex obstetrical procedures, including: <ul style="list-style-type: none">• operative vaginal delivery• repair of 3rd and 4th degree perineal lacerations• repeat cesarean section• cervical cerclage• breech vaginal delivery (including second twins)• cystotomy repair• surgical management of postpartum hemorrhage (e.g., cesarean hysterectomy, peripartum hysterectomy)	

Comments: _____ Not yet rotated: ☐

Figure 2: Milestone Evaluations

Results

- During the 6-week study period 40 cases were performed and underwent adequate data collection
- The process of Simcapture-Feedback process was well received by residents, attendings, patients, and operating room staff
- 13 of the 40 video-captured cases were processed and distributed to blinded expert surgeons to evaluate resident surgical performance using the same evaluation tools
- 87.5% of blinded expert evaluators adequately completed OPRS assessments, whereas only 50% completed milestone surveys
- The feedback and evaluation process and tools were well received by residents and attendings
- Residents generally rated themselves less favorably on their performance (both OPRS and Milestone evaluations) then did attendings at the point-of-care
- External, blinded, expert evaluators rated resident performance through the use of video footage similarly to resident and attending at the point-of-care demonstrating inter-rater reliability.

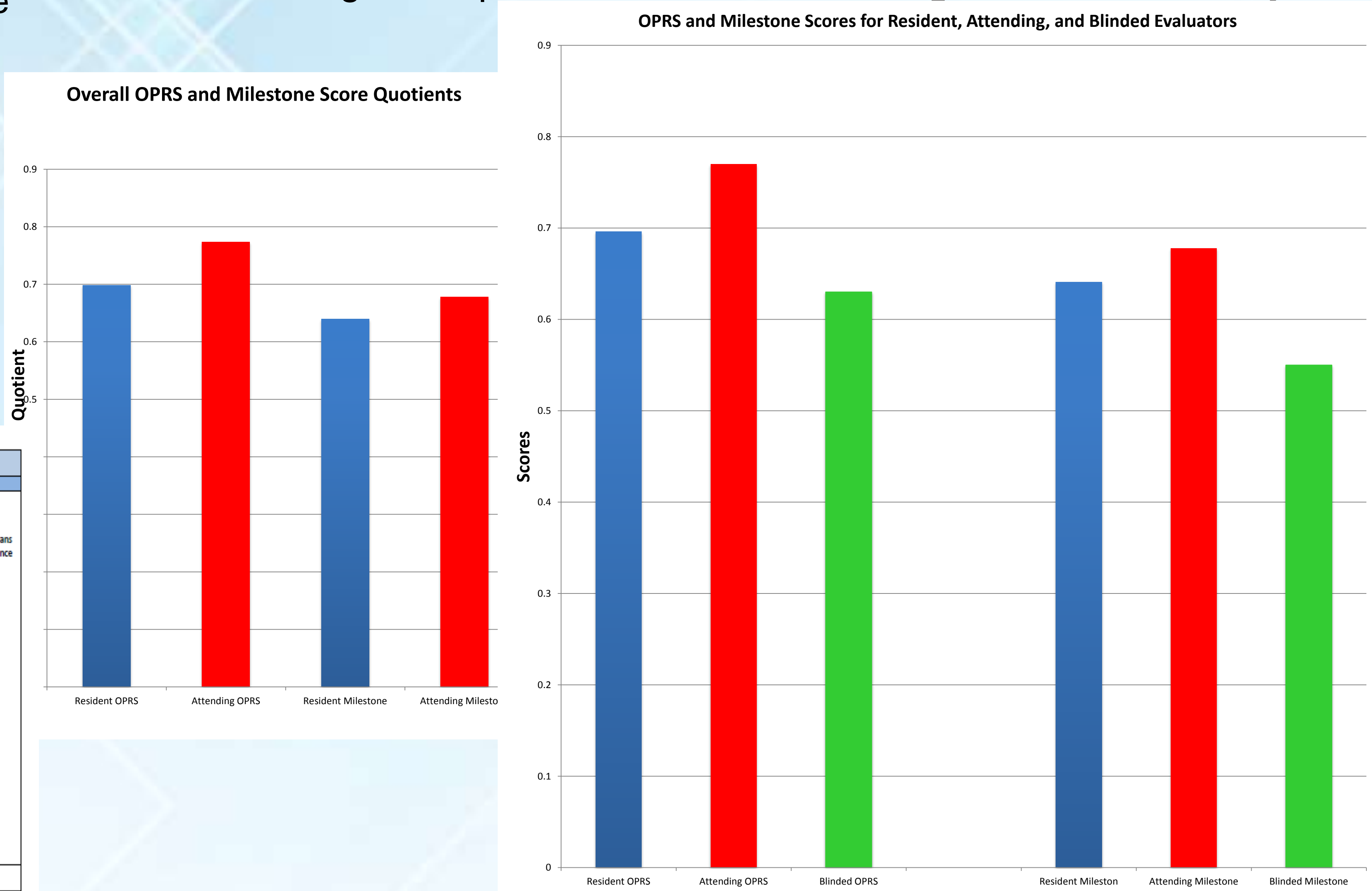


Figure 3: Evaluation Scores

Limitations

- Small sample size of residents subject to evaluation self-evaluation, in addition to small sample of attendings at point of care and expert, blinded attending evaluators
- Limited number and assortment of cases
- Time constraints in having expert reviewers complete case reviews to contribute to the data set
- Technological limitations, such as poor video quality in some cases which compromised expert evaluator's ability to adequately assess procedures

Conclusion

- OPRS assessments appear to be an effective tool for evaluation at point of care and for expert, blinded evaluation
- Milestone scores may be too general and non-specific to be used as an assessment tools at point of care, only 50% of evaluators felt able to complete the milestone assessment based on video footage.
- We found reasonable inter-rater reliability between residents and the attendings, who were both working with and blinded to the residents performance
- Based on the variation of the ratings between attendings at the point-of-care and those blinded to the resident, bias and other metrics may play a factor in the evaluation process
- Videocapture viewing of surgical procedures is feasible and may be an effective means of providing feedback and assessing surgical performance of residents.

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