

Capstone for Impact Submission | GY2020

Project Title: A Video-Based Coaching Intervention to Improve Surgical Skill in Fourth-Year Medical Students

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Branch: Procedures-Based Care

Path of Excellence: Patient Safety/Quality Improvement

If this project can be continued by another UMMS student, please include your contact information or any other details you would like to share here: N/A

Objective: For senior medical students pursuing careers in surgery, specific technical feedback is critical for developing foundational skills in preparation for residency. This pilot study seeks to assess the feasibility of a video-based coaching intervention to improve the suturing skills of fourth year medical students.

Design: Fourth-year medical students pursuing careers in surgery were randomized to intervention vs. control groups and completed two video recorded suture tasks. Students in the intervention group received a structured coaching session between consecutive suturing tasks, while students in the control group did not. Each coaching session consisted of a video review of the students' first suture task with a faculty member that provided directed feedback regarding technique. Following each suturing task, students were asked to self-assess their performance and provide feedback regarding the utility of the coaching session. All videos were de-identified and graded by independent faculty members for evaluation of suture technique.

Results: All students who completed the coaching session would definitely recommend the session for other students. 94% of the students strongly agreed that the exercise was a beneficial experience, and 75% strongly agreed that it improved their technical skills. Based on faculty grading, students in the intervention group demonstrated greater average improvements in bimanual dexterity compared to students in the control group; while students in the control group demonstrated greater average improvements in domains of efficiency and tissue handling compared to the intervention group. Based on student self-assessments, those in the intervention group had greater subjective improvements in all scored domains of bimanual dexterity, efficiency, tissue handling, and consistency compared to the control group. Subjective, free-response

comments centered on themes of becoming more aware of hand movements when viewing their suturing from a new perspective, and the usefulness of the coaching advice.

Conclusions: This pilot study demonstrates the feasibility of a video-based coaching intervention for senior medical students. Students who participated in the coaching arm of the intervention noticed improvements in all domains of technical skill and noted that the experience was overwhelmingly positive. In summary, video-based review shows promise as an educational tool in medical education as a means to provide specific technical feedback.

Reflection/Impact Statement:

Working on this project was extremely rewarding for me both as a researcher and a student interested in improving surgical education. Based on feedback we received from student participants, a project like this could benefit students interested in pursuing careers in surgery, as a novel way to provide feedback to trainees. Video-based coaching may be used at multiple time points throughout a trainee's career to allow for reflection and improvement over time. At different stages in a trainee's career, there may be different technical skills that should be the focus of one's training, and by repeating such an exercise would allow a learner to customize their own education. This pilot study provided an excellent foundation on which I hope to pursue further opportunities to improve surgical education as I move forward to residency and beyond.