Virtual Fundamentals of Laparoscopic Surgery (FLS) Boot-Camp using Telesimulation: An Educational Solution During the COVID-19 Pandemic

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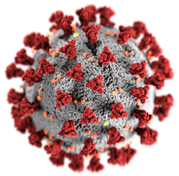
Introduction

Background

FLS™ FUNDAMENTALS of LAPAROSCOPIC SURGERY

- The fundamentals of laparoscopic surgery (FLS) is an internationally recognized educational module and certification developed by SAGES and endorsed by the American College of Surgeons.

- Previously, the General Surgery residency program at the University of Toronto has organized a hands-on FLS boot-camp to teach PGY1 residents technical skills from the FLS curriculum.



- In the era of COVID-19, in-person training sessions have become difficult, or not possible, to organize.
- To continue high quality surgical education for our residents, educational solutions are required.

Objectives

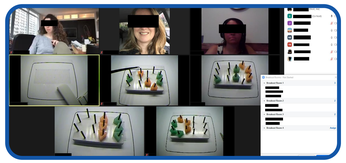
The objective of this study was to develop and deliver a virtual FLS manual skills program using telesimulation to PGY1 residents in lieu of in-person training sessions and to compare the effectiveness and participant experience of this virtual course to the traditional format.

Methods

Program Development & Course Survey



Creation of Virtual Program
- 20 FLS Kits Created
- Included all components necessary for virtual setup



Virtual FLS Sessions
- Used Zoom platform on a professional account for virtual sessions
- Task demonstration as a group with breakout rooms used for individual instruction & coaching

Program Format
- 3 training sessions
- FLS exam on 4th week
- Pre- and post-course surveys administered

Results

Virtual Course Experience

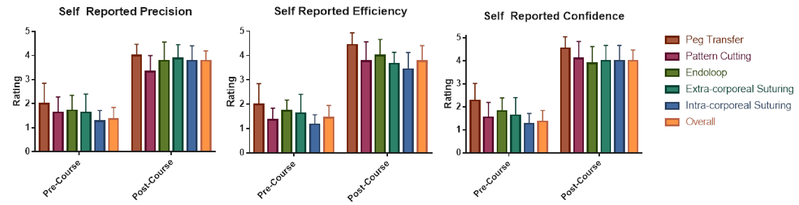
Of 14 participants, 11 responded to the surveys. Participants were largely Canadian trained physicians with little to no previous experience with the FLS tasks or laparoscopic surgery. Key results of the survey are shown below.

Virtual Experience
- Easy to setup and convenient to use (4.3 ± 0.5)
- Zoom sessions were of high quality (4.7 ± 0.5)
- Valued having an FLS box at home to practice anytime (5.0 ± 0)
- Practiced more at home compared to at a sim centre (4.9 ± 0.3)

Overall Experience
- Course was of high quality and met my expectations 4.4 ± 0.5
- Feel confident about taking the FLS exam 4.7 ± 0.5
- Would recommend a virtual FLS boot camp for future PGY1s 4.7 ± 0.5

Results

Self-Reported Proficiency with FLS Tasks



On self-reported proficiency with FLS tasks, respondents reported a statistically significant improvement on a 5-point likert scale from pre-course ratings of 1.5 ± 0.5, 1.4 ± 0.5 and 1.4 ± 0.5, to post-course ratings of 3.8 ± 0.6, 3.8 ± 0.4 and 4.0 ± 0.5 (mean ± SD) for efficiency, precision, and confidence, respectively ($p<0.01$).

On the FLS exam, 13 of 14 participants passed the manual skills component.

Conclusions

We developed a practical and effective tele-simulation based hands-on FLS course as an alternative to in-person training during the COVID-19 pandemic. The course was well-received by participants, being preferred to the traditional hands-on method.

With the ever-expanding technological solutions available, virtual tele-simulation education is an attractive and potentially under-utilized method, not only in the setting of COVID-19 or remote and under-resourced areas, but also in mainstream educational programs.