Laparoscopic Simulation During Surgical PA Onboarding: A Pilot Study

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OBJECTIVES

- Explore the **trends of open vs laparoscopic vs robotic surgery** as they relate to the roll of a surgical physician assistant (PA)
- Demonstrate **how operative approach changes the onboarding process** for a surgical physician assistant

BACKGROUND

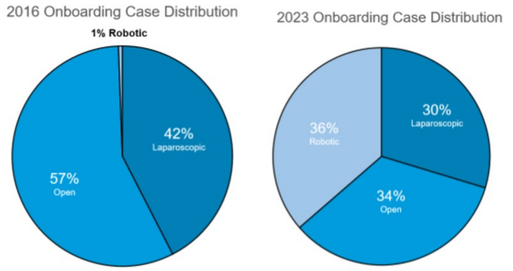
- Physician assistant education is **fast paced**
- Within the 24-36 month didactic and clinical curriculum, there is **limited dedication to surgical skill development** and longitudinal procedural exposure
- New graduate PAs must complete **additional orientation and onboarding** when entering a surgical specialty
- With the emergence and shift to robotic surgical approaches, **the role of the bedside surgical physician assistant changing**

LOCAL DATA

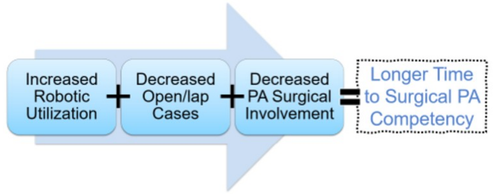
One surgery center has shown surgical cases shift from 50% open and 50% minimally invasive surgeries in 2016 to 34% and 66% respectively in 2024. (Depicted to the left in pie graph).

Identifying and counteracting this change in the surgical PA landscape impacts surgical PA competency and operative proficiency.

OPEN VS LAP VS ROBOTICS



BOTTOM LINE



METHODS

APPROACH

A laparoscopic simulator was created and utilized with the goal of **improving basic laparoscopic instrumentation proficiency (control, efficiency, and trajectory) and laparoscopic hand-eye coordination**

PROCESS

Daily modules provided continuous exposure to establish muscle memory. Two phases of laparoscopic exercises were created to incrementally assess and improve laparoscopic capability.

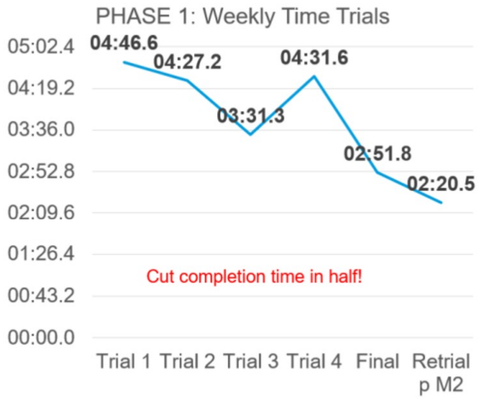
PHASE 1: Foundational laparoscopic skills (hand-eye coordination, trajectory efficiency)

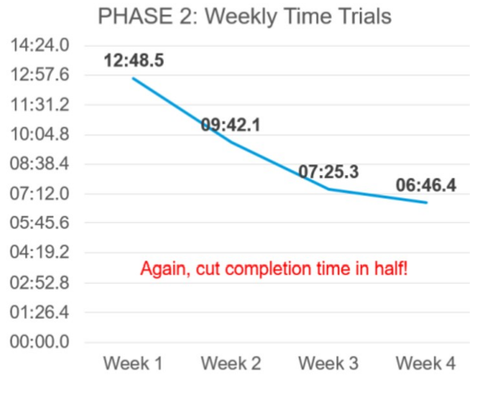
PHASE 2: Advanced techniques (non-linear and mirrored visualization)

METRICS

Weekly time trials were performed to assess participant efficiency and perceived confidence with a standardized set of maneuvers. **Time to completion** was the primary metric of the study with the secondary metrics of perceived confidence of the participant and the attending surgeons.

RESULTS

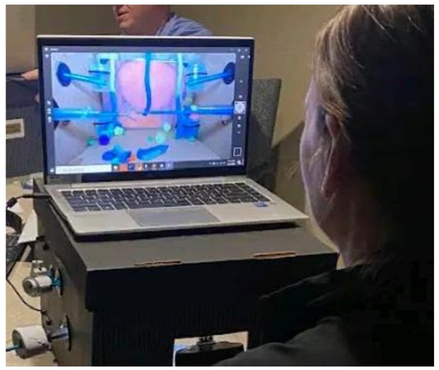




RESULTS

Time to completion of time trials of both phases improved (phase 1 module time trials decreased by 50% and phase 2-time trials decreased by 52.3%). Also, participant proficiency and perceived confidence by the attending surgeons increased by 20.5% and increased by 21.5%.

SIMULATOR



CONCLUSIONS

Utilization of a laparoscopic simulator during the onboarding phase of a surgical physician assistant resulted in improved:

- Competency and efficiency with laparoscopic ability and
- Comfort with routine first assist tasks
- Hand-eye coordination
- Competence with Carter-Thomason device
- Comfort with laparoscopic instrumentation
- Team engagement and collaboration