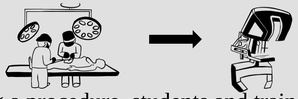
Enhancing Students Learning Experience During Minimally Invasive Procedures Using Integrated Educational Prompts

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Background

- Robotic surgery (and to some extent laparoscopic surgery) is often one-man procedure with limited interactions with the rest of the team/trainees/students.
- Surgical training programs need assistance with process of learning amid ongoing technological innovations.
- Cognitive training fosters the operative learning experience without consuming the valuable operative time.
- Alternative surgical curricular objectives are being explored in the face of the COVID 19 pandemic, these include live streaming of the operative camera.

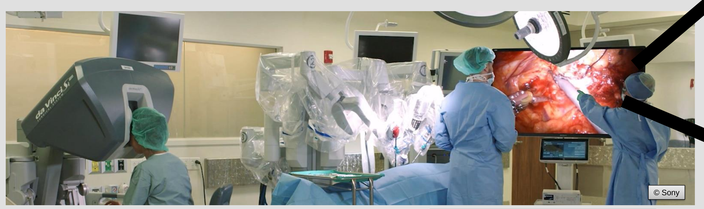
Current limitations



- During a procedure, students and trainees have limited learning opportunities worsened when the learners don't scrub or participate in the procedures.
- Medical students have difficulty in retaining information.
- Role of interactive technology-enhanced learning in surgical education is not entirely explored.
- Video-recording-aided evaluation of operative skills has been proposed, but these videos and scenarios are challenging to collect and bank.

Objectives

- Engaging students and resident in surgical procedures with learning activities that improve their knowledge, understanding, and application of knowledge.
- Fill the urgent and challenging need for surgical training utilizing alternative curriculum components.



Surgeon

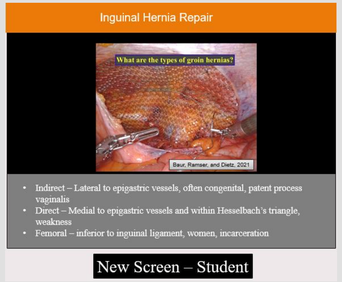
Learner – Old screen



New Screen – Resident

Technology

- Educational materials such as questions, information, and tips that relate to the surgical procedure are prepared in a slide-show fashion.
- Examples of these prompts are a question for learners to recall the anatomy of an inguinal hernia, a prompt to identify the Vas, or a short review of the types of repair of groin hernias provided on a slide in brief. (below)
- Alternative, more advanced application could include going through the steps of complex procedures (above)



New Screen – Student

Setting

- These educational materials presented on only the operating room's shared screen in a way that does not block the surgeon view.
- The flow of material presentation is controlled by the surgeon or run automatically according to pre-programed setting prepared according to the learning objectives.
- Prompts are designed and structured according to the learning objectives of each disease or procedure.
- Learner's input and participation in preparing these prompts can help direct the educational activity toward their needs.
- The real educational value of these prompts is in the thinking and interactive discussion that take place around the points.
- Interactions between learners/students and responses are valuable points to build further discussion.

Results

- Learners review valuable information relevant to the procedure and practice its application to foster their learning experience.
- Facilitate and enhance the educator role of the attending surgeon to raise educational points, initiate discussions, prompt further learning to enrich the educational outcome of robotic surgery

Conclusion

- The frequently unused time and opportunities during all minimally invasive procedures can be turned to educationally rich learning experience for medical students.

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