ACS 2023 Surgeons and Engineers: A Dialogue on Surgical Simulation Meeting

Challenges in Surgical Education

Intraoperative GoPro Mount: The Future of Surgical Education

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Background: Surgical residents learn to be proficient attendings through various learning activities, but perhaps the most valued opportunity is through direct observation of procedures complex operations. However, there are fundamental limitations to this approach; Residents only have so much time to spend in the OR (and viewing a 5 minute technique might take a hour of waiting), there is a limitation to the number of observers who can closely observe a procedure, and video of procedures (live or recorded) are often not from the same perspective as the surgeon performing the technique.Incorporating video analysis of residents' OR performance has been shown to be a useful tool in surgical education. A surgical team from the Department of Surgery at the University of Ontario conducted a study comparing Conventional Training (CT) (i.e. written evaluations from attending surgeons) with a new method called Comprehensive Surgical Coaching (CSC), which incorporated video feedback sessions. The surgeons found that CSC was more effective than CT for quality feedback.

Current Challenges: While video is an effective tool for surgical teaching, there lacks an effective way to integrate cameras into the workflow of the OR that effectively capture the surgeons' view. Sterile field concerns (especially when using Surgical Helmet Systems), issues with OR lights, and the camera's field of view are just a few hurdles that must be overcome when capturing a surgery.

Need of Innovation: Our team, has developed a 3D-printed camera mount for integration into a surgical helmet system. This mount enables the capturing of a surgeon's vantage point that is often difficult to achieve with other camera mounting options. our goal is to integrate this device with residency education. We aim to build a surgical library for review and encourage residents to film their cases for skillset improvement and hope to spread this system and approach to other surgical programs for their own use.