Virtual ACS 2021 Surgeons and Engineers: A Dialogue on Surgical Simulation Meeting

Challenges in Surgical Education

Digitising Surgical Process for Shared Online Learning

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Background: Surgeons need to continuously learn and improve; review, assessment and revalidation of performance is critical. Currently, this is relatively cumbersome and there is little standardization across specialties and healthcare providers.

Current Challenges: Surgeons are unable to track their performance over time, which makes standardization of surgery and sharing of best practices challenging. Surgical record keeping is inadequate and there is a lack of secure and usable storage solutions. There is no clear standpoint in healthcare for digital data acquisition and utility. Trainees have restricted hands-on operating time, and there are limited technological solutions that they can use to rehearse and assess ahead of 'real-time' operating. There are no standard solutions to track trainees' performance and progress over time, making it difficult to evaluate performance quantitatively.

Need of Innovation Introduction: Novel technology is required to enable the sharing of best practices, monitoring and performance review. We built TouchSurgery Professional (TSPro), on top of the globally recognized and validated simulation-based training platform, Touch Surgery. TSPro, a web platform for surgical video data storage, annotation and dissemination, is designed to allow surgical professionals to have access anytime, anywhere to documentation and training materials of previously performed cases. TSPro allows quick and easy labelling and annotation of surgical video data, provides searchable video content of complicated or interesting cases. As well as annotation of different phases/ steps of the operations for access and video streaming. In addition, since manually annotating every single surgical case is time consuming, TSPro supports AI-powered automatic annotation of a subset of surgical procedures. This automatic annotation is based on a novel surgical nomenclature designed to drive standardization and facilitate the sharing of experiences and best practices across teams. This provides trainees with access to a large surgical library of annotated cases to learn from and compare against.