Defense Health Agency (DHA) Clinical Communities Speaker Series

SEPT 2022 CCSS: Transformative, Innovation-Based Updates in Modern Health Care Practice

S05: Surgical Telementoring Supports Regionalized Surgical Care in the Defense Health Agency Market

Resource List

As health care evolves in an increasingly connected world, there is a growing interest in the potential synergy between telemedicine and minimally invasive surgery. The development of digital surgery and introduction of new technologies have resulted in new and efficient ways to train and monitor the surgeon's performance. Robotic surgery provides an ideal environment for surgical telementoring and telesurgery given its endoscopic optics and mechanized instrument movement. The authors of the article, Telementoring for minimally invasive surgery (2020) reviewed the present status, current challenges, and future promise of telemedicine in minimally invasive surgery with a focus on urological applications.

Educating surgeons is a time-consuming process. In addition to theoretical knowledge, the practical tasks of surgical procedures must be mastered. Translation of such knowledge from mentor to mentee may be efficiently done by surgical telementoring (ST). Within the article, Educational value of surgical telementoring (2021) the concepts of ST were outlined including recent technological advances that have made surgical education more available and applicable.

Telementoring platforms can help transfer surgical expertise remotely. However, most telementoring platforms are not designed to assist in austere, pre-hospital settings. This article, Evaluation of an augmented reality platform for austere surgical telementoring (2020) evaluates the system for telementoring with augmented reality (STAR), a portable and self-contained telementoring platform based on an augmented reality head-mounted display (ARHMD). The system is designed to assist in austere scenarios: a stabilized first-person view of the operating field is sent to a remote expert, who creates surgical instructions that a local first responder wearing the ARHMD can visualize as three-dimensional models projected onto the patient's body. The hypothesis within the article evaluated whether remote guidance with STAR could lead to performing a surgical procedure better, as opposed to remote audio-only guidance.

References

Butt, K., & Augestad, K. M. (2021). Educational value of surgical telementoring. *Journal of Surgical Oncology*, *124*(2), 231–240. https://doi.org/10.1002/jso.26524

Collins, J. W., Ma, R., Beaulieu, Y., & Hung, A. J. (2020). Telementoring for minimally invasive surgery. *Digital Surgery*, 361–378. https://doi.org/10.1007/978-3-030-49100-0_27

Rojas-Muñoz, E., Lin, C., Sanchez-Tamayo, N., Cabrera, M. E., Andersen, D., Popescu, V., Barragan, J. A., Zarzaur, B., Murphy, P., Anderson, K., Douglas, T., Griffis, C., McKee, J., Kirkpatrick, A. W., & Wachs, J. P. (2020). Evaluation of an augmented reality platform for austere surgical telementoring: A randomized controlled crossover study in Cricothyroidotomies. *Npj Digital Medicine*, *3*(1). https://doi.org/10.1038/s41746-020-0284-9