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Research Abstracts

Training Impact of Simulated Laparoscopic Appendicectomies (TISLA)

David Rawaf, MBBS, MD - MERIT, MSc; Joseph Toms, MD; Gurpreet Beghal; Elliot Street, MBChB; Jordan Van Flute; Noor Kaur, Anna Joynson, and Harry Sharples, MBChB, MRes

Inovus Medical, United Kingdom; Epsom and St Helier University Hospitals, United Kingdom

Introduction: Abstract Study Objective: To assess the impact of Augmented Reality Training on improving completion of Laparoscopic Appendicectomies using objective performance metrics. Design: Utilising the LapAR™ by Inovus Medical Ltd (UK), we supervised surgical trainees performing several Augmented Reality simulated appendectomies interspersed with LapPass tasks*. Objective metrics measured include time to completion, distance travelled by instruments, instrument acceleration, hand dominance and instrument time in view. Comparison was made with a benchmark score set by an experienced minimally invasive surgery (MIS) surgeon. Subjective performance feedback was also provided by experienced surgeons using the work-based assessment (WBA) framework.*Activities including laparoscopically passing thread through a hoop, manipulating hoops between instruments, positioning hoops on posts, cutting simulated skin within guidelines and placing sutures laparoscopically.

Methods: Setting: A National Health Service (NHS) University Teaching hospital in South London. Patients or Participants: Surgical trainees (Senior House Officers and Registrars) qualified doctors of at least 1 year. Interventions: During the course, benchmarks of both LapPass tasks and Appendicectomies were set by each trainee in addition to an experienced MIS surgeon. Trainees were then asked to perform a series of tasks including further Appendicectomies and LapPass tasks. Following this period of intervention, trainees were set a final benchmark to compare to their original.

Results: Measurements and Main Results: We found that the performance metrics improved when comparing initial & final benchmarks. In addition, the final benchmark metrics of the trainees were compared in a standardisation exercise to the benchmark set by the experienced MIS surgeon. Of note, time to completion and distance travelled were both markedly reduced following the intervention period. WBA based review of performance demonstrated a marked improvement in surgical skill.

Conclusions: Augmented Reality task training using a high-fidelity Laparoscopic box trainer such as the LapAR™ improves objective and subjective performance in simulated appendectomy completion. It can be inferred that this technique improves the surgical learning curve whilst safely taking it away from the live patient.