

## **In-Theatre Simulation as a Training Tool for Laparoscopic Salpingectomy in Eldoret, Kenya**

**Lauren Roop,<sup>1</sup> Samson Iliwa,<sup>2</sup> Jenny Yang,<sup>3</sup> Wan-Ju Wu<sup>4</sup>**

<sup>1</sup>Indiana University School of Medicine, <sup>2</sup>Moi Teaching and Referral Hospital, Department of Reproductive Health, <sup>3</sup> University of Toronto Department of Obstetrics & Gynaecology, <sup>4</sup>Mount Sinai Medical Center

**Background/Objective:** Minimally invasive surgery (MIS) offers many advantages over open procedures including decreased patient safety risks and reduced burden on healthcare infrastructure. As low- and middle-income countries (LMICs) are disproportionately affected by these aspects of surgery, there is motivation to increase MIS. A multimodal training program in laparoscopic salpingectomies was piloted with a small cohort of OB-GYN registrars and consultants at Moi Teaching and Referral Hospital (MTRH) in Eldoret, Kenya. This project assesses the in-theatre simulation's (1) effectiveness in improving laparoscopic knowledge and skill confidence, and (2) feasibility for long-term implementation at MTRH and in similar settings.

**Methods:** Participants completed a half-day in-theatre simulation of a laparoscopic salpingectomy. The simulation required participants to demonstrate knowledge of laparoscopic setup, proper patient positioning, procedure completion, equipment troubleshooting, and peri- and intra-operative complication management. Participants completed a multiple-choice laparoscopic knowledge quiz and Likert scale skill confidence survey immediately prior to and following the simulation. Pre- and post-simulation responses were compared to assess knowledge and confidence acquisition overall and across content topics.

**Results:** There was a significant increase in the average knowledge quiz score from pre- to posttest ( $p=0.028$ ). A significant difference between pre- and posttest confidence was noted in four of the six skills assessed. By topic, equipment troubleshooting ( $p<0.001$ ), and complication management ( $p<0.01$ ) saw the most improvement. Barriers to long-term sustainability include unpredictable theatre and laparoscopic tower access and availability of supplies for uterine modeling. A modified model using nitrile gloves as fallopian tubes will be piloted in future simulations as a more accessible alternative for long-term implementation.

**Conclusion:** Despite limitations, in-theatre simulation has the potential to be an effective and sustainable teaching tool within a long-term MIS training program at Moi Teaching and Referral Hospital. The low-cost model and methods outlined may also be replicable in similar low-resource settings.