

workplace based training. This study aims to establish face, content and construct validity of the SEP Robot (SimSurgery), a virtual reality simulator.

**METHODS:** Thirty participants (18/12; novices/experts) completed the following tasks: arrow manipulation and performing a surgeon's knot. They also completed the survey questionnaires to evaluate face and content validity. Ratings were scored on a five-point Likert-scale. Construct validity was analyzed by comparing the mean performance variables between novice and experts, using a 2-tailed independent samples t test.

**RESULTS:** Ninety one percent of the participants agreed that the VR simulator is useful for training in endoscopic skills such as hand eye coordination and suturing. Arrow placement sub-tasks were significantly better in the expert group. These included time to completion ( $p=0.03$ ), dropped arrows ( $p=0.005$ ) and closure of entry sum ( $p=0.02$ ). Surgeon's knots subtasks were significantly better in the expert group as well. These were time to completion ( $p<0.001$ ), Maximum tightening stretch (0.002), maximum widening stretch (0.02) and total collision sum (0.001). Within the arrow placement tasks, no difference was found for lost arrows and tool collision sum.

**CONCLUSIONS:** The SimSurgery simulator can distinguish between expert and novice robotic surgeons. This study also establishes its content and face validity that was evaluated through a survey questionnaire. Further multi-centre studies evaluating learning curve and establishing effectiveness of simulation based training in robotic surgery are needed.

**Source of Funding:** None

## 1482 CONTENT AND CONSTRUCT VALIDATION OF ROBOTIC SURGERY CURRICULUM USING ELECTROMAGNETIC INSTRUMENT TRACKER

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**INTRODUCTION AND OBJECTIVES:** Rapid adoption of robot-assisted surgery has outpaced our ability to train novice roboticists. Objective metrics are required to adequately assess robotic surgical skills, yet surrogates for proficiency such as economy of motion and tool path metrics are not readily accessible directly from the da Vinci robot system (Intuitive Surgical, Sunnyvale, CA). The trakSTAR Tool Tip Tracker (Ascension Technology Corporation, Burlington, VT) is a widely available, cost-effective electromagnetic position sensing mechanism by which objective proficiency metrics can be quantitated. In this study, we seek to validate a robotic surgery curriculum using the trakSTAR device to objectively measure robotic task proficiency metrics.

**METHODS:** Through an IRB approved study, ten subjects were recruited from two surgical experience groups (novice and experienced). All subjects completed three technical skills modules (Fundamentals of Laparoscopic Surgery (FLS) block transfer, FLS intracorporeal suture/knot, and ring tower transfer) using the daVinci, with the trakSTAR device affixed to the robotic instruments. Objective metrics recorded included task time and path length, which were used to calculate economy of motion. Student's t-test statistics were performed using STATA (StataCorp LP, College Station, TX).

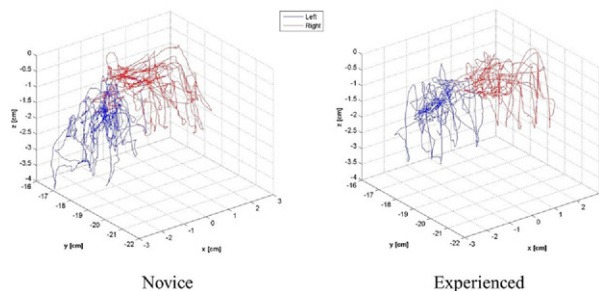
**RESULTS:** The novice group consisted of 5 subjects, as did the experienced group. The experienced group outperformed the novice group in all three tasks (see attached table). The experts described the simulator platform as useful for training and agreed with incorporating it into a residency curriculum.

**CONCLUSIONS:** Robotic surgery curricula can be validated through the use of an off-the-shelf instrument tracking system. This platform allows not only surgical educators to objectively assess their trainees, but may also afford credentialing offices a means to objectively assess any surgical staff member seeking robotic surgery privileges at their institution.

Means for Novice vs. Experienced for Three Tasks

	Block Transfer Time (s)	Block Transfer Path (cm)	Block Transfer Econ of Motion (cm/s)	Suture Time (s)	Suture Path (cm)	Suture Econ of Motion (cm/s)	Ring Tower Transfer Time (s)	Ring Tower Transfer Path (cm)	Ring Tower Transfer Econ of Motion (cm/s)
Novice	128.6	217.7	2.168	177.6	226.4	1.306	551.6	677.5	1.276
Experienced	84.65	227.7	2.750	90.70	154.7	1.770	162.5	319.2	1.996
p-value	0.006	0.038	0.012	0.004	0.013	0.0498	0.016	0.021	0.001

Tool Tip Path During Block Transfer Task



**Source of Funding:** None

## 1483 SKILLS-BASED LAPAROSCOPIC COURSE PARTICIPATION LEADS TO PRACTICE EXPANSION AS WELL AS A BRIDGE TO ROBOTIC SURGERY

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**INTRODUCTION AND OBJECTIVES:** The AUA Mentored Laparoscopy course was designed to provide skills-based laparoscopic training to practicing urologists. Prior studies challenge the long term impact of post-graduate courses on the incorporation of laparoscopy into urology practice. We sought to evaluate the impact of the AUA Mentored Laparoscopy course on urologists' clinical practice.

**METHODS:** A total of 153 urologists have taken the Mentored Laparoscopy course from 2004 to 2009. The 2-day course included daily lectures, performing standardized tasks on a pelvic trainer with videotape analysis and participating in a porcine laboratory with mentoring from known experts. Surveys were sent by regular and electronic-mail in April 2010.

**RESULTS:** Of the 153 surveys sent out, 91 (60%) were returned (mean follow-up of 34.5 months). The majority of the respondents (82%) were in a group private practice, followed by solo private practice (15%) and full-time academic practice (3%). Ninety-two percent of the respondents stated that they had sutured laparoscopically, 52% had sutured a bleeding vessel and 51% had performed reconstructive laparoscopy since taking the course. Seventy seven percent of the urologists stated that their laparoscopic practice had expanded since taking the course (mean of 2.5 cases/month). Of the 91 respondents, 41 (45%) urologists performed robotic surgery in their practice (mean of 3.8 cases/month) and 39/41 (95%) felt that their laparoscopic experience had helped with their transition into robotic surgery. Overall, survey respondents were pleased with their experience during the course with 89/91 (98%) stating that they would recommend the course to a friend.

**CONCLUSIONS:** Long term results reveal that alumni of the AUA Mentored Laparoscopy course report an expansion in their laparoscopic practice since taking the course as well as a possible benefit in their transition into robotic surgery.

**Source of Funding:** None