



SURGICAL TECHNOLOGY: DA VINCI ROBOTICS TRAINING

Surgical Technology - Spring 2023
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PROBLEM

Identify the specific shortcoming in student achievement you wish to improve. What problem or challenge to student learning did your assessment project aim to address?

Doctors use many advanced technologies that enhance their capabilities beyond what the human body allows. Surgeons perform robotic-assisted minimally invasive surgery using a da Vinci robotics system because it extends the capabilities of their eyes and hands. As the demand for robotics continues to grow, our faculty identified a need to provide our surgical technology students with an in-depth training using the da Vinci robotics system and specialty instrumentation, giving them hands-on experience with individualized instruction and assessment of skills and performance to better prepare them for the clinical component of the program.

PLAN

Summarize your plan to improve your students’ learning, measure student performance in the problematic area, and assess improvement.

The plan was to develop a hands-on training in collaboration with St. Mary-Corwin Hospital and Intuitive Surgical with the purpose of providing knowledge, skills, and necessary simulation training using the da Vinci robot, console, specialized supplies and instrumentation. This opportunity will enhance the students’ learning by providing individualized instruction in a simulated environment using 3D technology while performing in the first scrub role. Student performance data would be collected and assessed through a skills demonstration and a written exam.

ASSESSMENT ACTIVITY

Provide further details on your assessment activity. How was your plan implemented, how was evidence of student learning gathered, and how was the data analyzed?



Our surgical technology faculty partnered with David Archuletta, RN at St. Mary-Corwin Hospital, and Travis Kennedy, representative of Intuitive, to provide hands-on training using the da Vinci robotics system.

Activity: This workshop took place in an operating room at St. Mary Corwin Hospital. Kennedy talked through surgical procedural steps in real-time using the integration of high-resolution 3D vision and precisely controlled wristed

instruments that use intuitive motion control. Students got the opportunity to sit in the surgeon console and learn how to drape and dock four interactive robotic arms, use a specialty camera and instrumentation, perform safety checks, and operate a high-definition 3D vision system.

Evaluation: Faculty performed analysis through observation and written exams, and results were used to identify individual student needs and develop a new da Vinci training with comprehensive skill competencies. Additional activities used to prepare and evaluate students included surgical case studies, written evaluations, skills demonstrations, participation scores, peer feedback, and formative and summative reviews.

RESULTS AND DATA

Discuss the results of your assessment activity, identify key findings, and provide relevant supporting data, including tables, charts, and graphs as relevant.

Implementation of the da Vinci robotics workshop has proven to increase our student’s skill level in performing robotic surgical procedures in the first scrub role. Assessment data provided an immediate path for developing new curriculum and will continue to support faculty in delivering quality classroom and hands-on training. Key findings identified that students needed to learn this new level of technical capability to better understand how this technology enables minimally invasive surgery in complex procedures.

Activity	Results
Instrument Exam: Robotic Instrumentation, Supplies and Equipment	Pre-Test: 23/23 >50% Post-Test: 19/23 100%, 4/23 90%
Da Vinci Training Course	23/23 students scored 100%; awarded certificates of completion
Surgical Case Study: Ventral Hernia Repair	23/23 students completed prior to training
Surgical Case Study: Hysterectomy	23/23 students completed prior to training
Clinical Placement	23/23 students were scheduled in robotic surgical procedures within their first week of rotations in a hospital placement

CLOSING THE LOOP AND NEXT STEPS

Discuss the results of your assessment activity, identify key findings, and provide relevant supporting data, including tables, charts, and graphs as relevant.

Our faculty sees student success as a cooperative effort, and we value interaction between our students, faculty, surgeons, and other surgical technologists and operating room staff. Faculty will continue to assess student learning with the goal of increasing the students’ skill level and knowledge while promoting critical thinking and reasoning, all of which are necessary to gain employment as a surgical technologist while becoming a contributing member of the health care team.