Practice makes perfect for student surgeons

by Dean Olsen

Dr. Lori Cudone held one end of an endoscope with her left hand and practiced working the controls with her right as she maneuvered the thin, flexible tube around several corners.

Cudone, in her first year of a five-year surgical residency at Southern Illinois University School of Medicine, fixed her eyes on a video screen as she snaked the extendable instrument down and around the corners of a cavity she was exploring. Guiding her was a video monitor connected to a tiny video camera at the end of the scope.

PRACTICE MAKES PERFECT - Dr. Gary Dunnington, left, instructs fourth-year medical student Mary Thake, visiting physician the Rev. Scott Binet and fourth-year student Kourtney Bradford in the SIU Surgical Skills Lab at Memorial Medical Center in Springfield, Ill. CNS Photo by T.J. Salsman.

She was all business as she worked the scope, a common tool for doctors wanting to see inside the esophagus, bowel, lungs, uterus and other organs.

But there was no patient on this operating table, and no life at stake. Cudone was feeding the scope down sections of multi-colored plastic tubing, originally designed for hamsters. She didn't have to worry about damaging sensitive tissue with a wrong move, taking too much time or looking like she didn't know what she was doing.

"It's lower stress here," said Cudone, 48, a former Charleston, Ill., chiropractor with a medical degree who is on track to become an ear, nose and throat specialist. "There are no ramifications if you do something wrong. You're never going to do something perfect the first time."

SIU is one of a growing number of medical schools that have created special laboratories to help medical students as well as doctors in specialty training programs become more proficient at basic surgical skills before they try those techniques in operating rooms.

The goal is to make them better doctors in the long run. In the short term, SIU officials said the Surgical Skills Lab could reduce the risk of inexperienced doctors making errors when they operate on real patients during their residencies. "It's moving the sharp part of the learning curve out of the operating room," said Dr. Gary Dunnington, chairman of SIU's surgery department, who started the lab in 2000, two years after he arrived in Springfield, Ill., from California.

Modeled after the first surgical skills lab at the University of Toronto, SIU's version is housed in the lower level of Memorial Medical Center, across the hall from the hospital's surgical suites. The lab space, which Memorial provides rent-free, contains more than $1 million in equipment, much of it donated by U.S. Surgical and other medical-equipment companies.

Dunnington said Memorial has spent more than $225,000 to build and expand the lab, and the hospital sends about $100,000 to SIU each year to support the lab, including the salaries of two surgical technicians who coordinate the instruction and provide coaching.

"This is a major investment in patient safety ... one we value greatly," Dunnington said.

SIU doctors provide instruction in the lab, as do other physicians from the community who volunteer their time with 75 medical residents and 85 medical students each year. The basic instruction covers suturing and tying square knots - with one hand, two hands and with instruments - all essential skills for successful surgery so doctors can free their minds for medical problem-solving.

They also practice holding a variety of instruments and learn the steps involved in safely using each one. The skills lab is available to residents throughout their years of training, but the work is most intense during their first year, when they must spend three hours in the lab twice a week for three months. Residents and medical students are tested on the skills and evaluated on videotape.

"You want them to become proficient and confident," said Janet Ketchum, a surgical technician who is the lab's coordinator. Ketchum, who has worked with surgical residents in Springfield operating rooms before and after the lab opened, said she detected a big boost in confidence among the younger residents. "Now they don't hesitate so much on the easier skills," she said.

The models that medical students and residents work on come in both high-tech and low-tech versions - including the hamster tubing - as well as anesthetized animals, animal organs and cadavers.

They suture, dissect and probe a steady supply of pig guts donated by the Excel Corp. meatpacking plant in Beardstown, Ill. Pig parts are similar in many ways to the insides of humans, Ketchum said.

Dr. John Sutyak, an SIU trauma surgeon who is director of the lab, said he and other experienced doctors enjoy the more relaxed setting, which he believes is more effective for teaching basic techniques and promoting collaborative relationships between teachers and students. "They can mess up. You can let them go and make the mistake and nobody's harmed," he said. "You want them to feel free to make mistakes and ask stupid questions. You learn a lot from the mistakes."

Dunnington agreed, adding: "The skills lab is the practice arena. The surgery room is the performance arena."

Dr. James Fullerton, 35, a Springfield Clinic general surgeon who completed his SIU residency in 2004, teaches residents about hernia repair in the skills lab. When the Wisconsin native was an SIU resident, he recalled that the skills-lab training was well organized.

"It kind of bridges the gap between the lecture and the operating room," he said, although he said it doesn't replace experiences in the operating room. "The mastery is really done in the operating room."

Dr. Imram Hassan, an SIU surgeon who recently guided residents through the finer points of the endoscope, said young doctors benefit from the lab in the same way airline pilots benefit from flight simulators.

"Why would doctors be any different?" he asked. "When we make a mistake, people die."

Sutyak, 46, a native of Pittsburgh, Pa., received his surgical training at the University of Cincinnati, which didn't have a surgical skills lab at the time. He said he learned mostly in the operating room, under the supervision of mentors, and considered the training first-rate. But he was able to work 90 to 100 hours a week during his residency. Since then, the Accreditation Council for Graduate Medical Education has limited residents' on-duty hours to an average of 80 per week to reduce the risk of patients being cared for by sleep-deprived doctors.

The skills lab helps the medical school deal with the restrictions while ensuring that residents gain the necessary expertise, Sutyak said.

He said the less-exhausting pace would make the residents more compassionate doctors in the end. "Our goal is to make our residents better than we are," Sutyak said.

Dunnington is working with colleagues in other U.S. cities to develop a model curriculum for surgical-skills labs. Only a third of the country's surgical residency programs have skills labs, but the graduate medical education council will require all to have such labs by 2008.

Dr. Christopher Wohltmann, an SIU trauma surgeon and lab instructor, said it's better for doctors in training to make a potentially painful or deadly mistake - such as inserting an endoscope into the windpipe instead of esophagus - in the skills lab when a live patient isn't at risk. (The entry holes for both tubes are less than an inch apart in the back of the throat.) "Bad things happen in real life sometimes," Wohltmann said. "The more times you do it, the more things become routine."

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