

Simulation Lab Gives Nursing Students a Dose of Reality

By KATHLEEN SMITH
Texas Medical Center News

A new Preclinical Critical Care Laboratory at The University of Texas Health Science Center at Houston School of Nursing is giving students hands-on experience with high-risk, low-occurrence operating room circumstances – all in the safety of a simulated environment.

While simulation labs are not unique to Texas Medical Center learning institutions, this particular lab was built to be as lifelike as possible and function as a real operating room. It will be used not only for education, but research as well.

Students recall and put into practice what they have learned in books on a computer-driven human patient simulator called “Stan.” He is so lifelike that his eyes blink and pupils respond to light, he has a pulse, breath, heart and bowel sounds, a realistic airway, realistic skin, he

responds to oxygen therapy and drug intervention, and his vitals change. These types of responses, before only seen in living tissue, can now be used to realistically mimic a human patient during a variety of surgical situations – and ultimately make patients as safe as possible.

“We create scenarios where there are people who will play these parts in the ‘real world’ on a daily basis,” said Kristen Starnes-Ott, Ph.D., nurse anesthesia track director.

Instructors, who sit at a computer terminal, set a scenario for “Stan” that the students then respond to. The simulator will then react to whatever actions the students perform and any functions the instructors program the simulator to counteract with.

“It’s beneficial to see the reaction of the ‘patient’ when you use drug intervention, just like you would in a real OR,” said nurse anesthesia student Sarah Endique, a



NURSING REHEARSING—Nurse anesthesia students at UT Nursing School intervene as “Stan,” their computer-driven human patient simulator, experiences cardiac arrest. (Photo by Phyllis Lengyel)

senior who graduates May 4.

Junior and senior students are working together in the lab. For the juniors, this is their first semester of clinical practice; the seniors are graduating and on their way out into the “real world.”

Starnes-Ott, who has also worked in clinical care anesthesia for the past 12 years at The University of Texas MD Anderson Cancer Center, said the simulation lab poses unique and

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Sim Lab

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challenging exercises. The instructors always have to stay one step ahead of the students – and this becomes especially interesting when the students take a totally different path and perform an intervention that was not anticipated by the instructors – for better or worse.

"There's no time to look in books!" said nurse anesthesia student Jennifer Smith, also a May 4 graduating senior. "There are people who are hands-on learners, like me. This really challenges you, and what you learn you will always carry with you."

Smith said there are several condi-

tions with occurrence rates as low as one out of 1,000, such as malignant hyperthermia.

"Most nurse anesthetists experience this only one time on average during their career," she said. "If you don't know which measures to initiate right away, your patient will die."

What Happens in the Sim Lab Stays in the Sim Lab

"Without a doubt, we've all made mistakes," Smith said. "But it's a safe environment to learn in."

Some students were at first apprehensive about the artificial environment, Starnes-Ott said. But because it is a simulation, they quickly came to realize that if mistakes were made, it would be OK.

If, for example, a wrong medication is given, the simulation is stopped and a lesson is learned at that moment.

"It's done. It's taken care of," said Starnes-Ott. "It doesn't leave the lab. It doesn't even filter to other faculty. It's used as a learning example versus an evaluation tool. I know there is some debate about using the lab for evaluation, but we don't envision it that way," she said.

Endique echoed Smith's sentiment, saying how humbled she felt by her errors.

Area Alliances

The UT Nursing School is using the new lab to build relationships with various community preceptor sites. Various Houston hospitals are provid-

ing nursing students with internships. In turn, the nurse-anesthetist mentors from these locations are invited to the lab to "brush up" on their skills. For most of the mentors, simulation labs like this one were not available when they were nursing students. Since many of these high-risk scenarios occur rarely, the practiced professionals can take these skills back to their job sites and put these refreshed skills into practice, should they need them – and be confident that they are ready to go.

Endique, who will go to work for Texas Children's Hospital after graduation, said area employers are always looking for the situational awareness skills the sim lab has presented.

Thanks a Million

The lab space, totaling more than 1,000 square feet, cost more than \$1 million to construct and equip. University of Texas School of Nursing donors helped defray the cost.

"We really appreciate the donors and what they did for us," said Smith, who has a job waiting for her at The University of Texas MD Anderson Cancer Center after graduation. "I am honored to be among the first to use it. I will be interested to see the research on improving patient care that comes out of it."

For more information on the Pre-clinical Care Critical Care Laboratory, visit <http://youtu.be/g1j1AIQ1bL4>. ■

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Colonel

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and discipline," he said. "You have to be a self-starter, you have to be driven. There are times when it's pretty overwhelming."

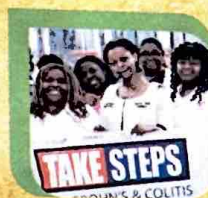
He remembers looking at a 1,300-page textbook and thinking, "I have to read that in how many weeks? And remember it?"

Yet the intensity is necessary, he said. There are no shortcuts in the training because, at the end of the day, people's lives are at stake.

"The way I look at it is let's go for it. Let's learn. At the same time, let's take what we've learned and help others." ■

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