



Center Nurses Skills and Confidence

JCCC's new nursing simulation center includes four rooms, a nurse's station and a surgical suite.

Facility

Cover: (left to right) Teresa Crowder, adjunct assistant professor, Rochelle Quinn, adjunct associate professor, Kathy Carver, professor, Mindy Ritter, adjunct assistant professor, and Janalee Isaacson, professor, are among the nursing faculty who teach in the simulation center.

Art and science have long been the foundations of nurse education. Now, add technology and communication.

In spring 2008, Johnson County Community College's nursing program opened a patient simulation center so realistic that it would be the envy of any hospital in the country. The 1,500-square-foot center has the look, feel and equipment of four general medical-surgery rooms and a large suite that can function as an operating room, labor/delivery room, emergency room or multi-bed recovery room.

"This type of center is very unusual. Other nursing programs may have individual rooms for simulation but not a whole hospital environment as realistic as this one," said Kathy Carver, JCCC Zamierowski Family Endowed Professor for Nursing and Medical Simulation.

Each of the four rooms has infusion pumps for intravenous fluids and medications; vital sign monitors, including telemetry capability to measure abnormal heart activity; lines with real gases like oxygen; human waste disposal systems; sinks; power columns; and communication lines for calling hospital codes. Every room has its own provisions including protective gloves, gauze, tape, IV tubing, EKG cables, phlebotomy supplies (lancets and tourniquets) and respiratory devices (nasal masks and oxygen tubing).

"We want to keep the setting as real as possible," Carver said.

A gurney-size door allows entrance into the main hall with a nurse's station at one end, the multi-functional suite at the other. In addition

to the same technology as the medical-surgery rooms, the suite has four large high-efficiency, shadow-free operating lights mounted on the ceiling and a surgery hand-washing area. Students can train for surgery; births, including ones with C-sections and other complications; or care of multiple patients in a post-op unit or trauma center. The large suite can also be used as a media classroom for debriefing simulation exercises.

The hospital unit will be furnished with four hospital beds, four transport beds, an operating table, birthing bed, bassinet for newborns and defibrillators.

The main hallway will have a secured Pyxis Medstation, an automated drug dispensing unit for controlled substances; a refrigerator for IV fluids; and another refrigerator for dietary services. A separate locker room gives students individual cubby storage cabinets and a counter-top with outlets for laptop computers.

Even ambient sounds of a hospital, such as operator pages, will be programmed into the lab.

There's only one thing missing from this otherwise lifelike hospital floor – real patients. Instead, the center is populated by highly sophisticated patient simulators that can be programmed with hundreds of symptoms of acute and chronic diseases/disorders and respond physiologically to treatment. The patient simulation center will have eight simulators – five

adults, one pediatric, and two birthing simulators with newborns.

One of the major components of this teaching environment is an audiovisual system (three cameras per room) that films students in every aspect of their work – from starting IVs to suctioning patients on ventilators. Cameras and microphones will capture decisions, beginning in the hallway when the patient first enters the unit.

Hidden behind each patient room is a dock where faculty operate the simulators and audiovisual cameras film students. “Students and faculty can use the instant replays to evaluate themselves,” Carver said. “Nursing faculty have learned to appreciate how much the technology enhances teaching.”

Communication is a key to modern hospital safety, according to Carver.

A proposal calls for JCCC to partner with five other nursing schools to use a process for patient profiles with standardized language and documentation. The new system improves patient profiles, discharge planning, patient assessment, plans of care and treatment.

A bar code system, now used in large medical centers, is in place to prevent medication errors. Students scan medications bar codes, followed by scans of i.d. wristbands to ensure the right medicine in the right dose to the right patient.

Carver knew the paradigm would shift to greater simulation in teaching, but never thought it would happen this fast.

“I was just hoping for a dedicated patient simulation room,” Carver said. “I never dreamed the college would have this model of a state-of-the-art hospital unit.”

Funding for the patient simulation lab and added nursing faculty has been made possible from the Educate, Enrich and Enable Fund; Drs. David and Mary Zamierowski; Kansas Board of Regents; Victor E. Speas Foundation, Bank of America, Trustee; Olathe Medical Center; and Mary Katherine Goldsmith.

JCCC received its first simulator in November 2001. During the last two years, three simulators located in a portion of the nursing procedure lab were used more than 250 times per semester for nursing, EMT and respiratory care students. There are very few semester days when the simulators are not in use. That number will only increase with the added space and simulators. All the faculty have been trained to use simulators.

“The students take the simulation exercise very seriously and take a lot of pride in being



Behind the observation glass Mary Smith (left), nursing professor, takes notes and Rochelle Quinn (right), associate professor, nursing, provides the voice and symptoms of the patient. From left: Jena Kerner, student; Colleen Duggan, nursing professor; and students Susan Rupf and Jessica Kolkin.



prepared,” Carver said. “They work together as a group to handle questions. It becomes evident that performance is directly related to knowledge base.”

Students start working with simulators during their second week in the nursing program. The complexity of simulation increases as students advance. Carver says the simulators prepare students for everyday situations as well as situations they may see once every year or two. On simulation evaluations, Carver says students most frequently write, “When can I come back?”

“The simulators make our students good practitioners by building their skills and confidence,” Carver said. “I am excited about the ability to add to the frequency and variety of simulations we can offer students.” 🌿

As viewed from behind the observation glass, students Susan Rupf and Jessica Kolkin work on an obstetrics and gynecology simulator.