New Simulation Center Creates 'Risk-Free' Environment

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In June 2019, a vision became reality when the SSM Health Simulation and Training Center opened its doors to provide new and advanced training opportunities. The medical simulation lab houses the latest technology and equipment for simulation-based learning, which has been shown to improve patient safety and clinical outcomes. While SSM Health has used simulation in some form or fashion for the past 20 years, it has historically occurred in the hospital, on a patient care unit or in a classroom setting — as opposed to a dedicated facility.

A multidisciplinary team formed in 2016 changed all that. The SSM Health team, which includes nurses and physicians, as well as professional staff from education, finance, supply chain, human resources and information technology, began to plan and develop a simulation training center using innovation and technology in training for clinical staff.

The goal is to make the situation and environment real enough to suspend disbelief of clinicians and students by bringing a simulated environment to life. Coinciding with that premise and to ensure the best possible training, SSM Health believes it's critical that physicians, nurses and clinicians have a space where they can learn in a "risk-free" environment.

The SSM Health Simulation and Training Center provides a safe space for clinicians to validate competency and skills in a "life-like" setting, build confidence, and, ultimately, reduce orientation time. Simulated training can clarify situational roles and improve the effectiveness of team communication, a critical competency. Clinicians build skill proficiency and confidence, ultimately reducing the overall length of clinical orientation.

Most important, it allows a team of physicians, nurses and clinicians to work together in realistic scenarios requiring quick response — ensuring positive patient outcomes in time-sensitive emergency situations. There are many examples where even the newest nurses were able to respond at the level of a more seasoned, experienced staff member by having participated in a specific simulation training just days before. Length of time spent in the simulation center varies based on role, with priority given to simulations that have the greatest safety and quality impact.

Simulation training is an invaluable method of instruction because it so closely mimics the situations clinicians face in daily interactions with patients. Industry research shows simulation is the best teaching method for clinicians because it enhances their ability to remember key care aspects by making an emotional and tactile connection. This is accomplished by simulations interacting with the patient and/or family, com-

pleting hands-on assessments and procedures, as well as collaboration among interdisciplinary health care team members. Although the primary focus of the simulation center is on new hires, there are no limits to who can train there. Eventually, roles that have not traditionally been included in simulation-based training, such as housekeeping, will have opportunities to participate.

The simulation center reflects a broad section of hospital, clinic and at-home care environments that reflect the settings in which SSM Health staff and physicians deliver patient care. Consequently, the training provided through simulation covers the best treatment practices under a gamut of expected and unexpected patient scenarios. Simulation-based training also can be used to address situations that are highly complex, fast-paced, and rare, situations when seconds count.

After SSM Health identified the need for a simulation center, the team approached senior leadership about securing funding for the $2.5 million initiative. Although there's always been leadership support for investing in simulation, one of the biggest challenges was demonstrating the potential financial return on the investment. As a result, the costs of first-year employee turnover and bench marking data for infections related to central lines and indwelling urinary catheters guided the decision-making process. The team, with senior leadership support, developed a reasonable return on investment estimate that was key to securing the necessary funding.

In addition, SSM Health's mission and values of compassion, respect, excellence, stewardship and community played an important part of the planning, design and implementation of the new center. A business plan that drew clear lines to our mission and the five values was developed for both short- and long-term goals. For example, "excellence" is one of our values and can be accomplished by improving the training of new nurse hires; supporting staff and practitioners; enhancing clinical competency programs with simulation-based activities; and providing realistic mechanism pathways for new workflows.

After senior leadership approved capital for the new facility, the multidisciplinary team performed rigorous due diligence to determine how the new facility's design could best meet the need for training classrooms, computer labs, a simulation center, office, lactation room, storage and personal work space. The process took about nine months and was critical to the successful development of the new facility.

In addition, facility location, ease of access, and parking structure/space were key factors in the assessment and decision-making process. Finding a suitable, affordable location that could meet the needs of all SSM Health-St. Louis ministries took approximately six months. We chose a location in a St. Louis suburb that met the space requirements, and also was near an SSM Health hospital and shared by the SSM Health Medical Group, a part of our outpatient network.

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In preparation for designing the simulation center, staff connected with simulation professionals and visited several highly recognized U.S.-based simulation centers. They were identified by networking with various simulation experts and groups, which, nationally, tend to be highly collaborative. Specifically, the SSM Health team traveled to the states of Washington, Michigan and Utah to tour simulation centers and learn from experts there.

Learning from others was a key factor in the end design as they shared expert feedback on what worked well and what they would do differently. During the design phase, we repeatedly came back to photographs we'd taken during our visits to other centers. In addition, multiple suppliers gave presentations to our clinicians, who, as a result, were able to test a variety of simulation manikins. The simulation planning team then made investment decisions based on feedback from the clinicians.

Throughout the process, our key objectives for developing the simulation and training center remained top of mind and included:

TURNING A TEAM OF EXPERTS INTO AN EXPERT TEAM

Simulation training can directly improve the effec-

tiveness of team communication and clarify situational roles. It allows a team of doctors, nurses and other clinicians to practice working together in scenarios requiring the unit to respond at its peak performance—ensuring positive patient outcomes in time-sensitive emergency situations. The real learning occurs after the actual simulation during the team debrief, which takes twice as long as the simulation itself. The team is guided through focused debriefing and views relevant portions of the simulation to enhance the learning. To date, most of our simulation scenarios are developed in-house and often are incorporated into existing programs, classes or training, including:

- SSM Health's 12-month new graduate nurse residency
- Orientation for staff nurses, medical assistants and behavioral health staff
- Telemetry classes in monitoring and analyzing patient data for care response
- Mock codes, where training is conducted on various medical and environmental scenarios
- Unit-based competencies
- Interdisciplinary training
- Ongoing professional development

Simulations are used with both novice and expert clinicians and are designed based on the objectives identified. The simulation can be enacted with a small group or it can be played out with two groups of participants (one completing the simulation and one observing via video); both groups then participate in the debriefing. The groups then can either switch roles with the same scenario or participate in a different clinical situation.

As part of our simulation training, SSM Health employs Team Strategies & Tools to Enhance Performance and Patient Safety (TeamSTEPPS), a program developed jointly by the Department of Defense and the Agency for Healthcare Research and Quality (AHRQ). The team-based training program focuses on increased collaboration and communication among health care team members to standardize care and, in the process, reduce the risk of negative patient outcomes.

Standardization of care ensures that clinicians deliver consistent care thereby avoiding errors even in the most stressful emergency situations. Simulation exposes clinicians to uncommon situations where minutes — or even seconds — matter and, like those provided at our new center, gives practitioners of all levels the chance to hone skills and prepare them to perform at the highest level for every scenario.

One of the most unique aspects of the simulation lab is that it's designed to focus on the entire continuum of care — from the medical office to the hospital and then to a home-like setting. To illustrate, a 26-year-old female, who is 36 weeks pregnant and presenting with signs of preeclampsia, can be seen in the provider's exam room. The

A LEARNING ENVIRONMENT

The SSM Health Simulation and Training Center is located in Fenton, Mo., a suburb of St. Louis. The 27,500-square foot facility includes six simulation rooms, eight integrated training classrooms (which can also be used as meeting room space), three computer training suites and a large administrative area that provides shared workspace. The simulation lab and training center features:

- High-fidelity simulators representing varying age ranges to allow simulations at all stages of life
- Patient unit comprising four inpatient rooms, each with an adjoining observation room, a triage area, technical skill space, a medication room and an outpatient exam room
- An apartment living area for training home health care teams
- Working models of patient monitoring and care devices for hands-on training with equipment used in typical daily inpatient or outpatient settings
- Video recording capabilities for the learner and team to review simulated events
- Facilities for providing role-playing interpersonal and behavioral health simulations
- Two simulation debriefing rooms for team/learner reflection from trained facilitator in a safe, confidential space to discuss scenario outcomes
- Technical training spaces for clinical staff to practice tactile skills such as intravenous insertion
- Future planning for mobile transportation to take simulation on the road to actual care settings

provider recommends she go to the obstetric triage unit at the local hospital for further evaluation and a higher level of care. At this point, the patient simulation transitions from the exam room to the technical/triage space. A different group of care providers assesses the patient who is then admitted to the obstetric/pediatric simulation room for inpatient care.

Upon discharge, this same patient could be part of a home health simulation using the apartment living space within the center. The technology of the new center enables the simulation team to manage and record the scenarios in each area as one comprehensive simulation or to divide it into sections based on the participants of the health care team. The "real-life nature" of the simulation is enhanced with the room set ups, sounds within the environment, use of equipment, performing and/or assisting with procedures, and documentation within the electronic health record.

As the health care model transforms from primarily acute care settings to care occurring most frequently in homes and outpatient clinics, it was important for SSM Health to design a center that was focused on the future. In fact, care provided in clinics and homes can be as complex as the care provided in the hospital setting.

Although simulation training can and does still occur at the bedside in our clinical departments, SSM Health has provided an opportunity for the health care team to use critical thinking while responding to high-risk clinical situations in a technologically advanced and risk-free learning environment. A dedicated simulation training team provides expertise on the development of objectives and scenarios, programs the high-fidelity simulators, operates the technology during training, acts as a facilitator and guides the debriefing at the end of the scenario.

The patient simulators are programmed to respond to the designed clinical situation. Examples of clinical responses include changes in vital signs, heart murmurs, dysrhythmias, sweating, crying and seizure activity. The simulation operator manages the high-fidelity simulators so there is ongoing conversation between the patient and learners via a headset microphone and speakers located within the patient simulator. In addition to the simulators, task trainers also are used to practice skills such as birthing assessment and IV therapy.

There are three components to a simulation session:

- **Preconference** — where participants are introduced to the environment, equipment and their roles and responsibilities.
- **Simulation experience** — where participants work through the actual scenario and collaborate to ensure good patient outcomes.
- **Debriefing session** — where participants reflect on the team's actions and discuss the processes and outcomes. In fact, research has shown that the majority of the learning occurs during this phase of the training.

The vital importance of debriefing was in the forefront throughout the planning process, as decisions were made to install high-tech stationary and panoramic cameras along with a sound system to record the simulations as they unfold. The center has two debriefing rooms that provide confidential space for the team to debrief. During the debrief, portions of the video are reviewed to highlight a topic of discussion. The idea of being filmed during training is a new concept for most learners, but the benefits of seeing the scenario unfold are many. Post debriefing, the videos are deleted to maintain confidentiality for the participants.

Importantly, the center's advanced technology enable the simulation team to expand the training through remote access from the St. Louis location to SSM Health's four-state system, which includes Illinois, Missouri, Oklahoma and Wisconsin. Remote access is made possible through Microsoft Skype, which was already in place at SSM Health. Ensuring excellent visual and audio transmission is accomplished by using high-quality cameras and microphones, creating a positive virtual experience.

As our simulation training capabilities expand in the future, a standardized patient program will be developed to aid in addressing the needs of mental health, home health, inpatient and outpatient populations.

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