



A Passion for Nursing Simulations at Harding University

BY CYNTHIA MWENJA, PhD

Lisa Engel, Associate Professor of Nursing and Director of Simulation at Harding University, skillfully fulfills a great many responsibilities in her various roles: she teaches demanding nursing courses in several degree programs and has been instrumental in establishing and continuing to develop the school's simulation program. Her zeal for high fidelity nursing simulators impels her to continue finding and exploring the most current innovations available, and she is always delighted to see the students hone their clinical expertise and judgment as they interact with the simulations in the program she oversees.

Nursing Educator

Drawing on her clinical expertise in labor and delivery, Engel teaches in three of Harding's nursing programs. Within the Bachelor of Science in Nursing (BSN) degree program, she teaches Women's Health. In January of this year, Harding began offering an accelerated, hybrid BSN program in northern Arkansas; Engel teaches women's health in this program, which is offered in partnership with Orbis Education and allows students to earn a BSN within sixteen months. She says that working with Orbis has caused a lot of growth because it has meant that members of the nursing faculty have needed to reconsider their courses, thinking about how to transfer knowledge in different ways that do not depend on lectures only. While Engel had previously taught online courses, she says that this initiative offered a great opportunity for the nursing faculty to refresh the courses overall.

Additionally, Engel teaches maternal-child nursing in the newly-established

Master's Entry into Professional Nursing (MEPN), which is the first program of its kind in Arkansas. MEPN students graduate with a master's degree in four years, and they are prepared to take the NCLEX national nurse licensing exam. Engels states that the first class just graduated from this program in May; all of the students have jobs, and all who have taken the NCLEX to date have passed. This program is gaining a great deal of interest and recognition, Engel states, and the impressive results are a clear indicator of why

Debora Nutt, Professor of Nursing and MEPN Program Director at Harding University, recalls that when Engel taught epidemiology, she saw that the content overlapped with a population health course. To better differentiate the two classes, she focused on developing countries in her course; this focus tied nicely with the focus on missions at Harding. Harding offers a wide array of study abroad for its students, and the Harding in Zambia program has a medical clinic in which nursing students

can serve. Engel says that quite a few nursing students take advantage of this opportunity. Engel herself was able to spend a month in Zambia last year as an assistant. In a fun twist, a former student of hers directs the program, so she was supervised by someone she had previously supervised.

Simulators and the Simulation Lab

Nursing programs have begun to rely more and more on high-fidelity simulators to teach students clinical skills. As the Healthy Simulation website states, "High Fidelity Simulation is a healthcare education methodology that involves the use of sophisticated life-like manikins (sometimes called mannequins) in realistic patient environments. Simulation scenarios can take place anywhere, from austere environments for EMS or Military Simulations, to clinical environments like surgical simulation inside a simulation center. These complex manikins, which are also known as human patient simulators or high-fidelity simulators mimic human anatomy and physiology."



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Simulators offer a low-stakes place for students to practice and make mistakes in a realistic environment, Engel notes. Faculty members can take a particular incident and allow it to unfold slowly within the simulation, and they can de-brief with the students afterwards. According to Nutt, simulations are designed for two to four students; roles can include “lead,” “supporter,” “documentation reporter,” and “medications nurse.”

During the pandemic, the nursing program began to rely more on virtual simulators, as well. When students interact with a virtual simulation, they first encounter some introductory material. When they enter the simulation itself, they are behind the camera and can decide how to interact with the people and devices in the room. Engel says that there weren’t many virtual simulators available at the start of the pandemic, but now offerings have really expanded. Engel foresees that, in the future, both simulation labs and virtual simulations will be overtaken by simulations conducted using virtual reality goggles.

About ten years ago, Dr. Swaid Swaid—a well-known neurosurgeon practicing in Birmingham, Alabama—generously donated funds to build the Swaid building on Harding’s campus. Engel says that the building includes an excellent simulation center which has four hi-fidelity medical/surgical simulation spaces and a suite for maternal-child nursing. The addition of the simulation center allowed this aspect of the nursing program to explode, Engel says. Now, Engel says, Harding’s simulation lab is used “non-stop” and that they are fortunate to have been given both the space and the budget for equipment.

The College of Nursing worked with the College of Pharmacy to procure a Pyxis™ MedStation™, which is an automated medication dispensing system. During simulations, the medications that students dispense are simulated, as well. Students also use a scanner to scan the medications and the arm band of the “patient,” and the scanner interfaces with simulated medical records from Elsevier.

Harding has a variety of manikins in the simulation lab, including preemie and newborn babies, a toddler, and a seven-year-old child, in addition to various adult manikins. Engel says that students can interact with the manikins in many ways: “they can hear the heart, lungs, and bowel sounds; they can check the pulses, take blood pressure, give an EKG. They can even intubate the manikin!” With the maternity manikins, student nurses can deliver a baby.

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Simulation Program

As Director of Simulation, Engel helped to establish the program, and she has continued to develop its offerings as it has grown steadily over the past ten years. Once the simulation center and equipment were in place, they then needed to develop the guidelines and curricula for the labs. Engel set to work researching requirements and standards for simulation programs. The International Nursing Association of Clinical

and Simulation Learning (INACSL) sets standards in this arena, and the state board of nursing set programmatic requirements. Engel gathered that information, then mapped it onto the curriculum, asking questions such as “What do students need to know?” and breaking the requirements into discrete learning objectives and lesson plans. Nutt says that Engel makes sure that all faculty are trained on using sims and that the sims all use a standardized format.

Now, Nutt says, some faculty have developed their own sims, and she points out that doing so is a great deal of work. In writing a sim, the creator needs to think through the most effective ways to portray an experience that will lead to the desired learning outcomes, decide how long the sim will last, and create pre-briefing and debriefing materials. Nutt, having completed a home health sim over the Christmas break, emphasizes just how much time and attention it takes to plan out the entire scenario and get

it just right in order to best serve the students and program.

The goal at Harding is for students in classes with clinicals to work through six sims during the term and serve as lead nurse in half of the scenarios. Nutt says that, in the sims, they focus on important nursing experiences, such as blood clots, gastrointestinal issues, diabetes management, COPD, and orthopedics issues; the sim may also potentially include common complications. In the obstetrics sims, students see the normal birthing process, but they also encounter complications like excessive bleeding, retained placenta, or an emergency with the mother after the birth. They get to perform assessment of the newborn; that responsibility is usually taken by others in a live clinical setting. These experiences train nursing students to recognize any issues quickly. Nutt points out that, with hospital-based clinicals, the students see a random array of ailments, but simulations can ensure

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that they see the common big challenges that they absolutely need to be able to manage in their professional lives.

Not only do all nursing classes with a clinical component use simulations for part of the clinical experience, but Harding


students also participate in interprofessional simulations. Students from the College of Pharmacy, the physician assistant program, and the nursing program work together to complete a high-fidelity resuscitation simulation together, with each student

taking the role they will assume in their professional lives in such scenarios. In some simulations, the nurse might need to call the pharmacist or the physician assistant who is in another location. All of the situations teach the students to work together before they graduate. While many medical education programs require such interprofessional training, nursing programs in Arkansas do not currently require it, so Harding's nursing students are gaining additional vital experience prior to graduation.

Part of Engel's role as Director of Simulation is to insure that the curriculum stays current with accreditation standards; she also trains the faculty to design and run simulations. Further, she conducts annual programmatic review and needs assessment, then works to implement improvements across the nursing curriculum. Within that programmatic review, Engel follows up with faculty members to make sure they are evaluating their own sims at the end of each term.

Another part of the job she enjoys is keeping abreast of new technology and new manikins that come on the market. She laughingly says that she "plays hospital instead of playing house!" Nutt calls Engel a "tech guru," saying that "if there's something new, like an e-textbook, online lessons, or online sims, she'll be the first to check it out and introduce it to the faculty. She digs into what is out there and thinks about how we could use it." Nutt goes on to say that Engel is "one of our star faculty; she is knowledgeable about research and thinks deeply about how to do things differently and effectively to serve faculty and students. She thinks about both."

Engel says that the best part of her job is seeing students learn through participating in simulations—seeing when they make connections, seeing them use critical thinking and clinical judgement. She enjoys all the aspects of her job, but she would love to have more time to spend "submerged in simulation."

 ABOUT THE AUTHOR: Dr. Cynthia Mwenja teaches Composition and Rhetoric at the University of Montevallo.



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