# REALITY CHECK

## Use simulation to improve real-world skills

By John McCormack

A medical assisting student at Northern Essex Community College (NECC) showed up for the first day of her clinical rotation at the local hospital and within minutes found herself dealing with patients who had been involved in a serious car accident. Fortunately, she handled everything that was thrown at her with poise.

"She had been there less than an hour, and this trauma case was brought in," says Kathleen Welch Hudson, MSHS, CCMA, department chair of health care technology and ambulatory services and program director of the medical assistant program at NECC in Haverhill, Massachusetts. "The doctors and nurses immediately gave her a number of things that were within her scope of practice to do. She was very comfortable doing everything asked of her because she had previously gone through training in a simulated trauma room at the college."

This anecdote illustrates the value that simulation (i.e., "an artificial representation of a real-world process to achieve educational goals through experiential learning"[1]) can bring to medical assisting education programs. Such simulation comes in many forms[2]:

- Manikins
- Standardized patients (i.e., actors)
- Part-task trainers
- Virtual reality

## Get with the program

Although simulation has been used for many years, technological advances now enable educators to create more realistic scenarios. For instance, classrooms can access highly accurate simulators that have breath sounds, heart tones, and palpable pulses.[3] Additionally, 3-D virtual reality can replicate real-life situations. As such, students no longer need to use manikins that cannot interact.[3]

Further, many vendors now offer eyeglasses that virtually show real environments. Students look through the lenses and see themselves performing tasks in health care settings, according to Amy Daniels, PhD, RN, CHSE, an assistant professor and director of the Debra L. Spunt Clinical Simulation Labs at University of Maryland School of Nursing in Baltimore.

Like many other schools, Jackson College in Michigan is taking advantage of these advances, according to Kristin Spencer, PhD, MBA, BHSA, CMA (AAMA), RMA(AMT), AHI(AMT), professor and program director of medical assisting and other health sciences programs at the community college. For example, the school purchased a simulation infant that moves and cries and that students can perform examinations on. This technology "provides students with an introduction to skills prior to performing them on live subjects," says Dr. Spencer. "Our baby allows students to perform weight and other measurements with a baby that is more lifelike, as it is moving and reacting as a normal baby would."

## Unreal benefits

When used properly, simulation serves as a "bridge between classroom learning and real-life clinical experience," according to the Society for Simulation in Healthcare (SSH) in Washington, DC.[4]

"The research has shown that we learn—and retain—better when we are immersed in a situation that mimics something that we would encounter in real life," says Juli Maxworthy, DNP, PhD (c), MSN, MBA, RN, CNL, CPHQ, CPPS, CHSE, FNAP, FSSH, 2021 president of SSH and associate professor at the University of San Francisco School of Nursing and Health Professions.

In fact, an analysis in *Review of Educational Research* concludes that "simulations are among the most effective means to facilitate learning of complex skills across domains."[5] Overall, simulation provides a bevy of benefits:

- **A full array of experiences.** "In the simulation laboratory, students get the opportunity to participate in a way that they would not be able to otherwise," says Dr. Maxworthy. "For example, the chance to participate in a code [i.e., emergency] situation is very uncommon for any student. But in a simulation laboratory, a student can

play multiple roles, and when the event does occur, they are much better prepared."

- **Increased patient safety.** "The biggest benefit is [that simulations] provide the learners with a place to practice skills in which patients won't be harmed," says Dr. Daniels. "Students can practice skills as many times as necessary to get them perfected without doing any harm to patients."

- **Opportunities to perfect hand movements.** "Many of the skills that are used in clinical care require practice because they're manipulation skills," explains Dr. Daniels. "For example, when giving an injection, you use one hand to hold a syringe and the other hand to hold the skin. And then with the hand holding the syringe, you also use your thumb to push the plunger of the syringe in at the same time. Simulation gives students that first opportunity to try a skill with fumble fingers. Then when they go into the clinical practice, they have already done it several times."

- **Enhanced critical thinking.** "Learners have to think on their feet during the simulation, and they learn to critically think much more quickly," notes Dr. Maxworthy. "They also fail many times, and we all know that we learn

more by what we don't do well. Those learnings carry over to the clinical environment very well and empower the learner with skills that will help them be successful."

## The real challenges

With simulation's benefits to education come challenges as well.

Cost is a common stumbling block. To determine whether a simulation investment is worthwhile, leaders should perform an economic evaluation, which will provide a comparison of value[6]:

- What is acquired

- What, if anything, needs to be given up to compensate for the purchase

- How does what the organization gets compare to the next-best alternative

To make simulation more affordable, NECC invests in technologies that can be used by multiple departments such as medical assisting, nursing, and respiratory therapy, explains Welch Hudson. "We all play really nice in the sandbox with each other, and we share," she says.

Additionally, institutions either need to hire educators who know how to use the equipment or train their current educators to use simulation. "Many programs have manikins in closets with very few people knowing how to operate them," Dr. Maxworthy says.

Perhaps most importantly, educators should use the technology to support learning objectives—its true function. "Frequently, educators want to bring simulation into the classroom because it's cool," notes Dr. Daniels. Nevertheless, its cool factor is outshined by the value of linking simulation activities to learning objectives and preparing students for unpredictable patient care experiences without compromising quality. ◆

## References

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## Simulation meets COVID-19 challenges

Simulation has become especially useful during the COVID-19 pandemic.[7]

"The pandemic has provided an opportunity for health care simulation to shine," asserts Juli Maxworthy, DNP, PhD (c), MSN, MBA, RN, CNL, CPHQ, CPPS, CHSE, FNAP, FSSH. "The community has been able to help health care educational programs to pivot to distance learning."

For example, Kristin Spencer, PhD, MBA, BHSA, CMA (AAMA), RMA(AMT), AHI(AMT), provided Jackson College students with supplies via curbside drop-off and pickup. The students then used simulation to practice skills such as first aid, bandaging, minor surgical procedures, and handwashing.

"This platform provided students with the ability to perform each required step," Dr. Spencer says. "This allowed us to have fewer skills they had to perform once back in the laboratory."

Kathleen Welch Hudson, MSHS, CCMA, also leveraged simulation at Northern Essex Community College. "Some clinical sites are still not comfortable having outside people come in," she says. "So, we have used simulation in these situations. If we didn't have simulation, we wouldn't have been able to graduate all of our students on time."