



Michael J. Dunn, MD

Dean's Corner

Simulations enhance clinical aptitude in high-tech training facility

By Michael J. Dunn, MD

Dean and Executive Vice President, Medical College of Wisconsin

Clinical rotations will likely remain the principal manner through which medical students learn how to interact with patients and make proper assessments and diagnoses. Ever-improving technology, however, is allowing medical educators to step beyond the traditional learning environment to offer marvelously realistic simulated experiences that are serving to improve physician competence and proficiency.

At the Medical College of Wisconsin, these experiences take place within our state-of-the-art STAR (Standardized Teaching and Assessment Resource) Center. The facility uses virtual and human simulations to enhance the abilities of current and future health care professionals to provide outstanding patient care. The inclusion of such a resource within the medical school is particularly relevant considering the emergence of performance-based exams as graduation and licensing requirements for medical degrees, according to Kenneth B. Simons, MD, Senior Associate Dean for Academic Affairs, whose leadership was instrumental in establishing the Center.

The College's 8200-square-foot STAR Center includes 12 fully equipped patient exam rooms with built-in digital videotaping capabil-

ity and 2-way sound capability for supervising teachers to communicate directly with the learner. These exam rooms are used in conjunction with the College's standardized patient program. Standardized patients have been part of our curriculum for years, but the STAR Center provides added realism to the students' encounters, and the monitoring system helps faculty better observe and evaluate students' skills.

A standardized patient is an individual trained to accurately portray a patient case or specific medical condition. Medical students interview and examine the standardized patients in the mock clinical setting, attempting to properly diagnose the patient and determine an appropriate course of action. Using computers stationed outside the exam rooms, students can access lab findings, radiographic images, and other details related to the case. The Center also features a monitoring station with 12 computers for teachers and learners to observe the standardized patient encounters in real-time or delayed digital playback so feedback can be provided.

Medical College faculty say they are better able to track a student's progress utilizing the STAR Center. Instructors have a record of student performance and can

look for improvement in the length of time it takes them to perform a task or make a diagnosis, as well as how consistently they can detect the condition under study. There is also great opportunity for direct instruction either during a session or its review.

Although the skills they develop will be extremely valuable when they begin their practice, students will face a much more immediate test when they seek medical licensure. With the National Board of Medical Examiners now requiring prospective physicians to pass a Clinical Skills Exam, those who are accustomed to a realistic clinical environment, like that in the STAR Center, will be best prepared.

Medical College faculty also developed a benchmark Objective Structured Clinical Examination (OSCE) for third-year medical students that became a graduation requirement 2 years ago. Also conducted in the STAR Center, the OSCE is another element in our students' preparation for the national Clinical Skills Exam, as well as for their careers.

Medical students are not the only ones benefiting from the STAR Center's many training tools. Residents, faculty, and in some cases community physicians can access its resources to hone specific skills.

Again, high technology is facilitating realistic simulations.

Two rooms in the center are equipped with full-body adult and pediatric mannequins driven by advanced computer systems. The mannequins breathe, have dilating pupils, a heart rate, blood pressure, and respond like humans to pharmacological and physiological stimuli. They can be used to practice multiple clinical procedures including intubation, IV hook-up, and drug administration. And, like a real patient, the simulators will “die” if the wrong moves are made, so learners experience the consequences of making poor decisions or acting too slowly. Although it feels to participants as though a real life is on the line, it is not, making for a superb and safe learning experience.

The STAR Center features 3 additional rooms housing cardiac, OB/GYN, and ultrasound simulators, with space for additional units as they become available. To aid in teaching or debriefing the simulation experience, the Center’s 2 conference spaces incorporate audio/visual and computer technology. The arrangement leads to a seamless and comprehensive educational episode.

Learners can participate in lectures on the topic at hand, and then immediately transition to a practical session in which they can apply and reinforce what was learned in the didactic session. The integration of both elements aids in retention and helps to emphasize the clinical relevance of the newly learned skill.

While not a replacement for true patient interaction, simulations provide fluency in clinical skills while allowing students, residents, and other health professionals to make mistakes and learn from them in a controlled setting. The experience builds confidence and competence, both of which ultimately benefit the patient.

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