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Virtual hearts help teach live minds at TC

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It was three years ago that the first Temple College SimMan came to life. The first beat of that virtual heart was the birth of the unique learning environment known as the Temple College Health Sciences Center.

The Health Sciences Center was built with a \$7.23 million bond in 2003 and houses the Dental Hygiene Department, the Respiratory Care Department, Emergency Medical Services Department and the Surgical Technology Department. With an ambulance bay for training paramedics, 12 dentists chairs used for practice dental screenings and the Clinical Simulation Center, the Health Sciences department offers some the most true-to-life training available.

Neil Coker, director of the TC Simulation Center, is the "man behind the curtain" in regards to the simulators. In the three years since the machines he has come up with ever more intricate and creative uses for the mannequins so that students who leave a simulator are often more prepared than they would be working on a live patient.

Coker said in the beginning the mannequins, designed and built in the Laerdal factory were used for resuscitation practice, which is traditionally what these types of simulators were used for. In three years TC has increased the realism, creating complicated scenarios and exercises that are almost better than the real thing for doctors learning how to manage a crisis situation.

To teach team leadership and delegation, medical residents are sometimes blindfolded or stuck in an imaginary box out of reach of the instruments and the support staff has to communicate effectively and work efficiently of the "patient" will die.

Once a year the students hold a crisis drill where they simulate a massive disaster during a public event such as a tornado during a TC baseball game or an anthrax scare. To teach ethics, doctors are placed in a simulation room with live actors and have to decide to follow the wishes of a comatose patient or the pleas from grieving parents.

Another common practice is to bring in a Spanish-speaking faculty member to act as the voice of the SimMan during the procedure to train doctors how to handle the language barrier.

The Darnall Army Hospital at Fort Hood holds training sessions in the sim center and the

mannequins can be modified to resemble victims of a roadside bomb or gunshot. Another creative training method they use is taking chicken skin and Elmer's glue to simulate draining an abscess.

Scott and White Hospital is the entity that uses the sim center the most and sends their medical staff for training several times a week.

One of the center's simulators known as Noelle is designed for childbirth and OB-GYN training. Noelle can simulate a perfect delivery or can be programmed for a breech, when the baby exists tail first, or when a baby experiences shoulder dystocia and is caught in the womb. Coker said they have taken the training even further. When Noelle has complications they sometimes arrange for actors to play the parents and students have to give them the bad news.

One of the common uses for the sim men is learning to bypass a difficult airway. With the click of the mouse Coker can make the throat close shut, the tongue swell and larynx spasm, making it difficult if not impossible to insert a breathing tube. In that case the mannequins come equipped with an area to perform an emergency tracheotomy where they cut open the windpipe to insert a tube.

The Health Sciences Center is nationally renowned and has received visitors from all over the world.

Coker has given tours to doctors from England, Columbia, Brazil, Panama, Belgium, Norway, Japan, Korea, China, Australia, New Zealand, Mexico and Kenya. He has received visitors from colleges all over Texas and nationally renowned medical centers like Johns Hopkins University.

Coker said that the comment he hears most often is how unique it is to see all the health sciences together in one building with access to clinical simulation. Many visitors have a medical simulator back at their hospitals and schools, but Coker said they use them primarily for practicing emergency treatments and are floored by the staggering array of different simulation options available.

The Health Sciences Center has received numerous accolades since its opening including the top 10 for the 2006 Bellwether award, which recognizes outstanding and innovative programs. Dr. Marc Nigliazzo, president of Temple College, was invited to speak at a panel in Washington, D.C., and the work going on in Temple caught the attention of the secretary of education.

The center's most recent visitor was Dr. James Thomson, president of the federation of state medical boards, who was in town for the Scott and White inaugural Dr. Wally Dyck Lectureship. He said he planned to emphasize the value of having multiple disciplines involved in simulation training during his talk, but he remarked that Temple College may have beaten him to it.

"I'm glad that I saw this because I can emphasize the opportunity that you have here to be a model for the nation," Dr. Thompson said.