

Amazing and a little icky

Human simulators are a hands-on anatomy lesson

by Kirk DICKEY



Jackie Langford

"Oh, it's squishy."

The students who gathered around the gurney seemed more intrigued than grossed out, but you could still hear them express a bit of an ick factor when they touched the body. It was a scene that had played out countless times over hundreds of years, with medical school students standing over a cadaver to learn the look and feel of internal organs before ever encountering them in a live patient.

This scene was different, though, because these were Plano East Senior High School students enrolled in the dual-credit Health Sciences Academy, a partnership with Collin College. And the cadaver wasn't your usual stiff.

"Vinny" is a SynDaver—synthetic human cadaver. It is one of the most advanced pieces of medical education equipment available and one of the first of its kind to be used by a college in the state of Texas.

Vinny has the bone structure, musculature and internal organs of a human male without all of that pesky skin to get in the way. It is designed to teach students human anatomy and physiology in a way that is cost-efficient, engaging and more effective for tactile and visual learners.

"The whole purpose of a real cadaver is to allow the students to have a hands-on, three-dimensional grasp of what they are trying to learn when they are studying the different parts of a body," said Jackie Langford, Director of Healthcare Simulation at Collin College. "This is a realistic way of showing where all the organs are, how they fit together and how they interrelate. Generally, most people learn better with hands-on activities where they can touch and feel in addition to just reading about something, because they are using more of their five senses."

Although the college only received the simulated cadavers in March, Vinny and its female counterpart, "Winona," have been very busy since they arrived. In addition to the demonstration at the Health Sciences Academy, one or both have been used in classes at the college as well as visits to Allen Independent School District and TEDx Plano. Langford estimates that in the month of April alone, Vinny put more than 30 hours of demonstration time in front of about 1,000 students, teachers, faculty and staff.

Langford said the college's anatomy and physiology (A&P) and biology classes are planning on using the models much more next semester. He said the feedback he has received so far is that the students are really enjoying learning with them.

The Health Sciences Academy students agreed that working with the model was interesting as well as educational.

"I thought it was cool how we actually got to see what it looks like inside," Plano East Senior High School Junior Diana Sanchez said. "You see pictures and you're like, 'Oh, that's cool,' but when you see it and feel it, it seems real."

Of course, that is the point. SynDaver Labs, the company that makes the synthetic cadavers, is the first of its kind to produce such lifelike bodies and organs for use in not only anatomy education, but also in procedural training. The U.S. military uses SynDavers to teach medics how to respond in cases of severe trauma and Collin students will be able to perform several procedures in their simulation labs as well.

The "manikins," as they are sometimes called, can be used to illustrate different bodily processes. Winona has synthetic skin and a pump attachment that simulates blood flow throughout its circulatory system, so that students can feel pulses in the same areas they would feel them on a real person. Students can practice intubating and manually resuscitating the manikins, seeing their lungs inflate as they squeeze the AMBU bag. They can do needle chest decompressions, insert chest tubes or practice intraosseous (IO) needle insertion, where the needle punctures the bone into the bone marrow.

What happens when the procedure is done and the body has been poked, prodded, pricked and cut? The company replaces them.

While puncture marks made with small gauge needles will reseal themselves, some procedures require cutting, which do not "heal." So, when a body part is damaged beyond use, the manufacturer's maintenance plan refurbishes or replaces it.

That gets to one of the other benefits of SynDaver. Not only does it allow students to learn anatomy in a

hands-on way, but it does so in a cost-effective way. Langford explained that while each of the manikins initially cost \$40,000, the cost of procuring and maintaining actual human cadavers can be much more expensive in the long term.

Rather than purchase cadavers in the past, Collin College has taken some of their students to facilities that held them so they could have some experience with the real thing. While it was instructive for those students, it would not have been

mimic pulses, breathing, sweating or even bleeding, if needed for a demonstration. Students use the manikins to practice real-life scenarios of patient care, both diagnostic and procedural, which helps to develop their critical thinking and teamwork skills.

The Collin College simulator program will get a big boost in the spring of 2016, when the college opens its new Cary A. Israel Health Sciences Center on the Central Park Campus. The three-story, 125,000-square-foot facility will feature not only classrooms,



Students in the Health Sciences Academy get their first opportunity to work with "Vinny."

feasible to give large numbers of students that opportunity.

Collin College is the first non-military institution in the state to purchase SynDavers for its students, according to Langford. Vinny will be kept at Plano East Senior High and Winona will remain at the college's Central Park Campus in McKinney. That means both will be used by hundreds of students each year.

The synthetic cadavers will join the growing simulator program at the college and ISDs. Started almost nine years ago, the college program uses high-quality patient simulators that can

skills labs and faculty offices, but also expanded simulator lab facilities that will allow students from each of the college's nursing and allied health programs to work together on patients.

Winona will be there and ready on opening day, ready for students to say things like "Oh, it's squishy."

Registration for fall classes at Collin College is underway. Visit www.collin.edu for more information. ❖

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Photos: Nick Young, Collin College.