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Medical simulation industry taking off in Orlando

Orlando Business Journal - by [Melanie Stawicki Azam](#)[Print](#) [Email](#) [Reprints](#) [RSS Feeds](#) [LinkedIn](#) [Share](#) [Comments](#)

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University of Central

Florida

 nursing instructor

Betsy Guimond remembers

the early days of medical

simulation when nursing

students used a basic rubber

arm with red liquid-filled

vessels to practice inserting

IV needles.

Today, the students use a computerized, interactive arm with a pulse, veins and pressure, said UCF's College of Nursing simulation

coordinator. The students feel tension when they insert the needle and can feel if the vein is full or easily collapsible.

The arm can be pre-programmed for various scenarios, such as a patient whose blood pressure is dropping, and give computerized feedback on whether the angle of needle is correct, "so they don't have to stick 10 people to get proficient at this skill," Guimond said.

Training health care workers is just one use of medical simulation, an industry with significant roots in Central Florida that is expected to grow with the emergence of the new Lake Nona "medical city" and its cluster of hospitals, UCF's new medical school and the **Burnham Institute for Medical Research**.

Medical simulation is part of Central Florida's modeling, simulation and training industry, which has at least 102 companies and organizations employing 6,000 workers and generating more than \$2.5 billion in gross regional product and \$1.3 billion in sales, according to the Orlando-based **National Center for Simulation**.

"This is the world hub for modeling simulation and training," said Randy Shumaker, director of UCF's Institute for Simulation & Training. "And we think medical simulation is the next great frontier."

In fact, the medical simulation market is expected to be bigger than the military simulation market, he said. One reason for that: Orlando has the infrastructure already here from the military's research, plus a digital media industry. "And the military funds research and development work in this area," said Russ Hauck, executive director of the National Center for Simulation.

The rise of the medical simulation industry "could really help the local area," he said. "The tools and supplies are here already — it's just applying them to different areas."

For example, the UCF institute is doing research on everything from training soldiers to deal with combat injuries to finding new therapies for traumatic brain injuries. Some of the research is done in conjunction with local simulation companies.

UCF institute Lab Director Glenn Martin said the military has been focusing on the three most preventable combat deaths — a collapsed lung, a blocked airway and blood loss — and want portable, low-cost simulation devices.

The institute has teamed up with **CHI Systems Inc.**, a research and development company with an Orlando office, on a "bleeding" arm simulator that lets medics practice applying tourniquets. It's being developed with the U.S. Army's Research, Development and Engineering Command in the Central Florida Research Park.

If the tourniquet isn't applied correctly, the light will glow red and the pulse will fade. The latest model also allows for IV insertion and can be operated with a video game or hooked up to a palmtop computer for an instructor to control its reactions.

Researchers are focusing on constructing a leg version of the prototype and a model to train soldiers how to clear an airway with a tracheotomy, Martin said. That will be even more challenging, because it will involve cutting into the device.

In partnership with its Media Convergence Lab, UCF's institute also is using simulation and virtual reality to develop new therapies for patients. It has teamed up with Virtual Reality Medical Center, which has an office in Orlando, on a virtual reality prototype to make physical therapy more fun for stroke victims. For example, the patients swat at a virtual bug and end up doing techniques to regain their range of motion. Said Shumaker, "The idea is you can make these things more engaging."