

# COST-EFFECTIVE MOBILE ACADEMIC SIMULATION BOOSTS STUDENT COMPETENCY AND CURRICULUM EFFECTIVENESS



Photo by Colin Hackley/Florida State University College of Medicine

*Guiding the academic mobile training is Debra Danforth, MS, ARNP, FAANP*

It's not just a BUS, it's the star of a 10-day, 1,232-mile medical road show that started in 2008 to conduct OSCEs (Objective Structured Clinical Examination), at Florida State University College of Medicine's (FSUCOM) six regional campuses: Pensacola, Daytona Beach, Orlando, Fort Pierce, Tallahassee, and Sarasota.

# MOBILE ACADEMIC SIMULATION TRAINING

In the world of healthcare simulation, Debra Danforth, MS, ARNP, FAANP, Associate Professor and Director of the Charlotte E. Maguire, MD and TMH Clinical Learning Center of Florida State University, stands out as an expert in the specialty of mobile academic simulation. “We have been doing mobile simulation for five years now at Florida State University College of Medicine (FSU COM), and see great benefit to the program,” she says. Mobility is of particular importance to FSU because its six regional campuses and four other rural and community settings, where medical students and residents are involved in clinical practice and learning, are located over distances spanning some 1,232 miles.

The FSU COM provides significant public service to the Tallahassee community and throughout Florida. The school’s direct mission is to train students in community health settings throughout the state. While the first two years of medical school take place at the main campus, third- and fourth-year students receive their clinical training in community settings across the area. They work directly with local physicians in a one-on-one apprenticeship-style model. The approach is meant to give students more involvement on the frontlines of the health-care delivery system where the vast majority of patients seek care.

Keeping up with learners’ needs is a large part of what Professor Danforth does through the creation, implementation, and evaluation of Objective Structured Clinical Examinations (OSCEs). These standardized clinical evaluations in disease diagnosis and management provide a consistent means of assessing medical students’ learning as they progress through medical school and residency.

“We used to require students to come to our main campus in Tallahassee for the evaluation program,” Danforth says, “but now we take the evaluation out to the various clinical sites. It is a more natural experience to evaluate students in their current clinical setting.” In fact, the process of implementing OSCEs through mobile simulation training eliminates some of the disadvantages of a centralized program while providing many advantages.



Photo by Colin Hackley  
Florida State University College of Medicine

*Medical Students preparing for an encounter with standardized patients.*

## Disadvantages of a Centralized Simulation Program for Remote Healthcare Delivery

For over a decade, FSU COM has used Education Management Solutions' (EMS) enterprise simulation management solution to evaluate student and resident competency. Instructors and students traveled to the main campus each year to conduct and participate in OSCEs. Although this centralized system works well for main campus faculty and those students in the early years of training, there were disadvantages for those in the remote settings. "Getting everyone to the main campus was quite a challenge," Danforth comments. "Not only did we have to coordinate many schedules, but remote faculty were away from the clinical setting for several days. That can be a huge hardship for healthcare delivery in the community." Around 120 medical students were also required to leave the clinical setting and journey to the main campus for the evaluation process. Besides the investment of time and the disruption at the clinical setting, it was expensive to transport and house a large number of individuals each year. Now EMS' MobilSIM™ solution helps assess medical students at geographically distributed clerkship sites. "In our first year with the mobile program we saved over \$80,000. This increased enthusiasm for mobile academic simulation," says Danforth.

## Advantages of a Mobile Simulation Program for Remote Healthcare Delivery

Over the ensuing years, other, more subtle, advantages have emerged. "One interesting finding was related to the importance of the continuity factor between clinical faculty (called clerkship faculty in the FSU COM program) and students," says Danforth.

With the centralized system, students were evaluated by the convening faculty group. This meant that there was no continuity with students' particular clerkship faculty from the clinical setting. The mobile process allows simulation work directly at the remote setting and the actual clerkship faculty who are mentoring the medical students to be more engaged. This has a positive effect on the formative evaluation and ongoing faculty work with the student.

"An interesting finding was that students act differently in the decentralized program than they did in the centralized simulations. They seem more serious about the experience when it is connected to their current clinical setting and involves their current clerkship faculty," says Danforth. "We set up the simulation in one of the actual clinic rooms used by the students when dealing with 'real' patients. They are in the same environment using familiar equipment. This can be very reassuring and more fully simulates a true clinical experience." With practice, the mobile simulation team is now able to turn a clinic patient room into a simulation evaluation setting in a very short time period.



Professor Danforth uses the complete capability of mobile technology: data from the simulation encounters are continuously entered into the digital system as simulations progress. During each episode, a faculty member and two standardized patients use a manual assessment to evaluate various components of the simulation process. Throughout the day, a team member enters the data into the program. The simulation evaluation is used immediately on site for student debriefing. Once back at the main campus, simulation information is evaluated through various generated reports and graphic arrays. “We look into each question from several perspectives and use the histogram and box plot functions to help interpret the data,” says Danforth.



Photo by Colin Hackley  
Florida State University College of Medicine

*An assessment used to evaluate the simulation.*

## Spotlighting Specialty Practice

Obstetrics and Gynecology Residency Program Director and Associate Professor Julie DeCesare, MD agrees that mobile simulation offers many advantages. Dr. DeCesare teaches resident physicians in obstetrics and gynecology in Pensacola, FL, a three hour drive from FSU COM’s main campus in Tallahassee. “We work with a disadvantaged patient population in a very busy practice. Mobile simulation allows us continuity with patient care while evaluating and training residents in the specialty,” says DeCesare.

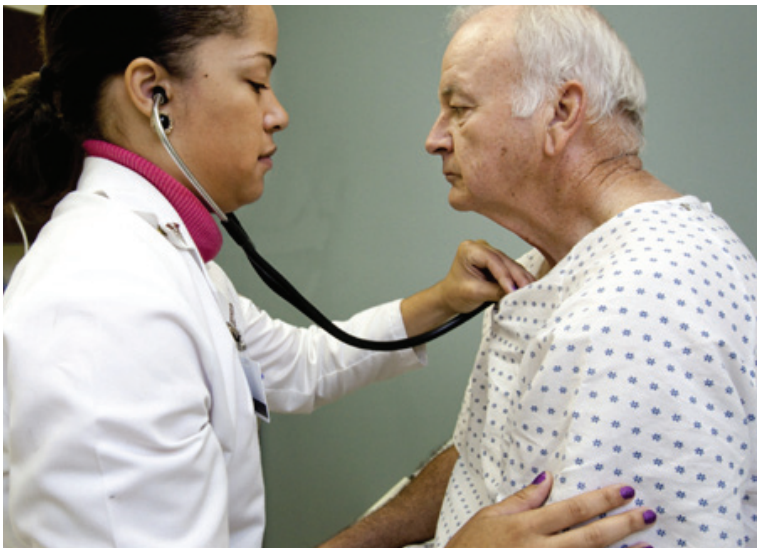
The OB/GYN residency program uses an annual simulation program to formatively evaluate residents and gauge progress toward meeting Accreditation Council for Graduate Medical Education (ACGME) obstetrics and gynecology competencies. “After experimenting with several models we settled on a three-case evaluation design based on the themes of the American Board of Obstetrics and Gynecology (ABOG) Oral Exams: Office Practice, Obstetrics, and Gynecology,” says DeCesare. “We use a rotating case bank to evaluate residents’ progression in these three key areas. Evaluation data helps each resident improve, but also assists us in revising our program to support competency development.”

According to DeCesare, residents are more comfortable being evaluated in the clinical setting in which they practice. This allows use of familiar surroundings, tools, and documentation. The experience is less artificial and contrived. “Our actual involvement in the simulations is invaluable to help guide the professional development of our resident charges,” she explains. “For example, I can see all 13 residents under my direction complete a similar process – such as managing shoulder dystocia – and then review the video at any time.” DeCesare finds it helpful to be able to talk with a resident about his or her practice and provide feedback and comparison to the group norm.

A recent example of curriculum improvement based on the mobile simulation process involved domestic violence. “This is an area requiring astute and sensitive questioning on the part of the physician,” describes DeCesare. “Our OB/GYN residents did not do well in the simulation. They didn’t seem to understand the reporting laws or the screenings necessary when domestic violence may be present. We reviewed our current curriculum and realized that we needed to strengthen our program on this competency.” Based on this simulation feedback, recommendations were submitted to the FSU COM Curriculum Committee.

## Standardized Patients Play an Important Role

Photo by Colin Hackley  
Florida State University College of Medicine



*Medical student examining a standardized patient.*

Standardized patients (SPs) are the cornerstone of a solid simulation program, whether centralized or mobile. Mike Cravener has been an SP for nearly nine years with FSU COM, and understands the importance of preparation. “Being a standardized patient is serious business. We provide a realistic care situation,” he explains.

Standardized patients work from a set of facts, circumstances, and symptoms. They have a past medical history and present a condition that is shared with the student during the encounter. “At first I had trouble learning my role from

information listed. I created a script from the patient description and that helped me learn my part,” Cravener says. Now FSU COM uses scripting to help all standardized patients learn their important role.

In FSU COM’s mobile simulations, SPs also pair up, with one playing the patient and the other monitoring the simulation with an assessment. In addition to scoring the student’s performance, the monitoring SP looks for any discrepancy in patient presentation. “The real challenge is to allow the student to have total control of the process. After being the same patient for a dozen simulations during a day of testing it is hard not to anticipate what the student will want you to do next,” says Cravener. Even though the SP role is challenging, he enjoys seeing students develop their medical skills and move from fear to confidence over the course of several years.

## A Leader in Family-Practice Physician Recruitment

The simulation program is part of the reason FSU COM is advancing as a leader in family-practice physician training. A study from the Association of American Medical Colleges indicates that FSU COM is creating a diverse workforce of medical school graduates. The FSU COM is one of the top producers of primary care and family physicians. In addition, the College of Medicine is in the top 10 percent of medical schools graduating African American physicians and the top 20 percent of schools graduating Hispanics. Academic prominence is important, but so is FSU's commitment to providing training for the next generation of medical professionals locally and statewide. Well-prepared primary care physicians provide significant public health benefits to the local communities they serve.

## Select a Mobile Simulation Solution Carefully

FSU COM has been using Education Management Solutions' (EMS) enterprise technology at its central campus in Tallahassee for more than 10 years. The addition of EMS' MobilSIM™ five years ago has expedited performance-based assessment in the school's numerous remote locations.

MobilSIM's lightweight cameras, wireless networking, and compact plug-n-play format allow easy remote set up in any size clinical practice setting. With MobilSIM, Danforth's team is able to build a three-room simulation environment in most clinics in less than two hours.

MobilSIM's single laptop hosts the simulation management web application and digital audio-video storage. Immediate debriefing can take place with participants at the site, while ongoing password-protected remote access to simulation audio and video information is available for later review and analysis.



*MobilSIM™, ideal for mobile academic training.*

EMS' MobilSIM also integrates with leading high-fidelity mannequins for simulations that require training on high-fidelity simulators. The capture of audio and video, event log file, and a simulator's vital signs, as well as the ability to bookmark video segments helps to facilitate the debriefing processes. What's more, MobilSIM includes software for assessment creation, participant management, and skills evaluation. Checklists and responses can be exported for analysis.