Medical Simulation Corporation

Simantics—

Defining the language of simulation

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UC Davis Study Finds Simulation Training Cuts Endovascular Procedure Times in Half: Two-day course for surgical residents significantly improves performance measures

January 3, 2007 (Sacramento, CA) - A new study by UC Davis researchers found that surgery residents trained on virtual-reality simulators during a two-day course significantly improved their overall performance, including cutting procedure times in half.

"We are working to validate the use of simulation in graduate medical education training so that one day we can use it to replace a certain amount of clinical training involving live patients," said lead author and course instructor David Dawson, a professor of vascular surgery at the UC Davis Vascular Center.

The study, which appeared in the January 2, 2007, edition of the *Journal of Vascular Surgery*, is the first to evaluate the efficacy of simulators in the training of vascular surgery residents with little to no hands-on experience in treating peripheral artery disease with catheters and other endovascular tools.

"We wanted to see if our teaching methods were working. We knew we were seeing improvement, but we didn't know just how much," Dawson said. He and his colleagues tested nine course participants on the first day of the course prior to any training, and again on the second day after receiving eight hours of simulation-based training as well as classroom instruction, computer-based training, and tabletop-procedure demonstrations.

After simulation training, residents were able to reduce procedure times by 54%, volume of contrast dye by 44%, and fluoroscopy time by 48%. Reducing these measures in clinical practice translates into increased safety and decreased cost to the healthcare system.

"That's because fluoroscopy involves small doses of radiation, and large volumes of contrast dye can result in kidney damage in the patient," Dawson said. "There is no doubt that when one of our trainees goes on to perform procedures on patients, he or she will be much better prepared."

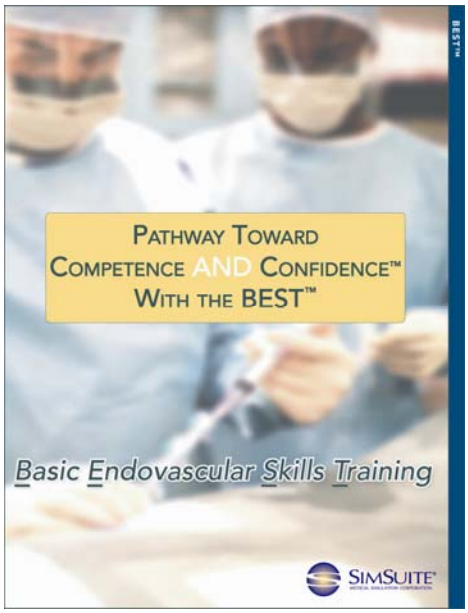
The course is taught in the UC Davis Center for Virtual Care. It has included participants from 11 residency programs in five Western states: California, Arizona, Oregon, Utah, and Washington. The published results are based on surgery residents who participated in the program during its second year.

During the two-day course, the doctors practiced a variety of skills, including manipulation of catheters, use of sheaths, wire handling, angioplasty balloon inflation, and deployment of stents. Trainees were guided via computer through various scenarios using a virtual reality set-up that involved watching video monitors while manipulating instruments on a high-tech mannequin. All components of the course are part of the commercially available endovascular simulator SimSuite.

According to Dawson, simulation-based training will be part of the future of medical education. Dawson said that studies by others estimate an average savings of $50,000 per resident trained on simulators due to increased efficiency and decreased use of operating rooms. "But for simulation training to become widespread, we need additional studies to provide further validation that proficiency with simulators translates into better, safe care for patients," Dawson said.

Inside this issue:

Evolve Your Endovascular Skill Set with the BEST™



Due to significant advances in technology and medicine, more open surgical procedures are now being performed utilizing endovascular techniques, a surgical method in which catheters are inserted via small incisions into blood vessels for the treatment of vascular disease. According to the Centers for Disease Control, there are over 2.1 million arteriography and angiocardiography procedures performed each year.[1] There are also about 1.3 million cardiac catheterization procedures performed each year; approximately 664,000 coronary balloon angioplasties and atherectomies performed each year; and 615,000 coronary stent procedures performed each year.[1] There is a growing need for an entry-level endovascular training program for a wide audience of health-care professionals and industry personnel. The MSC BEST Program™ (Basic Endovascular Skills Training) is designed to meet this rising demand. It is the first step into a Pathway to Practice® for healthcare providers, such as cardiothoracic or vascular surgeons and their staff, who are evolving their careers to include endovascular procedures. BEST is an introduction not only to the skills but to the environment of the endovascular suite.

Overview

This dynamic program is one full day comprised of didactic and simulation led by a SimSuite Clinical Educator, and covers topics such as:

- Endovascular lab set-up
- Basic angiography equipment
- Manifold operation
- Hemodynamics
- Pharmacology
- Right and left heart catheterization
- Percutaneous Coronary Intervention (PCI)
- Renal and iliac intervention
- Cerebral angiography
- Procedural complication management

Equipment demonstrations will allow participants to feel the actual instruments and reinforce the teaching points with the simulated cases during procedures. Participants will leave with a good understanding of how an endovascular lab operates in a variety of procedural areas, and ample skills practice with endovascular simulation technology.

Program Objectives

- Establish the basic fundamentals for best practice
- Introduction to catheters, sheaths, wires, and other interventional equipment
- Cover basic catheter and wire skills with hands-on equipment training
- Practice basic peripheral and coronary procedures
- Discuss the role of the manifold with hands-on workshop to reinforce learning
- Post-procedure access site management
- Review procedural complications (recognition and treatment)

Program Highlights

- Dynamic program comprised of didactic education, simulation-based procedure training, and hands-on workshops
- Attendance is limited to maximize learning and interaction with the course instructor
- All cases authored by thought leaders and experts in the various endovascular specialties
- Vascular bench model for hands-on practice with catheters and wires

For more information, contact your SimSuite Clinical Educator.

References:
[1]Centers for Disease Control: http://www.cdc.gov/nchs/fastats/Default.htm

MSC is Proud to Introduce New Curriculum and Courseware!

COURSE	CEU CREDITS	CME CREDITS
Advanced Dysrhythmias: Atrial	0.6 ANCC	0.5 ACCME
Advanced Dysrhythmias: Ventricular	0.5 ANCC	0.5 ACCME
Advanced Dysrhythmias: Heart Blocks	0.6 ANCC	0.5 ACCME
Advanced Pacing	1.0 ANCC	1.0 ACCME
Advanced Hemodynamics (ICU)	1.7 ANCC	1.5 ACCME
Basic ECG Interpretation	1.5 ANCC	1.5 ACCME
Invasive (Central) Line Management	0.8 ANCC	0.5 ACCME
Medication Administration	1.0 ANCC	0.7 ACCME
Moderate (Conscious) Sedation	2.75 ANCC	2.75 ACCME

ACCME = Accreditation Council for Continuing Medical Education
ANCC = American Nurses Credentialing Center, Commission on Accreditation

Consciously Sedating?

Medical Simulation Corporation (MSC) is proud to announce the release of an online course focusing on the administration and management of moderate sedation.

Moderate or conscious sedation is a form of anesthesia where the patient does not lose consciousness, and maintains an open airway as well as spontaneous breathing. Sedative drugs are used in very low doses to diminish patient anxiety and discomfort in order to facilitate certain diagnostic and therapeutic procedures such as endoscopy, minor surgery, and dentistry. Nearly 70% of surgical procedures are now performed in hospital outpatient departments, surgical centers, and doctor's offices.[1] The University HealthSystem Consortium, which includes 95 of the nation's largest academic medical centers, presented data at a recent meeting suggesting there may be 1,690 incidents a year related to sedation—ranging from an overdose of drugs to a procedure that is started before a patient is adequately sedated.[1] Training and credentialing standards vary from state to state. To minimize risk, hospitals are adopting strict new credentialing programs for anyone who administers anesthesia, with recertification every two years. For the past few years, The Joint Commission on Addreditation of Healthcare Organizations (JCAHO) has required hospitals to have clear policies for administering moderate and deep sedation, and that staffers have appropriate credentials to manage whatever level of sedation occurs. Yet, in a survey two years ago, JCAHO found that 18% of hospitals weren't adhering to those standards.

Course Objectives

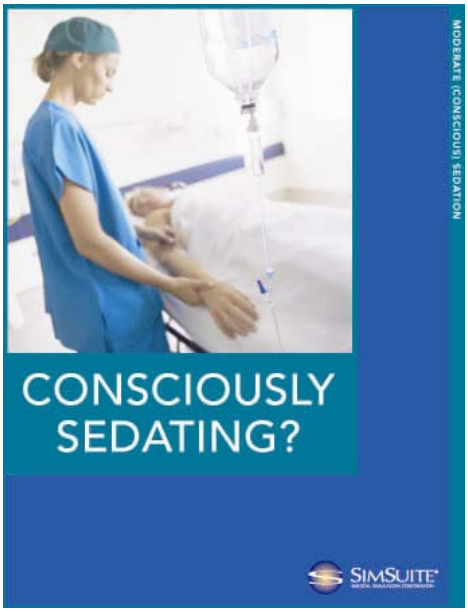
The purpose of this course is to increase and reinforce the participant's knowledge of responsibilities and guidelines associated with the care of individuals requiring moderate (conscious) sedation. On completion of the course, the participant should be able to:

- Recognize indications and contraindications of moderate sedation
- State appropriate monitoring techniques and requirements for patients experiencing moderate sedation as stated in the hospital's policy on moderate sedation
- State necessity for baseline and frequent assessments of patients experiencing moderate sedation
- Identify medications frequently used for moderate sedation, administration guidelines, and potential complications/ side effects
- Evaluate and manage expected and unexpected outcomes of moderate sedation

Benefits

- Online convenience and flexibility: available anytime, anywhere
- Self-paced learning
- Documentation of staff competence and compliance
- Guideline driven
- Based on guidelines developed by the Joint Commission on Accreditation of Hospital Organization (JCAHO), American Society of Anesthesiologists (ASA), and American Association of Nurse Anesthetists (AANA)
- Integration into Quality Improvement Programs
- CME credits available: 2.75 ACCME or 2.75 ANCC

To schedule a training session, contact your SimSuite Clinical Educator.



References:

[1]Landro, L. *Hospitals Move to Curb Anesthesia Risk: New Guidelines Require Training for Surgeons who Give Sedation Without an Anesthesiologist.* The Wall Street Journal, Online. August 9, 2006; Page D1.

Cardiologist for a Day

Last fall, 2006, Piedmont Hospital donated a "Cardiologist for a Day" prize for the charity Outward Bound. The winner of this prize was Chris Wegmann, Vice President/Market Manager, Cox Radio, Atlanta, GA. Mr. Wegmann is someone who enjoys the outdoors but has to deal with a job that keeps him inside most of the day. "I figured I could be a candidate for one of these procedures since I'm turning 55 in February!" stated Mr. Wegmann. Dr. Taylor, the cardiologist who mentored Mr. Wegmann for the day, utilized the SimSuite Education System to walk Mr. Wegmann through various cardiac catheterization procedures. Mr. Wegmann described his experience: "Dr. Taylor and his assistant where very gracious and the experience was nothing short of amazing. You should consider yourself blessed to have such upstanding people representing you. Dr. Taylor was pleasant, took his time explaining to me in layman terms I might add, what exactly happens and why the different procedures are needed. What made this even more interesting is that the simulator kept throwing him curves with the 'patient' getting cold or feeling sick. He immediately had the answer and we moved ahead with the procedure. This demonstration was certainly an eye-opener for me. Hopefully I will never need this, but if I do, you can bet I will call Dr. Taylor for it!"

For more information on Piedmont Hospital, please visit www.piedmonthospital.org.

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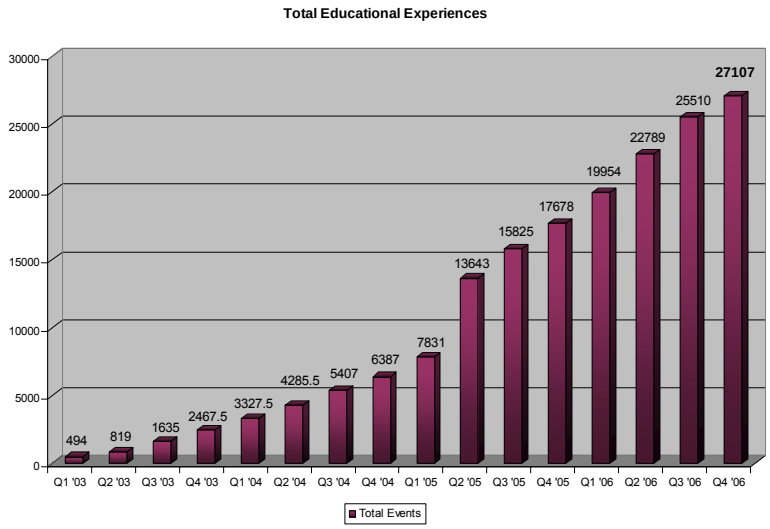
Graph below depicts utilization within SimSuite Education Centers in addition to custom training events, carotid education programs, and training that occurs at trade shows and medical conferences.



Experience Through Education™

SEE SIMSUITE IN ACTION AT THESE UPCOMING CONFERENCES

- March 20-21: Society for Clinical Vascular Surgery, Orlando, FL
- March 24-27: American College of Cardiology, New Orleans, LA

Employee Spotlight

Ron Truax, SimSuite Clinical Education Specialist, Riverside Methodist Hospital, Columbus, OH

Ron Truax currently serves as a SimSuite Clinical Education Specialist at the Center for Medical Education and Training (CME&I), a 20,000 square-foot conference and simulation center located within Riverside Methodist Hospital (Columbus, OH). With a strong background in radiology, Ron was a Riverside employee for 12 years in various roles including General Radiography, Trauma/ER, OR, and finally eight years in the Cardiac Catheterization Lab. He has scrubbed in on well over 10,000 cases. Ron was also employed by Mid Ohio Cardiology for two years and subsequently worked for Cordis, a Johnson and Johnson Company, as a sales representative/consultant for carotid and percutaneous abdominal aortic aneurysm (AAA) devices.

Ron works with four Riverside Hospital employees who manage the microvascular, laproscopic, endoscopic, and multiple human simulators. They collaborate to combine various simulators for one patient scenario that involves multiple units or teams. Most recently, Ron utilized the SimSuite Basic ECG and Advanced Dysrhythmia modules to conduct educational sessions for the Nursing Interns and Fellows from laptops in the conference rooms. During these sessions, 16 trainees logged onto the SimSuite System at once and were guided through each module by Ron and a clinical nurse educator. So far, Ron has 26 of these classes scheduled for the year.

Ron has been married to his wife, Megan, for over 7-1/2 years. He has three daughters: Gabriella Marie (Gabby), 5-1/2 years old; Isabelle Regan (Bella), 4-1/2 years old; and Estella Grace (Gracie), 3 years old. Ron enjoys spending time with family and watching college football.

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