

Medical Simulation Corporation

# Simantics— Defining the language of simulation

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## Medical Simulation Corporation Announces a New SimSuite

Medical Simulation Corporation (MSC) has been selected by the Duke University Medical Center (DUMC) to provide simulation services for training and education of physicians and healthcare professionals at DUMC. MSC and Duke opened a SimSuite Education Center this summer at the Surgical Education and Activities Laboratory (SEAL) on the Duke campus. The SimSuite is being managed by the Department of Surgery in partnership with the Education Services Department at Duke to support the physician, nursing, and allied health training objectives of these distinct teams of excellence.

MSC is a full-service simulation-based education company dedicated to developing competent and confident healthcare professionals who provide high-quality patient care. Because real-life clinical scenarios are simulated, no patients are at risk while healthcare professionals continue to advance their technical and cognitive skills. The opportunity to train in a risk-free environment allows for lessons to be learned without consequence to a patient.

The MSC clinical curriculum focuses on courses for the hospital-based nurse as well as medical and surgical specialists in vascular surgery, cardiology, interventional cardiology, interventional radiology, and emergency medicine. The SimSuite Clinical Educator combines simulation tools with Web-based curriculum to deliver personalized training experiences to meet each institution's specific educational needs and quality objectives. Course participants may include physicians, physicians-in-training, medical students, nurses, technologists, and industry representatives.

Bill Younkes, MSC President and CEO, commented, "The MSC team is excited about the opportunity to work with the world-class Duke University Medical Center and its team members. We are pleased to be invited as an integral participant in Duke's mission and commitment to patient care quality and education excellence."



## MSC Opens Houston Regional Simulation Center

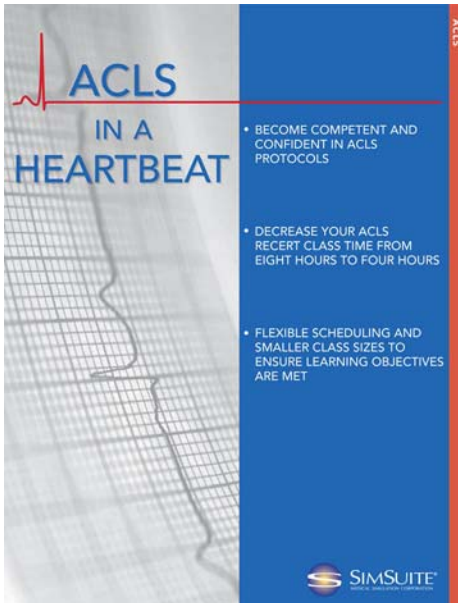
MSC is proud to announce the opening of the Houston Regional SimSuite Education Center. A broad offering of clinical curriculum is being offered at the Houston Regional SimSuite, which is easily accessible to the Texas Medical Center and broader Houston Metroplex. For added convenience, MSC can deploy its team of clinical educators and simulators to the location of the healthcare provider organization.

"The Houston medical community is recognized around the world for providing leading healthcare research, education, and patient care. We are proud to open the Houston Regional SimSuite to provide advanced training services for the region's healthcare providers in an effort to continue to advance patient care," stated Bill Younkes, MSC President and CEO.

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## MSC Provides ACLS Recertification



In September 2006, the American Heart Association (AHA) restructured the requirements for ACLS certification. MSC's SimSuite program incorporated the use of Laerdal's ALS (Advanced Life Support) simulators to comply with those changes. The SimSuite class is now an intimate setting limited to 3-4 students. The first part of the class is video-based learning with integrated "practice-while-watching" skills demon-

stration on the mannequins. SimSuite Clinical Educators demonstrate a scenario to the students, take each student through a practice scenario, and then each student completes an AHA test scenario.

The following components are included:

- ACLS Course Overview
- ACLS Science Overview
- BLS Primary Survey and ACLS Secondary Survey
- Management of Respiratory Arrest
- CPR/AED Practice and Competency
- Technology Review (utilizing equipment such as the defibrillator)
- Megacode and Resuscitation Team Concept
- Putting It All Together (demonstration and practice of megacode scenarios)
- Megacode Test (each student plays the role of team leader and is checked-off on their skills)
- Written Exam

Simulated, mentored sessions provide each user with personalized feedback and skills verification in the following areas:

- Ability to perform pulse checks, assess the heart rhythm and lung sounds

- How to manage the airway with more advanced devices
- How to recognize peri-arrest cardiac rhythms and patterns
- Defibrillation, cardioversion, and transcutaneous pacing
- How to select and administer rhythm-appropriate medications by intravenous routes
- Megacode management
- Airway management
- Automated Electrical Defibrillator (AED) trainer

Evaluations of the new format have been overwhelmingly positive. Many students have stated that the MSC course is the best ACLS course they have ever taken. One participant commented, "The SimSuite is wonderful. It is a low-stress environment very conducive to learning. I retained a lot of information and was able to adapt to the new AHA guidelines without difficulty. Keep up the good work!"

**COMING SOON!!!**

**Basic Life Support Provider Certification**

## First Annual Top Gun Endovascular Simulation Competition

The first annual Top Gun Endovascular Simulation Competition took place at the annual SCVS event in Orlando in March 2007. In collaboration with Boston Scientific Corporation and Alan B. Lumsden, M.D., Medical Simulation Corporation organized, implemented, and supported the simulators that would eventually give us the top recognized vascular surgery fellow or resident whose skill set superseded all of their peers.

The competition was mirrored after an Ethicon competition using simulators to determine which surgeon had the optimal skill set in suturing technique. Dr. Lumsden brought this basic idea to MSC in hopes of pursuing his own simulation competition—carotid artery stenting.

Approximately 40 physicians-in-training participated in the sponsored event. Prior to

beginning the simulation, they were given the opportunity to familiarize themselves with the high-fidelity simulator as well as review the simulated patient's history and physical. Each participant was given two cases with a maximum of 15 minutes per case.

Dr. Lumsden, an expert vascular surgeon, developed a scoring system that tracks key elements that are crucial to real-life procedural success. The maximum score was 63 points for the combination of both cases. Tie breakers were also available in the event that two physicians scored the same.

One simulator was aboard Boston Scientific Corporation's mobile simulation unit and one was on the exhibit hall floor. Three SimSuite clinical education specialists and one data manager was available to facilitate the competition. After approximately 12 hours of

preliminary testing, the totals were accumulated and the top three physicians were announced for the final competition. The final competition occurred on Thursday night in front of three moderators and a captive audience willing to scrutinize every move of the physicians.

After all three participants completed the final case, the winner was announced and an honorarium was provided.



## Performance Management Through Metrics

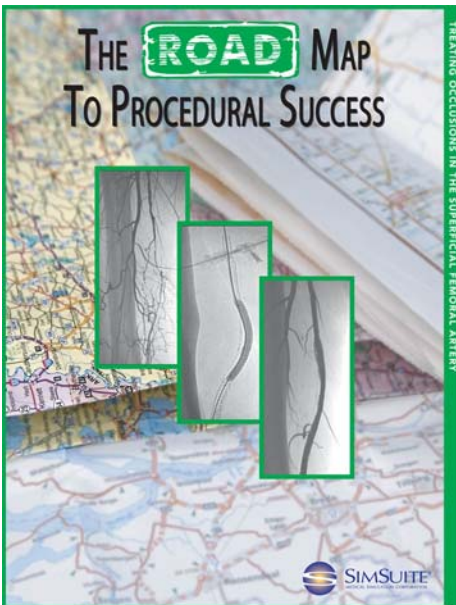
The SimSuite Education System collects over 800 standardized data points and tracks numerous customized metrics in real time; these data points can be combined for competency testing and proficiency assessment. Studies involving the SimSuite System have shown that the system can discriminate competencies of experienced and inexperienced operators, provide benchmarking capabilities, and test and certify.

Competence to perform medical procedures requires both physical and cognitive skills. The SimSuite Experience facilitates the development and measurement of both skill sets. SimSuite's unique training platform focuses on physical skill development through haptic feedback and beyond by incorporating a comprehensive cognitive approach.

Each SimSuite component is designed to address a cognitive ability:

Verbal	⇒	Computer-generated interactive mentors
Numerical	⇒	Drug calculation, device sizing, and radiation dosages
Reasoning	⇒	Serious adverse event management
Deductive	⇒	Subtle problems in cases
Relationships	⇒	Complete patient physiological model
Memory	⇒	Carry over information from patient presentation and history
Spatial	⇒	3D model and real-time angiographic images

## The Road Map to Procedural Success: Treating Occlusions in the Superficial Femoral Artery



Peripheral Arterial Disease (PAD) is a type of occlusive peripheral vascular disease affecting the arteries outside the heart and brain<sup>1</sup> often leading to compromised blood flow to the extremities. PAD affects 8 to 12 million Americans. The most common symptom is intermittent claudication defined as cramping, pain, or tiredness in the leg or hip muscles while walking or climbing stairs, often relieved with rest.

The Superficial Femoral Artery (SFA) is a commonly diseased artery in the lower extremities, with 50% of all PAD cases involving the SFA.<sup>2</sup> Treatment options may involve medical, endovascular, and/or surgical approaches to opening the blocked arteries. Percutaneous endovascular techniques (balloon angioplasty with or without stenting) are indicated when the patient has lifestyle-limiting claudication that does not respond to conventional medical therapy. The SimSuite SFA simulated course provides interventional cardiologists, interventional radiologists, vascular surgeons, residents, and fellows as well as nurses and technologists with a realistic environment in which to practice this procedure without putting patients at risk.

MSC's latest addition to the SimSuite Endovascular Training Curriculum: *The Road Map to Procedural Success: Superficial Femoral Artery Disease* was launched and demonstrated at the American College of Cardiology (ACC) meeting as part of the 2nd Annual Innovation in Intervention: i2 Summit. The ACC meeting was held March 24-27 in New Orleans.

As with all SimSuite educational courses, the SFA simulations feature the full process of patient care in which the patient history, physical assessment, and other diagnostic

tests are presented, allowing the clinician to formulate a diagnosis and treatment plan. Utilizing unique and realistic 3-D patient anatomies as well as sophisticated haptic (tactile) feedback, the course focuses on endovascular techniques such as the contralateral approach, crossing the area of blockage, balloon sizing, and stent deployment. Other features include manifold with contrast and inflator capabilities and over-the-wire and monorail techniques using exchangeable and reusable catheters as well as real-time fluoroscopic imaging with cine and road-mapping technology. The operator may also experience adverse events such as vessel dissection, edge dissection, and perforation. Each simulation experience is unique, and patient outcomes are determined by the operator's decisions and technical abilities. Over 800 standard data points are collected throughout the simulation for immediate performance assessment and feedback. MSC has also developed an online didactic module to complement this course that reviews Peripheral Arterial Disease and the management of occlusions within the SFA.

#### References:

<sup>1</sup>American Heart Association Web site: [www.americanheart.org](http://www.americanheart.org)

<sup>2</sup>Jaff, M.R. *Challenges of the Superficial Femoral Artery—The Long and Winding Road*. Presentation at Euro PCR Meeting, 2005.



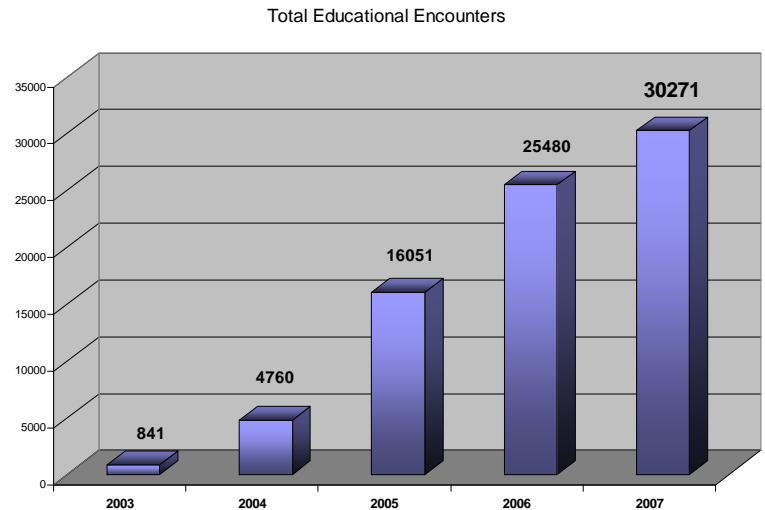
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## Experience Through Education™

### SEE SIMSUITE IN ACTION AT THESE UPCOMING CONFERENCES

- September 15-19: European Association for Cardio-Thoracic Surgery (EACTS), Geneva, Switzerland
- September 24-28: Vascular Interventional Advances (VIVA), Las Vegas, NV
- October 6-10: Advances in Cardiac & Endovascular Therapies (ACE), New York, NY
- October 20-25: TCT 2007, Washington, DC

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.



## Employee Spotlight



**Chad Weis**  
European Technical Manager

Chad Weis, a Wisconsin native, moved to Denver in August 2003 and began his career at Medical Simulation Corporation delivering simulators city to city. Chad's flexibility and ability to learn the technical aspects of the simulator made him an invaluable asset to the company. After a few months, Chad began providing technical coverage for the MSC mobile platform, which led to a temporary field engineer position. Chad was then promoted to a full-time engineer providing technical support both in the office and on the road. This position gave Chad extensive exposure to the company as a whole. After one year as a field engineer, Chad accepted an in-house position as an electrical engineer. This role included designing haptics, and soon Chad became a full-time haptics engineer.

After working on several high-profile projects, Chad was promoted to Electrical Engineer Level II. Chad now provides global support as technical manager of MSC in Europe.

Chad has a bachelor's degree in electrical engineering and a physics minor from the Milwaukee School of Engineering (MSOE). Chad also spent one year in Lubeck, Germany, where he received an electrical engineering technology degree from Fachhochschule, Lubeck.

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