Annual Report: Academic Year 2013-14

Executive Overview

• ASTEC is now a Society for Simulation in Healthcare (SSH) Accredited Program for Teaching/Education, Assessment, Research, and Systems Integration.

• ASTEC provided more than 9,670 learner contact hours (LCHs) during 2013-14 putting us on par with the largest medical simulation centers in the country.

• ASTEC ranks among the highest nationally in terms of the number of unique learners and the number of unique sessions, providing a wide range of simulation activities throughout the full spectrum of healthcare providers.

• Of our total 2013-2014 simulation training sessions, 58% were dedicated to residents and staff of the University of Arizona Medical Center, demonstrating the increasing role of simulation as the preferred method of graduate- and continuing medical education.

• As a national leader in the development of artificial tissue, ASTEC has devised new methods for creating more realistic models, some of which incorporate the use of 3D modeling technologies.

• ASTEC continues to be a leader in the delivery of high-fidelity medical simulation, conducting 16 upgrades in equipment and facilities to provide higher-quality simulation encounters with greater efficiency and adapting environments to multidisciplinary objectives.

• In response to the Ebola Virus outbreak, ASTEC has developed an ongoing training program approved by the Center for Disease Control and Prevention that prepares healthcare workers in the proper care of patients with an infectious disease.

From the Executive Director

The Arizona Simulation Technology and Education Center (ASTEC) has reached a new pinnacle of achievement in 2015 by becoming one of only four simulation facilities in the United States to receive national certification in all four areas of excellence; namely, teaching/education, research, systems integration, and assessment. This is a testament not only to the hard work, teamwork, and discipline of the ASTEC staff but also to the richness of our collaborations with the other colleges of AHSC here and in Phoenix. We are also the beneficiaries of numerous research and educational endeavors with our colleagues on campus, including the School of Animal and Comparative Biomedical Sciences, Optics, Electrical and Computer Engineering, and Biomedical Engineering. We continue to enjoy a constant influx of new ideas with our corps of students both at the graduate and undergraduate level.

The Ebola outbreak this year brought with it new simulation challenges and opportunities. ASTEC got to work closely with the leadership of UAMC, the CDC, Doctors Without Borders, Emory University, and the University of Nebraska to ensure that we put in place the highest level of safety training available anywhere in the country. We are also looking forward to the opportunities that will arise from the burgeoning partnership with Banner Healthcare. Banner brings with it a rich history and experience of employing simulation training at the practitioner, nursing, and patient care levels. We look forward to expanding our own outcomes-driven simulation efforts as part of the new merger’s objective to provide compassionate, efficient, and error-free care to all of our patients. To treat well, you have to train well. And to train well, you need to simulate well. At ASTEC, we will never shrink from that mission and we welcome each and every new simulation challenge as just that: an opportunity to do it better than we ever did it before.

Allan J. Hamilton, MD, FACS
Executive Director
Arizona Simulation Technology and Education Center (ASTEC)
ARIZONA SIMULATION TECHNOLOGY AND EDUCATION CENTER

GROWTH
ASTEC opened on August 5, 2005, and has now begun its 9th year of operation. Over the past several years, we experienced a tremendous growth in utilization rates as demand for simulation training increased, both at the University of Arizona Medical Center (UAMC) and from external first-responder organizations. Over the last year, in particular, the utilization rates for residents and UAMC staff markedly increased so that they now make up a combined 58% of all training hours at ASTEC. This trend has come in part from a hospital-wide increase in patient safety and quality improvement projects, an effort for which simulation is particularly suited.

Since 2005, our laboratory has provided a consistently high volume of simulation technology and education services for numerous UAHN departments as well as external first-responder organizations. ASTEC increased its utilization rates for all categories of participants during 2013-14, resulting in a cumulative total of 9,670 learner contact hours (LCHs) in a single year, as compared with 8,137 LCHs during 2012-13. As a result, we have already outgrown our new facility, which remains 12,000 square feet below the national average for a college of medicine simulation center.

We also continue to be among the most multidisciplinary medical simulation centers in the nation, providing medical simulation training throughout all of the Arizona Health Sciences Center. In a continued effort to provide more immersive interprofessional training opportunities, 20% of these teaching activities are provided for multidisciplinary teams while on shift (in situ) within the departments of Emergency Medicine, Pediatrics, and Labor and Delivery. Likewise, for our first responder organizations such as medical flight crews, and fire departments, we have begun to take our simulations into the field to practice complicated patient transports. We also provide simulation training to military and federal rescue personnel, community outreach workers, and students in precollege programs. In fact, in the past year, ASTEC provided more than 70 educational outreach opportunities for community healthcare groups, pre-health clubs, and high school and middle school students. ASTEC has truly established itself as the leading immersive interprofessional simulation center.

Residency participation includes various departments:
- Surgery Residents
- Emergency Medicine Residents
- Internal Medicine Residents
- Family Medicine Residents
- Pediatrics Residents
- Obstetrics/Gynecology (OB/GYN) Residents
- Pulmonary Fellows
- Anesthesia Residents

TEACHING ACTIVITIES
More than 80% of our available weekly schedule is devoted directly to medical simulation training. Much of this time is filled by the following College of Medicine programs:
- Emergency Medicine Elective
- Surgery Clerkship
- Internal Medicine Clerkship
- Pediatric Clerkship
- Obstetrics/Gynecology (OB/GYN) Clerkship
- Year I & II Societies
- Year I Interprofessional Cardiopulmonary Resuscitation (IPCPR)
- Year III Intersections
- Year III Transition Block
- Cardiopulmonary Resuscitation (CPR) Elective
- Surgery Club
- Family Medicine Interest Group (FMIG)
- Emergency Medicine Interest Group (EMIG)

In-hospital programs include the following:
- Emergency Medicine Competency Codes
- In Situ Critical Decision Unit Codes
- In Situ Diamond Children’s Pediatric Intensive Care Unit (PICU) Codes
- In Situ Diamond Children’s Neonatal Intensive Care Unit (NICU) Codes
- In Situ Diamond Children’s Pediatric Stepdown Codes
- In Situ Labor and Delivery Codes
- In Situ Newborn Nursery Codes
- In Situ Radiology Code Review
- In Situ Cardiothoracic Surgery Codes

In the last year, ASTEC for AY 2013-14

Utilization percentage breakdown for all users of ASTEC for AY 2013-14

ASTEC Training Allocation by Group Projected for Academic Year 2013 - 14

- Student 12%
- Medical Students 18%
- Residents 86%
- UAMC 18%
- Students 29%
- First 18%
- Second 17%
- Third 15%
- Fourth 11%
- Fifth 8%
- Sixth 7%
- Seventh 6%
- Eighth 5%

Total learner contact hours (LCH) for each academic year since 2006-07

- Total learner contact hours (LCH) for each academic year since 2006-07

Medical student intubating during Intersessions

Emergency Medicine resident practicing central line placement

General Surgery resident practicing on the Simbionix virtual reality trainer
ASTEC continues to be a primary resource for first-responder simulation training:

- Northwest Fire Department (NWFD)
- Air Evac Helicopter Program
- Arizona Lifeline Helicopter Program
- United States Air Force Pararescuemen
- United States Border Patrol
- United States Army Combat Medics
- Rural Metro Fire

Other groups include the following:

- University of Arizona Campus Health
- Veterinary Science Undergraduates
- Health Occupations Students of America (HOSA) Club
- Future Health Leaders Alliance (FHLA)
- Nurse Practitioner Acute Care Students
- Physiology Club
- Neuroscience and Cognitive Science Association
- Residency Electives
- American Medical Student Association Premedical Chapter
- Med Cats Pre-Health Club
- Bioengineering Research Rotations
- Undergraduate Internships and Independent Study
- Fostering and Achieving Cultural Equity and Sensitivity Pre-Health Club
- Undergraduate Biology Research Program (UBRP)

ASTEC has been training UAMC healthcare workers for the possibility of an Ebola outbreak in Tucson. Working with Heather Scott, the Corporate Manager for Infection Prevention and Epidemiology, Sean Elliot, Medical Director for Infection Prevention and Andreas Theodorou, Chief Medical Officer at UAMC, ASTEC has hosted a series of trainings to teach healthcare workers how to properly don and doff personal protective equipment. Using Glo Germ gel as simulated body fluid, we challenged healthcare workers to follow proper doffing protocols without exposing themselves in the process. Ultraviolet lights were used to check if their body was contaminated after the suit was removed. Donning and doffing procedures were videotaped and the protocols were adjusted based on comprehensive after action review. We have begun to introduce simulated patients into the trainings to get healthcare workers acquainted with providing care while wearing the full Hazmat body suit. ASTEC and UAMC will continue to develop these trainings into an ongoing Infectious Disease Preparedness Program.

This past year, ASTEC partnered with Arizona LifeLine to provide precepted neonatal trainings via helicopter. As part of MED-TRANS Air Medical Transport, Arizona LifeLine has recently expanded its medical transport services to include maternal, neonatal, and pediatric patients. To complete their training for this new patient population, the peds/neonatal transport nurses are required to participate in a minimum of one precepted transport. Working in collaboration with Valerie Vickers, RNC-MS, the Neonatal and Pediatric Team Coordinator for Arizona LifeLine, ASTEC staged 4 neonatal air transport simulations. Each training entailed preparing the baby for transport, loading the isolette onto the helicopter, a brief flight, and transfer to the receiving facility. Transport nurses coordinated the care of the baby, including monitoring of vital signs during the entire transport, receiving and giving report, and communicating with family members. The training was able to identify potential problems that could arise during a patient transport and prepared transport nurses to deal with them effectively.

ASTEC has continued its work with the UA medical center’s Extracorporeal Life Support (ECLS) Program and the Artificial Heart Program to conduct Mobile ICU (MOBI) transport simulations. Using our wireless adult mannequin, we simulated the transfer of a patient from an

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outlying hospital to the cardiac intensive care unit (CICU) and from the CICU to the Department of Radiology for a computed tomography (CT) scan. Conducting regular MOBI transport exercises allows us to examine important logistical and safety considerations. Additionally, it gives us an opportunity to explore potential human factors problems in the transport of severely compromised patients with a variety of monitoring equipment.

ASTEC continues to play an integral part in the Department of Surgery’s Intensive Laparoscopic Training Course for general surgery residents. Under the direction of Carlos Galvani, MD, associate professor of surgery, this course requires each resident to undergo prerequisite simulation training in ASTEC, before moving on to 4 days of training in the operating room. First-year through fourth-year residents practice minimally invasive surgery techniques using ASTEC’s artificial tissue models and the latest surgical technology, thanks to grants and equipment donations from Applied Medical®. Using new simulated organ models, residents were able to practice simulated surgical procedures including cholecystectomy. The aim of the course, held 4 times a year, is to provide the highest-quality advanced training in minimally invasive procedures. Additionally, starting in the 1st year of residency, ASTEC provides a weekly Fundamentals of Laparoscopic Surgery (FLS) training course led by Julita Samamé, MD that prepares general surgery residents for the FLS examination required for completion of residency.

ASTEC also provides a bi-weekly basic and advanced suturing course led by Alex Little, MD for year 1 and 2 post-graduate residents.

ASTEC provided simulation training to over 20 neonatologists, neonatal fellows, and pediatric physicians at the 2014 Workshop on Perinatal Practice Strategies, Innovation with Evidence sponsored by the American Academy of Pediatrics. Clinical educator Lisa Grisham, NNP, MS, and University of Arizona Medical Center neonatologist Joe Livingston, MD staged a unique simulation case, neonatal hydrops fetalis. Presenting a novel hydrops model, Grisham and Livingston provided an interactive workshop to teach physicians how to make simulation models and incorporate them effectively into their medical education curriculum. Following each simulation case, there was a facilitated debriefing session with an open discussion on effective debriefing strategies. ASTEC received enthusiastic feedback from conference attendees on the value of the workshop as well as the fidelity of the hydrops model. The other cases included supraventricular tachycardia and pulmonary hypoplasia of the neonate.

In January, ASTEC provided on-site simulation technology expertise for an intensive pre-conference pediatric workshop at the National Emergency Medicine Services Physician (NAEMSP) Conference. The workshop involved 3 scenarios that allowed participants to apply new prehospital protocols for treating respiratory distress, seizures and pain management. In addition, all participants took part in a mass casualty incident triage exercise. Undergraduate students were recruited from the AMSA chapter of the University of Arizona to act as standardized patients for this exercise.

ASTEC’s popularity continues to be demonstrated by the positive data generated from feedback and satisfaction surveys. We have consistently scored in the 99th percentile on anonymous feedback questionnaires and are clearly considered a favorable educational experience by all learner groups. In fact, the most consistent comment is that all current users of ASTEC would like more designated time for medical simulation education.

OUTREACH
As part of the College of Medicine’s community outreach effort, ASTEC is making simulation technology available to members of the community. We provide internship opportunities for the Med-Start Summer Program, Camp Scrubs, the Tucson Urban League, and the Arizona Assurance Program. One of the main objectives of our outreach activities is to raise health care literacy among young and underserved populations in Tucson. To achieve this goal, we invite groups of students into our lab to engage in hands-on simulation activities to foster an appreciation for healthcare.

Last year, David Biffar, ASTEC’s director of operations, was invited to give a lecture to the “Virtual Reality” elective class at Gridley Middle School in Tucson. Following a great reception and enthusiastic response from the students, the elective class came to visit ASTEC to experience, first hand, the applications of 3D modeling and virtual reality in medical education and health care. Students practiced surgery on the fully immersive 3D Simbionix surgery trainer and learned the critical components of medication administration through our recently developed virtual reality game. The students left ASTEC with a new appreciation for 3D modeling and with new ideas for how to apply concepts of modeling and design to create their own 3D models.
This past summer, ASTEC hosted the Boy Scouts of America in a one-day wilderness medicine preparedness course to allow them to earn the prestigious Medicine Merit Badge. Scouts learned how to manage a bleeding wound using ASTEC’s bleeding artificial tissue pads, splint a broken leg using the MegaCodeKid trainer, operate an automated external defibrillator and assemble a First Aid kit.

The following is a full list of regular outreach activities conducted by ASTEC:
- Tucson Urban League
- High School Pre-Health Fellowships
- Med-Start Summer Program
- UA Pre-Med Camp
- Camp Scrubs
- BASIS Summer AZ Telemedicine Program
- Summer Institute on Medical Ignorance
- Volunteer for Intercultural and Definitive Adventure educational series
- Summer Youth Institute
- High School Tech Educators
- Passport to High School
- Undergraduate Biology Research Program (UBRP)

Additionally, ASTEC provides independent research opportunities for undergraduate and pre-medical students, including international student research rotations. In the past year, 2 former independent study students have been accepted to medical school at the University of Arizona. We are proud to offer undergraduates the opportunity to conduct research and participate in creating medical simulation environments that help prepare them for medical school.

TEACHING MODULES
ASTEC continues to upgrade equipment where necessary to meet the rising demand of simulation training in medical education. This past academic year, we added several new individual task trainers for unlimited practice of routine and highly advanced medical procedures. Following the partnership, this past year, between the University of Arizona and SynDaver™ Labs, we have been able to add highly realistic models to practice chest tube placement, lumbar puncture and intubation. Stored in a liquid chlorine solution, these hydrogel models are the most advanced synthetic human tissue models to date and very closely resemble the texture of real tissue. ASTEC has collaborated with SynDaver to validate these new tissue models.

In order to provide more realistic training to our surgical residents, we have recently acquired the virtual reality ImmersiveTouch® Sensimmer Simulator. This trainer allows residents to practice a variety of complex, invasive surgical techniques including lumbar puncture, craniotomy, ventriculostomy placement, and brain tumor procedures. The simulator provides 3D virtual anatomy with haptic instrument feedback.

On loan from the University of Arizona, College of Nursing (CON), ASTEC now has a Laerdal SimMan 3G mannequin to meet the increasing demand for mobile, in situ multidisciplinary simulations. Completely wireless, SimMan 3G helps us achieve the optimal training environment for the wide variety of training groups we serve. In return, ASTEC has provided the CON with a computerized mannequin ideal for the newly established Certified Registered Nurse Anesthetists Program led by Kathleen Piotrowski, DNP, CRNA. ASTEC will assist in providing simulation training throughout the year for the CRNA program.

ASTEC’s full range of medical simulation equipment is listed below:
- 4 adult patient simulators
- 2 birthing simulators
- 2 school-aged simulators
- 1 infant simulator
- 2 newborn simulators
- 1 ultrasound simulator
- 1 virtual-reality laparoscopic trainer
- 6 laparoscopic task training stations
- 1 neurosurgical microscope
- 35 specialized task trainers [5 NEW]

ARTIFICIAL TISSUE DESIGN
Ongoing is ASTEC’s research to develop and perfect synthetic materials for surgical dissection, intravenous therapy, high-risk invasive medical procedures, and microsurgery simulation. The lab was designed to efficiently integrate development and production, furthering our mission of creating cost-effective, highly realistic training models.
Flight nurses practice the Seldinger technique for placing a chest tube to simulate jugular venous distention (JVD). The model allows for integration of vessel-like tubing to permit learners to introduce fluids into the artificial bone. We have also upgraded our existing chest tube and cricothyrotomy models with more realistic bleeding capabilities to achieve higher fidelity. We have streamlined our development process by designing a grid template that now allows us to pour up to 16 tissue models simultaneously. The template has been used to make models for practicing abscess drainage, cricothyrotomy and chest tube placement. This manufacturing approach has decreased the time required to prepare for procedural trainings and allows us to accommodate larger learner groups on short notice.

We have also designed a new training adjunct for our adult full-scale computerized mannequin to simulate jugular venous distention (JVD). The model consists of a flesh-like collar made from artificial tissue with silicone tubing to simulate the internal jugular veins. The tubing is connected to an external pressure bulb to produce distention of the simulated veins.

One of the major challenges we continue to encounter in working with artificial tissues is designing hollow, tube-like anatomic structures, including bowel and blood vessels. In an effort to facilitate this process, Sirandone Reid engineered a new device, called a "tabulator." Using differently sized dowels connected to a motor-driven lathe, we are able to manually apply silicone with a brush-on technique. The rotational motion provides a uniform tissue cure and controlling for the speed allows us to custom-build tubes of variable thickness. This is crucial for achieving optimal fidelity of the target vessel or tubular structure.

For the third straight year, ASTEC provided an interactive tour for a Biomedical Engineering Clinical Rotation Elective for undergraduate students from the University of Arizona. Students were challenged to identify applications of electrical, mechanical, and material engineering principles in designing medical simulation technologies.

The following is a complete list of artificial tissue models developed by ASTEC since our opening in 2005:

- Adult and pediatric peripheral intravenous access
- Arterial line placement
- Umbilical cord access
- Adult and pediatric chest tube
- Adult and pediatric percutaneous
- Tibia compound fracture with arterial bleeding
- Uterus with ectopic pregnancy
- Various wounds for suturing
- Ultrasound-guided line placement
- Bifurcation of common carotid artery
- External carotid to internal carotid bypass
- End-to-side anastomosis
- Bowel anastomosis
- Silicone wound models with pressurized blood perfusion
- Adult silicone trachea
- Pediatric silicone trachea
- Capillary refill model
- Extracorporeal membrane oxygenation (ECMO) model
- Cesarean section (C-section) model
- Intravenous (IV) access tissue pad
- Thoracotomy tissue
- Abscess model
- Burned skin model
- Congenital adrenal dysplasia model
- Tibia for intraosseous IV placement
- Jugular vein distention model [NEW]

**RESEARCH**

ASTEC is proud to announce that we have recently achieved accreditation from the Society for Simulation in Healthcare (SSIH) in the areas of research, assessment and integration. This past year, ASTEC has initiated a number of new research initiatives while continuing to pursue ongoing projects.

**Falloposcope**

ASTEC is working with Jennifer Barton, PhD from the Department of Biomedical Engineering on an NIH-funded project to develop and test a novel falloposcope, an instrument designed to inspect the ovaries for potential malignancy. Ovarian cancer has a high mortality due in part to inadequate and unreliable screening tests; most cases are not diagnosed until they reach advanced stages. The falloposcope designed by Barton’s team will have the ability to maneuver through the fallopian tubes and take high-resolution images of the ovaries. In order to test the dexterity of the instrument, an artificial tissue model will be used to simulate the anatomic measurements and tissue qualities of a female reproductive system, which includes a uterus, fallopian tubes and ovaries. Following proof-of-concept testing in ASTEC, the falloposcope will be used on cadaveric models and finally on actual patients.
Foveated Endoscope
Working with Hong Hua, PhD from the College of Optical Sciences on an NIH-funded project, ASTEC is testing a new foveated endoscope, a camera used in minimally invasive surgery to visualize the surgical working space. The camera has the ability, via a high-magnification fovea, to preferentially zoom on specific anatomical structures while maintaining the overall panoramic view of the working space. This allows surgeons to obtain high visual magnification while still maintaining their peripheral vision. We hypothesize that this will both reduce the number of camera manipulations required during a procedure and also prevent inadvertent collisions of instruments with structures in the peripheral field. ASTEC is designing a simulated surgical platform with obstacles that will test the ergonomic advantages of the foveated endoscope. The instrument will then undergo clinical testing on porcine models at the University of Southern California.

Immersive Touch
ASTEC has recently entered the virtual world of medical simulation training by partnering with ImmersiveTouch, a leader in simulation-based surgical training who design simulators that imitate surgeons in a digitally replicated operating environment with 3D virtual anatomies and real-time haptic instrument feedback. We are currently conducting a validation review of a new neurosurgery simulator that allows surgeons-in-training to practice lumbar puncture, craniotomies, and real-time haptic instrument feedback. We are currently exploring potential applications with telemedicine for this surgical navigation technology.

Simulation-based Education Assessment Tool (SEAT)
Joining national efforts for objective, data-driven healthcare, ASTEC is developing a simulation-based medical education learning platform as an application that integrates video-recordings of procedural trainings with validated assessment tools and performance tracking capabilities. Compatible with a tablet computer, laptop and mobile device, we anticipate that SEAT will facilitate the objective evaluation of learners as they perform procedural training in ASTEC. Procedures will be video-recorded using a Google Glass camera. Videos will then directly upload to the learners’ personal profile via a central server and made available to evaluators for assessment. Using validated protocols of essential tasks for a given procedure, the evaluators will assess the learner’s performance and ascribe an overall score. Videos will be displayed side-by-side to the assessment tool and permit evaluators to make annotations to provide useful feedback to the learner. All completed assessment forms are uploaded to a database on the server and analyzed for learner performance, allowing us to identify steps that are particularly difficult for learners to complete correctly. Such patterns provide not only useful information for the development of future simulations, but it may also provide a useful link to the clinical setting. ASTEC has received a grant from the Academy of Medical Education Scholars (AMES) at the University of Arizona College of Medicine to support this project.

Surgical Navigation Technology
We conducted a study (sponsored by Karl Storz Endoscopy-America) to determine the impact of a novel surgical navigation system on the ability of surgeons to more easily and precisely direct their assistants’ instruments to specific sites in a simulated laparoscopic field. We found that a surgical pointer directed from the laparoscopic camera directly onto the laparoscopic display significantly reduced the mean time required for assistants to identify selected targets in a simulated surgical field. The study was presented at the International Summer Computer Simulation Conference held by the Society for Modeling & Simulation International.

We are currently exploring potential applications with telemedicine for this surgical navigation technology.

Computer-Assisted Surgical Trainer (CAST)
Thanks to the leadership of Jerzy Rozenblit, PhD, ASTEC’s director of research, our work continues apace with his team in the Department of Electrical and Computer Engineering in refining the Computer-Assisted Surgical Trainer (CAST) system. In the past year, Rozenblit and his team have continued to improve on integrating, into surgical training, developments in artificial intelligence-based motion planning. The most recent version of the CAST system provides an optimal path planner for computer-guided training of basic laparoscopic skills to provide physical navigational guidance for the trainees. Akin to the classic abstraction of “training wheels,” we anticipate that physical guidance of instrument movement will facilitate learning and help reinforce good habits in the trainees. As the trainee progresses in competence, the amount of guidance can be reduced. Objective evaluation of instrument movement will permit tracking of the trainees’ progression through the learning curve and will be used to define competence. The system can be used with the full line of Karl Storz laparoscopic instruments. Our primary goal, as always, is to raise trainees to a higher level of proficiency without putting patients at risk in the operating room. A new exploration grant proposal has been submitted to the National Science Foundation (NSF) to support this project.

Mitral Valve Artificial Heart Model
We are currently exploring potential applications with telemedicine for this surgical navigation technology.

Computer-Assisted Surgical Trainer (CAST)
Working in collaboration with Dr. Zain Khalpey, Surgical Director of the Heart Transplant and Mechanical Circulatory Support Program at UAMC, ASTEC recently began working with 3D printing technology to develop artificial mitral valves. We hope to be able to readily reproduce patient-specific valve deformities in artificial models for surgical training. We have already devised a number of prototypes. To support this project, we have applied for a research grant made available by Intuitive Surgical Inc.
FUTURE INITIATIVES

Working in collaboration with SynDaver Labs, we are currently developing a new chest tube model made with smart technologies for training combat medics. This model will provide a hyper-realistic learning platform and permit live data collection from trainees. We are also working on using smart technologies to improve our artificial tissues, which will allow us to get live, sensitive feedback on trainee performance.

Consistent with national efforts to improve assessment in simulation training, ASTEC is continuing work to develop and validate new assessment instruments for both procedural and scenario-based simulation training. We anticipate that implementation of our SEAT will facilitate the effort for more efficient data collection.

After training healthcare workers in proper donning and doffing procedures of personal protective equipment (PPE) and conducting several successful trainings with simulated patients infected with Ebola Virus Disease (EVD), UAMC South Campus was selected by the Center for Disease Control and Prevention (CDC), as an official infection control center. In an effort to continue to improve on our infection control protocols we have implemented an ongoing training program for PPE Infectious Disease readiness.

We hope to continue to expand our interprofessional in situ training programs to bring the most relevant, practice-based simulations to our trainees. To complement these programs, we also hope to continue to make advances in the application of virtual reality.

We are looking forward to the merger between UAHN and Banner Health as an opportunity to engage in collaborative research and to implement new directives to improve our simulation trainings with the ultimate objective of doing what we do best, that is improving patient outcomes and making the hospital a safer place.

Arizona Lifeline air transport simulation
POSTERS AND ABSTRACTS

Frazier, A; Prescher, H; Biffar, D; Hamilton, A. “Using rotational casting techniques to create hollow viscous organs.” 14th International Meeting on Simulation in Healthcare, Jan. 25-29, 2014

Prescher, H; Dreifuss, B; Biffar, D. "Developing a novel drain loop abscess model for training intern ED residents.” 14th International Meeting on Simulation in Healthcare, Jan. 25 – 29, 2014

Prescher, H; Biffar, D; Tomasa, L; Berg, M; Grisham, L; Mathiesen, Y; Theodorou, A; Hamilton, A. “A seven-year collaboration between 3 Colleges to learn interprofessional skills during a CPR team behavior simulation.” 14th International Meeting on Simulation in Healthcare. Jan 25 – 29, 2014


