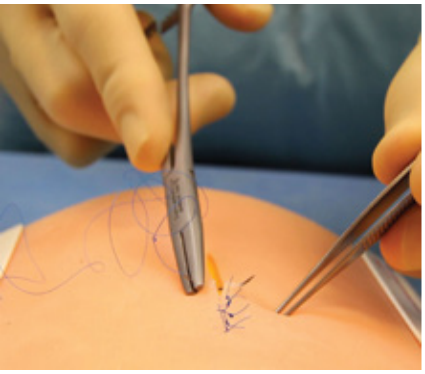
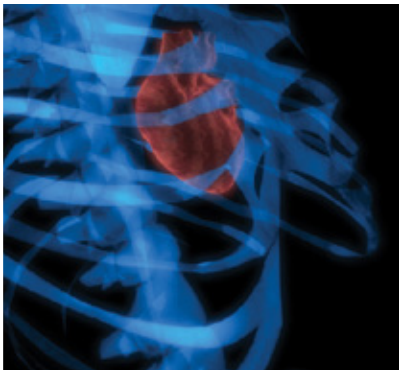
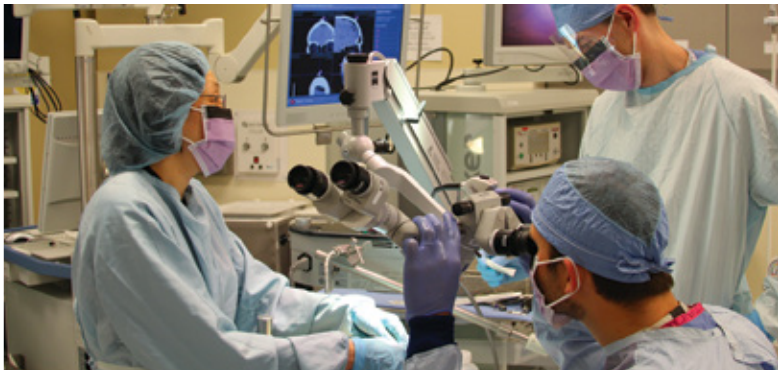
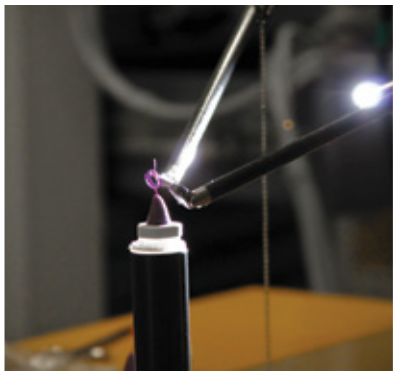
ISIS
UW Medicine®

2012 – 2013 ANNUAL REPORT

Institute for Simulation and Interprofessional Studies


isis.washington.edu

Medical and nursing students work together during an interprofessional student simulation course to create a stronger foundation for team communication.

OVERVIEW

ISIS connects over 30 departments and programs throughout the University of Washington, including the Schools of Medicine, Nursing, Pharmacy, Physician's Assistant Training Program (MEDEX), and other UW Medicine entities such as UW Medical Center, Harborview Medical Center, Northwest Hospital and Medical Center, and Valley Medical Center. Trainings encompass areas of procedural and patient management skills, interprofessional education, and team communication. Striving to improve the quality of healthcare education through technology, instructional design and sound educational principles, ISIS provides learners with a safe environment where they can learn and practice skills before applying them in clinical settings.

MISSION STATEMENT

The Institute for Simulation and Interprofessional Studies (ISIS) has, as its primary goal, to provide leadership in the use of simulation technologies to improve the quality of healthcare education and improve patient safety and outcomes. ISIS seeks highly collaborative alliances in selected projects with other educational and healthcare delivery systems with similar interests in simulation. The primary impact of ISIS will be upon the citizens of the State of Washington and the greater WWAMI region. Through its research and education efforts and publication of results, ISIS will also have a strong influence and potential impact upon providers and patients in a global fashion.

LEARNERS

ISIS learners have diverse clinical backgrounds with a wide range of experience either as professionals or healthcare students. ISIS categorizes its learners into three primary groups: 1) healthcare professionals, such as nurses and attending physicians, 2) resident physicians, and 3) students.

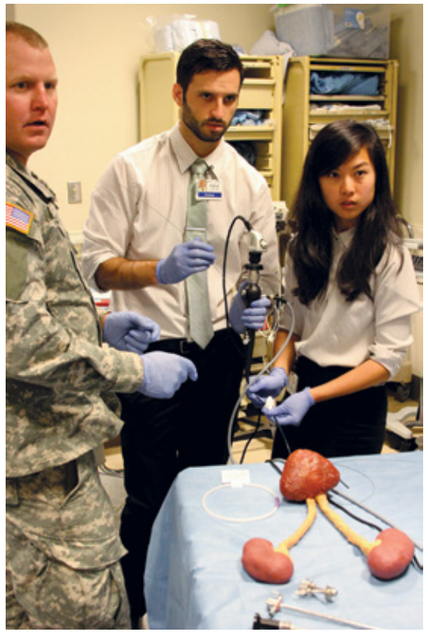
Healthcare Professional Training

ISIS provides opportunities for healthcare professionals such as attending physicians, nurses with all levels of experience, paramedics, and respiratory therapists from the University of Washington Medical Center, Harborview Medical Center, surrounding hospitals, and throughout the region. A multitude of skill-based courses are available for physicians, such as central line placement, in addition to interprofessional trainings such as TeamSTEPPS (Team Strategies and Tools to Enhance Performance and Patient Safety) and system wide mock codes.

Partnering with nursing clinician educators, ISIS provides trainings such as orientations for new nurses, in situ trainings, manikin-based courses, and e-learning module resources such as the Patient Safety Innovations Program (PSIP) Code Blue videos for UW Medicine.

In collaboration with Seattle Children's, ISIS houses the Neonatal Resuscitation Program for community providers from across the Northwest. Didactic sessions alternate with simulations that use a newborn manikin, to teach evidence-based resuscitation procedures and protocols.

Additionally, ISIS partners with Harborview Medical Center's Clinical Education and Community Training Center to provide simulation opportunities for hospital nurses and staff. This diversity provides the University of Washington with a truly unique and versatile simulation program.



A Madigan resident joins in at the 2013 Urology Bootcamp for UW urology residents. Madigan is one of several partners collaborating in training sessions at ISIS-UWMC.

ALL ISIS ACTIVITIES (FY13)

Site	Activities	Learners	Learner Hours
UWMC	720	4,374	13,594
HMC	*464*	6,394	35,857
NWH	558	4,809	19,140
Boise	158	848	4,741
GRAND TOTAL	**1,900**	**16,425**	**73,332**

Resident Training

Training in ISIS has become a staple for many residency programs at the University of Washington, with topics spanning a wide range of competencies and areas of focus such as medical decision-making, procedural dexterity, and communication. Resident trainings are held semi-weekly, weekly, monthly, and annually, depending on the department. Residents may also access ISIS 24/7 for independent learning and a variety of simulation equipment is available for checkout. For a complete list of resources available for residents and training sessions offered, please visit ISIS' website.

Student Training

ISIS provides training sessions for students in the Schools of Medicine, Nursing, Pharmacy, the Physician Assistant program (MEDEX), and respiratory therapy. A variety of training modalities are available for medical students, such as task-trainers, clinical scenario-based trainings, and virtual-reality procedural trainings. Courses focus on psychomotor skills, cognition, and communication techniques. Additionally, ISIS offers large-scale interprofessional team training simulations, which combine students from multiple professions into collaborative patient care teams.

AFFILIATED ORGANIZATIONS

ISIS collaborates regularly with colleagues in UW Medicine and with external partners who are based locally, regionally, nationally, and internationally.

Memorandums of Understanding

ISIS maintains a signed Memorandum of Understanding (MOU) with Seattle Children's Learning and Simulation Center (LSC) formalizing a partnership of simulation support and innovation. Additionally, ISIS has signed MOUs with the Centre of Excellence for Surgical Education and Innovation (CESEI) at the University of British Columbia (Vancouver, BC), the Simulation and Clinical Learning Center at Oregon Health and Science University (Portland, OR), and with the Andersen Simulation Center at Madigan Army Medical Center (Tacoma, WA).

Attending physicians, nurses, residents, pharmacists, and observers flood a patient room during a system-wide mock code scenario working to enhance interprofessional communication skills during an emergency situation.

Most recently in 2013, ISIS finalized MOUs with Addis Ababa University (Addis Ababa, Ethiopia), the Center for Advanced Medical Learning and Simulation (CAMLS) (Tampa, Florida), and Northwest Hospital and Medical Center (Seattle, WA) to partner more closely with Northwest's Community Health Education and Simulation Center (CHESC).

UW Medicine Simulation Alliance

In 2013, the UW Medicine Simulation Alliance was formed to further promote collaboration between Northwest Hospital and Medical Center, Seattle Children's, and ISIS. This group shares simulation knowledge and resources, and advances joint projects.

Pacific Northwest Healthcare Simulation Collaborative (PNWHSC)

With ISIS as a founding member, the Pacific Northwest Healthcare Simulation Collaborative (PNWHSC) was created in 2009 as a collaborative of educators and stakeholders from hospitals, schools, and industry. This organization aims to bring together simulation training and technology to advance healthcare education.

Members of the ISIS team continue to provide leadership to the Pacific Northwest Healthcare Simulation Collaborative (PNWHSC) with members of simulation centers from as far North to Bellingham, South to Portland, East to Boise, ID, and West to Grays Harbor. Since its formation, the Collaborative has grown to over 115 active members from over 35 hospitals, colleges, and industry partner sites.

FACILITIES

While ISIS maintains a presence across WWAMI (Washington, Wyoming, Alaska, Montana, and Idaho), such as its satellite site at the Boise VA Medical Center, ISIS' three primary facilities are located at Harborview Medical Center's Ninth & Jefferson Building (ISIS-HMC), the University of Washington's Surgery Pavilion (ISIS-UWMC), and Northwest Hospital and Medical Center's Community Health Eduction and Simulation Center (CHESC).

UW MEDICAL CENTER

ISIS-UWMC opened its doors in 2007 and provides simulation and training facilities to a multitude of departments and programs within UW Medicine. The site, located on the first floor of the Surgery Pavilion, further serves as the primary administrative center for all ISIS activities and efforts. With versatility as its mainstay, ISIS-UWMC maintains a 2,000 sq. ft. facility, comprised of a fully functional virtual operating room, skills lab, conference room, and administrative space. It is located immediately adjacent to the UW Medical Center's clinical areas providing quick and easy access for ISIS learners and collaborators.

ISIS-UWMC training is supplemented by the Center for Video Endoscopic Surgery (CVES) laboratory. The CVES lab is a 950 sq. ft. facility on the 6th floor of the UW Health Sciences Building and supports an extensive array of educational programs in open and minimally-invasive surgical techniques for residents in surgical disciplines.

Additionally, the training reach at UWMC includes in situ training sessions and weekly resident training sessions with the Department of Anesthesioloty & Pain Medicine's Transesophageal Echocardiography (TEE) lab's ultrasound equipment.

ISIS-UWMC has a fully functional virtual operating room for realistic patient care experiences in a risk-free environment.

The 24/7 access to the ISIS-UWMC skills lab allows residents and attendings to practice their technical skills at their convenience.

ISIS offers a robust community outreach program that spans all across the globe – this group of students from Japan are offered the opportunity to participate in a demo simulation in the ISIS-UWMC virtual OR.

ISIS-HMC features a state-of-the-art multi-station wet/dry lab that can be reconfigured for a wide variety of uses. Trainees at this facility can take advantage of technology such as nine endoscopy towers, the navigation system, and the virtual operating room.

HARBORVIEW MEDICAL CENTER

In January 2010, ISIS expanded its reach to an 8,000 sq. ft. facility in the Ninth and Jefferson Building (NJB). ISIS-HMC is a state-of-the-art resource, providing specialty-specific simulation and training focused on the needs of the region's only Level I Trauma Center. All facilities at ISIS-HMC have been specifically designed for multi-purpose use. Reconfigurable walls and mobile equipment allow for on-the-fly transitioning of the facility to accommodate an extensive variety of courses and group sizes. ISIS-HMC includes conference facilities, a classroom, trauma bay, dry lab skills area, virtual OR, computing workstations, and a reconfigurable nine-station lab which accommodates cadaveric courses as well as dry-lab simulations.

ISIS-HMC opened in 2010, and the facility includes a diverse array of training spaces.

NORTHWEST HOSPITAL AND MEDICAL CENTER

Northwest Hospital and Medical Center's Community Health Education and Simulation Center (CHESC) opened in 2009. The center includes two fully-equipped simulation rooms, a control room, four multi-media classrooms, and "Easy Street," a life-sized replica of a city block that provides an environment for rehabilitation and simulation training. "Easy Street" is the only facility of its kind in Washington state.

BOISE VA MEDICAL CENTER

Among other sites in the 5-state WWAMI region (Washington, Wyoming, Alaska, Montana, and Idaho), ISIS works closely with the simulation center at the Boise VA developing innovative solutions for the dissemination of training materials and rural healthcare delivery. The Boise VA simulation center is comprised of three simulation rooms and totals 400 sq. ft. The center is currently undergoing a series of upgrades to better serve its simulation needs.

EDUCATIONAL VIDEO PRODUCTION: FILMING & EDITING

ISIS facilities are readily equipped with state-of-the-art equipment in order to meet the ever growing demand for a variety of audio and video services. ISIS offers high-quality services in the following areas: video productions for simulation debrief sessions, multi-media support for research activities, live video OR feeds, distance site connectivity, and construction of filming sets for multiple educational and marketing purposes. ISIS is constantly expanding its array of capabilities to stay on the utmost cutting edge of technological advances.

Northwest Hospital and Medical Center's Community Health Education and Simulation Center (CHESC) offers a wide spectrum of training opportunities to healthcare professionals, students, and community members. The patient room photographed here is one of two fully-equipped simulation rooms housed within the center.

Northwest Hospital and Medical Center's Community Health Education and Simulation Center's (CHESC) Easy Street offers unique training areas modeled after real-life settings, such as restaurant, bank, laundromat, movie theater, house, and office. Such realistic environments allow trainees to experience scenarios as they would arise in daily life.

ISIS offers state-of-the-art audio/video recording and editing systems along with professional quality filming sets that are easily converted from training spaces.

Two cardiothoracic residents alternate roles while simulating an aortic cannulation as part of a multi-institutional research project.

EDUCATION

The term “simulation” takes on many forms at the Institute for Simulation and Interprofessional Studies. ISIS’ simulation education encompasses many forms of technologies and innovative teaching modalities where learners can practice their skills in a risk-free environment.

Depending on the skill to be acquired, learners may complete a mix of cadaveric dissection, procedural practice, and computer-based e-learning modules, as well as simulation exercises that utilize standardized patient actors to train communication and diagnostic skills. Human form-based task trainers and fully functional manikin-based simulation scenarios are also available. All of these training opportunities ultimately improve patient care by promoting thoughtful education and practice outside of the patient care setting.

FACULTY HIGHLIGHT

When a 29 year-old professional and mother of two began losing her vision - Drs. Manuel Ferreira (Neurological Surgery) and Kris Moe (Otolaryngology) knew something was wrong. An MRI scan showed a cystic and calcified tumor was displacing her optic nerves in a manner consistent with a craniopharyngioma. Traditionally, the form of treatment needed to remove such a tumor would require the surgeons to perform a craniotomy, temporarily removing a bone flap from the patient’s skull to access the area of the brain where the tumor is located. This procedure, while allowing access to the region, limits visibility, making complete resection of the tumor difficult and posing risk to the function of the pituitary stalk and potentially requiring life-long hormonal replacement therapy.

Drs. Ferreira and Moe, often perform new, cutting-edge, minimally-invasive procedures, which in this case they believed might enable them to endoscopically remove the tumor through the nasal passage with a minimal risk of certain complications. Drs. Ferreira and Moe contacted ISIS at Harborview Medical Center to schedule time in the ISIS-HMC wet lab to investigate whether the technique would be optimal for this specific tumor. Two days before surgery, the surgeons were able to undertake the exact operation using the state-of-the-art cadaveric facility. By performing the procedure in the lab setting, Drs. Ferreira and Moe were able to evaluate the approach without taking the patient to the operating room, and customize the operation to the individual patient and tumor to assure its safety and effectiveness.

Dr. Ferreira credits the success, confidence, cohesiveness, and time-efficacy of the procedure to the ability to practice in ISIS saying, “the ISIS lab at HMC is an invaluable resource to surgical subspecialties here at the University of Washington. It aids in the training of resident, fellow, and attending physicians, ultimately having a positive impact on our patients.” – Dr. Manuel Ferreira

Dr. Manuel Ferreira, Assistant Professor in Neurological Surgery, and Dr. Kris Moe, Associate Professor in Otolaryngology, utilized the cadaveric lab at ISIS-HMC to investigate whether a new and minimally-invasive operation would be safe and effective for their patient with a craniopharyngioma.

TRAINEE HIGHLIGHT

When a third year medical student, Derek Weyhrauch, was attempting to improve his suturing skills during his Family Medicine clerkship rotation in Wenatchee, WA, a common mealtime snack took on a whole new purpose. Using a banana and a YouTube tutorial, Derek began practicing his technique. Knowing there must be a better solution than his lunch – Derek contacted the ISIS facility at UWMC during a visit to the Seattle campus. For ISIS, the request could not have come at a better time. After discussing his interests with ISIS staff, it was quickly apparent that Derek was not alone in his request for skills training. Unbeknownst to Derek, the Department of Family Medicine clerkship directors had recently identified a set of skills for regional training and standardization. At the top of this list was suturing and knot tying.

Working with ISIS and Family Medicine content and curriculum experts, Derek and the team began working on the development of a suture and knot-tying curriculum for medical students. The challenge was to create a low-cost, high-fidelity product that could easily be replicated across the five WWAMI states. After weeks of research and discussion, ISIS and the Department of Family Medicine customized an off-the-shelf simulation product to create the "ISIS Suture Pack." This kit consists of a realistic tissue pad, the tools needed for suture, a series of e-modules which provide instruction on proper suturing technique, and a curriculum. This curriculum was developed by Derek, Dr. Andrew Wright, Associate Professor in the Department of Surgery, and others and includes clinical applications for suturing and a formal assessment of competencies such as instrument handling, knot tying, and wound closure. In the span of a few months, this project was developed and has now been formally integrated into the Department of Family Medicine's curriculum for all third year medical students who train at over 30 sites across the WWAMI region.

COMMUNITY AND GLOBAL OUTREACH

ISIS supports a dynamic outreach program to middle and high school students, and to college students with an interest in the health sciences. ISIS' commitment to science education drives its involvement with youth and school programs.

A surgeon utilizes C-arm imaging during the fall 2012 Orthopaedic Spinal Symposium at ISIS-HMC.

The ISIS Suture Pack and its unique curriculum demonstrates innovation at its finest, providing a low cost solution to the suturing practice needs of trainees from all corners near and far of the WWAMI region.

Interprofessional learners collaborate as a team to safely evacuate a patient from a damaged building during a fire evacuation simulation that rousted them from their comfortable lecture state.

Dr. Brian Ross, ISIS' Executive Director, brings laughter to the room as he explains the many facets of the virtual OR to a group of touring students.

ISIS additionally hosts interactive experiences in the simulation lab as part of Harborview Medical Center's ongoing Community Internship Program, which familiarizes community leaders from government, finance, industry, and non-profit organizations with cutting-edge research, innovations, and clinical care at Harborview Medical Center.

Northwest Hospital & Medical Center's Community Health Education Simulation Center (CHESC) also has a robust community outreach program. Examples of CHESC's outreach activities are utilizing simulation to teach water safety and CPR at Shoreline Pool's April Pools Day; providing a Friends and Family Basic Life Support certification and First Aid badges to Seattle-area Girl Scouts; and supporting Home Depot Foundation's Aprons in Action program.

Perhaps one of the most far-reaching endeavors has been with ISIS' global partners. Over the past year, ISIS has hosted several simulation training opportunities for partners abroad including the internationally-sponsored Anesthesia for Global Outreach Course where learners used simulation to practice clinical and technical skills and care delivery for foreign settings.

Most recently, ISIS welcomed its first international fellow, Dr. Abebe Bekele. Dr. Bekele serves as Assistant Professor of Surgery in the Division of Cardiothoracic Surgery at Addis Ababa University School of Medicine (Addis Ababa, Ethiopia).

As ISIS' inaugural international fellow, Dr. Bekele spent three weeks in Seattle meeting with various members of the Department of Surgery, UW School of Medicine leadership, and UW Medicine faculty. Expressing a strong desire to develop educational materials, Dr. Bekele worked closely with ISIS educational experts to review and innovate methods of training for Ethiopian surgical residents. Dr. Bekele developed a prolific amount of training resources during his visit, eventually leaving Seattle with five new curricula to be implemented in residency training at AAU.

ISIS RESEARCH & INNOVATIONS

A core component of ISIS' mission is to advance research and innovations in the arena of healthcare simulation. This aim is carried out by ISIS faculty and staff, in addition to ISIS' Research and Development Committee, which includes over 25 members from across the University of Washington's School of Medicine.

Examples of ISIS' research portfolio include simulation and curriculum validation studies; simulator and software development; training via telemedicine and virtual environments; and interpersonal communication in the healthcare setting, pertaining to conflict management, team communication, and leadership.

Funding sources currently include the Department of Defense, Agency for Healthcare Research & Quality (AHRQ), Health Research & Educational Trust (HRET), University of Washington's Patient Safety Innovations Program (PSIP), The Josiah Macy Jr. Foundation, Hearst Foundation, and support from other leading organizations.

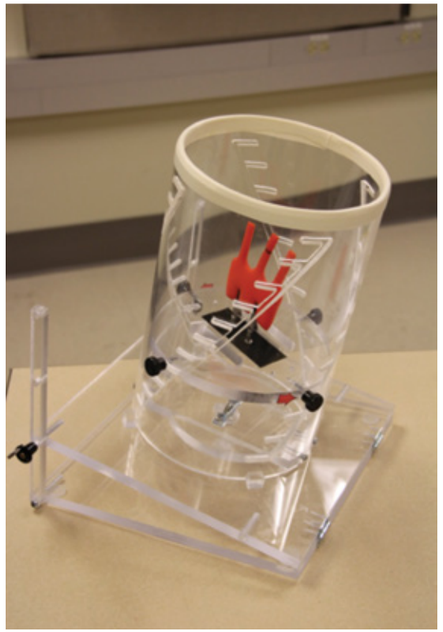
PROJECT HIGHLIGHT: DEEPCAV

In early Fall 2012, a fourth year Urology resident came to ISIS hoping to aquire extra practice on a simulator for deep cavity surgical skills. This was a new request for ISIS, and thus a simulator was not readily available. This resident described the specific skills she wanted to practice to an ISIS technician, who planned to look online to see if ISIS could purchase a simulator to meet her needs. Upon searching the catalogs of numerous simulator manufacturers, the technician came up empty handed and decided to make a simulator himself.

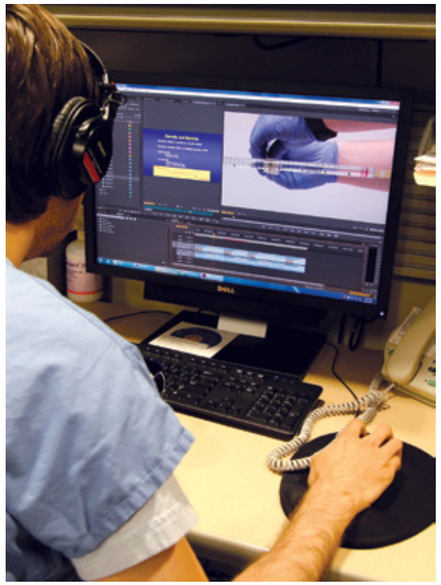
Being an innovative institute known for creative problem solving, ISIS leadership encouraged this technician to create ISIS' very own deep cavity task trainer, providing him with time, financial resources and enthusiastic support for this undertaking. Collaborating with the

The DeepCAV is a low cost simulator born from the creativity of one of ISIS' very own technicians. It allows for learners to practice deep cavity surgical skills on an easy to use yet extremely effective task trainer.

The 2,000 sq. ft. reconfigurable wet lab at ISIS-HMC allows for a multitude of uses including full scale cadaveric simulations.



The DeepCAV features an adaptable design allowing the simulator to be inclined and the depth of the cavity altered to create customized scenarios.



ISIS technicians are heavily involved in ISIS' A/V recording, editing and video production; these videos are used for a variety of purposes such as research, training modules, presentations, and debriefs.

Urology resident and numerous ISIS faculty, the ISIS tech had a supportive team of content experts to provide guidance and clinical expertise as he began sketching blueprints and perusing hardware stores for low-cost materials.

Development of this simulator was an evolution, as the first version was made out of a plastic container, the next version upgraded to a wood shell with PVP piping, and the final version is made out of plexi glass. This task trainer, now called DeepCAV, has been a resounding success with ISIS learners in surgical disciplines. DeepCAV demonstrates one of many ways in which ISIS responds to the evolving needs of the UW Medicine community to ensure the highest quality simulation training opportunities.

"DeepCAV is a product of a joint innovation between the Department of Urology and ISIS. This technical skills module provides the platform on which common urologic procedures can be taught such as urethrovesical anastomosis for prostatectomy, dorsal vein complex ligation, ureteral anastomosis, and basic deep cavity knot-tying. The novelty of this module is not only in the functionality, but also in the details behind its inception. One of our urology residents identified a particular need to practice deep cavity surgical skills and partnered with a faculty mentor and an ISIS technician to develop this module. Furthermore, other surgical disciplines such as Gynecology, have embraced the platform as a useful tool in their resident training." –Dr. Tom Lendvay, Associate Professor, Department of Urology

"DeepCAV allows surgical trainees the opportunity to practice skills in a traditional open environment, filling a void created by the recent emphasis on minimally invasive surgical techniques." –Dr. Michael Fialkow, Associate Professor, Department of Obstetrics & Gynecology

PUBLICATIONS

ISIS has had another stellar year with publications in peer-reviewed journals, book chapters, and curricula accepted through the Association of American Medical College's MedEdPORTAL. For a complete listing of such publications, please visit ISIS' website.

A mock code observer utilizes EventDoc™, an innovative application developed through Department of Defense funding to replace the need for paper recording with a digital platform featuring an intuitive interface design that allows for seamless transfer of information.

A surgical attending proctors a resident as he evaluates her skill in central venous catheterization (CVC) placement. In FY13 ISIS trained and proctored over 233 CVC placements.

Medical, nursing, and pharmacy students demonstrate team communication for UW Medicine Board Members during a simulation as they revive a patient who has gone from supraventricular tachycardia to ventricular fibrillation in a code blue scenario.

TEAM TRAINING

Communication among healthcare professionals is critical to successful patient outcomes. Breakdown in communication has been identified as the leading root cause for sentinel events such as delays in treatment, wrong-site surgery, and medical errors, as reported to the Joint Commission (Joint Commission, 2005). Unfamiliarity with team members, unclear roles, and perceptions of hierarchy have all been recognized as contributing factors of communication failure. In an attempt to overcome communication barriers, ISIS and the University of Washington have positioned themselves at the forefront of team communication training among healthcare providers.

Now entering its fifth year as a nationally recognized center for Team Strategies and Tools to Enhance Performance and Patient Safety (TeamSTEPPS) Master Training, through the National Implementation Project supported by the Agency for Healthcare Quality and Research (AHRQ) and Health Research Education Trust (HRET), ISIS has trained over 400 Master Trainers from 85 institutions across the country.

Additionally, ISIS and Master Trainers within UW Medicine have expanded training internally; examples of such offerings include orientation to TeamSTEPPS for all incoming residents and fellows and hosting unit-based implementation initiatives around team training.

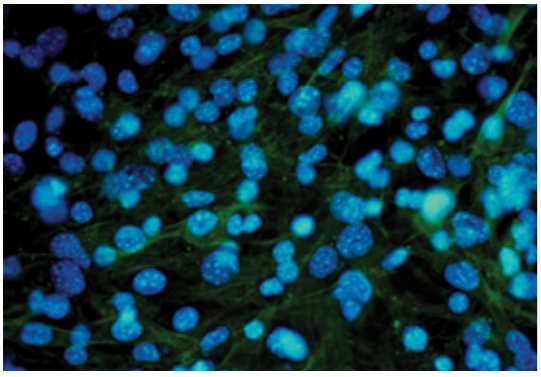
In 2008, ISIS received funding from The Josiah Macy Jr. Foundation and Hearst Foundation (over $1 million) to develop an interprofessional curriculum for healthcare professional students based on the TeamSTEPPS model of effective communication. This innovative pilot project has resulted in the ongoing success of both monthly and annual interprofessional team training experiences for UW health professional students. Offering monthly sessions in team training as part of the Department of Anesthesiology and Pain Medicine's student clerkship, instructors provide medical, nursing, and pharmacy students with an 8-hour immersive simulation-based experience around the topic of team training and communication. Annually, the Team Based Interprofessional Training Simulations (TeamBITS) sessions allow over 300 students from the Schools of Medicine, Nursing and Pharmacy to collectively practice their skills in an interprofessional environment using a variety of acute care training scenarios.

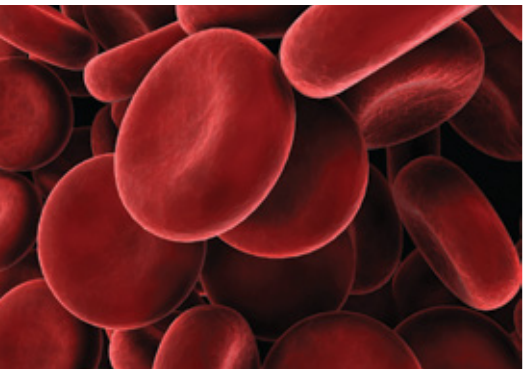
The TeamBITS training sessions have become a perennial favorite among students:

"I now realize how important it is to know each team member's role and to have frequent, brief huddles." – Nursing Student
"The experience was great, as it gave us a chance to work with nurses and doctors and learn more about their scope of practice and how to better communicate." – Pharmacy Student
"Such a great experience…I would like to see more of this incorporated into medical school education!" – Medical Student

With the support of UW Medicine, ISIS is dramatically expanding its team training program, with projected implementation in early 2014.

Participants rely on one another to reach success as part of an interprofessional team building activity during a TeamSTEPPS Master Course.



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