

2013 – 2014 ANNUAL REPORT

Institute for Simulation and Interprofessional Studies



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Orthopaedic residents participate in a recurring training session utilizing cadaveric resources in the wet/dry lab at Harborview.

OVERVIEW

As the healthcare landscape becomes more complex and calls for evolving training needs, the Institute for Simulation and Interprofessional Studies (UW ISIS) at the University of Washington has responded to meet these needs. UW ISIS supports simulation and training efforts across the UW Medicine enterprise, advancing educational opportunities in domains such as procedural and patient management skills, team communication, interprofessional education, and clinic workflow. Additionally, UW ISIS has active research programs in both technical and non-technical skill domains.

Through its teaching and research aims, UW ISIS advances the quality of healthcare education for students across the University of Washington and WWAMI (Washington, Wyoming, Alaska, Montana, and Idaho) region. UW ISIS also advances UW Medicine’s Patients Are First initiative through the training of healthcare professionals affiliated with UW Medicine entities such as the University of Washington Medical Center (UWMC), Harborview Medical Center (HMC), Northwest Hospital and Medical Center (NWHMC), Valley Medical Center, and the Neighborhood Clinics.

MISSION STATEMENT

The Institute for Simulation and Interprofessional Studies 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. UW ISIS seeks highly collaborative alliances in selected projects with other educational and health care delivery systems with similar interests in simulation. The primary impact of UW ISIS will be upon the citizens of the State of Washington and the greater WWAMI region. Through its research, education efforts, publication of results, UW ISIS will also have a strong global influence and potential impact upon providers and patients.

LEARNERS

UW ISIS learners have diverse clinical backgrounds which span the entire healthcare educational continuum from students early in their training to professionals with well-established careers. UW ISIS divides its learners into three primary categories: 1) healthcare professionals, such as registered nurses and attending physicians, 2) resident physicians and fellows, and 3) pre-licensure students.

ALL UW ISIS ACTIVITIES (FY14)

Site	Activities	Learners	Learner Hours
UWMC	600	4,023	12,639
HMC	600	6,422	36,524
NWH	387	2,556	21,370
Boise	113	583	3,083
GRAND TOTAL	1,700	13,584	73,616



Cardiothoracic surgeons, anesthesiologists, fellows, and residents dissect porcine hearts, led by visiting Professor Bruce Bollen of the International Heart Institute of Montana.

Healthcare Professional Training

Healthcare professionals from across UW Medicine utilize the Institute for a variety of educational opportunities. Attending physicians, registered nurses, paramedics, respiratory therapists, medical assistants, and other professionals from UWMC, HMC, NWHMC, Airlift Northwest, UW Medicine Neighborhood Clinics and other affiliated entities participate in skill-based trainings such as point of care ultrasound, central line placement, advanced cardiac life support (ACLS), and procedural sedation. Many learners also participate in interprofessional trainings such as Team Strategies and Tools to Enhance Performance and Patient Safety (TeamSTEPPS).

In an effort to augment the educational opportunities for healthcare professionals across the enterprise, UW ISIS has close partnerships with HMC's Clinical Education and Community Training Center, NWHMC's Center for Health Education (CHESC), and Seattle Children's Learning and Simulation Center. This web of partnerships, with UW ISIS as a central coordinating body, enables UW ISIS to serve as a broker of simulation knowledge, expertise, facilities, personnel, equipment, and other resources with instructors and trainees across the system.



TeamSTEPPS participants jump into action to evacuate an injured patient from a simulated building fire.

Resident and Fellow Training

All incoming residents and fellows participate in team communication training as part of their orientation to UW Medicine. Throughout the rest of their post-graduate education, residents participate in a variety of trainings with frequency and focus determined by their department and level of expertise. Departments host weekly, biweekly, monthly, and annual trainings. Residents also utilize UW ISIS for independent training during or after business hours and simulation equipment may be checked out for skills practice offsite.

Student Training

Students from varying healthcare disciplines, such as medicine, nursing, pharmacy, paramedics, and the physician assistant program, train in UW ISIS. Many of these groups come together for interprofessional team training events such as Team Based Interprofessional Training Simulations (TeamBITS) that occur in May each year. The purpose of this interprofessional training is to improve communication and teamwork skills. Students in these professions also train separately while learning psychomotor and cognitive skills that are specific to their field of study.



Medical, nursing, and pharmacy students work together as an interprofessional team for the first time to treat a standardized patient actor as part of a Team Based Interprofessional Training for Students (TeamBITS) simulation.



Beth Sobba, a UW ISIS technician, monitors a simulation as she remotely adjusts a manikin's vital signs from the control room in ISIS-HMC.



Dr. Brian Ross, UW ISIS Executive Director, leads resident interns in a team communication training exercise at the annual incoming resident orientation.

AFFILIATED ORGANIZATIONS

UW ISIS accomplishes its mission in large part due to its partnerships within and across UW Medicine and external partners who are based locally, regionally, nationally, and internationally. UW ISIS maintains signed Memorandums of Understanding (MOU) with numerous organizations such as the Andersen Simulation Center at Madigan Army Medical Center in Tacoma, WA, the Center for Advanced Medical Learning and Simulation in Tampa, Florida, and Addis Ababa University in Addis Ababa, Ethiopia.

Pacific Northwest Healthcare Simulation Collaborative (PNWHSC)

The Pacific Northwest Healthcare Simulation Collaborative (PNWHSC), formed in 2009, brings together simulation professionals from across the Pacific Northwest. With representation from area hospitals, universities, community colleges, and industry, PNWHSC members share simulation knowledge and resources. This past year, PNWHSC began hosting an educational series for anyone interested in healthcare simulation. One such training was called "Moulage and Beyond: Creating Realism in Healthcare Simulation." Participants learned techniques and tips for increasing realism during simulations, such as how to make wounds, blood clots, bodily excretions and medications. Additional educational trainings and meetings are hosted regularly to advance PNWHSC's mission.

University of Washington Medicine Simulation Alliance

The UW Medicine Simulation Alliance was formed in 2013 to facilitate greater collaboration between the simulation programs of UW ISIS, NWHMC, and Seattle Children's. The Alliance serves as a forum to share simulation-based solutions, technical support, and equipment. Additionally, the group has been exploring a joint simulation instructor course for prospective participants from within and outside of UW Medicine.

UW ISIS STRATEGIC PLANNING

Since its inception in 2005, UW ISIS has grown rapidly, with the quantity and scope of work expanding every year. UW ISIS underwent a strategic planning process this past year to evaluate the current state of UW ISIS and to strategically define key target areas for the next three years. The overarching goals are: 1) transform team performance, 2) lead simulation and research initiatives for improving healthcare delivery, and 3) create and implement innovative technology and educational solutions. Faculty development will be weaved throughout these domains.



UW ISIS at Harborview Medical Center is located on the third floor of the Ninth and Jefferson Building.

FACILITIES

UW ISIS' facilities are located at the University of Washington's Surgery Pavilion (UW ISIS at UWMC), Harborview Medical Center's Ninth & Jefferson Building (UW ISIS at HMC), and Northwest Hospital and Medical Center's Community Health Education and Simulation Center (CHESC). In addition to these locations, UW ISIS remains committed to the WWAMI region through satellite sites such as the Boise VA Medical Center.

UNIVERSITY OF WASHINGTON MEDICAL CENTER

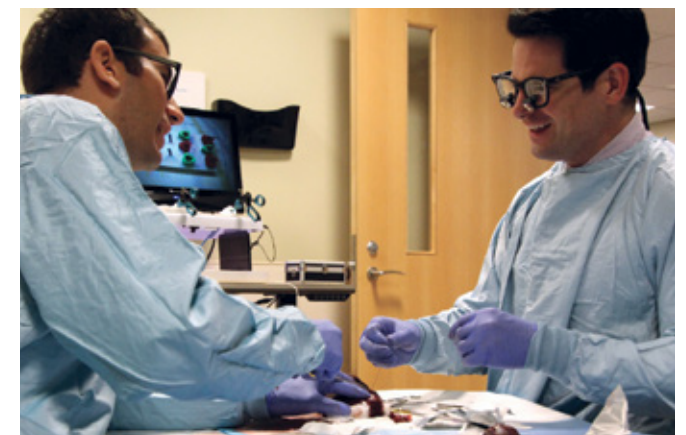
Since 2007, one of the UW ISIS sites has been located on the first floor of the University of Washington Medical Center Surgery Pavilion. This simulation site is designed to be dynamic with versatility as its mainstay, comprised of a fully functional virtual operating room, skills lab, conference room, and administrative offices. The training reach of the Institute extends beyond the UW ISIS facility into the University of Washington Medical Center through in-situ training sessions and regular resident training sessions in the Department of Anesthesiology and Pain Medicine's Transesophageal Echocardiography lab.

Training at UWMC is further augmented by the Center for Videoendoscopic Surgery laboratory, located on the 6th floor of the Magnuson Health Sciences Center. This 950 square foot training and research facility supports the education of medical students and residents in surgical disciplines, while also hosting community-based educational programs in open and minimally invasive surgical techniques.

Harnessing the advantage of its location at the heart of the patient care facility, the UW ISIS facility at UWMC continues to be a critical training space and is integral to healthcare professionals' skill development and maintenance of skills.



The Virtual OR at UWMC is a versatile space able to accommodate a wide range of activities such as mock codes with full-scale manikins and porcine dissections which is featured above.



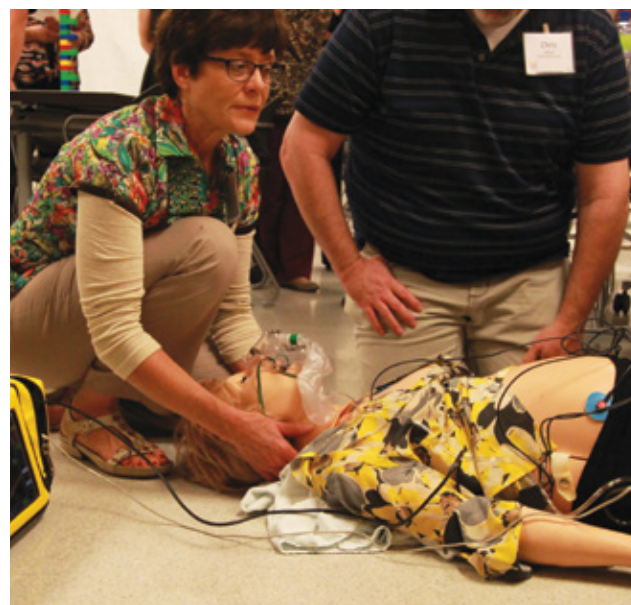
Dr. John Gore, Associate Professor in the Department of Urology, instructs resident Dr. Nathan Osbun as he practices a partial nephrectomy on bovine kidneys during a Department of Urology course.



The HMC site features a state-of-the-art wet/dry lab that can be configured for a variety of uses including large scale interprofessional team training events such as Team Based Interprofessional Training for Students (TeamBITS), which brings together medical, nursing, pharmacy, and physician assistant students.

HARBORVIEW MEDICAL CENTER

At HMC, UW ISIS has an 8,000-square-foot facility in the Ninth and Jefferson Building (NJB). The lab is on the cutting edge of simulation, providing specialty-specific training while maintaining a focus on the needs of the region's only Level I Trauma Center. Similar to the UWMC location, the design of UW ISIS' HMC site is committed to serving as a multi-purpose training platform with a variety of options for configuring the training space using collapsible walls and mobile equipment. This flexibility and adaptability to training needs in a rapid response manner is central to the site's ability to accommodate a wide array of courses and group sizes, often simultaneously. The Institute 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.



Participants forming an interprofessional group work together under pressure reinforcing team communication tools in the wet/dry lab at HMC.

NORTHWEST HOSPITAL & MEDICAL CENTER

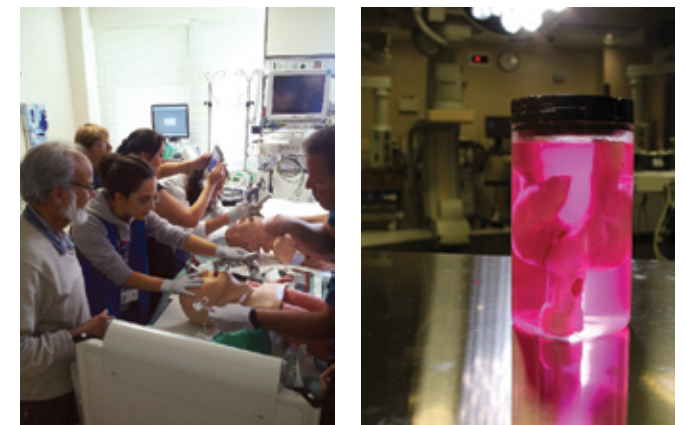
The Northwest Hospital & Medical Center Community Health Education & Simulation Center (CHESC) opened in 2009 and became affiliated with UW ISIS when NWHMC joined with the UW Medicine clinical enterprise. CHESC offers customized classes to healthcare professionals, students and community members. In fact, it was the first simulation facility in the nation to offer classes to both healthcare practitioners and the general public. The center includes two fully-equipped simulation rooms, four multimedia classrooms, and "Easy Street," a life-sized replica of a city block that provides an environment for rehabilitation and simulation training.



Northwest Hospital's CHESC offers 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.

BOISE VA MEDICAL CENTER

Among other sites in the 5-state WWAMI region (Washington, Wyoming, Alaska, Montana, and Idaho), UW ISIS fosters a close working relationship with the simulation center at the Boise VA focusing on the development of innovative solutions for the distribution of training materials, distance learning, and rural healthcare delivery. The Boise VA simulation center consists of three fully wired simulation rooms featuring a six bed capacity and totaling 400 square feet.



Left: UW residents and students participate in the hands-on portion of the Distance Airway Course, where the instructor based in Seattle instructs trainees in Boise, ID. Using an iPad, the instructor can see each student's laryngoscope/hand position, visibility, and technique, as well as provide individual feedback.

Right: 3D printing is utilized for patient-specific electrophysiological mapping for unique cardiac cases.

UW ISIS MULTIMEDIA PRODUCTIONS

UW ISIS facilities are equipped with state-of-the-art technology in order to meet the ever-growing demand for audio and video materials. In addition to providing access to these supplies, UW ISIS offers professional caliber video production and assistance in a variety of areas including educational video storyboarding development, multimedia support for research activities, and distance site connectivity. UW ISIS continues to broaden the scope of its services to stay on the forefront of technological advances.



UW ISIS technicians, Micah Mack and Matthew Toma, and undergraduate intern Mike Fisher, utilize the wide array of high tech simulation equipment available for controlling manikins such as SimMan3G. This allows for a realistic learning environment as the manikin breathes, blinks, and changes vital signs in response to medications and treatments.

EDUCATION

The term “simulation” takes on many forms at the Institute for Simulation and Interprofessional Studies. UW ISIS’ educational opportunities encompass many forms of technology and innovative teaching modalities where learners can practice skills in a risk-free environment.

Depending on the skill to be trained, learners may encounter a mix of cadaveric dissection, procedural practice, standardized patient actors, and computer-based e-learning modules. Anatomical task trainers and fully functional manikin-based simulation scenarios are also available. All of these training opportunities aim to improve patient care by promoting thoughtful education and deliberate practice outside of the clinical setting.

TRAINING HIGHLIGHTS

Introduction to Clinical Medicine – 2nd Year

UW School of Medicine College Head, and UW ISIS Faculty Member Dr. Karen McDonough knows that medical students spend the majority of their first two years in the classroom. While classroom-based education continues to be the norm in many medical school programs across the country, early exposure to healthcare simulation has made its way into the UW experience. In 2013, Dr. McDonough, along with a cohort of college faculty members, piloted a simulated approach for the Introduction to Clinical Medicine (ICM) series. These innovative sessions provided 2nd year students with an opportunity to comfortably practice their skills in a safe, simulated environment.

The simulation-rich ICM program, trialed at Northwest Hospital and Harborview Medical Centers, exposed the students to a series of four patients, each presenting with shortness of breath. Students practiced taking a patient history, performing an exam, developing a differential diagnosis, and discussing a plan for management. Student feedback has been overwhelmingly positive.

Students and faculty support the addition of simulation in the ICM program, in addition to increasing other simulation opportunities for medical students. As the School of Medicine implements a new four-year curriculum in the fall of 2015, UW ISIS is expected to play an integral role to meet the school’s educational needs.

Trainee quotes from second year medical students who participated in ICM at UW ISIS:

“...It was extremely helpful to be put in a realistic situation that made me think on my feet. I learned a lot from watching my teammates.”

“...We should do this more often!”

“Excellent experience. I felt like this helped solidify my understanding of concepts.”

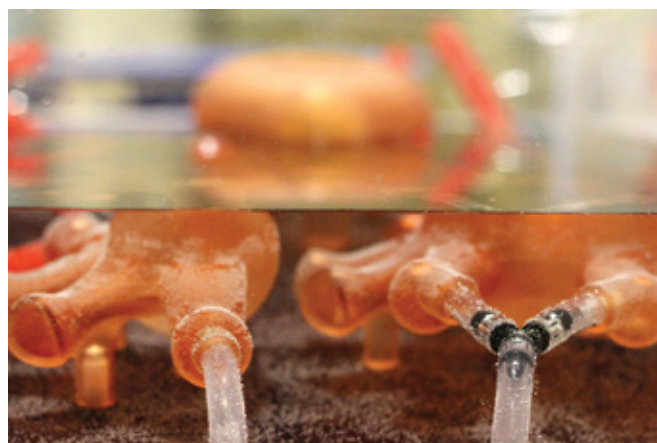
“...This was an eye opening experience.”



UW ISIS Technician, Matthew Toma, controls the patient manikin’s vitals for a UW School of Medicine Introduction to Clinical Medicine 2 training session. UW ISIS provided logistical and technical support for this course, transporting simulation equipment to learning spaces in the UW Health Sciences Building.



Dr. Edward Chan, a Cardiothoracic Surgery fellow, participates in a weekly training session led by Dr. Nahush Mokadam, the Lester and Connie LeRoss Endowed Professor in Cardiovascular Surgery.



Featured above is a close-up of a ureteroscopy simulator used during the annual Urology Resident Bootcamp at UWMC. Along with intensive didactic sessions, residents also practice skills on the DeepCAV simulator, designed to simulate difficult-to-reach open surgical sites, and the Da Vinci Surgical Robot during the Bootcamp.



Dr. Brian Ross, UW ISIS Executive Director, welcomes a group of 4th year Ethiopian anesthesia residents while demonstrating the many functions of SimMan3g in the UWMC Virtual OR. Drs. Richard Solazzi and Monja Proctor, also photographed above, hosted the group visiting from Black Lion Hospital in Addis Ababa, Ethiopia for a week this previous May.

UROLOGY RESIDENT ISIS SKILLS TRAINING INITIATIVE (URISTI)

Several years ago, Dr. Thomas Lendvay, Associate Professor in the UW Department of Urology, approached department leadership with the idea to improve the residency experience by developing a formalized technical skills training program. While case-based practice provided ample skill-training opportunities at the senior level, junior level residents had fewer opportunities to hone their own skills in a surgical setting.

Now in its third year, the Urology Resident ISIS Skills Training Initiative (URISTI) has become an annual program for the Department of Urology residents at all levels (R2-R7) across UWMC, HMC, SCH, and VA sites. URISTI covers twelve areas of focus, including deep cavity suturing, microsuturing, priapism, robotic surgery, laser surgery, bowel anastomosis, suprapubic catheterization, basic laparoscopy, endoscopy, open surgical skills, ureteroscopy, stone manipulation, and urodynamics.

The ongoing success of the URISTI program is due largely to the support and dedication of the Department of Urology. Not only does the department provide funding for course organization and coordination, but it has committed time from all twenty-three department faculty and fellows to teach course sessions throughout the year. At times, you may even find Department Chairman, Dr. Hunter Wessells, leading URISTI courses.

The URISTI program has been well received by faculty and residents alike and proves to be an important addition to the Urology residency program at UW Medicine. Furthermore, it has become a model of how a well-planned and implemented simulation-based curriculum can be integrated into residency training.



Residents from Black Lion Hospital in Addis Ababa, Ethiopia practice basic surgery skills with Dr. Brant Oeschlager, Professor in the UW Department of Surgery.



Japanese nursing students gather around Monica Wacker, a UW ISIS technician, as she demonstrates a laproscopic skills trainer in the UWMC lab.

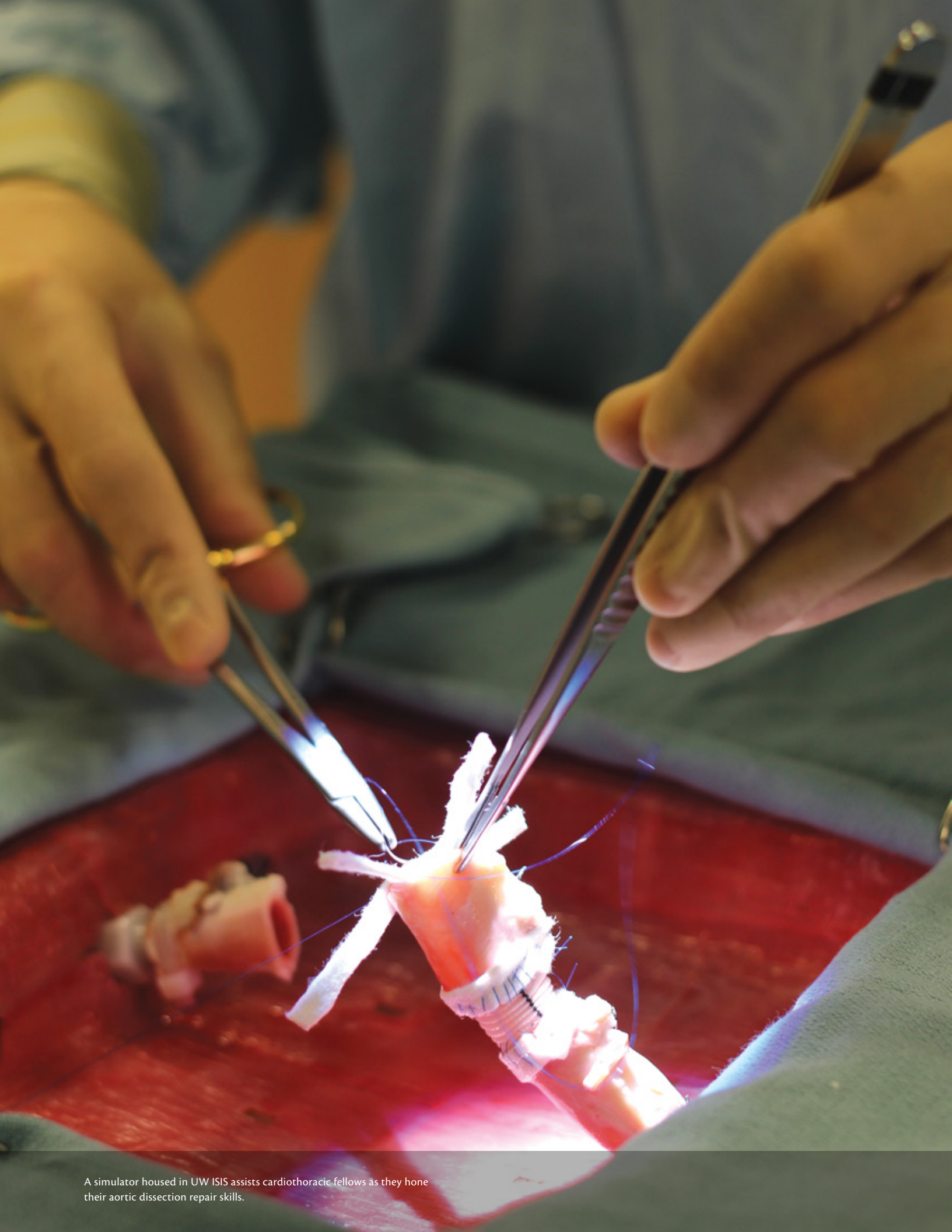
COMMUNITY AND GLOBAL OUTREACH

Outreach to local and global communities remains a top priority for UW ISIS. At the local level, UW ISIS offers programs on a regular basis to middle school, high school, and college students interested in the health sciences. UW ISIS' commitment to science education drives its involvement with youth and school programs. UW ISIS additionally hosts interactive experiences in simulation 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.

Northwest Hospital & Medical Center's Community Health Education Simulation Center (CHESC) also supports outreach endeavors with a focus on providing health education opportunities for the community through ongoing simulations and classes. Recent examples of outreach include hosting local Boy Scout groups and Toyo Paramedic students as part of the Shoreline Fire Annual Education Exchange.

UW ISIS continues to foster relationships with global entities, and has hosted a diverse array of visitors over the past year. Highlights span across the globe, including students from Ishikawa Prefectural Nursing University in Japan, Taiwanese nursing students, and a delegation of Russian healthcare professionals.

As part of one of UW ISIS' global partnerships, UW ISIS faculty members Drs. Andy Wright and Brant Oeschlager, in collaboration with the UW Department of Surgery, traveled to Addis Ababa, Ethiopia. The faculty members worked closely with Addis Ababa University (AAU) and Black Lion Hospital to orchestrate a number of trainings including the first Surgical Skills Course at AAU for incoming residents and the UW ISIS published "Team Tower" communication and teammanship exercise. While the skills trained were deemed valuable by local faculty and residents, UW ISIS faculty also gained knowledge, such as the value of using locally-sourced and low-cost simulation materials. These materials were found to be more realistic and cost-effective than some of those constructed commercially in the United States. Drs. Oeschlager and Wright hope to pursue future visits to continue building upon this global partnership. In May 2014, UW ISIS also had the opportunity to host Anesthesia Residents from Black Lion Hospital in Seattle. These residents worked with UW ISIS to gain skills in designing simulation courses of their own.



A simulator housed in UW ISIS assists cardiothoracic fellows as they hone their aortic dissection repair skills.

RESEARCH

Healthcare simulation research is a priority for UW ISIS. The advancement of scholarship and securing of external funding this past year have enabled the Institute to fulfill the mission by disseminating new knowledge to the larger community of healthcare educators and scientists.

One channel through which UW ISIS supports its research mission is its Research and Development Committee. This committee hosts a monthly forum for researchers from across the University of Washington who are interested in simulation or interprofessional studies. The group serves as a think tank for collaborative research projects, identifies funding opportunities, shares project updates, and carries out research. UW ISIS staff members provide expertise in grant writing, budgeting, human subjects applications, and project management to facilitate research endeavors.

UW ISIS' research spans topics such as simulator and software development, curriculum validation, and communication training between healthcare professionals, such as leadership communication skills, communication strategies utilized during emergencies, and conflict management.

Funding sources for research currently include the Department of Defense, Agency for Healthcare Research & Quality, Health Research & Educational Trust, University of Washington's Patient Safety Innovations Project (PSIP), The Josiah Macy Jr. Foundation, Health Resources and Services Administration, several endowments, and support from other leading organizations.

PUBLICATIONS

This last year has been active for UW ISIS scholarship, with many publications in noteworthy journals and books, abstracts at national conferences, and simulation curricula accepted through the Association of American Medical College's MedEdPORTAL. For a complete listing of such publications, please visit UW ISIS' website.



Participants work together during a break out session as part of a faculty development technology workshop focused on innovative techniques to enhance PowerPoint presentations.



UW ISIS takes pride in its innovative design implementations, which allow for creations such as this low-cost simulator that is made from licorice and hot dogs.



UW ISIS and Department of Radiology faculty and staff demonstrate interprofessional team communication skills during a contrast reaction scenario.



United States Congressional Staffers explore the Fundamental of Laparoscopic Surgery (FLS) trainer during a tour of UW ISIS at HMC.

PROJECT HIGHLIGHT

Contrast Reaction Management & Interprofessional Team Training

Dr. Carolyn Wang, MD, Assistant Professor in the Department of Radiology, is collaborating with UW ISIS on a multi-phase research program focused on contrast reaction management and interprofessional team training. The research program consists of three phases:

1. Assessment of high-fidelity simulation-based training in comparison with traditional didactic lecture to train radiology residents in the management of contrast reaction.
2. Development of a computer-based interactive training program to teach contrast reaction to radiology trainees and the comparison of this computer-based program with hands-on simulation-based training.
3. Development and assessment of a high-fidelity simulation team-based team training program for contrast reaction management that centers around the TeamSTEPPS teamwork skills.

UW ISIS provides facilities, technical support, team communication expertise, assistance with creating online training modules, and human subject coordination to support Dr. Wang's research. Research findings thus far underscore that simulation is a critical component to improving patient safety, reinforcing the cognitive knowledge of trainees, and increasing the comfort level of residents and faculty during contrast reaction scenarios. Additionally, simulation enables training to be standardized and facilitates the testing of trainee performance.

Dr. Wang's research has received funding from multiple sources including the Society of Uroradiology Research Award, the Radiological Society of North America (RSNA)'s RSNA/AUR/APDR/ SCARD Radiology Education Research Development Grant and the RSNA Education Scholar Grant. Scholarship on this research has been published in peer-reviewed journals such as *Academic Radiology*, *American Journal of Roentgenology*, *Abdominal Imaging*, and the *European Journal of Radiology*.



Participants observe a simulated conflict management dialogue as part of the UW Medicine funded research project *Entrenched Conflict at Workplaces: Promoting Patient Safety Using an Experiential Training Model*.



Eastside Specialty Clinic learners work through a mock code scenario in the facility's physical and occupational therapy suite as part of a multifaceted training event to prepare staff for the clinic's grand opening.

TEAM TRAINING

In 2014, UW ISIS and the University of Washington completed its sixth year as a Regional Training Center for the Agency for Healthcare Quality's National Implementation of Team Strategies and Tools to Enhance Performance and Patient Safety (TeamSTEPPS) Program. UW ISIS has trained over 500 Master Trainers from over 90 institutions across the country and abroad.

As one of only six nationally recognized centers, the UW's innovative activities and interprofessional teaching methods have gained an international reputation for excellence in team communication training.

Building on the success of the National TeamSTEPPS program, UW ISIS in 2013 collaborated with UW's Organizational Development and Training (OD&T) program to propose a new model for team training at the University of Washington.

TeamCORE (Team Collaboration for Organizational Excellence), expands beyond basic communication training to combine the fundamentals of TeamSTEPPS, Patients Are First principles, interprofessional collaborative practice, conflict resolution, and relational coordination with structured coaching and mentoring for ongoing success.

In February 2014, members of UW ISIS TeamCORE, OD&T, and UW Medicine LEAN formed an alliance called OIL after teach entity's initials and designed training for the opening of the UWMC Eastside Specialties Center in Bellevue, WA. Applying simulation techniques to workflow and emergency simulations, the team was able to train nearly ninety providers and staff in the processes surrounding self-rooming, hostile and collapsed patient response, and team communication strategies.

As one of the first successes of the TeamCORE training rollout, UW ISIS leadership gained invaluable knowledge in the development of team training for both existing and new clinic/unit openings. In its pilot phase, the TeamCORE leadership team has begun work with five units across UW Medicine, and looks for opportunities to expand its reach in the coming year.



Stephen Zieniewicz, UWMC Executive Director, greets the Eastside Specialty Clinic staff at the outset of a day-long training event. Along with team communication sessions, behavioral, and emergency scenarios, UW ISIS worked closely with the clinic staff to design operational workflow specific simulations for this retreat.



Ross Ehrmantraut, UW ISIS TeamSTEPPS Faculty, explores the concept of a shared mental model during an orientation for all incoming residents.

