

The Center for Immersive and Simulation-based Learning at Stanford

REVIEW OF ACCOMPLISHMENTS JULY 2006 – OCTOBER 2007



The Center for Immersive and Simulation-based Learning

Review of Accomplishments July 2006 – October 2007

The academic year 2006-2007 was very fruitful for the Center for Immersive and Simulation-based Learning. This report provides details on a myriad of projects and developments that further cement the role of ISL in the fabric of learning and patient care at Stanford School of Medicine and its affiliated hospitals. Our faculty, clinicians, researchers, and staff continue to be innovators of ISL and to play major roles in the national and international adoption of ISL techniques and applications to improve quality and patient safety.

While the report provides the details, let me summarize some of the big picture trends on a national and international basis. Whereas only a few years ago most aspects of immersive and simulation-based learning were the province of a handful of geeks and oddballs – I was one of them, and I fit right in – today we see many organizations and institutions in healthcare putting substantial resources behind ISL. We have solidly reached the mainstream, though there is an enormous amount yet to be accomplished.

Technologically, our simulation devices and systems are still very primitive and remain limited stand-ins for real patients, although still powerful for what they we can do with them that cannot be done with actual patients. Of course “building human beings” is an impossible task, one not faced by those whose work with simulation we often emulate (such as aviation or nuclear power). As I like to say, in healthcare simulation, we don’t build the systems we are trying to simulate, and we don’t even get the instruction manual for them.

Pedagogically, we have made an impressive start at developing and deploying relevant simulation curricula and applications. There has been enormous creativity in using ISL techniques to augment traditional modes of edu-

cation and to revolutionize clinical training in some profound ways. Still, there are many innovative applications and target populations still to be addressed; no doubt this includes many that none of us have yet thought about.

Finally, there are huge organizational challenges ahead of us to determine how best to implement ISL techniques within the healthcare system. Where are major systems changes needed? Where can we graft ISL onto existing structures? How do we make learners available for ISL’s kind of intensive training episodes? What simulation accreditation bodies exist and must be satisfied? We are currently at an early tipping point for many of these organizational issues. Professional societies, certifying boards, hospital accreditors and payers, liability insurers and risk managers are all getting into the act. The next decade(s) will see enormous strides made to work out the proper role of ISL in the overall structure of healthcare education and training, credentialing, and regulation.

This report lays out how Stanford is leading and responding to these challenges. We work with many others around the world of like mind and vision. Our goal is to improve the efficiency, quality, and safety of care for all patients, while simultaneously improving the education, training, and assessment of the caregivers. This is a noble goal and we are pleased to present this update on our progress as pioneers of this effort.

David M. Gaba, MD
Associate Dean,
Immersive and Simulation-based Learning

This document is designed to highlight the new activities of the Center for Immersive and Simulation-based Learning (CISL) under the purview of the office of Associate Dean for ISL, for the time period of July 2006 – October 2007, based on the Strategic Goals of the Center.

Applications of Immersive and Simulation-based Learning

Strategic Goal 1: Education & Training of Students & Clinical Trainees

(see table on page 11 listing all deployed curricula)

STANDARDIZED PATIENTS (SPS): In the 2006–07 academic year several innovations using standardized patients were introduced into the medical curriculum:

- The “Micro-CPX (clinical skills exam)” was introduced to medical students at the end of the first year to assess basic clinical skills (medical interview and physical examination skills). The Micro-CPX becomes the first in a three-examination series assessing medical student clinical skills throughout the curriculum – the “Micro-CPX” at the end of the first year, the “Mini-CPX” at the end of the second year, and the CPX during the fourth year.
- As part of the Micro-CPX, students were given a “Standardized Interpreter” exercise to test their ability to use a language interpreter in a culturally sensitive manner. This is done as part of an ongoing partnership with the Stanford Cross-Cultural Medical Education Initiative.
- The “Mini-CPX” was further developed as an end-of-

second-year exam intended to give students a “prescription for change” – to allow students to know their areas of strength and weakness in history taking, physical examination and interpersonal skills, and in clinical reasoning.

- Multi-dimensional exercises were introduced (e.g., headache in the setting of intimate partner violence) to challenge a student’s ability to understand illness in the context of a complex social setting.
- The core Pediatrics clerkship launched a new standardized patient exercise in patient-centered interviewing. All students enrolled in the clerkship participated in a half-day exercise (SPEX) designed to refine their history-taking skills by exploring patients’ perspectives. Each student interviewed a standardized parent, while peers and faculty facilitators observed on a monitor in the next room. After each encounter, students and faculty shared feedback on the interview and discussed learning points brought out by the case.
- Web-based simulation – “electronic” patients – were developed in collaboration with the Karolinska Institute using case-authoring software. Clinical skills in second- and fourth-year medical students were assessed using this electronic medium and compared to assessments using standardized patients. While electronic patients were not able to reenact all aspects of a standardized-patient encounter, web-based cases appear useful to test clinical reasoning skills and a student’s ability to recognize abnormal findings.

“This experience reconfirmed my belief that interpersonal skills like empathy and compassion are very important in medicine.”



The SP program has been working collaboratively with the Practice of Medicine (Dr. Pree Basaviah and others) and the Cross-Cultural Medical Education Initiative (Drs. Clarence Braddock, Ron Garcia, Elizabeth Stuart, Sylvia Bereknyei, and Kam Hooper) on these new innovations in simulations for teaching and formative assessments.

EMERGENCY MEDICINE EVALUATION – 4TH YEAR MEDICAL STUDENTS: Dr. Gregory Gilbert in the Division of Emergency Medicine received a grant in 2007 to evaluate and train 4th year medical students during their Emergency Medicine rotation using mannequin-based simulation. Dr. Gilbert and his colleagues are in the process of developing the tool to evaluate and teach those students during their Emergency Medicine Rotation.

CRITICAL CARE CLERKSHIP SIMULATION EXPERIENCE (ADULT): An intensive 4-hour ISL Simulation Training for Acquiring Resuscitation Skills (STARS) for all students rotating in the required Critical Care clerkships was created by intensivist Geoff Lighthall, M.D., Ph.D., and has been running monthly.

CRITICAL CARE CLERKSHIP SIMULATION EXPERIENCE (NEONATAL AND PEDIATRIC): For the first time all medical students at Stanford will be able to participate in simulation-based training in neonatal and pediatric medicine. During their critical care rotation students will come to CAPE to participate in a full-day training program designed to help them appreciate the differences between pediatric and adult patients. Sara Kache, M.D., Division of Pediatric Critical Care, is helping Dr. Halamek in developing and refining this novel training program. Funding for this activity is now embedded in the teaching budget.

CRITICAL CARE SUBINTERNSHIP SIMULATION EXPERIENCE (NEONATAL): A 4-hour simulation experience modeled on the NeoSim program at CAPE is being conducted for students participating in the neonatal ICU subinternship. This program is designed to further enhance the cognitive, technical, and behavioral skills of students in their second clinical year by immersing them in scenarios that require recall and application of content knowledge, performance of hands-on procedures, and counseling parents of critically ill neonates about difficult decisions. Planning is underway to expand this offering to students

participating in the pediatric and pediatric cardiovascular ICU subinternship. Funding for this activity has become embedded in the teaching budget.

OBSTETRICS CLERKSHIP AND SUBINTERNSHIP SIMULATION EXPERIENCES: CISL provided seed-funding for simulation activities under development by clerkship director Kim Harney, M.D., for clerkship and subinternship students in Obstetrics. This simulation experience for clerkship students has been very well received. Surgical and physical examination skills using part-task trainers are emphasized. Several students have commented that they would like to have more than one opportunity to participate in simulation exercises during the clerkship.

SURGICAL CLERKSHIP SIMULATION EXPERIENCE: Dr. Mary-Anne Purtill was awarded a grant from the Associate Dean for Medical Education to teach trauma using simulation for 3rd year students rotating on their surgical trauma clerkships (SURG 300A). Students are presented with various trauma cases, similar to what they would see in the emergency department. The students are given the opportunity to practice being the primary responder and learn to interact with nursing and respiratory therapy colleagues in the scenarios.

INTRODUCTION TO VASCULAR DISEASE AND TREATMENT: This novel elective course (SURG 228), under the direction of Drs. Jason Lee and David Peterson was designed to teach the fundamentals of vascular disease and treatment to second year medical students using endovascular simulation. Eight 2-hour sessions include didactics with simulated diagnostic studies and intervention in multiple vascular beds.



The Endovascular trainers can provide clinicians or students experience with:

- Coronary angiography/stenting
- Coronary sinus lead placement
- Renal angiography/stenting
- Iliac/SFA angiography/stenting
- Carotid angiography/stenting
- Vena cava filter – deployment/retrieval
- Neurovascular intracranial coiling/stenting

EXPANSION OF DEPLOYED SIMULATION OFFERINGS FOR HOUSESTAFF AND COMBINED TEAMS

(see table on page 11 listing all deployed curricula)

INTERNAL MEDICINE PROCEDURES TRAINING FOR INTERNS

– CENTRAL VENOUS CATHETER INSERTION: CISL seed-funded a part-task simulation-based procedures course in internal medicine, under the direction of hospitalist Lisa Shieh, M.D., Ph.D. Quality Management under the direction of Dr. Kevin Tabb provided additional funding. The focus was on Central Venous Cannulation using ultrasound. All incoming internal medicine interns in July '07 participated in the training, which included a video exemplar, web-based education and hands-on simulation (using a MOVAT chicken model and CVC part-task trainers). We expect the ongoing funding for this experience will be embedded in the teaching budget of the Department of Internal Medicine with a goal of continued training throughout residency.

OB/GYN RESIDENT TRAINING: Under the Direction of Dr. Kim Harney, OB/GYN residents participated in an Operative Vaginal Delivery Simulation program for the second time this year during their August hiatus from Grand Rounds. The program was also taken to the Santa Clara Valley Medical Center OB/GYN residents. Pre- and post-training data have been collected for the purpose of validating simulation as a teaching method for operative vaginal delivery (vacuum and forceps). It is hoped that having an appropriate model on Labor and Delivery to do a simulated delivery just before an actual operative vaginal delivery would provide the ideal means of reviewing the technique and readiness of the trainee to perform the procedure.

A prerequisite to applying forceps is the ability to ascertain the position of the fetal head by palpating crucial landmarks (sutures and fontanelles). As a part of the Operative Vaginal Delivery Simulation, 5 fetal/pelvic models representing 5 different head positions are examined by the residents. An ongoing teaching project is planned where residents report fetal head positions on each patient to their attending near the time of delivery (not a necessary part of most deliveries). A confirmatory exam is done by the attending. After 6–12 months the position assessment will be repeated with the hope that the residents are advancing on the learning curve. SCVMC would also participate in this project.

LAPAROSCOPIC SURGERY TRAINING FOR GYN HOUSESTAFF AND FELLOWS:

SUMMIT is extending its ongoing collaboration with Camran Nezhat, M.D., of the Departments of OB/GYN and Surgery, which focuses on using simulators for training Senior Fellows in Gynecological Surgery



(American Association of Gynecological Laparoscopists). Mary Jacobson, M.D., Director of the GYN Surgical Skills Program, has been working with the team at the Goodman Simulation Center and SUMMIT to use laproscopic simulators to teach the basic skills of laparoscopic and endoscopic surgery. The goal is to add more modules to the simulators to better fit the need for GYN surgery.

PERINATAL TEAM TRAINING PROGRAM: CAPE and the Committee for the Utilization of Simulation at Packard (CUSP) are working to develop and implement comprehensive simulation-based training in obstetric and neonatal medicine for the Johnson Center at Lucile Packard Children's Hospital (LPCH). This ambitious initiative will launch in early 2008 with OB team training in obstetric emergencies and management of the difficult delivery. It is expected that this program, developed by members of the department of Obstetrics and Gynecology, Anesthesia and Pediatrics, CAPE, and CUSP, will serve as a model for implementation of similar programs throughout LPCH. This project has been funded through the LPCH Risk Management Alliance, the Johnson Center for Pregnancy and Newborn services at LPCH, CAPE and CISL.

PEDIATRIC ANESTHESIA IN-SITU SIMULATION PROGRAM (PASS): The PASS program was developed as a joint effort between CISL and LPCH. It's focus under the direction of Drs. Michael Chen (director), Anita Honkanen, and Alice Edler has been to conduct high fidelity in-situ simulation in any venue where patients will have to undergo anesthesia or sedation. At present, safety-focused simulation in conjunction with LPCH's code committee and quality management committee has been performed in the OR, PACU, APU, IR, ASC, MRI, etc. The PASS program also puts on an annual workshop at the Society of Pediatric Anesthesiologist (SPA) meeting and helped form the Pediatric Anesthesia Simulation Interest Group under the direction of Dr. Al Hackel. Education projects include a multi-center sedation skill assessment project, resident education/assessment project, and a longitudinal study of PALS using simulation.

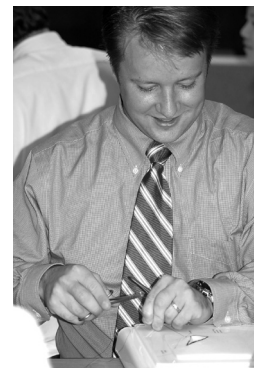
SIMULATION IN NURSING AT LPCH: Under the direction of Amy Nichols, RN EdD, LPCH's Center for Nursing Excellence has completed the following projects related to sedation and life support training:

Sedation Competency Level II Validation: The purpose of this pilot study was to learn if simulation-based training leads to nurses retaining their best-practices skill set and knowledge base when compared to nurses trained in the traditional method. The investigators hope to learn if simulation-based training is a more effective method than traditional preceptor-preceptee training. A simulation-based conscious sedation administration and monitoring training program was developed for the purpose of this study.

Innovation in Patient Care Grant: Comparison of Pediatric Sedation Training Methods: Based on the pilot work, the next phase of sedation simulation research beginning in 2008 is to evaluate the efficacy of competency validation via simulation-based versus traditional preceptor-preceptee training for nurse administered pediatric moderate sedation. Investigators will evaluate the sedation administration and rescue skills of three groups of new graduate nurses who have each undergone different methods of sedation training.

SURGICAL RESIDENT TRAINING: The Goodman Simulation Center, located in Stanford Hospital (very close to the operating room), opened in May 2007. Surgical Education Research Fellow, Rich Parent, MD began in July 2007.

Intern Boot Camp: One of the first uses of the simulation center was for Surgical Boot Camp. Drs. Purtill, Mohr, and Parent coordinated this one-week intensive session for incoming surgical interns. Simulation experiences during boot camp ranged from basic suturing to part-task training (central venous catheterization, laparoscopic trainers, etc.) to mannequin based simulation scenarios.



Surgical Core Curriculum: The 12 month surgical core curriculum for PGY1-5 incorporates various simulation experiences on a weekly basis during their protected teaching time. In addition, under the guidance of Drs. Spain and Purtill, the surgical trauma team meets monthly for mannequin-based trauma simulations. Joining the team are members from nursing and respiratory care.

CARDIAC SURGERY SIMULATION: With the support of the VA Palo Alto HCS, Western Thoracic Surgical Association Doty Award and industry, James Fann, M.D., and his colleagues in Cardiothoracic Surgery have initiated and developed a cardiac surgery simulation program. The cardiac surgery simulation curriculum permits a structured approach to the use of simulation in resident training and provides a basis for collaboration with other institutions interested in simulation training. They have developed a series of skills stations and procedures in dry-lab and wet-lab settings that are intended to provide initial and follow-up training and practice of cardiovascular surgery for the surgical resident. For cardiac surgery simulation, current equipment and materials include plastic torsos, arrested heart models, model for beating heart surgery, anastomosis and valve replacement skills stations, instruments, working table and overhead light, computer with educational DVD/CDs, and porcine hearts for the wet-lab. The course is structured to provide the resident with an understanding of the technical aspects of the surgical procedure, followed by direct supervision and practice, and concluded with formative feedback. It is designed to permit the resident to engage in progressive experience; each task or sub-procedure is intended to allow the resident to demonstrate proficiency through direct tutoring and practice. Proficiency in these sub-procedures will ultimately permit the resident to understand the sequence of events and to be proficient in the entire procedure. They are currently conducting a trial of the anastomosis skills station and beating heart model to assess the progress of our current residents. The intent is to provide validity of and define metrics for these modalities. Additionally, the scenarios for the simulated operating room for environmental and crises simulation are being developed and evaluated.

TRAINING RADIOLOGISTS IN MANAGING CONTRAST REACTIONS AND OTHER EMERGENCIES: CISL is working with Terry Desser, M.D., in Radiology to develop a simulation training program for Radiology residents focused on managing emergencies, especially contrast reactions. This project should launch soon now that Dr. Desser has returned from sabbatical.

Strategic Goal 2: Healthcare Systems Improvement

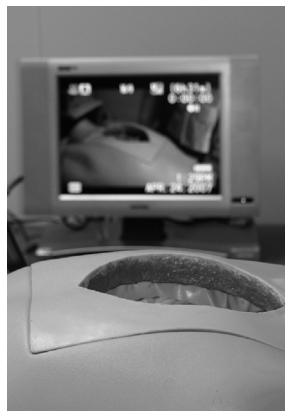
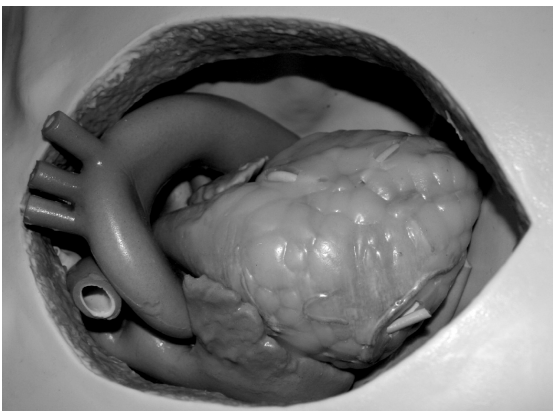
SIMULATION ESTABLISHED AS A CORNERSTONE OF THE RISK MANAGEMENT ALLIANCES: Simulation-based programs are one of the four explicitly articulated cornerstones of each Alliance’s forward-thinking risk management strategy.

The four cornerstones are:

- Risk Assessment/Benchmarking
- Risk Awareness through Education/CME
- Risk Avoidance through Patient Expectation Management
- Risk Prevention through Simulation

The goal is to develop a high leverage project (critical events) with high probability of useful organizational learning at SHC. The project will:

- Use pioneering systems improvement techniques by probing the system using unannounced mock situations, led by
- Highly experienced multidisciplinary simulation and patient-safety team (Anesth, ICU, Medicine, Surgery, Transfusion, etc.), with
- Extensive experience (under the guidance of the Associate Dean for ISL) with unannounced mock codes and



- training simulations, with the goal of developing
- Techniques likely usable in the future to probe other systems issues.

Strategic Goal 4: Research

Research from CISL Component Programs CISL faculty and staff have presented multiple papers on simulation at scientific meetings and published a number of papers and editorials in peer-reviewed journals.

INTERNAL AND EXTERNAL RESEARCH GRANTS: Various CISL components and collaborators have been successful with grant applications for development of new ISL activities. This includes:

- LPH Innovations in Patient Care Program: Grants for Amy Nichols, EdD, LPHC
- APGO (Association of Professors of Gynecology and Obstetrics): A grant for Maurice Druzin, M.D., to do an evaluation of OB simulation and ACLS
- Western Thoracic Surgical Association, Donald B. Doty Education Award for James Fann, M.D., Cardiac Surgery
- Wallenberg Foundation: Grants for Parvati Dev, Ph.D., SUMMIT; and Sanjeev Dutta, M.D., Surgery
- Foundation for Anesthesia Education and Research: Grants for Alice Edler, M.D., Anesthesia, and for Sesh Mudumbai, Anesthesia
- Laerdal Foundation: Lou Halamek, M.D., Pediatrics
- CISL is in the first year of a research grant from The Agency for Healthcare Research and Quality. This is the first grant awarded to CISL as an organization, with a project titled Preparing Urban and Rural Hospitals to Improve Safety Culture Through Simulation. This



project involves CISL faculty and staff from multiple departments and simulation centers teaching multidisciplinary instructor teams from 3 widely different hospitals (one is a 25 bed critical access hospital) to conduct simulations at their own sites. CISL is evaluating the ongoing progress of simulations at the client sites by review of video recordings and in-person site visits. The impact of simulation on safety culture will be assessed using the well-validated PSCHO survey.

Strategic Goal 6: Community Outreach

K-12 STUDENT TOURS AND OTHER PROGRAMS: CAPE, The Goodman Simulation Center, SUMMIT, and the VA Simulation Center continue to conduct tours and special programs for groups from the community from various departments, organizations and schools.

“Thank you so much for showing us the simulation lab. It was the most amazing experience of my life!”
 – EPGY ’07 summer attendee

Strategic Goal 7: Leadership & Advocacy

Stanford continues with strong representation on the Board of Directors of the SSH, which has become the multi-disciplinary professional society concerning simulation in healthcare. The Associate Dean, ISL was a founding Board member of the society, and remains on the Board and is the editor-in-chief of the Society’s peer-reviewed journal. Dr. Lou Halamek is on the board and Dr. Thomas Krummel is on the editorial board of the journal.



Lou Halamek, M.D., was selected as co-chairman of the Neonatal Resuscitation Program (NRP) Steering Committee of the American Academy of Pediatrics and is leading that program’s evolution from a more traditional didactic/skills station course to a comprehensive simulation-based interactive program. In addition, Dr. Halamek

serves on the Neonatal Delegation to the International Liaison Committee on Resuscitation (ILCOR), the body that sets the international standards for resuscitation.

CAPE and the American Academy of Pediatrics (AAP) collaborated in the development of new multimedia training tools for the Neonatal Resuscitation Program (the NRP sets the standard for resuscitation of the newborn in the U.S.). Two DVD's, *Cases in Neonatal Resuscitation: Translating Knowledge and Skill into Performance* and *Ethics and Care at the End of Life: Involving Parents in Ethical Decision Making* were written and shot at CAPE and are now available through the Academy.



AIMS: Stanford continues its leadership role in the Advanced Initiatives on Medical Simulation (AIMS). AIMS is an effort by a consortium of universities and other organizations to serve as the national voice for medical simulation; educate and raise national and international awareness among policymakers and the public on the value of medical simulation, and convene a community of stakeholders committed championing medical simulation (<http://www.medsim.org/>). CISL is one of the founding contributors to AIMS.

AIMS has drafted legislative language designed to make medical simulation “the standard” for health care professional training in the United States. The bill, currently known as the “SIMULATION Act of 2007” would, if enacted, promote the benefits of advanced medical simulation technologies.

“In three short years, AIMS has been instrumental in moving the field forward, because of the hard work of many key individuals, such as Stanford’s David Gaba, M.D., University of Washington’s Rick Satava, American College of Surgeons’ Gerry Healy, M.D., Penn State’s Randy Haluck, M.D., Emory University Chris Cates, M.D., and the key support of the Department of Defense, the Center for Telehealth & E-Health Law, and Drinker Biddle

Gardner Carton. The impact has been remarkable,” said AIMS Chair, Steve Dawson, MD at CIMIT, Massachusetts General Hospital.

SAFETY ACROSS HIGH CONSEQUENCES INDUSTRIES: Dr. Halamek sits on the Executive Committee of this new organization that is dedicated to facilitating the exchange of information and effective practices across industries where the risk to human life is high. He is facilitating planning for a Workshop on Achieving High Reliability in the Delivery Room to be held in Toronto, Canada, in June of 2008.

AMERICAN COLLEGE OF SURGERY LEVEL 1 ACCREDITATION:

The Department of Surgery at Stanford, under the stewardship of Dr. Tom Krummel, received its Level 1 ACS accreditation in 2007. The Goodman Center was also designated as Fundamentals of Laparoscopic Surgery (FLS) testing site by SAGES.



AMERICAN SOCIETY OF ANESTHESIOLOGISTS (ASA) ENDORSEMENT PROCESS FOR SIMULATION PROGRAMS:

Dr. Gaba is a member of the ASA’s Committee on Simulation that has just solicited applications for endorsement (similar to “accreditation”) of simulation programs to deliver high quality CME activities to ASA members. Courses offered by ASA endorsed programs will also qualify for the simulation component of the Maintenance of Certification in Anesthesiology (MOCA) that will be established by the American Board of Anesthesiologists. CISL has applied for endorsement by the ASA.

CISL AS ROLE MODELS FOR THE WORLD:

CISL and its components (CAPE, Goodman Center, SUMMIT, VA Simulation Center) have trained and hosted many visitors and observers from around the world. The visitors include representatives from Shantou University Medical School, China, Cincinnati Children’s Hospital, Children’s Hospital of Philadelphia, Minnesota University, and University of Utah. Dr. Phil Pizzo, Dean, School of Medicine has been very active in highlighting simulation for a variety of contingencies.

Infrastructure

Strategic Goal 8: Faculty Development

SIMULATION POST-DOCTORAL FELLOWSHIPS: CISL components have continued to offer post-doctoral fellowships. Currently there are simulation fellows in Anesthesia, Emergency Medicine, and Surgery.

SIMULATION IN SURGERY WORK GROUP: The Simulation in Surgery Workgroup was formed in 2007 under the direction of Dr. Sanjeev Dutta and Dr. Rich Parent. This group reviews and critiques research in surgical simulation at Stanford.

CUSP: The Committee for the Utilization of Simulation at Packard (CUSP) has been active for over one year, its focus for 2007 is on OB and Neonatal combined team training.

SIMULATION JOURNAL CLUB: Drs. Rich Parent and Sesh Mudumbai, under the direction of Dr. David Gaba began the Simulation Journal Club in October 2007. Each month, the journal club will have a different faculty mentor.

SIMULATION IN MEDICAL EDUCATION (SIME SEMINAR SERIES): The SiME seminar series is co-directed by Drs. LeRoy Heinrichs and Steve Howard. From September 2006 to October 2007 there have been 9 major lecturers by well known leaders in Simulation. The seminars have been attended by over 130 members of the Stanford faculty and staff. The external lecturers include: Drs. Jack Boulet, Tim Draycott, Gary Dunnington, Li Fellander-Tsai, Eckhard Hahn, Derek Keats, and Roger Kneebone. Stanford faculty lecturers include: Drs. Kay Daniels, Steve Lipman and Richard Shavelson. We plan to offer CME units

in the upcoming year. Many of the lectures can be found on the CISL website at: <http://cisl.stanford.edu/organization/calendar/>.

CISL FACULTY GRANTS FOR NEW FACULTY AND STAFF TO ISL TO ATTEND SCIENTIFIC CONFERENCES ON SIMULATION:

Since its inception in 2004, over 25 Stanford medical faculty and staff have attended one of the three major scientific meetings on medical simulation (IMSH, MMVR, or TATRC Medical Game Conference) for the first time with partial support from CISL. This program is one way of building the cadre of faculty who are skilled in creating and conducting ISL activities and to create a collaborative CISL group. The 2006–2007 recipients were:

Drs. Ben Chung (Urology), Lisa Sheih (Internal Medicine), James Fann (Cardiac Surgery), Joe Liao (Urology), Sesh Mudumbai (Anesthesia). This was the first year that nursing participated in the grant. Cassie Bergero, R.N., was the first nurse participant.

Additionally Dr. Sesh Mudumbai presented his poster at IMSH and was awarded second place for his poster titled: Ability of a model-driven simulator and sensitivity to initial condition.



The CISL team will be developing an instructor course for faculty and staff at Stanford wishing to learn more about how to run a simulation course.

Strategic Goal 9: Sustainability and Finances of Simulation

Stanford continues its long-standing support and endorsement of ISL. More and more courses are embedded into student curricula. The VA Palo Alto Simulation Center has been providing simulation training since 1990. In November of 2007 CAPE celebrated its fifth year of meeting its mission and the Goodman Simulation Center opened its doors in May of 2007. In addition, the Learning and Knowledge Center (<http://lkc.stanford.edu>) will start construction soon and house over 20,000 net square feet of simulation.

All of the teams in the CISL consortium continue to be world leaders in developing high fidelity, simulation-based training programs with focus on anesthesia/critical care, obstetric and pediatrics, and surgery. Training programs offered in 2007–08 can be found on page 11.

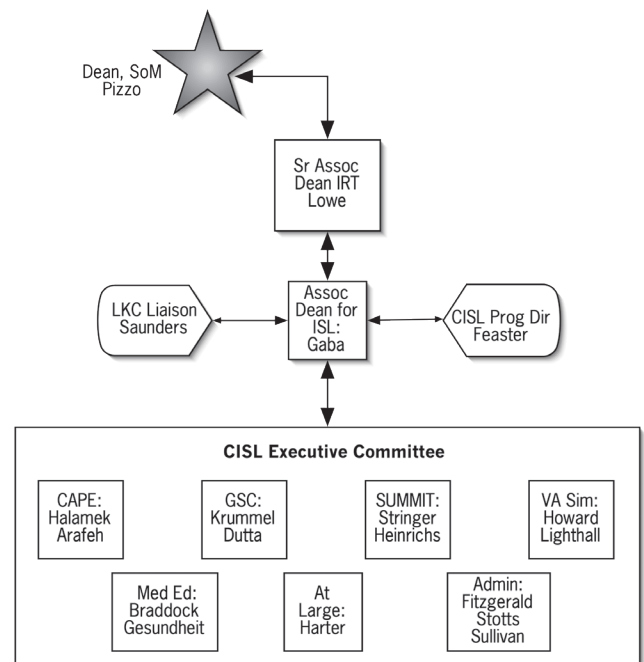
PLANNING FOR THE IMMERSIVE LEARNING CENTER (ILC) IN THE LEARNING & KNOWLEDGE CENTER (LKC): Under the leadership of Maggie Saunders, the CISL Executive Committee and the Associate Dean, ISL have been heavily engaged in planning for the design of the ILC in the LKC. See <http://lkc.stanford.edu>.

Strategic Goal 10: Management

CISL PROGRAM DIRECTOR: In FY 2008 CISL program director, Sandra Feaster, R.N., M.S., M.B.A., will increase her time devoted to CISL to 75% (and 25% to the Goodman Center).

CISL WEB SITE: The CISL Web Site (<http://cisl.stanford.edu>) was successfully launched in 2007. Since its launch, the site has had over 6,000 visits (29% from international sites), has provided information about various aspects of simulation as well as and lectures from the SiME seminar series and others.

CISL EXECUTIVE COMMITTEE: The CISL Executive Committee has expanded its representation to include members from each of the three hospitals. Additionally, the new Associate Dean for Medical Education, Dr. Clarence Braddock for Medical Education has joined the group.



Deployed Curricula Using Immersive & Simulation-based Learning

Pre-Clerkship Med Students	Clerkship Med Students	Interns / Residents / Fellows		Combined Team (Housestaff, attendings, RNs, Allied Health)	CME or equivalent	Nursing or Allied Health
ONGOING						
Procedures Course – POMQ5 (Mod C)	Adult Crit Care Sims – (STARS) (VA Sim Ctr)	Anesth Novice Resident Sims (VA Sim Ctr)	EM CRM1 (VA Sim Ctr)	IMPES – ICU Combined Team CRM Simulations (VA Sim Ctr)	NeoSim (CAPE)	RT student sims – w FH College (VA Sim Ctr)
Intro to Mgmt of Ill Pt (IMIP) POMQ6 (VA Sim Ctr)	Anesth Clkshp Sims (VA Sim Ctr)	ACRM1 (VA Sim Ctr)	EM CRM2 (VA Sim Ctr)	Sim DR - Perinatal Team Training (CAPE)	PediSim (CAPE)	Primary Certification in PALS – Sims
	PICU/NICU/CVICU Critical Care Clkshp (CAPE)	ACRM2 (VA Sim Ctr)	EM CRM3 (VA Sim Ctr)	Disclosure of Unanticipated Consequences (CAPE)	Pedi ERSim (CAPE)	
	Neo Critical Care for NICU subinternship (CAPE)	ACRM3 (VA Sim Ctr)	Adv Resus, Eval & Decision-making (SCARED) – Int Med (VA)	Mock Drills for Cardiac Arrests (VA, monthly)	OBSim (CAPE)	
	Compassionate Deliv of Bad News for Gen Ped Clkshp (CAPE)	NeoSim I, II, III (CAPE)	SCARED – Surgery (VA)	Mock Drills for medical emergency team (VA, 6-7 times a year)	Sim DR – Perinatal Team Training (CAPE)	
	Emergency Sims (GSC)	Sims for Card Surg Fellows	SOS Int Med (VA)	Defibrillator and CPR training for nurses (VA)	ECMO Sim (CAPE)	
	Intro to Vascular Disease and Rx (SURG 228) (GSC)	Pedi Sim I, II, III (CAPE)	Perinatal Counseling (CAPE)	Trauma Combined Team Training (GSC)	Critical Care Transport (CAPE)	
	Advanced Surgical Skills (SURG 205) (GSC)	Pedi ER Sim I, II, III (CAPE)	Compass. Deliv. of Bad News (CAPE)	SHC Recognition of Critical Events (in situ) (GSC/VA)	ACRM (VA Sim Ctr)	
	Surgical Sims (SURG 305) (GSC)	OB Sim I; SimDR I (CAPE)	Endovascular procedure (i.e. cath-lab) sims (GSC)		Laparoendoscopic Surgery Simulation Exercises (SUMMIT + OB/GYN)	
		ECMO Sim (CAPE)	Laprosopic Surgery Training for OB/GYN (GSC)		CRM Instructor (VA Sim Ctr)	
		Surgery Intern Boot Camp (GSC)	Surg Core Curricul (monthly – GSC)		Simulation Instructor (CAPE)	
					P.A.S.S. program as part of the Society of Pediatric Anesthesia	
PILOTED OR UNDER DEVELOPMENT						
	Pedi Critical Care for PICU subinternship (CAPE)	Pedi Anesth Sims (at LPCH w VA Sim Grp)		Labor & Delivery In-Situ Sim Drills (at Johnson Ctr wth CAPE + VA Sim Ctr)		Pediatric Sedation using Sims
PLANNED						
IMIP2		Decision-making for Card Surg (VA)	Mgmt of contrast reaxn & emergencies in Radiology (in situ)	Surgical Safety Sims (GSC)		

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