

Experience

Integration

Collaboration

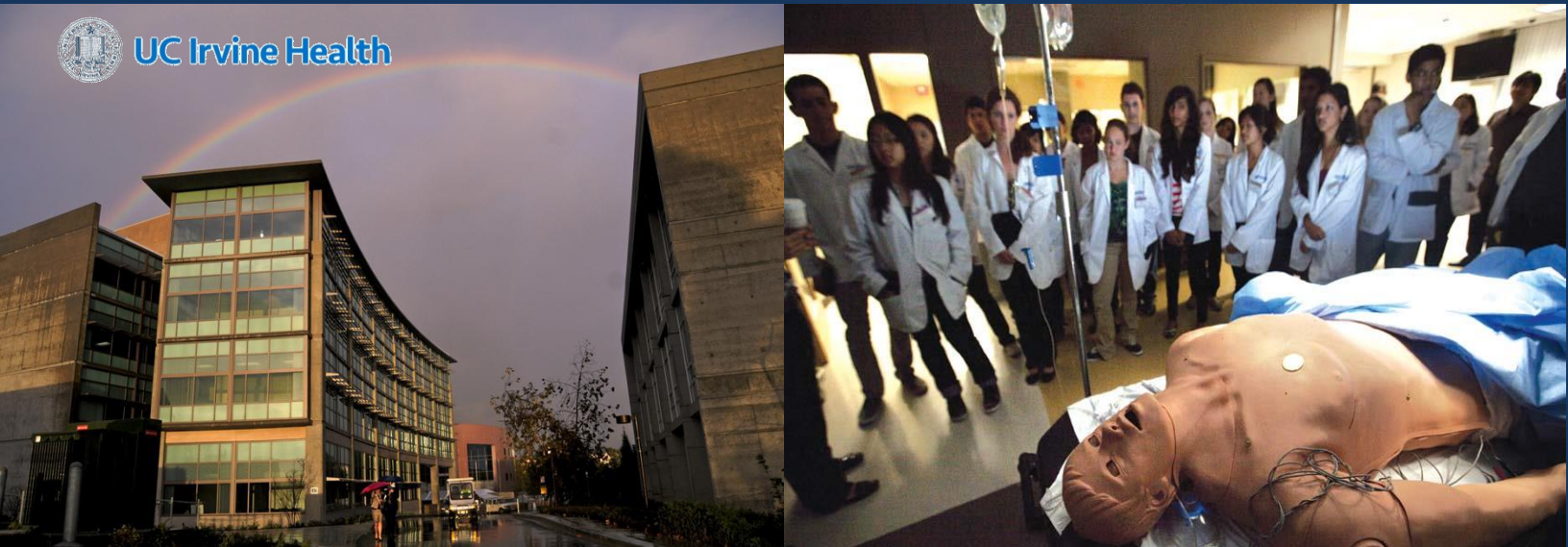
Thoughtfulness

Competency

Safety

A look back 2013-2014...

Discovery



As we move forward

UC Irvine Medical Education Simulation Center

Accuracy

Communication

Dedication

Skill

Precision

Empathy

Education



UNIVERSITY of CALIFORNIA • IRVINE

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MISSION

To provide state-of-the-art health care education and research using medical simulation technology to promote superior clinical care and patient safety by delivering quality immersive education to healthcare professionals and the community

Confidence Empathy Competency Collaboration Disc
ity Communication Proficiency Growth Dedication
Teamwork Discovery Safety Accuracy Education Profi
Dedication Education Precision Experience Competen
ation Empathy Quality Teamwork Communication



Quality

Empathy

Education

Discovery

Communication

Safety

Growth



At UC Irvine School of Medicine, simulation is transforming the way we teach and deliver health care. Our approach not only involves experiential solidification of didactic medical knowledge and concepts, but also focuses on decision making and communication of teams. This practice helps the students hone their inter-personal and inter-professional skills early in their medical training. We strongly believe that medical simulation can impact patient care and safety at many levels.

We were proud of our ever expanding medical student simulation curriculum. In fact, we increased the simulation curriculum by three courses this last year – Microbiology, Biochemistry, and Neuroscience. Moreover, we are currently working to add BLS, team dynamics, ACLS, and team communication into the curriculum for the 1st and 2nd years going forward. This all culminates with increased patient safety and quality medical education.

As we embark on a new era of healthcare, we believe that traditional education will, at least in part, give way to simulation and experiential learning modalities; UC Irvine Medical Education Simulation Center and the UC Irvine School of Medicine is positioned to demonstrate sound leadership and experience to all of UC Irvine Health, the healthcare industry, and community.

We are pleased to present the annual report as a body of evidence of work that was accomplished in academic year. With continued support for the School of Medicine, this Medical Education Simulation Center will affect change in not only its own medical students, but also the community at large by embodying the mission of Discover • Teach • Heal.

A handwritten signature in black ink, appearing to read 'C. Ricks'.

Cameron Ricks, MD
Director

Medical Education



“Simulation is the wave of the future in the education of medical students, residents, post-graduate physicians and all other healthcare workers. With the use of technology, we will be better able to teach, test, and certify both knowledge and skills of our trainees. The ultimate beneficiary of these advances will be our patients.”

Ralph V. Clayman, M.D.
Dean, UC Irvine School of Medicine



This academic year, the faculty and staff added three (3) courses into the MS1 and MS2 years to provide a simulated clinical experience for Biochemistry, Neuroscience, and Microbiology.

This year marked the first year that high-fidelity medical simulation was used during OSCE testing.

We also had MS4 Alex Nguyen take the 615A Simulation Elective where he was immersed in simulation operations and curriculum development. He created and piloted a simulation scenario for the MS3 family medicine course.

Yearly Residency Participation:

Surgery • Emergency Medicine

Internal Medicine • Family Medicine

Pediatrics • Anesthesia

Current Medical Student Simulation Curriculum

- **MS Year 1**
 - Clinical Foundations 1 BLS Certification
 - Cardiovascular (CV) Physiology
 - Respiratory Physiology
 - Renal Acid/Base
 - Neuroscience
 - Biochemistry
- **MS Year 2**
 - Cardiovascular (CV) Pharmacology
 - Inhaled Anesthetics Pharmacology
 - Sedatives, Narcotics, Neuromuscular Blockers Pharmacology
 - Clinical Foundations 2 Pediatrics Saturday
 - Microbiology
- **MS Year 3**
 - Clinical Foundations BLS, Simulation, OR Scrub
 - Obstetrics/Gynecology
 - Surgery Clerkship
 - Geriatrics
 - Family Medicine
 - Pediatrics Clerkship
 - Pediatrics Objective Structured Clinical Examination (OSCE Testing)
 - Surgery Objective Structured Clinical Examination (OSCE Testing)
- **MS Year 4**
 - Clinical Foundations 4 Advanced Cardiac Life Support (ACLS) and Simulation
 - ICU Sub-internship
 - Anesthesia Sub-internship

Quality, Safety, and Inter-professional Education



Simulation-Based Team Training

The Medical Education Simulation Center provided over 30 hours of inter-professional simulation-based team training over at UCIMC. This training is designed to get all aspects of a code team to communicate effectively as a team in a crisis situation. This course has included residents, nurses, respiratory therapists, and nursing students.

Not only do we train how to think and interact as a team but we also provide learners with the necessary feedback on how effectively they perform cardiopulmonary resuscitation (CPR) and Advanced Cardiac Life Support.

UC Irvine Nursing Program

The Medical Education Simulation Center opened its doors to the Nursing Program for their annual Nursing Bootcamp. 60 nursing students in their 3rd and 4th year received instruction on nursing topics and capped off the event with simulation.



Maintenance of Certification in Anesthesia

The Medical Education Simulation Center is proud to host Maintenance of Certification in Anesthesia (MOCA). This one-day course is a continuing medical education course and part of re-certification for fully trained anesthesia providers. This activity has brought practitioners in to UC Irvine from as far away as Texas. The Medical Education Simulation Center was endorsed by the American Society of Anesthesiologists in June 2012, and held its first course in February 2013. **This last academic year, the center has hosted 10 MOCA Courses, training 75 anesthesiologists. This course generated revenue of \$140,200.00.**

Simulation Instructor Training Course

In keeping with our mission to provide state-of-the-art medical education, we realize we have to train to the standard that we set. The Medical Education Simulation Center offers a two-day continuing medical education course on simulation instructor training. Completion of this course is a requirement to instruct in the facility and discusses how to effectively debrief learners. **This last academic year, the center hosted 3 Simulation Instructor Courses, training 12. This course generated revenue of \$7,500.00.**

American Heart Association HeartCode ©

The Medical Education Simulation Center offers American Heart Association HeartCode© Basic Life Support (BLS), Advanced Cardiac Life Support (ACLS), and Pediatric Advanced Life Support (PALS) to medical students, staff, and the community. This last academic year, the center trained over 250 learners in BLS, 98 learners in ACLS, and 46 in PALS. **This last academic year, these courses generated revenue of \$31,000.00.**

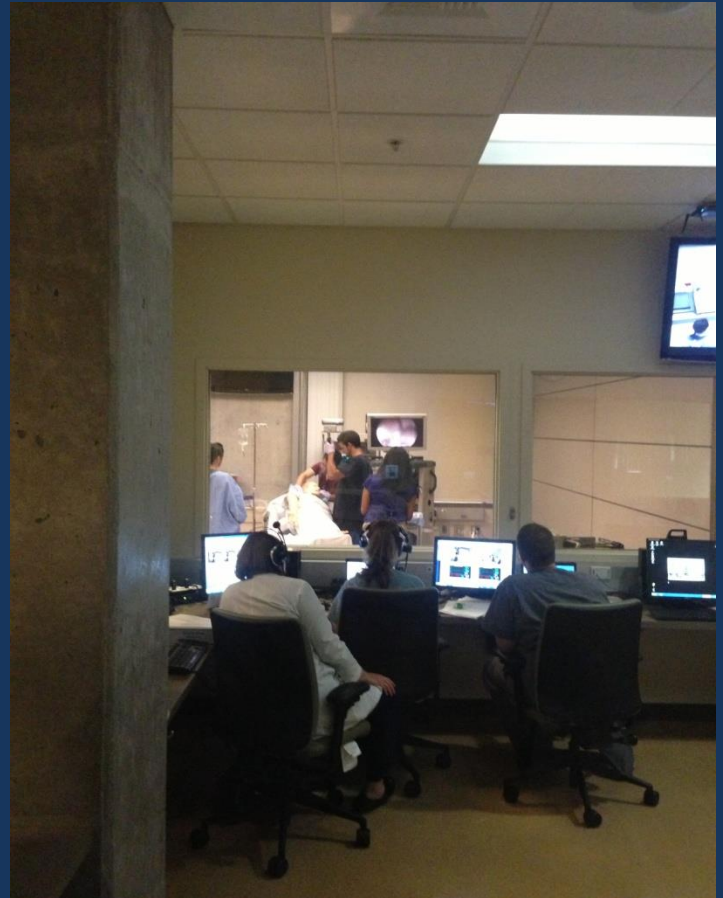


The faculty and staff embrace the idea that medical simulation improves people's lives beyond the classroom – through encouraging new ways of using our facility and capabilities.

This academic year we have provided services to the UCI Anesthesiology Department in terms of curriculum development and resources for two separate research opportunities: Simulation Stress Study and Conscious Sedation Study. We also supported an unfunded Emergency Medicine BLS study.

Dr. Ricks has obtained an IRB involving Microbiology simulation curriculum that he is currently working on and will be submitting for publication shortly.

A Letter of intent was signed to work with Physical Optic Corporation on a Department of Defense Grant opportunity. Grant was submitted.



International Meeting for Simulation in Healthcare

The UC Irvine Medical Education Simulation Center was well represented at the 2014 IMSH. The faculty and staff provided a podium presentation on integrating OSCEs with the help of Sue Ahearn RN, Clinical Skills. Additionally, Dr. Ricks sat on an expert panel with other UC schools to discuss tele-simulation. Dr. Strom teamed together with Northwestern and facilitated a pre-conference workshop on micro-debriefing. Finally, the Medical Education Simulation Center presented one research abstract.

Outreach and Community



"The ability for our center to open our doors to the community is an extremely rewarding endeavor. I have no doubt that we have impacted a number of students who will now consider healthcare as a career."

- Keith A. Beaulieu, Director of Operations

The UC Irvine Medical Education Simulation Center takes great pride in community involvement and outreach. This year we had the opportunity to showcase our center to numerous groups including Orange County Fire Authority, Summit College, School of Medicine Alumni groups, high-school outreach groups, the Association of Volunteer Faculty, Pre-Med Camps, summer camps, and high school tours. We have also opened our doors to Apple, Crisi, Physical Optics Corporations, Laerdal, Karl Storz, Phillips, and Zoll.

2013 also marked the first time that the Medical Education Simulation Center advertised at a simulation conference.



Academic Year 2013-2014 Highlights & Statistics



REVENUE BY 95% OVER PROJECTED

Raised course rate on MOCA Courses

Offered more MOCA courses

Charged for more simulation related services

Soliciting/marketing to outside agencies to attend CME course



PRODUCTIVITY

Medical Student Simulation

Inter-professional Team Training at UCIMC



BUDGET BY \$200K

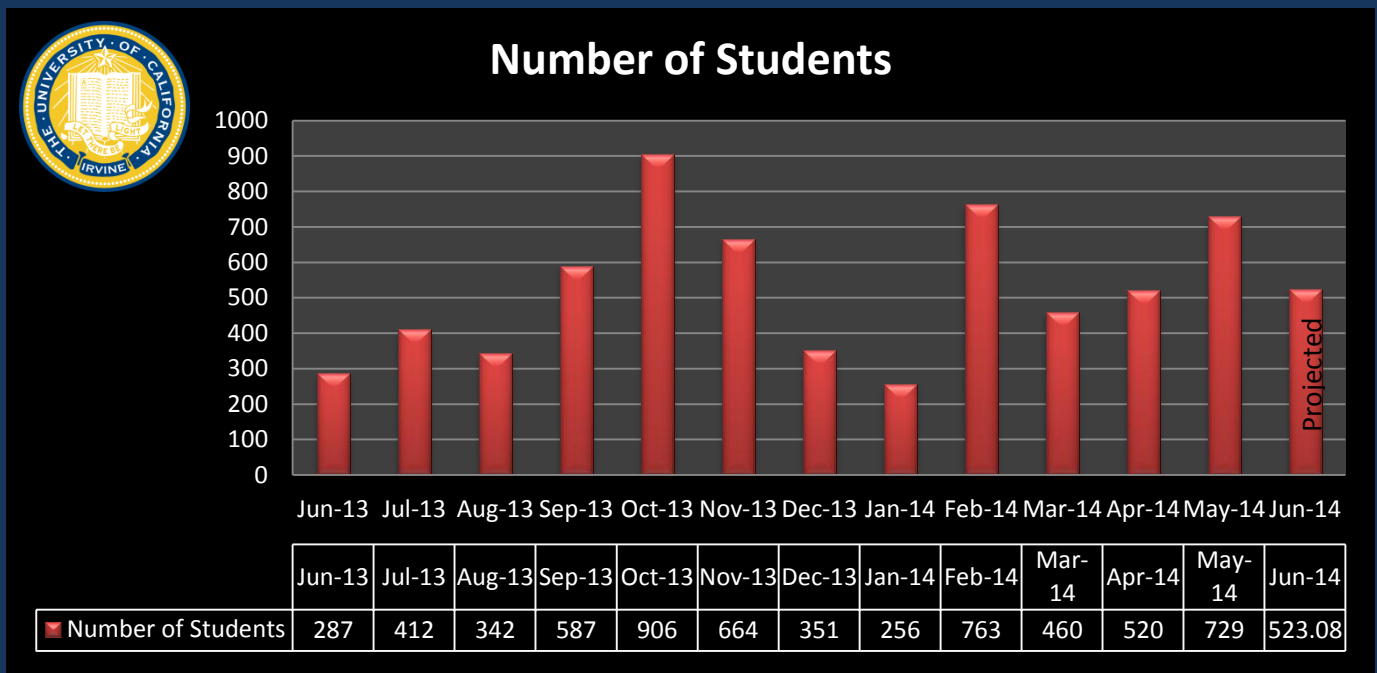
Decreased FTEs BY 1.2

Trimmed expense budget

- Dr. Ricks was invited and traveled to Lyon, France on behalf of the university to discuss research in medical simulation
- Keith Beaulieu named to the SSH Committee on Accreditation
- Keith Beaulieu chosen to represent UCI as an accreditation site reviewer
- Named Karl Storz Center of Excellence
- UC Irvine was well represented at IMSH with one (1) abstract, one (1) podium presentation, and one (1) expert panel.
- Submitted two (2) simulation cases for publication to *Simulation in Healthcare* peer-reviewed journal
- Submitted one (1) Simulation Cases to MedEd Portal for publication
- Set up a Medical Education Simulation Center SharePoint Page
- Set up a Medical Education Simulation Center Facebook page
- Started Simulation Center newsletter to all stakeholders to keep them abreast of all current and upcoming simulation news
- Simulation Center Staff completely re-vamped and updated the Simulation Instructor Training Course
- Simulation Center Staff completely re-vamped and updated the Simulation Programming Course to offer to public for a fee

- Simulation Center Staff created Simulation Operations, Planning, and Management Course to offer to public for a fee
- Simulation Center Staff created Curriculum Development to offer to public for a fee
- Worked with Physical Optics Corporation in a Broad Agency Announcement (BAA) for a federal grant. Pre-proposal was submitted 2/4/2014. If approved, could generate revenue of \$100,000 going forward.
- Submitted Letter of Intent for Josiah Macy Jr. Foundation Board Grant. If approved, could generate \$550,000 over 2 year period.
- Submitted Letter of Intent for UCOP Grant. If approved, could generate \$300,000 over 2 year period to help cover some travel and percentage of FTE.
- Requested and received two (2) Zoll® defibrillators with Q CPR capability
- Requested and received one (1) Phillips® defibrillator
- Requested and received four (4) ResQpods for inter-professional team training

Monthly Census (all utilizers)



Total (AY 12-13) 4612

Total Projected (AY 13-14) 6800

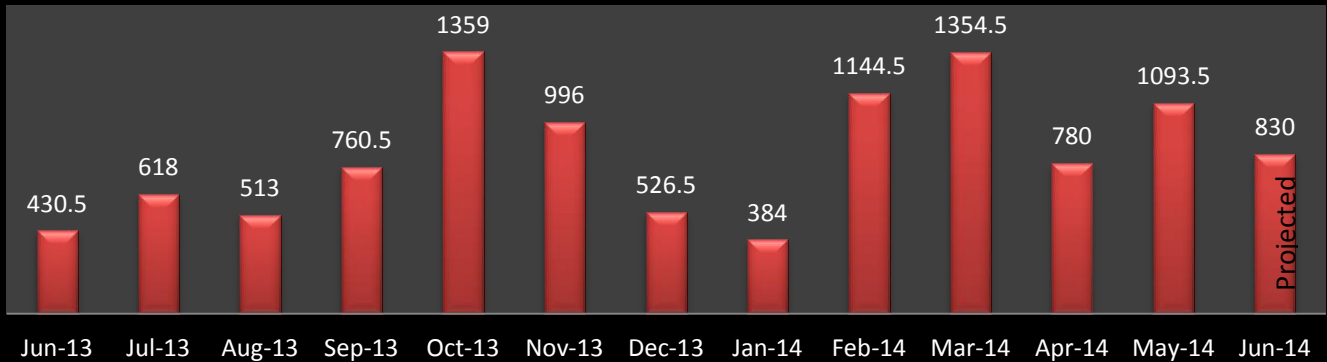


2188 Learners

Student Contact Hours

Medical Education Simulation Center Total Student Contact Hours

Total Student Contact Hours



Total (AY 12-13) 6918

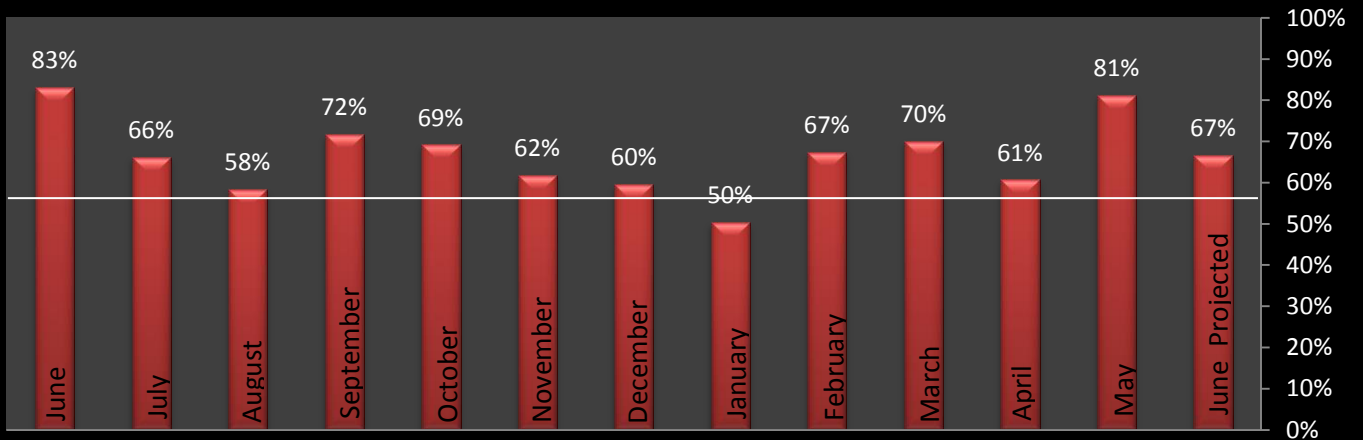
Total Projected (AY 13-14) 10790



3872 hours

Simulation Center Utilization

Simulation Center Run Time (occupancy) Total Utilization by Month



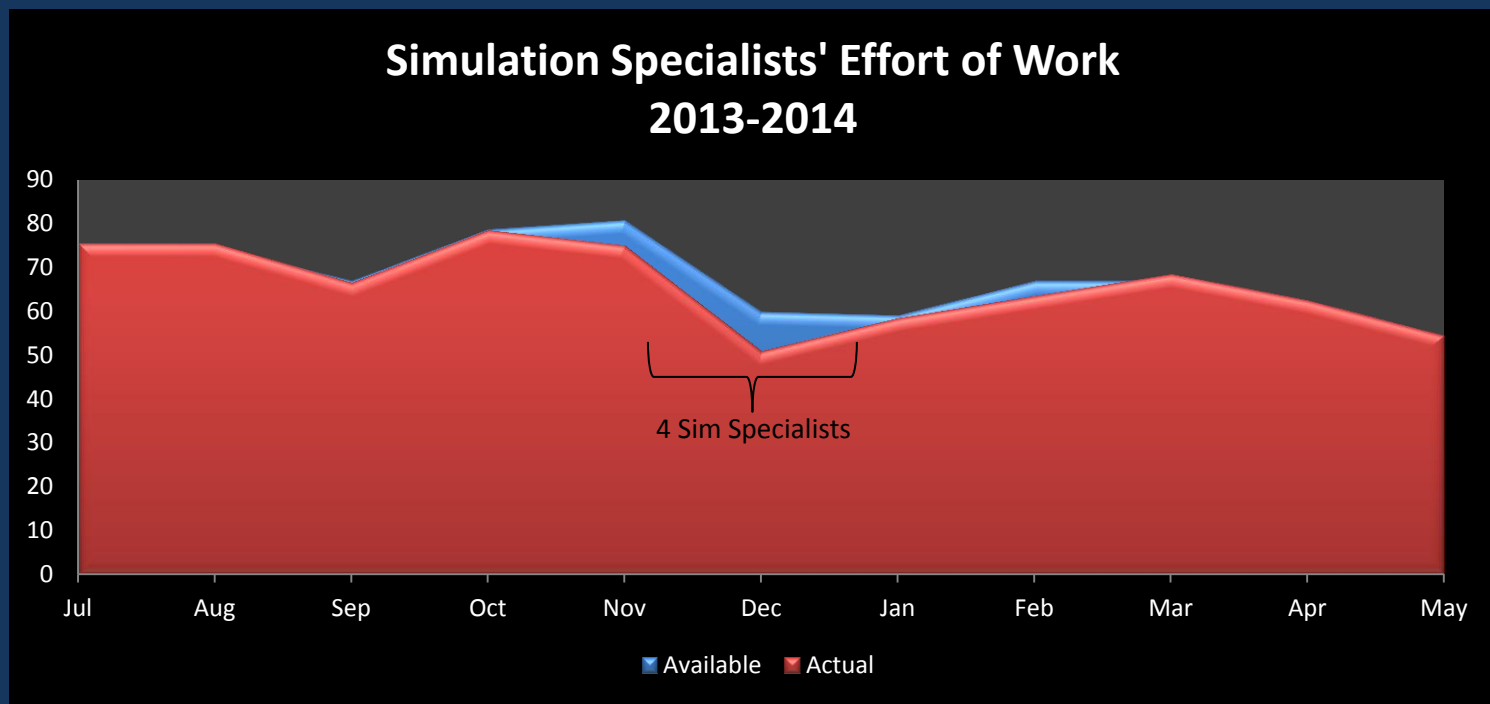
57% is national average

This metric does not include any preparation and administrative functions of simulation specialists

Simulation Specialists Effort of Work

Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
74.5875	74.5875	66.7875	78.4875	80.6	59.8	58.9875	66.7875	66.7875	58.9875	47.2875
75.5	75.5	66.5	78.5	75	51	58.5	63.5	68.5	62.5	54.5
101%	101%	100%	100%	93%	85%	99%	95%	103%	106%	115%

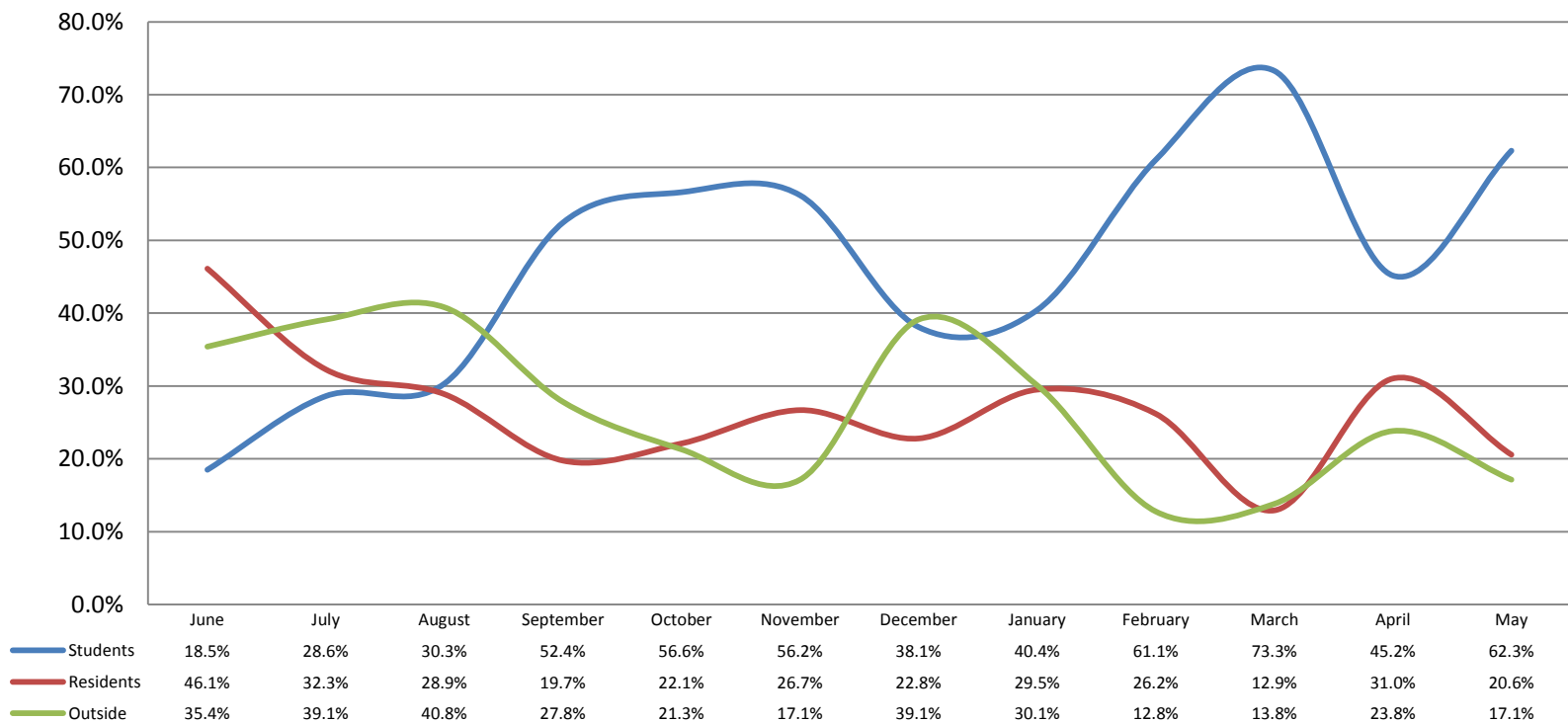
Without 4th Sim Specialist With 4th Sim Specialist Without 4th Sim Specialist



Medical Simulation Usage Distribution

	June	July	August	September	October	November	December	January	February	March	April	May	June	Average
Students	18.5%	28.6%	30.3%	52.4%	56.6%	56.2%	38.1%	40.4%	61.1%	73.3%	45.2%	62.3%		46.9%
Residents	46.1%	32.3%	28.9%	19.7%	22.1%	26.7%	22.8%	29.5%	26.2%	12.9%	31.0%	20.6%		26.6%
Outside	35.4%	39.1%	40.8%	27.8%	21.3%	17.1%	39.1%	30.1%	12.8%	13.8%	23.8%	17.1%		26.5%
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		

Simulation Center Distribution 2013-2014



What Learners are Saying....

The Medical Education Simulation Center's popularity continues to be demonstrated by the enthusiastic and positive data generated from feedback. We consistently score above the 95th percentile and are considered a favorable educational experience by all learner groups

Source: Medical Education Simulation Center surveys of all learners using (EEE)

100% Strongly agree/agree that the environment was non-threatening and conducive to learning

100% Strongly agree/agree that they have a better understanding of the subject matter

97% Strongly agree/agree that the course met expectations

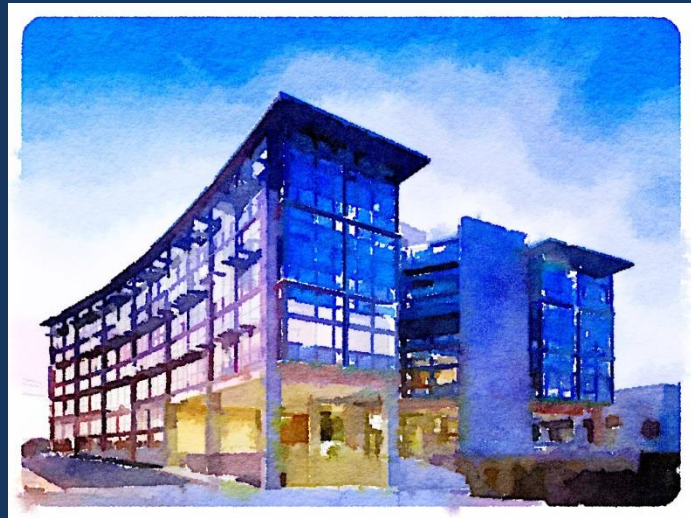
99% Strongly agree/agree that the content was relevant

- ✓ Very practical, great excise on differential diagnosis, plan, and people skills.
- ✓ Very relevant, high yield information, real life scenarios.
- ✓ Fantastic practice and application to real life situation
- ✓ This was by far the best simulation I have ever participated in and it was because of the instructor. He was fantastic and explained everything very well.
- ✓ This emphasized social issues surrounding acute care situations. I haven't gotten this training anywhere else, and it strikes me as very important. I'm glad we got this opportunity!
- ✓ I learned that it is a physician's responsibility to take an good hx and exam so that you don't miss anything, rather than just assuming a dx because "you've seen these symptoms a 1000 times before."

The Road Ahead

Excellent Quality Medical Student Education

- Adding to current MS course scenario library
- Adding 8 hours of inter-professional team training MS 1 per student
- Adding 8 hours of inter-professional team training MS 2 per student
- Currently working on submitting for Macy Foundation grant for Inter-professional/interschool Simulation in September 2014



Integrate Simulation Services across UCI Health

- We continue to work toward a sustainable presence at UCIMC
- Quarterly UCI Simulation Committee Meetings
- Increase the scope and distribution and usage of Simulation Sharepoint and newsletter
- Emergency Medicine Simulation Fellow July – June
- Anesthesia Simulation Fellow, from France, July – June
- Creating webinars for all simulation instructors/stakeholders

Research

- Submitting for AHRQ grant for tele-simulation in September 2014
- Submitting full-proposals for Macy Foundation Board Grant
- Submitting full-proposals for UCOP Grant
- Will be attending the 1st UC Simulation Consortium in September. We will be hosting the 2nd one. This consortium will be used to establish a collaborative UC simulation mindset that fosters UC-system research

Center Establishment

- Re-Endorsement of American Society of Anesthesia (ASA) Maintenance of Certification in Anesthesia (MOCA)
- Society for Simulation in Healthcare Accreditation

Increase Revenue and/or Decrease Costs (Ideas/plans)

- Increase rates on American Heart Association (AHA) BLS, ACLS, and PALS to meet current area market rate
- Change the labels and add a third registration option for the simulation Instructor Training Course = UCI affiliated (non-MESC instructor)
- Increase the simulation instructor course affiliated (internal rate) by \$100.00
- Increase marketing of CME courses
- Seek to decrease expense line items by 3-5% over the course of the year (10% over 3 years)
- Not all staff participate in IMSH 2015
- Seek Grant monies
- Seek out free equipment from vendors

Appendix A



UNIVERSITY OF CALIFORNIA IRVINE
MEDICAL EDUCATION SIMULATION CENTER
STRATEGIC PLAN

MISSION STATEMENT



To provide state-of-the-art health care education and research using simulation technology to promote superior clinical care and patient safety by delivering quality immersive education to healthcare professionals and the community

STAKEHOLDERS

1. Dean SOM/Administration
2. Medical Faculty
3. Nursing Faculty
4. Community
5. GME
6. Equipment Manufacturers
7. Industry
8. Dept. Chairs
9. UCIMC representatives
10. Students

Core Goal #1

Integrated Health Education through Simulation

OBJECTIVES

Discover

Identify and test innovative opportunities to teach inter-professional education

Teach

Strengthen educational impact of simulation through inter-professional education

Heal

Increase patient/staff safety; decrease medical errors across institution

STRATEGIC INITIATIVES AND ACTION STEPS^v

1.1 Integrate Medical Student/Nursing Curriculum to include inter-professional training

- 1.1.1 Obtain medical curriculum
- 1.1.2 Obtain Nursing School curriculum
- 1.1.3 Examine current curriculum to find common crosswalk
- 1.1.4 Determine topics for interdisciplinary simulation
- 1.1.5 Determine if other programs can be integrated during this process
- 1.1.6 Set up meeting to establish design team
- 1.1.7 Design interdisciplinary training
- 1.1.8 Schedule interdisciplinary training
- 1.1.9 Pilot
- 1.1.10 Implement interdisciplinary training with evaluation

^v = Completed

- 1.1.11 After action review (AAR)
- 1.1.12 Re-engage for next year/month session

1.2 Increase the exposure of medical simulation in the School of Nursing

- 1.2.1 Set up a meeting to discuss medical simulation
- 1.2.2 Review nursing curriculum
- 1.2.3 Have a meeting to discuss current practice and/or potential gaps in education at the School of Nursing
- 1.2.4 Have a meeting with the School of Nursing Finance department to discuss sustainability
- 1.2.5 Market Simulation Center BLS to incoming 3rd-year nursing students
- 1.2.6 Help design curriculum and skills based training for School of Nursing
- 1.2.7 Schedule 2 sessions with 4th-year students (1-2 years)
- 1.2.8 Schedule at least 6 sessions with 4th-years (2-4 years)
- 1.2.9 Evaluate the program and decide if it is beneficial to add 3rd-year students to curriculum

1.3 Expose and integrate UCI basic sciences to simulation

1.3.1 Psychology

- 1.3.1.1 Invite psychology for conversation and discussion about simulation that can be integrated with psych students
- 1.3.1.2 Discuss with department liaison about which courses/topics would/can be facilitated through simulation
- 1.3.1.3 Define scenarios/situations that would facilitate psych student involvement
- 1.3.1.4 Design training
- 1.3.1.5 SME Review
- 1.3.1.6 Schedule training
- 1.3.1.7 Pilot
- 1.3.1.8 Implement interdisciplinary training with evaluation
- 1.3.1.9 After action review (AAR)

✓ = Completed

1.3.2 Public Health

- 1.3.2.1 Invite public health for conversation and discussion about simulation that can be integrated with public students
- 1.3.2.2 Discuss with department liaison about which courses/topics would/can be facilitated through simulation
- 1.3.2.3 Define scenarios/situations that would facilitate public health student involvement
- 1.3.2.4 Design interdisciplinary training
- 1.3.2.5 SME Review
- 1.3.2.6 Schedule interdisciplinary training
- 1.3.2.7 Pilot
- 1.3.2.8 Implement interdisciplinary training with evaluation
- 1.3.2.9 After action review (AAR)

✓ = Completed

Core Goal #2

Integrated Simulation Services across UCI Health

OBJECTIVES

Discover

Discover management advantages to integration of simulation center across UCI health

Teach

Strengthen the impact of simulation education through teaching “in-situ” at UCI medical Center

Heal

Pursue initiatives that benefit UCI health practitioner, staff, and patients

STRATEGIC INITIATIVES AND ACTION STEPS

2.1 Increase the effectiveness of codes via “in-situ” simulation training

- 2.1.1 Gather data re: current situation/statistics
- 2.1.2 Establish the need for improved code effectiveness
- 2.1.3 Develop project design plan
- 2.1.4 Present project to CMO, CEO, Dean SOM, and CNO to garner support
- 2.1.5 Develop an implementation plan
- 2.1.6 Develop a training plan
- 2.1.7 Account for logistics of staff
- 2.1.8 Account for equipment needs
- 2.1.9 Account for potential financial burden/prospectus
- 2.1.10 Loop in chief administrative office (MedEd)
- 2.1.11 Present project to department chairs to garner support

✓ = Completed

- 2.1.12 Identify and develop a funding source
 - 2.1.13 Pilot test with evaluation
 - 2.1.14 Implementation with evaluation
 - 2.1.15 Continued data collection
 - 2.1.16 Data Trend tracking over long term
 - 2.1.17 Present results to stakeholders
- 2.2 Increase/facilitate communication with nursing and surgery simulation assets and personnel
- 2.2.1 Schedule a meeting with Surgery to discuss capabilities and assets
 - 2.2.2 Schedule a meeting with Nursing simulation center to discuss capabilities and assets
 - 2.2.3 Share simulation best practices with nursing and surgery centers
 - 2.2.4 Share curriculum across nursing and surgery as necessary to meet the external need
- 2.3 Leverage research opportunities to integrate interdisciplinary simulation across UCI health
- 2.3.1 Showcase current and past research accomplished at the Simulation Center across different mediums
 - 2.3.2 Showcase current and past publications that were accomplished and/or coordinated through the simulation center across different mediums
 - 2.3.3 Talk to various department heads concerning the simulation center capabilities and highlights
 - 2.3.4 Invite department heads/department researchers to the simulation center for tour and discussion

✓ = Completed

Core Goal #3

World Leader in Technological Simulation Innovation and Research

OBJECTIVES

Discover

Advance institutional medical research through medical simulation

Teach

Increase technology accessibility worldwide

Heal

Seek emerging technological equipment/best practices

STRATEGIC INITIATIVES AND ACTION STEPS

3.1 End User/Industry Research Infrastructure

- 3.1.1 Start utilizing UC Irvine's Electronic Educational Environment to track surveys, pre-tests, and post-tests
- 3.1.2 Start utilizing current iPad technologies to current medical students
- 3.1.3 Start to utilize the iPad for pre-tests in simulation course
- 3.1.4 Start to use post-tests in simulation courses
- 3.1.5 Gather data from external and internal resources
- 3.1.6 Develop a project design Plan
- 3.1.7 Draft a strategy to account for all major stakeholders that will need to take part in the designing of the infrastructure
- 3.1.8 Draft a source document

✓ = Completed

- 3.1.9 Draft Center policy on research credit given to simulation center
- 3.1.10 Send to stakeholders for input
- 3.1.11 Make revisions
- 3.1.12 Send to stakeholders for final audit
- 3.1.13 Publish to Simulation files for industry and research potential clients

3.2 Telemedicine Presence

- 3.2.1 Start utilizing current iPad technologies to current medical students
- 3.2.2 Start to utilize the iPad for pre-tests in simulation course
- 3.2.3 Start to use post-tests in simulation courses
- 3.2.4 Set-up meeting with Dr. Wiechman/HS/other key stakeholders to discuss way to implement telemedicine modules
- 3.2.5 Determine the rationale for Prop1D funding
- 3.2.6 Discuss with other UC schools their uses of Prop1D funding to gain insight how Prop1D is being used throughout the university system.
- 3.2.7 Discuss present telemedicine practices internally and externally
- 3.2.8 Determine the best way to integrate telemedicine in current medical student curriculum schedule
- 3.2.9 Develop case studies to present with a group of students or providers and use A/V technology to present from a different location.

3.3 Virtual Medical simulation

- 3.3.1 Contact computer science/engineering
- 3.3.2 Establish a meeting about creating a virtual environment
- 3.3.3 Decide on what topics/simulations we want to showcase
- 3.3.4 Establish feasibility of creating virtual encounters and what medium

v = Completed



Cameron Ricks, MD

Director
Medical Education Simulation Center

Suzanne Strom, MD

Associate Director
Medical Education Simulation Center

Keith A. Beaulieu, MBA, BS, BA

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