

Clinical Simulation Center

Patient Safety Starts Here
2017 Year in Review



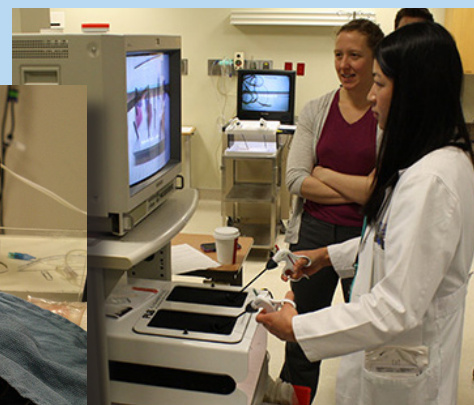
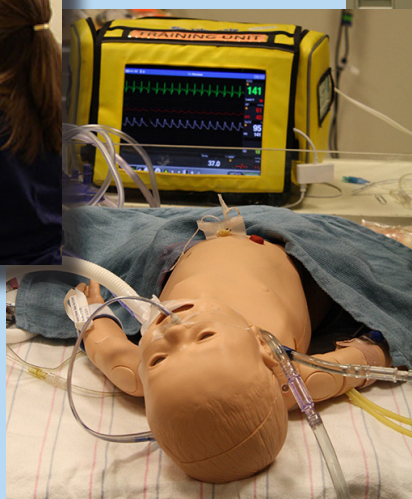
PennState Health
Milton S. Hershey Medical Center



PennState
College of Medicine

Our Mission

The mission of the Penn State Hershey Clinical Simulation Center is to improve patient outcomes with effective programs that promote and enhance practitioner skills, clinical competence, teamwork, and interdisciplinary collaboration. To advance the field of healthcare simulation, the Center conducts innovative research into simulation theory, practice, and technology.



Message from the Director



Hola, Amigos!

"Act as if what you do makes a difference. It does."
~ William James

Partnering with the Children's Miracle Network, the RSTC has provided over 70 CPR in Schools manikin kits to support CPR training in schools. The Sim Center

also worked with Trauma Services to provide "Stop the Bleed" training to nearly 200 State Police cadets on the front line helping trauma victims with life-threatening hemorrhage.

Before Angel Diaz Sanchez moved on to residency training, he translated our outstanding Simulation Instructor Course into Spanish and we helped a school in Santiago, Chile, deliver the course for simulation instructors from all over Latin America. This robust community shares our philosophy of working with educators in a process of continual improvement.

"No good deed goes unpunished" ~ Clare Boothe Luce

This year, Sim Center utilization has leveled off, indicating we have reached full usage capacity. The Center is always busy and Sim Center staff work hard to help all the faculty to access our shared resources. Plans for expansion with the new Innovation Pavilion have begun, and several near-term solutions have been proposed. Thanks for your

flexibility and patience as we make improvements.

"If you're not moving forward, you're falling back" ~ Sam Waterson

New equipment, new ideas, and new partnerships keep us on the cutting edge of simulation. A new room built to mimic the special pathogens ICU room will be added in 2018, giving us new opportunities for ICU training, including the eICU interface. A fabulous new AV system will come online to markedly enhance our recording capabilities. Other innovations include enhanced support for simulation research, integration of the RSTC across all resuscitation training, and consistently connecting our safety programs with patient outcomes to calibrate the return on expectations of our programs.

As we start 2018, one of our Simulation Fellows, Dr. Lidys Rivera, with mentorship by Dr. Hector Lopez, started a program for Latin American physicians living in our area. These experts add diversity to our Standardized Patient pool and the program gives these often-underemployed physicians an opportunity to expand their opportunities in healthcare.

Hasta el año que viene!

Elizabeth H. Sinz, MD, MEd, FCCM, FSSH

Associate Dean of Clinical Simulation

Director of Patient Safety Simulation

Professor of Anesthesiology and Neurosurgery

Penn State College of Medicine

Education



During 2017, 120 unique course titles were supported or presented by the Clinical Simulation Center. The Center maintains about 150 courses in its course catalog, impacting the entire range of healthcare education on the Penn State Hershey Campus.

Among the course highlights in 2017:

- Neonatal ECMO program expanded to include transport simulations
- Acute Therapies including PT and OT expanded their time in the simulation-based training
- The Central Venous Access Course, started in 2013, has been conducted 45 times with 512 participants and 60 faculty
- Internal Medicine expanded their simulation offerings with assistance from the Simulation Fellows
- CRNA education added new programs including a special daylong conference program
- Anesthesia Technicians returned to the simulation center for a special conference program
- Stop the Bleed, a national course presented locally by Trauma Services with the Simulation Center, trained Pennsylvania State Police cadets how to stop life threatening bleeding



“Thank you so much for all you and your staff did for our students. The demonstrations, explanations, and hands on experiences were invaluable. The Simulation Center went above and beyond in every way.”

Simulation Center user

“Thank you for your prompt response to an unconscious and pulseless patient in the parking lot at IM West. Your efforts were heroic and comforting for the family. The entire staff, MOA’s too, responded so quickly, per the First Four Minutes simulation training. The front desk immediately placed the call for help. Thank you for your efforts.”

Nurse Educator who conducted simulation training at the location prior to this event



NICU ECMO Expands Program with Transport Simulations

The NICU simulation program conducted a series of patient transport simulations this past year. In preparation for the NICU’s move to new space in the Children’s Hospital, an increase in the number of beds, and in anticipation of

needing to transport patients for diagnostic and interventional procedures, the NICU simulation and education team conducted simulations to both train staff and to develop processes and protocols to guide future transports.



Research, Publications, and Presentations



Faculty and staff affiliated with the Penn State Hershey Clinical Simulation Center had 12 peer-reviewed publications during 2017. Other academic output from the Center included 16 conference presentations, 6 poster presentations, one webinar, and one book chapter.

Among the major publications were:

- Weinger MD, Banerjee A, Burden AR, McIvor WR, Boulet J, Cooper JB, Steadman R, Shotwell MS, Slagle JM, DeMaria S Jr, Torsher L, Sinz E, Levine AI, Rask J, Davis F, Park C, Gaba DM. Simulation-based assessment of the management of critical events by board-certified anesthesiologists. *Anesthesiology*. 2017; 127(3): 475-489.
- Gyory R, Buchle SE, Rodgers DL, & Lubin JS. The efficacy of LUCAS in prehospital cardiac arrest scenarios: A crossover mannequin study. *Western Journal of Emergency Medicine*. 2017; 18(3): 437-445.
- Mooney JJ, Sarwani N, Coleman ML, & Fotos JS. Evaluation of three-dimensional printed materials for simulation by computed tomography and ultrasound imaging. *Simulation in Healthcare*. 2017; 12(3): 182-188.
- Homcha BE, Mets EJ, Goldenberg MDF, Kong L, Vaida SJ. Development and assessment of pictorial guide for improved accuracy of visual blood loss estimation in Cesarean delivery. *Simulation in Healthcare*. 2017; 12(5): 314-318.

Cumulative Academic Output Since 1993

Publications

Books and Book Chapters	14
Peer-reviewed Journal Articles	134
Peer-reviewed Journal Abstracts	22
Peer-reviewed Journal Editorials	1
Peer-reviewed Journal Letters	2
MedEd Portal	11
Other Publications	4

Presentations

Conference Presentations	139
Conference Posters	105
External Grand Rounds	8
Webinars	2

Posters and presentations were made at national and international conferences during the year. Among the major conferences the Clinical Simulation Center and Penn State simulation faculty presented at were:

- International Meeting on Simulation in Healthcare (Orlando, FL)
- International Pediatric Simulation Symposia and Workshops (Boston, MA)
- Congreso Latinoamericano de Simulación Clínica (Buenos Aires, Argentina)
- Association of Standardized Patient Educators Annual Conference (Alexandria, VA)
- American Association for Respiratory Care Annual Conference (Indianapolis, IN)
- Medicine X (Stanford University, CA)



Simulation Education and Research Fellowship



The Simulation Education and Research Fellowship has continued to expand with a third Fellow joining Lidys Rivera, MD, and Hector Lopez, MD.

Nataliya Bilger, MD – Dr. Bilger was trained in Ukraine, first as a nurse then as a physician. She practiced as an ENT surgeon before immigrating to the United States. Dr. Bilger enrolled in the Fellowship to learn more about simulation-based education and to refresh her knowledge and skills prior to beginning the US physician licensure process.

During 2018, the Center expects to add at least two additional Fellows. The program has been successful teaching fellows simulation-based education methodologies and practices while also engaging in simulation research.

Resuscitation Sciences Training Center



The Resuscitation Sciences Training Center (RSTC) increased the number of American Heart Association cards issued for the sixth year in a row. In 2017, 7,390 learners received AHA training through the RSTC.

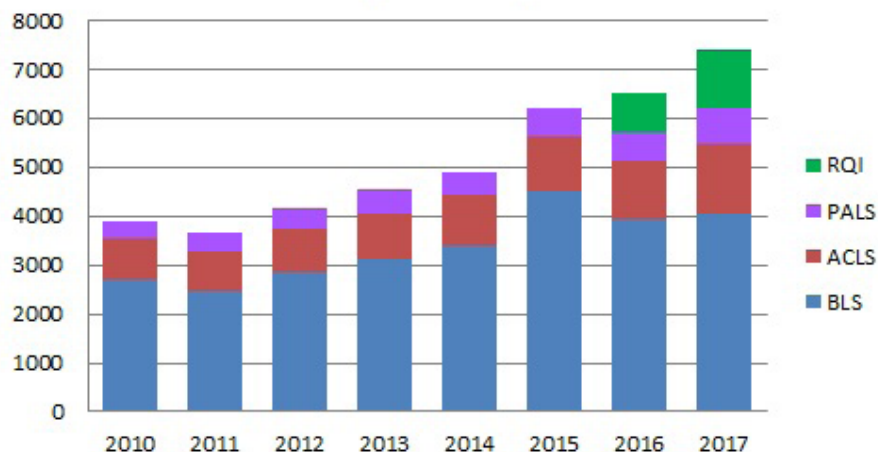
The training numbers included:

- 4,039 in Basic Life Support (BLS)
- 1,418 in Advanced Cardiovascular Life Support (ACLS)
- 733 in Pediatric Advanced Life Support (PALS)
- 1,200 enrolled in Resuscitation Quality Improvement (RQI) Program

223 AHA instructors maintain their certification through the RSTC. This includes:

- 153 BLS Instructors
- 81 ACLS Instructors
- 49 PALS Instructors

**Number of RSTC AHA Cards Issued
(All Sites)**



There have been six years of steady growth in the number of people engaged with RSTC programs through the Penn State Health Milton S. Hershey Medical Center. 2017 saw the addition of Penn State Health St. Joseph to the RSTC as this portion of the Penn State Health system transferred instructors and activity to RSTC management. In 2017, St. Joseph accounted for 712 American Heart Association training participants in the overall RSTC total activity report.

Resuscitation Quality Improvement (RQI) Enrollment over 1,000

Since starting in January 2016, the American Heart Association (AHA) Resuscitation Quality Improvement (RQI) has expanded to over 1,200 enrolled staff from 12 units. RQI allows healthcare providers to maintain their AHA CPR certification by doing very short (10 minute) interactions with the RQI manikins every three months rather than attending a four-hour course every two years. This method of low-dose/high-frequency interactions decreases skill degradation, making for a more



prepared provider in resuscitation emergencies. The mobile RQI cart features adult and infant manikins for chest compression and ventilation practice.

In 2017, the AHA introduced a new data analysis tool that allows the RSTC to evaluate CPR proficiency across units. This feature will aid in targeting units that need additional CPR training support and improve response capabilities.

CPR in Schools Expands to More Schools with Grant Support

The CPR in Schools (CiS) Program added several new schools and expanded capabilities at several others. CiS offers a low-cost method of teaching CPR to school students. Each CiS kit comes with 10 manikins, an instructional DVD, and all teaching materials.

The program coordinated by the RSTC has received funding from The Children's Miracle Network, the I.O. Silver Foundation, and a Community Health grant.

Now in its third year, the RTSC's CiS program has placed kits in 44 schools. The program will continue to grow in 2018 with a new batch of kits being distributed.



A school representative wheels two CPR in Schools Kits away after attending training and presentation of the kits in 2017.



American
Heart
Association®

AUTHORIZED
TRAINING
C E N T E R

Standardized Patient Program



The Standardized Patient (SP) Program has expanded into many areas of simulation activities supporting a diverse range of courses including medical student education, physician residency programs, nursing, and other areas of healthcare education. In 2017, 402 SP sessions were conducted with SPs conducting 4,865 hours of simulations.

Over 110 people are in the current SP pool, which has seen increased diversification to include a wide range of ages, ethnicities, and languages.

Moulage and Make-up Make for Realistic Injuries with SPs



Just like acting in a movie or play, make-up and moulage play an important role in creating realism with the Standardized Patients. Burns, bruises, and even wounds that are actively bleeding can all be crafted. The Clinical Simulation Center's technical staff along with several SPs with theater experience make an art of make-up design creating realistic presentations for learners.



SPs Play Roles in Wilderness Emergencies Course

A bear mauling and a hunter falling from a tree stand were just two of the scenarios Emergency Medicine and Family Medicine residents faced in a wilderness medicine course presented by the Department of Emergency Medicine. Standardized Patients portrayed these patients, complete with detailed moulage of their injuries.

Conducted at an area Boy Scout camp, the experience presented residents with the challenge of doing medical care with minimal resources. The course taught principles such as field triage, improvisation of tools such as splints, and transporting a patient across terrain. This course is just one example of innovative ways faculty and simulation instructors have discovered for using SPs and other simulators to meet their educational goals.



Community Service and Outreach



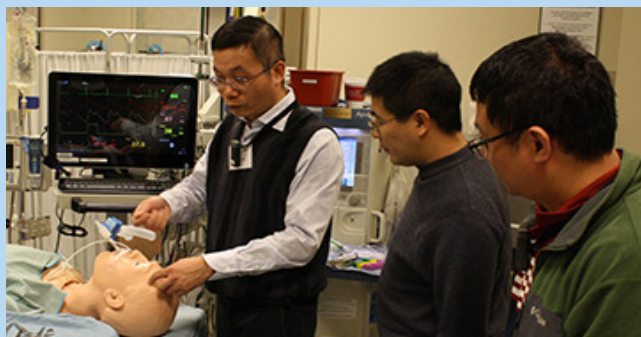
The Clinical Simulation Center remained active with community and outreach programs. The Center has a long history of working with area school districts and colleges to help students prepare for health careers. The Center is also active working with community groups to help educate members on many aspects of health care. One program the Center supports is Project Medical Education, which puts legislators and their staff through a one-day program on medical education.

At left, State Representative Patty Kim performs CPR on the RQI system during her visit to the medical center.

International Participation in Hershey Simulation Courses

The Clinical Simulation Centers draws learners from around the world. In 2017, the Center hosted a three-day simulation-based education program for visiting anesthesiologists from China. This custom course was the first exposure to simulation for many of the physicians (at right are photos from that course).

The Center's Simulation Instructor course also has a world-wide draw. This year the course included one nurse from South Korea who came to Hershey to learn about simulation in order to help her nursing school use simulation to improve student outcomes.



State Police Cadets Participate in Stop the Bleed Course

Pennsylvania State Police cadets participated in a mock mass casualty event in the Clinical Simulation Center as part of the *Stop the Bleed* program. Coordinated and conducted by Trauma Services, *Stop the Bleed* is a nationally recognized course from the US Department of Homeland Security that gives first responders essential tools and skills to stop life threatening bleeding.

Two course sessions were held in 2017, each with over 90 cadets. After completing the course, they put their new skills into action treating Standardized Patients and manikins that presented with massive bleeding.



Highlights



2017 saw three veteran staff retire: Simulation Educator Sally Rudy helped to build the Simulation Instructor Course to become one of the “best faculty development programs” in the country; Scheduler Bev Whitman initiated the rotating art exhibits in 2010, including the Center’s annual high school student art show; and RSTC Program Manager Tammy Bortner integrated the Resuscitation Science Training Center with the Clinical Simulation Center into an impactful partnership.

Several new staff were brought into the Center or promoted, including: RSTC Program Manager Franklin Banfer, RSTC Administrative Secretary Wendy Giulivo, Simulation Educator Terry Brosche, Education Program Associate Jessica Culver, and SP Program Coordinator Jenifer Benovy.

Gift Shop Funds New Equipment for Simulation Program



The Volunteer Office funded the Clinical Simulation Center with a \$45,500 donation in 2017, made possible from proceeds from the medical center’s Gift Shops. The Volunteer group has been an active supporter of the simulation program in previous years. The Center has been fortunate to be the beneficiary of funding donations from several area organizations and foundations.

At left, Vicki Miller, Gift Shop/Penn State Store coordinator, and Simulation Center manager David Rodgers hold the ceremonial check representing the Volunteers’ donation to the simulation program.

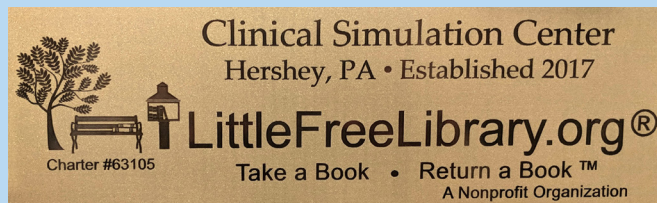
Simulation Center Goes International: Santiago, Chile

The Clinical Simulation Center conducted its first international course in May, 2017, with a four-day course in Santiago, Chile. Twenty participants from Chile, Argentina, Uruguay, Bolivia, and Costa Rica attended the course held at the Universidad Finis Terrae. Penn State Hershey simulation instructors included director Lisa Sinz, manager David Rodgers, Dr. Hector Lopez, Dr. Cassie Sonntag, and Dr. Angel Diaz Sanchez.



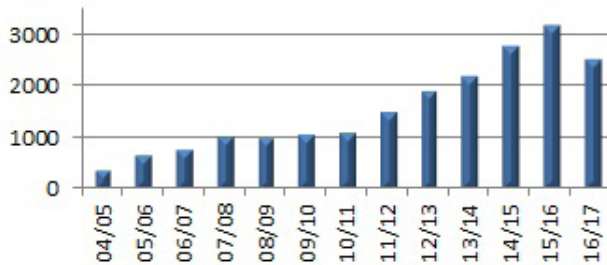
Recognitions and Milestones

- Simulation Educator Theresa Brosche, MSN, BSN, RN, CCRN-K, CHSE earned the credential of Certified Healthcare Simulation Educators (CHSE). Also in 2017, she achieved Bronze Level Certification in the Kirkpatrick Four-Levels Evaluation Certification Program
- Manager David Rodgers, EdD, EMT-P, NRP, FAHA was awarded the Best Oral Abstract Presentation at the International Pediatric Simulation Society Symposia and Workshops in Boston. Dr. Rodgers was also an invited lecturer at Dartmouth-Hitchcock Medical Center in 2017.
- SP Program Manager Stacey Carmo, BSN, RN, was featured in the local monthly magazine *The Burg* in a story on Standardized Patients.
- Director Elizabeth Sinz, MD, MEd, FCCM, FSSH was the keynote speaker at the Congreso Latinoamericano de Simulación Clínica in Buenos Aires, Argentina.
- The first Little Free Library® in Hershey was chartered in Clinical Simulation Center.



Achieving Objectives

Simulation Sessions Per Year

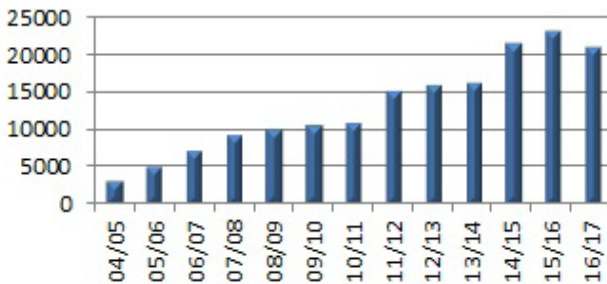


The Clinical Simulation Center supports a wide range of interprofessional and multidisciplinary simulation-based education and training opportunities to learners from throughout the Penn State Hershey community. 120 unique course titles were conducted in the Center in Fiscal Year 2017.

Fiscal Year 2017 statistics:

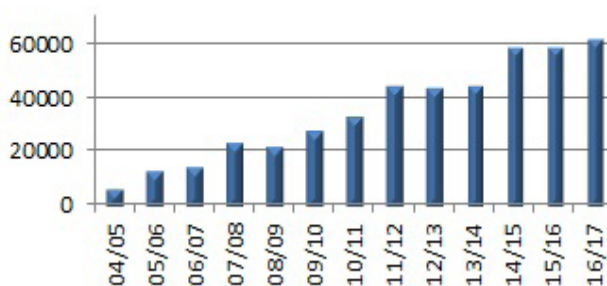
- 2,552 Sessions
- 20,921 Learners
- 62,141 Contact Hours

Learners Per Fiscal Year

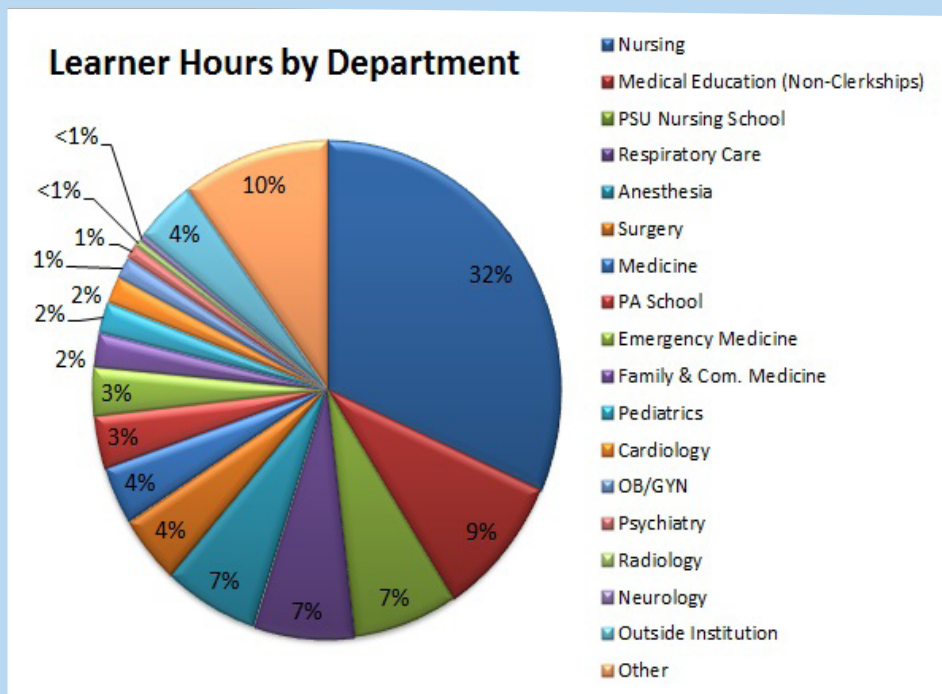
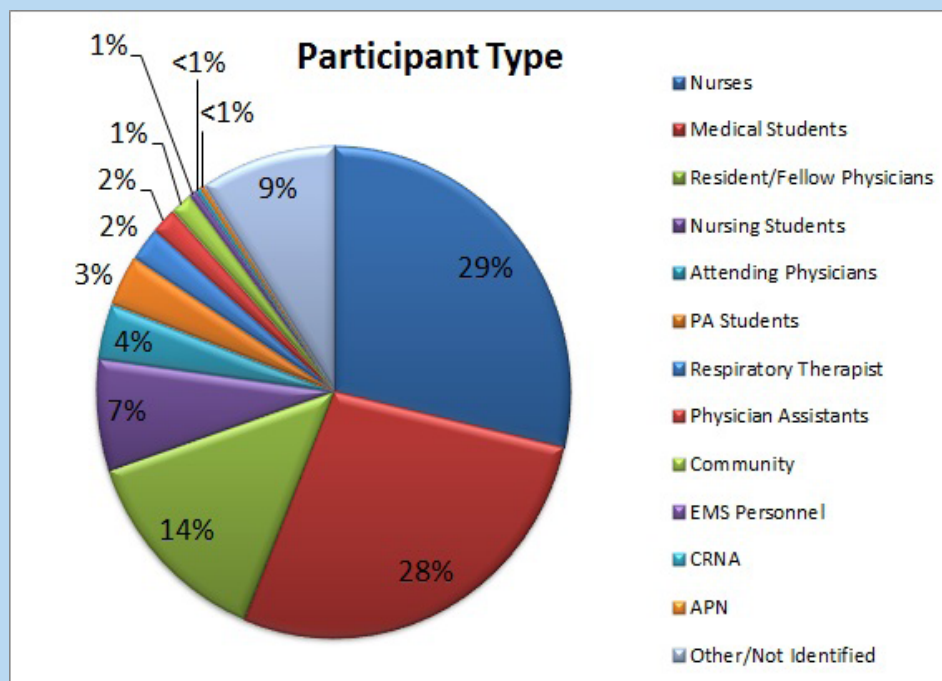


The total number of Center room hours dedicated to simulation-based education was 24,246.

Learner Hours Per Fiscal Year



After more than a decade of continuous growth in all reporting metrics, 2017 saw a change in Center activity with the number of sessions and learners decreasing while length of sessions and room hours increased. This is indicative of longer sessions and also represents the Center nearing its maximum physical capacity. The Center is proactively managing these new challenges to find ways to continue to provide the highest level of services to its users.



Staff



Elizabeth Sinz, MD, MEd, FCCM FSSH - Director
 David Rodgers, EdD, EMT-P, NRP, FAHA – Manager
 W. Bosseau Murray MBChB MD, – Research Director
 Theresa Brosche, MSN, BSN, RN, CCRN-K, CHSE –
 Simulation Educator
 Jody Wood, BS – Simulation Technologist
 Lisa Mackley, AS – Simulation Technologist
 Hans Hinssen, Dipl.Ing. CHSOS – Simulation Technologist
 Kevin Thompson, MS – Simulation Technologist
 Jessica Culver, MS – Education Program Associate
 Franklin Banfer, Esq, BSN, RN, CEN, PHRN, NRP –
 RSTC Program Manager
 Wendy Giulivo – RSTC Administrative Secretary
 Ann Marie Schupper – RSTC Staff Assistant
 Holly Ray, RN – ACLS/BLS Coordinator
 Emily Scicchitano, RRT-NPS, CPFT – PALS Coordinator
 Stacey Carmo, BSN, RN – SP Program Manager
 Jenifer Benovy, BS – SP Program Coordinator

Simulation Education and Research Fellows:
 Hector Lopez, MD, Lidys Rivera, MD, Nataliya Bilger, MD

Part-time Simulation Technicians:
 Gowri Reddy Eva Lynch, BSN, RN
 Lee Phillips Michael Glass, BS

Contact Information

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The Center is located on the second floor of the Penn State College of Medicine building, directly above the George T. Harrell Library.

To explore opportunities to support the Clinical Simulation Center, contact the University Development office at 717-531-8497 or email to giving@hmc.psu.edu.

The Clinical Simulation Center offers external consultation services and educational programming performed at the client's location. See our web site for more information.

