

# Clinical Simulation Center

*Patient Safety Starts Here*  
2019 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*



This year we have focused on creative approaches to optimize efficiency and focus on mission-driven programs. Your entire simulation staff has developed and implemented strategies that include increased support for in situ simulations, courses during evenings

and weekends, and more part-time staff to support sessions. We are working hard to provide the high level of support faculty deserve when they use simulation for clinical education!

If you are standing still, you are falling behind.....

### *New Hospital Programs Improve Patient Care and Experience*

The Standardized Patient program has really been resourceful! Innovative programs added in 2019 included an Escape Room styled experience to practice the care of patients with sepsis. The time-sensitivity of performing every step of the pathway is reinforced by a game-oriented approach. Hospital staff improved their skills with the Patient Experience and de-escalating dangerous behavior in a safe simulated environment. In addition, Theater for Medicine was launched as a partnership with Penn State Harrisburg.

### *Successful Research Partnership*

The research partnership between the Hershey Medical Center and the Penn State College of

Engineering continues with another NIH-funded grant to support work on feedback devices for procedural skills training. The next study will focus on integration of the training device into a curriculum and the impact this type of training has on patients.

### *College of Medicine Expanding Simulation-based Teaching and Testing*

We are implementing a creative plan to provide the space needed for OSCEs for the College of Medicine. Classrooms in the BMR building were wired for audio-visual inputs and new equipment was installed. Early in 2020, upgrades will be completed to support a wide array of uses, making those locations extremely versatile for medical student and physician assistant student education.

Simulation Center experts have extensive experience combining multiple modalities to achieve specific learning objectives. Our Simulation Instructor Course is a model for other centers and serves faculty at Penn State Hershey and elsewhere who want to improve their teaching skills. Please let us know how we can help you meet your educational goals!

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

Associate Dean of Clinical Simulation  
Director, Clinical Simulation Center  
Medical Director, Medical Emergency Team  
Professor of Anesthesiology and Neurosurgery  
Penn State College of Medicine



# Education



During 2019, 146 unique course titles were supported or presented by the Clinical Simulation Center. The Center maintains about 160 courses in its course catalog, impacting the entire range of healthcare education on the Penn State Hershey Campus.

Among the course highlights in 2019:

- Nursing Leadership Patient Experience
- Behavioral De-escalation Response Team (BDRT)
- Theater for Medicine (PSU-Harrisburg)
- Sepsis Escape Room for Emergency Department
- Acute Care Therapies - Tubes, Lines, & Drains
- New NAEMT programs launched:
  - Pre-hospital Trauma Life Support
  - Advanced Medical Life Support
- Expansion of two ENA courses:
  - Trauma Nurse Core Course
  - Emergency Nursing Pediatric Course
- Expansion of ACLS for the Experienced Provider



“People come back from these sims very happy. They are more confident to care for patients in these high stress situations.”

*ECMO simulation planning meeting member*





“Best ACLS class I have ever taken.”

“For the first time, I really feel I know ACLS.”

The atmosphere is great - really helps us learn.”

*Comments from Resuscitation Sciences  
Training Center life support course  
participants*



## Escape Room: New Program to Enhance Sepsis Education

The sepsis escape room rolled out in 2019 spearheaded by Linda Gangai, MSN, RN, Program Manager Quality Improvement Department of Emergency Medicine and Kimberly Allen, Quality Improvement Advisor. The escape room was designed to increase awareness and knowledge of CMS Sepsis Guidelines and enhance inter-professional collaboration between departments working with the emergency room. Standardized patients added to the fidelity of the simulation. The outcome was successful, leading to a poster presentation, marketing video, and an increased awareness of the sepsis bundle. Future goals include training additional ED staff to increased knowledge of sepsis and improve compliance of the sepsis bundle.



Above, escape room participants interact with two SPs as they get information that will unlock their next clue.



## Research, Publications, and Presentations



Faculty and staff affiliated with the Penn State Hershey Clinical Simulation Center had 11 peer-reviewed publications during 2019. Other academic output from the Center included 9 conference presentations, 3 poster presentations, and 2 published abstracts.

Among the publications were:

- Ambardekar AP, Black S, Singh D, Lockman JL, Simpao AF, Schwartz AJ, Hales RL, Rodgers DL, Gurnaney HG. The impact of simulation-based medical education on resident management of emergencies in pediatric anesthesiology. *Pediatr Anesth*.
- Johnston L, Sawyer T, Nishisaki A, Whitfill T, Ades A, French H, Glass K, Dadiz R, Bruno C, Levit O, Gangadharan S, Scherzer D, Moussa A, Auerbach M. Neonatal Intubation Competency Assessment Tool: Development and Validation. *Acad Pediatr*.
- Kumar D, Vachharajani AJ, Wertheimer F, Vergales B, Glass K, Dannaway D, Winter L, Delaney H, Ganster A, Arnold J, Urban A, Johnston L, Bruno C, Gray MM, Sawyer T. Boot camps in neonatal-perinatal medicine fellowship programs: A national survey. *J Neonatal Perinatal Med*.
- Karpa K, Graveno M, Brightbill M, Fox G, Kelly S, Lehman E, Salvadia A, Shaw T, Smith D, Walko M, Sherwood L. Geriatric assessment in a primary care environment: a standardized patient case activity for interprofessional students. *MedEdPORTAL*.

### Cumulative Academic Output Since 1993

#### *Publications*

Books and Book Chapters	15
Peer-reviewed Journal Articles	159
Peer-reviewed Journal Abstracts	27
Peer-reviewed Journal Editorials	1
Peer-reviewed Journal Letters	2
MedEd Portal	16
Other Publications	4

#### *Presentations*

Conference Presentations	166
Conference Posters	115
External Grand Rounds	8
Webinars	2

# Central Line Access Research Project Yields Results

The Penn State Colleges of Engineering and Medicine worked together to develop, implement, and explore the effectiveness of advanced dynamic haptic robotic training (DHRT+) for central venous catheterization (CVC) through a multi-institutional study with Cedars-Sinai Medical Center and Hershey Medical Center. The novel DHRT+ innovations allow for whole procedure training on a diversity of simulated patients, advanced adaptive feedback and assessment, and a global learning system which allows for communication between DHRT+ systems for the implementation of continual improvements.



In Hershey, Dr. David Han and a team of surgical residents have supported the project and contributed to 10 peer-reviewed publications and several conference and poster presentations. The

College of Engineering has also teamed with Dr. Sanjib Adhikary to use the ultrasound simulator to support anesthesia procedures, producing two additional peer-reviewed publications.

## Simulation Education and Research Fellowship



The Simulation Education and Research Fellowship added another new fellow to the program in 2019.

*Rafaella Fadel Friedlaender, MD* – Dr. Fadel Friedlaender is the newest simulation fellow. She was trained in Brazil and worked as a pediatric intensivist before coming to the United States.

The fellowship program now has five Simulation Education and Research Fellows enrolled. In addition to Dr. Fadel Friedlaender, continuing in the program are Nataliya Bilger, MD; Daniel Rodriguez Bauza, MD; Alexander Answine, MD; and Benjamin Semakuba, MD. 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 eighth year in a row. In 2019, 9,482 learners received AHA credential cards through the RSTC.

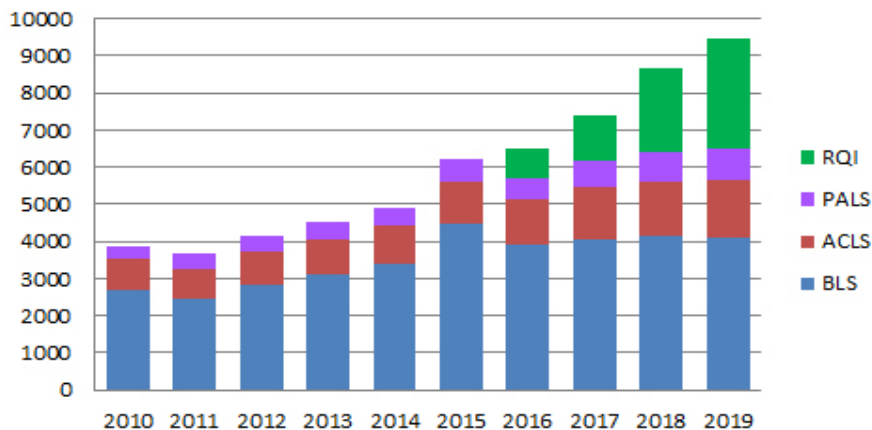
The training numbers included:

- 4,123 in Basic Life Support (BLS)
- 1,552 in Advanced Cardiovascular Life Support (ACLS)
- 807 in Pediatric Advanced Life Support (PALS)
- 3,000 enrolled in Resuscitation Quality Improvement (RQI) Program for Basic Life Support

The RSTC provides initial training and ongoing monitoring for AHA instructors in all three Emergency Cardiovascular Care disciplines, This includes:

- 186 BLS Instructors
- 89 ACLS Instructors
- 48 PALS Instructors
- 16 ACLS-EP Instructors

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



There has been continued growth in the number of people engaged with RSTC American Heart Association programs through the Penn State Health Milton S. Hershey Medical Center. In 2019, St. Joseph accounted for 591 American Heart Association training participants in credentialed courses in the overall RSTC total activity report.

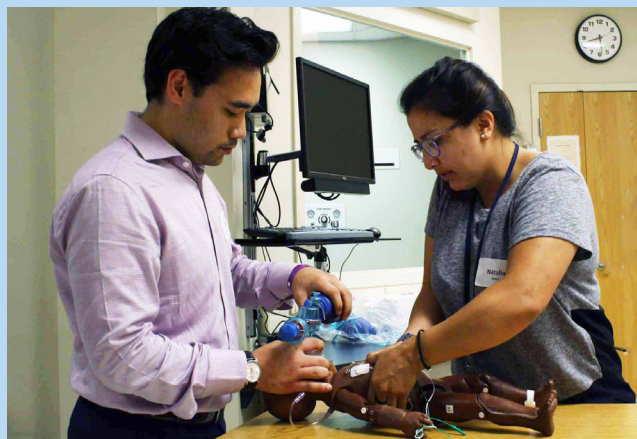
Additionally, over 1,700 people in the Hershey community received Hands Only CPR training, a 190% increase over last year's community program activity.

# RSTC Expands with New Emergency Care Courses

The Resuscitation Sciences Training Center expanded its course offerings in 2019 adding new courses from national organizations.

The RSTC expanded to provide administrative support to Emergency Nursing Association (ENA) courses, including Trauma Nursing Core Course (TNCC) and Emergency Nursing Pediatric Course (ENPC). TNCC is designed to provide nurses with basic trauma knowledge and skills for adults, whereas ENPC is designed to provide similar knowledge and skills, but for pediatrics. For its first year, TNCC had over 90 learners. And, while only being offered in December, ENPC had over 15 learners.

Also in 2019, the RSTC conducted Penn State Health's first-ever National Association of EMTs (NAEMT) courses. NAEMT is a national organization dedicated to pre-hospital professionals. Two courses were offered: Prehospital Trauma Life Support (PHTLS) and Advanced Medical Life Support (AMLS). PHTLS is the leading continuation education program for prehospital emergency trauma care and was developed in cooperation with the American College of Surgeons. AMLS is the leading course for emergency medical assessment and treatment and is endorsed by the National Association of EMS Physicians. PHTLS was attended by nine Penn State Health Life Lion employees and AMLS was attended by six prehospital providers. Additionally, the RSTC is the only entity offering these courses in central Pennsylvania and is planning to offer additional NAEMT courses in the future.



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 2019, 472 SP sessions were conducted with SPs logging 5,930 hours of simulations. Over 110 people are in the current SP pool, which continues to see an increase in diversification to include a wide range of ages, ethnicities, and languages.

## PSU Theater for Medicine Course Prepares Patient Actors

Partnering with the Penn State Harrisburg campus, the Standardized Patient Program helped launch Theater for Medicine, an undergraduate course to explore the interdisciplinary nature of arts and sciences through the intersection of theater and medicine. In its first offering, 23 students were exposed to theatre and medical processes through their research of and performance in standardized-patient medical simulations.

In addition the SP Program staff, Penn State Hershey physicians Dr. Paul Haidet and Dr. John Messmer provided content and development support to theater professor Maria Enriquez, PhD.

Students experienced topics including theater games and exercises, improvisation, building a character, and role-playing. Students also learned

about the growing field of patient simulation in medical education, became familiar with basic medical terminology, learned necessary research skills for successful completion of doctor-patient simulations, and played the role of a Standardized Patient in a medical encounter. Emphasis was placed on the concepts and practices of effective listening, interactive role-playing, collaborative problem solving, and providing effective feedback.



Above, left to right, Theater for Medicine course developers Dr. Maria Enriquez, Dr. Paul Haidet, and Dr. John Messmer.



# SP Conference Provides Continuing Education

The first SP Workshop, “Tools for the SP Toolbox,” was held on October 18, 2019, with 61 SPs attending.

Four workshops were presented:

- *Understanding the Impact of Unconscious Bias* - Lynette Chappell-Williams, J.D., Chief Diversity Officer, Penn State Health, Associate Dean for Diversity and Inclusion
- *Mindfulness* - Martha Peaslee Levine, M.D., Associate Professor of Pediatrics, Psychiatry and Humanities,
- *Acting Tips/Improv* - Maria Enriquez, MFA, PhD, Assistant Teaching Professor of Theatre, Penn State Harrisburg,
- *Written Feedback/Communication* - Susan A. Glod, MD, MEd, FACP, Interim Director, Woodward Center for Excellence in Health Sciences Education, Associate Professor of Medicine



Above, SP Program Manager Stacey Carmo welcomes SPs to the first SP Workshop. Also participating in the opening was Britta Thompson, PhD, Associate Dean for Learner Assessment and Program Evaluation.

Below, Standardized Patients gather around the Nittany Lion at the end of the program.



## Community Service and Outreach



The Clinical Simulation Center, the RSTC, and the Standardized Patient Program 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 the public on many aspects of health care.

### Project Medical Education Promotes Healthcare Understanding

Project Medical Education is an annual event provided by the Milton S. Hershey Medical Center and the Penn State College of Medicine. Legislators, legislative staff, and other government officials participate in a one-day program meant to mimic elements of a medical student's educational experience. With activities ranging from clinical education to milestone events such as the White Coat Ceremony and

Match Day, participants spent a portion of the day in the Simulation Center interacting with simulators and Standardized Patients.

The goal of the program is to give legislative officials background on the complexities of medical education including topics such as funding and the role of the government in medical education.



Pennsylvania State Rep. Sheryl Delozier said, "It's important to remember events like Project Medical Education when budget items are discussed in the legislature...Experiencing firsthand the hard work these students put in to take care of us and understanding the cost of their education is invaluable."

From left, Andrew Ramos, Meagan Sprout and Brandi Miller feel the "pulse" on the feet of a manikin in the Clinical Simulation Center during Project Medical Education.

# Simulator Poem Featured in *Wild Onions* Publication

Kelly Chambers, MSN, CRNA, from the Department of Anesthesiology and Perioperative Medicine published a poem titled *Decisions*, which focused on interactions with patient simulators, in *Wild Onions*, the Hershey campus' annual arts publication. *Wild Onions* is an annual journal of poetry, prose and visual art produced by The Doctors Kienle Center for Humanistic Medicine in the Department of Humanities.



## *Decisions*

I'm hurt  
I'm laying flat  
You're sweating  
I'm not  
It's loud and bright  
Where's my mom?  
Do I have a mom?  
Can I work tomorrow?  
Yes  
Tachycardia, Hypoxia  
Mediastinal shift  
Everyone knows what comes next

Needle decompression

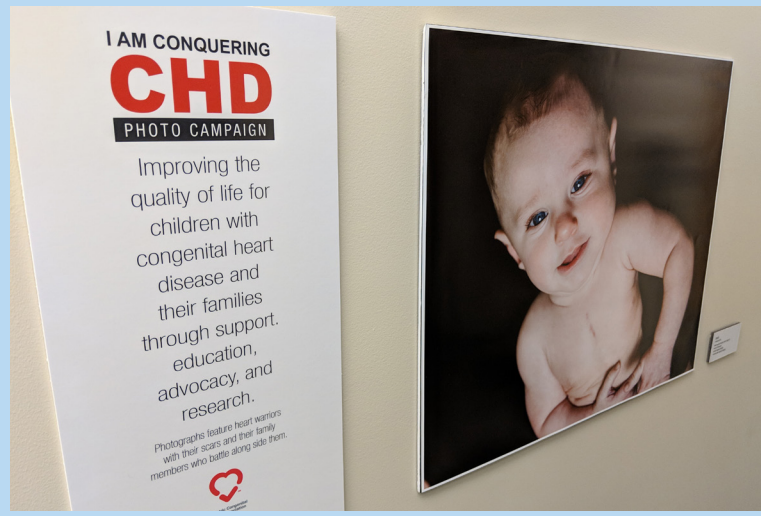
I'm improving  
You saved me  
Short lived  
Hypoxia returns  
Intubate me  
You broke my tooth  
I'm hurt  
You hurt me  
You can't save me  
Do you practice when to stop  
Does my mom, my work, my humanity  
Seep into the algorithm

No

Maybe that's how it should be  
Do the thing to save it  
Do the thing to save me  
But gently  
Save this plastic flesh  
I don't make decisions  
I'm just the simulation mannequin

## Art Gallery Host Special Events

The Clinical Simulation Center hosts various art exhibits throughout the year. In 2019, a special show featured portraits of patients and families impacted by Congenital Heart Disease.





## Highlights

### St. Joseph Opens New Simulation Facility in Reading



Penn State Health St. Joseph opened a new simulation lab on the downtown Reading Campus. With three rooms, 10 beds, and several adult, pediatric, and infant high-technology manikins, the resource is already being used as part of nursing onboarding and to support the Penn State University Berks Campus with their LPN program.

The project was supported by a gift from John Langan and Judith Nadell in honor of Mr. Langan's mother, a 1934 graduate of St. Joseph's former school of nursing.



Embracing a systems approach to simulation, the Hershey and St. Joseph simulation programs have worked together to develop education and equipment capabilities at the Reading location. Core staff at both locations have trained together while Hershey-based simulation staff also provide some equipment support.

### Support for International Medical Graduate Education

The Center continues to support a unique program to prepare International Medical Graduates for health careers in the United States. This innovative program is operated in conjunction with the Literacy Council of Lancaster/Lebanon and features simulation sessions to reinforce classroom learning.



## Recognitions and Milestones

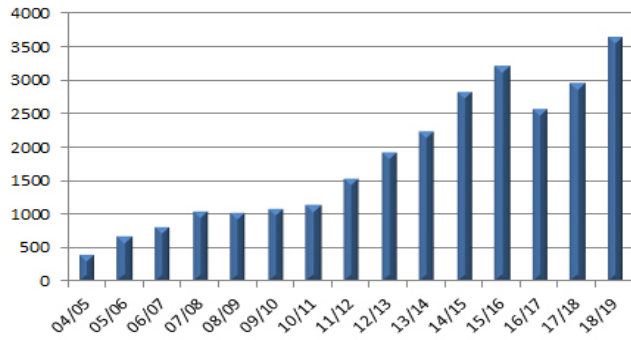
- Surgical Simulation Director Mary Catherine Santos, MD, MEd, FACS, was inducted as an Associate Member in The American College of Surgeons Academy of Master Surgeon Educators.
- At the annual EdVenture awards program several simulation faculty received awards and recognition.
  - Adrian Zurca, MD - 2019 Society of Distinguished Educators Junior Faculty Teaching Award
  - Margaret Wojnar, MD MEd, FCCM and Elizabeth B. Werley, MD - 2019 Scholarship in Education Awards
  - Paul Haidet, MD, MPH - 2019 Excellence in Career Mentoring Award Clinical Science Master Career Mentor Award
- Several faculty active in simulation received 2019 Dean's Teaching Awards, including

Dmitri Bezinover, MD	Arne Budde, MD
Brandon Smith, MD	Conrad Myler, MD
Ross Rodgers, MD	Kelly Karpa, PhD
David Chu, MD	Kristen Glass, MD
Debbi Kees-Folts, MD	Tim Palmer, MD
Kunal Karamchandani, MD	
Ariana Pichardo-Lowden, MD	
- Nursing Educator Christine Burfete, MSN, RN, received the 2019 Elizabeth Powers Carlino Nursing Excellence Scholarship Award.

- Former Simulation Fellow and Simulation Educator and current Anesthesia Resident Angel Diaz Sanchez, MD, was awarded the 2019 Resident Excellence in Teaching Award, an award driven by medical students honoring residents' teaching excellence.
- SP Program Manager Stacey Carmo and SP Patricia Myers were featured in an article published in the *Pittsburg Post-Gazette* on the use of standardized patients in medical and nursing education.
- RSTC BLS Coordinator Margie Gantz received an award for performing CPR and resuscitating a cardiac arrest patient at an area retail store.
- RSTC Instructor Paul Matter received the Outstanding Achievement Award from Life Lion Critical Care as he retired after over 30 years of aeromedical work.
- Project SEARCH is entering its 5th year with the Center's support.

# Achieving Objectives

**Simulation Sessions Per Year**

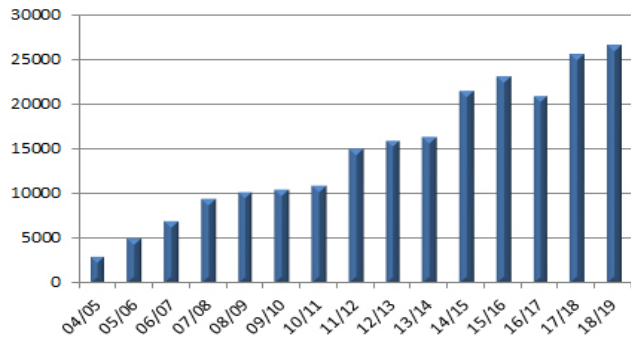


The Clinical Simulation Center supports a wide range of interprofessional and multidisciplinary simulation-based education and training opportunities to learners from throughout the Penn State Hershey community. 146 unique course titles were conducted in the Center in Fiscal Year 2019.

Fiscal Year 2019 statistics:

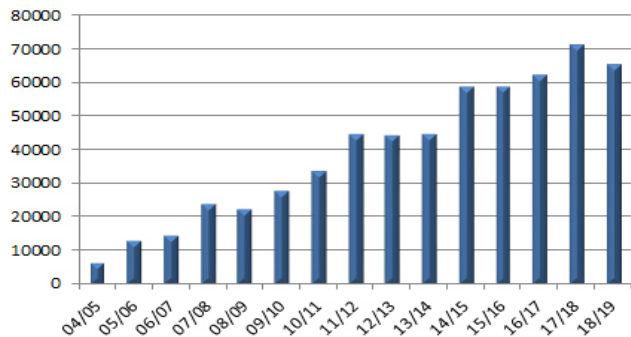
- 3,623 Sessions
- 26,619 Learners
- 65,297 Contact Hours

**Learners Per Fiscal Year**



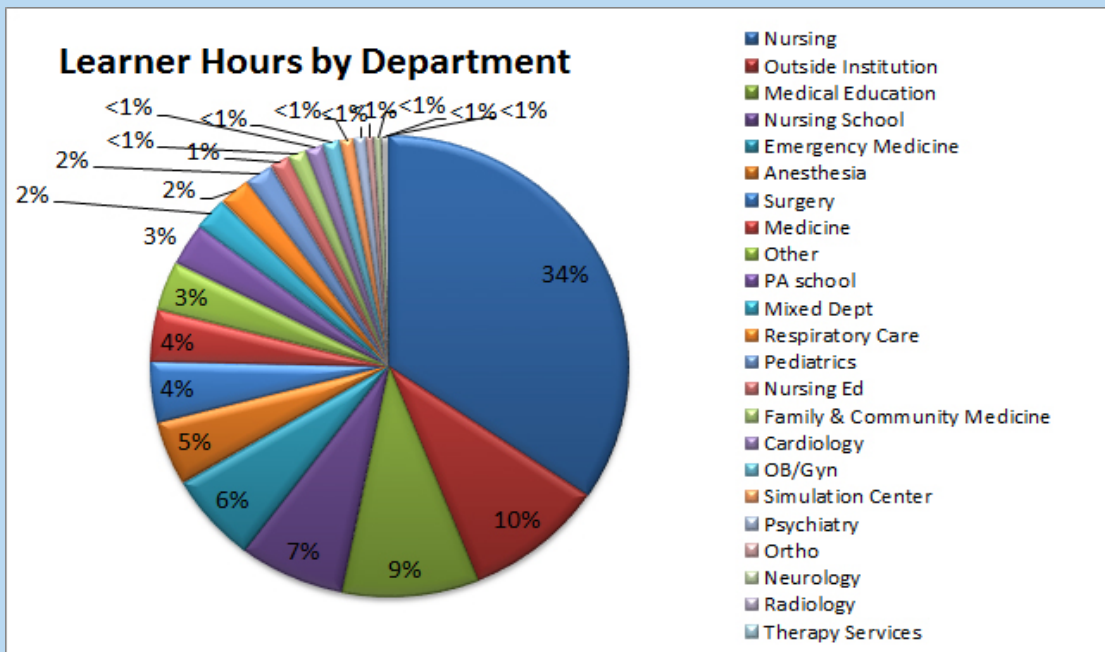
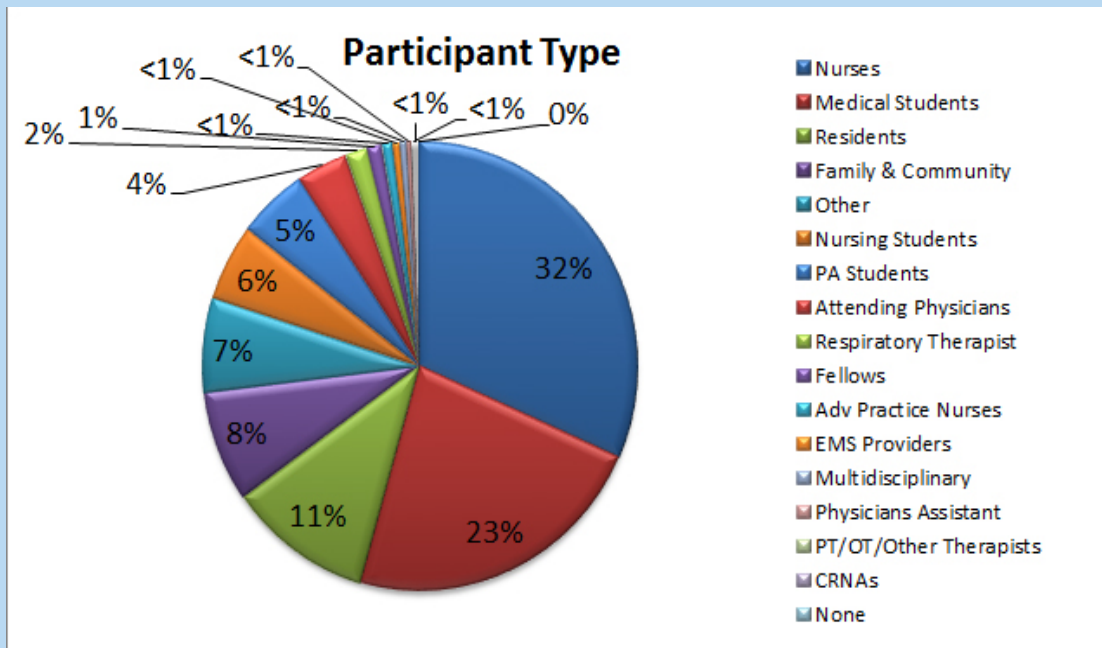
The total number of Center room hours dedicated to simulation-based education was 22,961.

**Learner Hours Per Fiscal Year**



To accommodate increasing demand for services, the Clinical Simulation Center has adopted new practices over the past year. This includes moving skills-based sessions out of the simulation center to alternative locations and increasing evening, night and weekend events. With these changes Hershey Medical Center Nursing Education and Professional Development (NEPD) was able to greatly increase simulation-based education with NEPD accounting for the largest growth activity in the center.





# Staff



Elizabeth Sinz, MD, MEd, FCCM FSSH - Director  
David Rodgers, EdD, EMT-P, NRP, FAHA – Manager  
Mary Catherine Santos, MD, MEd, FACS – Director of Surgical Simulation

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

Michael Glass, BS – 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

Anne Bonawitz – RSTC Administrative Secretary

Anne Marie Schupper – RSTC Staff Assistant

John Shellenberger, EMT-P, NRP – ACLS Coordinator

Margie Gantz, NRAEMT – BLS Coordinator

Lidys Rivera, MD – PALS Coordinator

Phil Stark, RRT – RSTC Systems Integration Coordinator

Stacey Carmo, BSN, RN – SP Program Manager

Jenifer Benovy, BS – SP Program Coordinator

Simulation Education and Research Fellows:

Nataliya Bilger, MD Daniel Rodriguez Bauza, MD

Alexander Answine, MD Benjamin Semakuba, MD;

Rafaella Fadel Friedlaender, MD

Part-time Simulation Technicians:

Gowri Reddy

Blake Wolfe

Lee Phillips

Angela Rodgers, BS



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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@pennstatehealth.psu.edu](mailto:giving@pennstatehealth.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.

Some photographs provided by Penn State Health

