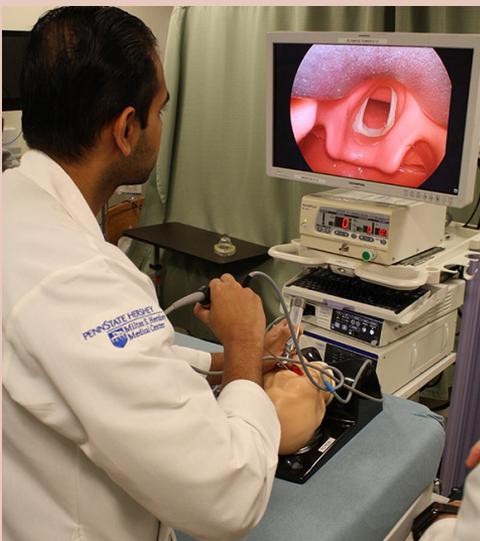


# Clinical Simulation Center

*Patient Safety Starts Here*  
2018 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*



Thank you to our knowledgeable staff and our creative and dedicated faculty for making 2018 a great year!

The new Infectious Disease training room is finally open and has already been used, even as the final touches were being completed! This

is the first significant increase in space since the current Simulation Center was opened in 2010, and it provides a large training room for teamwork in an ICU setting. Speaking of space, the current Sim Center is bursting at the seams and everyone is feeling the pinch. There are very few “free” days and most days have multiple sessions going on at the same time. Even most of our Saturdays are busy! Discussions about how to manage the space we have and options for possible expansion are underway and our governance structure has been updated. Please send us your input and let us know what you need for your students.

Since the beginning, our simulation program has enjoyed multispecialty and multidisciplinary support with the initial program arising out of an alliance between anesthesiology, nursing, and surgery. Many caregivers have found ways to practice working together including perioperative teams, who practice their response to cardiac arrest in an OR once per month; HVCCU teams, who work together in the Sim Center transporting a patient

on ECMO from the ICU to a CT scanner; and Pediatric trauma teams, practicing their resuscitation skills on a simulated child with a traumatic brain injury in the emergency department. Having one simulation program makes it much easier to support joint activities that are critical for improving patient safety.

Our simulation programs continue to reach into the community and into the world. The RSTC has continued to support regional school systems with the CPR in Schools Program with 71 kits provided to 56 schools in our area. Challenging simulations brought 47 practicing anesthesiologists into Hershey for required Maintenance of Certification education. The Simulation Instructor courses we developed were attended by physicians, nurses, respiratory therapists, and others from near and far to work on case development, teaching, and debriefing with simulation. These programs and others occupy a small amount of our time but are vitally important for keeping us engaged in the community.

As Penn State Health expands, we will be right here, helping our faculty do their best teaching in a safe environment.

**Elizabeth H. Sinz, MD, MEd, FCCM, FSSH**  
Associate Dean of Clinical Simulation  
Director, Clinical Simulation Center  
Professor of Anesthesiology and Neurosurgery  
Penn State College of Medicine

## Education



In 2018, 128 unique course titles were supported or presented by the Clinical Simulation Center. In all, the Center maintains nearly 150 courses in its course catalog. The Center impacts the entire cross section of health care provider education throughout Penn State Health, for both students and practicing clinicians. As the Penn State Health system increased in size and scope in 2018, the Clinical Simulation Center and the Resuscitation Sciences Training responded with additional courses to meet the system's growing need.

Among the new courses started in 2018:

- ENT rigid bronchoscopy program
- Increased use of in situ simulation to support Emergency Department and Trauma Services
- Anesthesia transport simulation
- Interprofessional Education (IPE) involving medical, nursing and physician assistant students from the Hershey campus working with health professions students from other nearby colleges and universities



Center staff also participated in system-wide educational program development and delivery including the Safety Behaviors and Error Prevention training initiative.

“I would like to thank each one of you for making this such a successful event. Our residents had all good things to say about the lectures, workshop, and SP encounters, thanks to you. I can say the morning went very smooth and the residents did a very good job performing the exam and delivering the results to the standardized patients and receiving real time feedback. I can say it is very similar to the real life scenario.

*Resident Course Director*

"I learned more today than I have in 22 weeks at the academy. I am very thankful for the opportunity to participate with Stop the Bleed. The staff was very kind, professional, and helpful. I hope that future cadets get more time here at Hershey Med."

*State Police Cadet Stop the Bleed participant*



## Research, Publications, and Presentations



Faculty and staff affiliated with the Penn State Hershey Clinical Simulation Center had 7 peer reviewed publications during 2018. Other academic output from the Center included 13 conference presentations and 3 poster presentations.

Among the major publications were:

- Cheng A, Nadkarni VM, Mancini ME, Hunt EA, Sinz EH, Merchant RA, Donoghue A, Duff JP, Eppich W, Auerbach M, Bigham BL, Blewer AL, Chan PS, & Bhanji F. Resuscitation Education Science: Educational Strategies to Improve Outcomes From Cardiac Arrest. *Circulation*. 2018; 138:e82-e122.
- Adebayo T, Abendroth M, Elera GG, Kunselman A, Sinz E, Ely A, Elkamshoushy A & Soni A. Developing and validating a simple and cost-effective strabismus surgery simulator. *Journal of AAPOS*. 2018; 22(2):85-88.e2.

Since first being founded as the Simulation Development and Cognitive Science Laboratory in 1992, the Clinical Simulation Center has had a robust research history with frequent publications in the peer-reviewed literature and presentations around the world. The Center's Society for Simulation in Healthcare accreditation includes recognition for its research program.

At right, this table represents the cumulative academic output for Penn State simulation since its inception through 2018.

### Publications

Books and Book Chapters	15
Peer-reviewed Journal Articles	145
Peer-reviewed Journal Abstracts	24
Peer-reviewed Journal Editorials	1
Peer-reviewed Journal Letters	2
MedEd Portal	11
Other Publications	4

### Presentations

Conference Presentations	152
Conference Posters	108
External Grand Rounds	8
Webinars	2

# Simulation Education and Research Fellowship

Four new individuals were enrolled in the Simulation Education and Research Fellowship program during 2018.

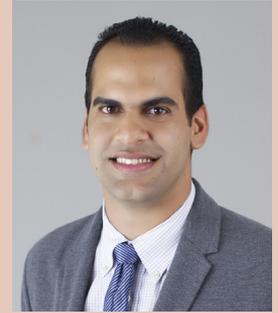
*Aldo Crespo, MD* – Dr. Crespo is Curriculum and Academic Coordinator and Professor of Medicine at O&Med College of Medicine in Santo Domingo, Dominican Republic. Dr. Crespo started and completed his Simulation Fellowship in 2018, working on his fellowship full-time in the Clinical Simulation Center. Upon his return to the Dominican Republic, he was responsible for integrating more simulation into the medical school curriculum and building the college's simulation resources.

*Alexander Answine, MD* – Dr. Answine is a recent graduate of the American University of the Caribbean School of Medicine. Dr. Answine has assisted the Center over the years by participating in several simulations. He is using the fellowship to build skills and knowledge in teaching with simulation as he prepares to enter residency.

*Benjamin Semakuba, MD* – Dr. Semakuba is a graduate of the University of Rwanda School of Medicine and Health Sciences. With specialty training in anesthesia and critical care, his career has included experiences in highly infectious diseases and work with Doctors without Borders. He enrolled in the fellowship program to learn about simulation-based education and to improve his teaching abilities while also learning about the US healthcare system.

*Daniel Rodriguez Bauza, MD* – Dr. Bauza is a graduate of University of Medical Sciences of Holguin (Cuba) and has specialty training in intensive care medicine. He enrolled in the fellowship program to learn about simulation-based education and to improve his teaching abilities while also learning about the US healthcare system.

In addition to Dr. Crespo, 2018 graduates of the program included Hector Lopez, MD, and Lidys Rivera, MD. Continuing in the program is Nataliya Bilger, MD.



# Resuscitation Sciences Training Center



The Resuscitation Sciences Training Center (RSTC) increased its numbers trained again this year. In 2018, 8,862 learners received AHA training through the RSTC.

The training numbers included:

- 4,148 in Basic Life Support (BLS)
- 1,459 in Advanced Cardiovascular Life Support (ACLS)
- 802 in Pediatric Advanced Life Support (PALS)
- 2,253 enrolled in Resuscitation Quality Improvement (RQI) Program

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

- 169 BLS Instructors
- 78 ACLS Instructors
- 49 PALS Instructors

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



There was continued growth in the number of people engaged with RSTC programs at the Penn State Health Milton S. Hershey Medical Center. Expansion of the RQI system for Basic Life Support (BLS) certification accounted for nearly double the enrollees in that system for BLS at Milton S. Hershey Medical Center.

711 certifications were issued at Penn State Health St. Joseph Medical Center.

# Resuscitation Training has Significant Community Impact

The Resuscitation Sciences Training Center (RSTC) has continued to support the American Heart Association CPR in Schools (CiS) initiative. With support from the Children's Miracle Network, I.O. Silver Foundation, and a Community Health grant, the RSTC's CiS program is the largest single supplier of kits in the Northeast of the United States.

The RSTC has delivered 71 CiS kits to 56 central Pennsylvania Schools in 44 school districts.

CPR in Schools offers a low-cost, easy to use method of teaching CPR to school students. Each CiS kit comes with 10 manikins, an instructional DVD, and all teaching materials.

The RSTC has continued its support of community CPR events. Penn State Health and Milton S. Hershey Medical Center volunteers have staffed several public events to teach lay responder "Hands Only" CPR to community members.

## RQI Grows, Adds Quality Reports

The AHA Resuscitation Quality Improvement (RQI) program added more participants. This

year the system was upgraded to provide quality performance metrics to help instructors target units that needed additional coaching.



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## *Standardized Patient Program*



The Standardized Patient (SP) Program continued to grow as new courses starting using SPs and other courses expanded their utilization of these unique patient simulators. With over 110 individuals aligned with the SP Program to portray patients, the program conducted 6,547 hours of simulated patient time in 2018.

The program continued to recruit new Standardized Patients to continue the diversification of the SP pool so the simulated patients would represent the health system's patient population. This broadening of the SP group was also important as the program supported international programs that required native language speakers for learners to interact in discussions.



The SP Program also participated in several research grant studies, including a major award to Dr. Lauren Van Scoy, Assistant Professor of Medicine. Dr. Van Scoy received a \$208,584 grant from the National Institute of Nursing Research to study "Communication quality analysis of end-of-life discussions by clinicians." The study is evaluating a communication assessment tool for use in clinician-patient encounters and how it may improve how patients and providers discuss goals, values, and beliefs with terminally ill patients. This was a two-year study with a total of \$444,243 anticipated.

## New Highly Infectious Disease Room Opens

The Clinical Simulation Center expanded with the construction of the Highly Infectious Disease training room. This room copies the floor plan, materials, and equipment of the actual ICU room in the medical center where patients with highly infectious diseases would be admitted. The room is actually a suite of rooms that includes donning and doffing areas for staff to dress and remove protective suits as well as a simulation control room.

Included in the features, the room has special wall and floor materials designed to be impervious to contaminants in order for Environmental Health Services to practice decontaminating the room.



## Video System Upgrade and Replacement

The Clinical Simulation Center's audio/video recording system was replaced with a significant upgrade in cameras and capabilities. CAE Healthcare Learning Space was installed in 19 simulation and debriefing rooms in the Center. The new system provided enhanced intercom functions, easier access from outside the simulation center, and several improved features to assist with Standardized Patient programs.

Videos are used in many courses for debriefing, documentation of learner performance, and for program quality improvement.



## Community Service and Outreach

### STEM Goes Red Promotes Health Careers for Young Women



The first regional STEM Goes Red program was held at the Penn State Health Milton S. Hershey Medical Center on November 13. This program, sponsored by the American Heart Association and Centric Bank, focused on getting more young women interested in careers in STEM (Science, Technology, Engineering, and Math) to help further heart and brain health. Twenty-five students from the Milton Hershey School participated in a series of events provided by departments across Penn State Health including the Clinical Simulation Center.

### Helping Project SEARCH Interns

Center support for Project SEARCH continued with program interns learning work and life skills while contributing to the Center's goals. This is the fourth year of the program in the



At top, Simulation Education and Research Fellow Daniel Bauza, MD, watches as a Milton Hershey School student manages a simulator's airway. Above, Clinical Simulation Center manager David Rodgers adjusts the control computer as two Milton Hershey School students start treatment of an infant simulator that was having respiratory distress. (Penn State Hershey Photos)



Above, Project SEARCH Intern Cheyanne Wilson works her way through her rounds checking on simulators and making sure they are clean and ready for use.

## Hershey Faculty Dedicates Mobile Sim Program in Costa Rica

Hector Lopez, MD, who recently completed the Center's Simulation Education and Research Fellowship as part of his role as Penn State College of Medicine faculty, was the keynote speaker at the University of Costa Rica for the dedication of their new mobile simulation lab. The new mobile unit will be operated by the School of Nursing at the university to take education and training to community settings.

Since completing his fellowship, Dr. Lopez has moved to the University of South Florida where he will be affiliated with one of the largest simulation centers in the world at the USF Center for Advanced Medical Learning and Simulation (CAMLs).



## Stop The Bleed Continues Training Programs For First Responders

Working with Penn State Health Trauma Services, the Clinical Simulation Center continued to support the *Stop the Bleed* program, a nationally recognized course from the US Department of Homeland Security to give first responders tools and skills to stop life threatening bleeding. The Center developed special scenarios for the *Stop the Bleed* courses conducted for the Pennsylvania State Police Academy. The program has trained over 300 State Police cadets in the past year in the use of tourniquets and how to pack wounds.



## Highlights



### Special Guest Vistor to Simulation Center

Jennifer Arnold, MD, well recognized as a leader in neonatology and simulation, was invited to the Penn State Health Milton S. Hershey Medical Center as part of the Department of Pediatrics Berlin Lectureship. Dr. Arnold, currently practicing at Johns Hopkins All Children's Hospital in St. Petersburg FL, was at Hershey October 23 through 25 for a series of lectures and special events, including facilitating several newborn simulations for pediatric residents in the Clinical Simulation Center. She also participated in a discussion with Center staff and Simulations Fellows.



Dr. Arnold is also well known for her television series *The Little Couple* on The Learning Channel network. While on campus, she graciously posed for several photos and selfies with visitors and staff as she made her way around the medical center.

### International Programs Spread Influence

Support for international programs continued with Center staff and volunteers assisting with courses conducted in Spanish. The Center provided assistance to international simulation educators to help them become more independent in delivering simulation instructor training programs. Courses were conducted at Universidad Finis Terrae in Santiago, Chile, and the University of Costa Rica.



Center director Elizabeth Sinz, MD, also supported international simulation-based programs through assignments from the American Heart Association (AHA). Dr. Sinz conducted AHA instructor programs in Haiti and Switzerland.



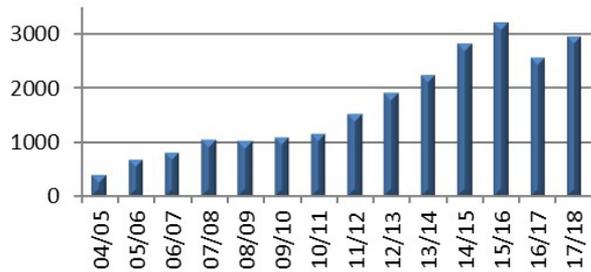
## *Recognitions and Milestones*

- Former Simulation Fellow and Simulation Educator Angel Diaz Sanchez, MD, received the Department of Anesthesia and Perioperative Medicine Professional Practice Award. Dr. Diaz Sanchez is currently an Anesthesia resident at Penn State Health Milton S. Hershey Medical Center.
- Kristen Glass, MD, Assistant Professor of Neonatology and Simulation Director for Neonatology, completed the Association of Pediatric Program Directors Leadership in Educational Academic Development (APPD LEAD) program, a nationally recognized program for pediatric academic leaders in medical education.
- Cassie Sonntag, MD, received the 2018 ASE Outstanding Resident Teacher Award from the Association for Surgical Education. Dr. Sonntag, a surgery resident, is active in several simulation-based education courses including the Center's Teaching with Simulation Instructor Course.
- Simulation Technologist Hans Hinssen, Dipl. Ing., became the first Hershey Medical Center Clinical Simulation Center staff member to achieve the Society for Simulation in Healthcare Certified Healthcare Simulation Operations Specialist (CHSOS) credential.
- Resuscitation Sciences Training Center Manager Franklin Banfer, Esq BSN RN CEN PHRN NRP, is now contributing to the organization as a Rapid Improvement Event (RIE) facilitator.
- The American Heart Association presented an award recognizing the Milton S. Hershey Medical Center for its early adoption and success with the Resuscitation Quality Improvement (RQI) program administered by the Resuscitation Sciences Training Center.
- Center manager David Rodgers received the People's Choice award for outstanding oral presentation at the 2018 International Pediatric Simulation Symposium and Workshops in Amsterdam, Netherlands.
- Faculty member and Simulation Fellow Hector Lopez, MD, was the featured keynote speaker at the dedication of the new mobile simulation unit at the University of Costa Rica.



# Achieving Objectives

## Simulation Sessions Per Year

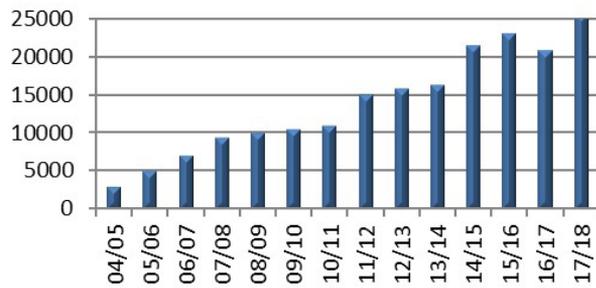


The Clinical Simulation Center supports a wide range of interprofessional and multidisciplinary simulation-based education and training opportunities to learners from throughout the Penn State Health system and the Hershey community. 128 unique course titles were conducted in the Center in Fiscal Year 2018.

Fiscal Year 2018 statistics:

- 2,833 Sessions
- 24,511 Learners
- 71,981 Contact Hours

## Learners Per Fiscal Year

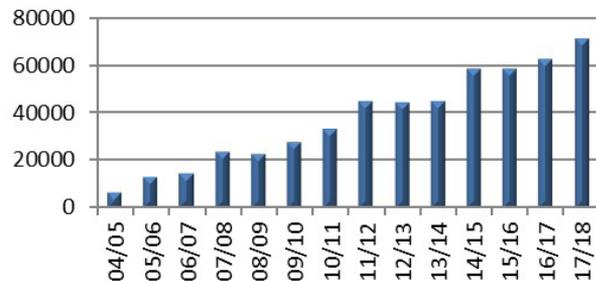


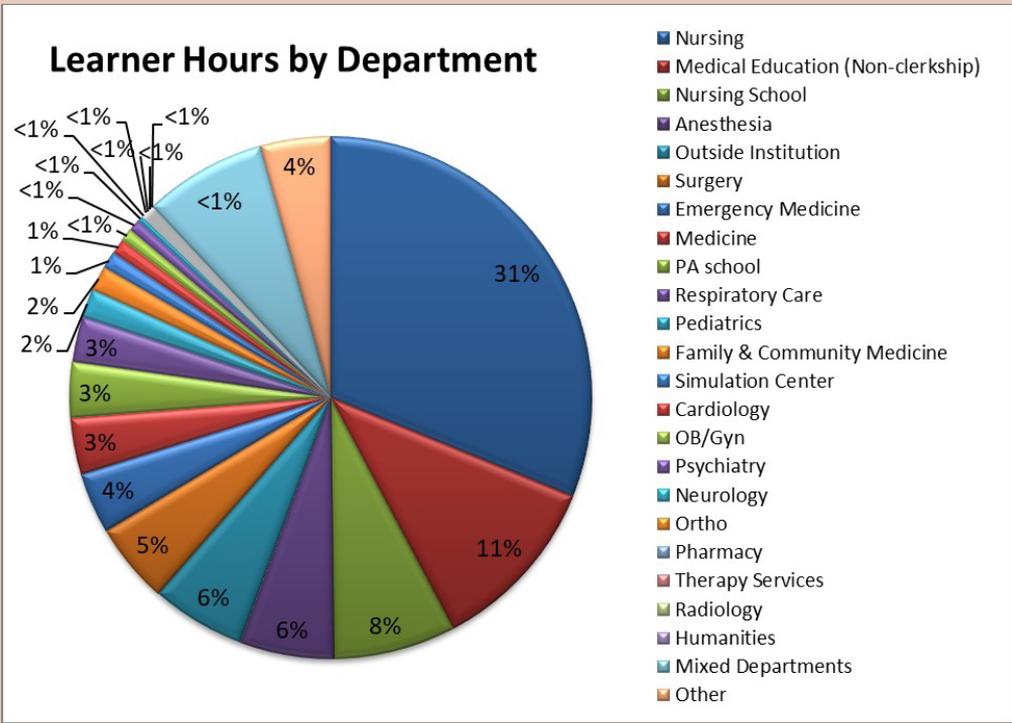
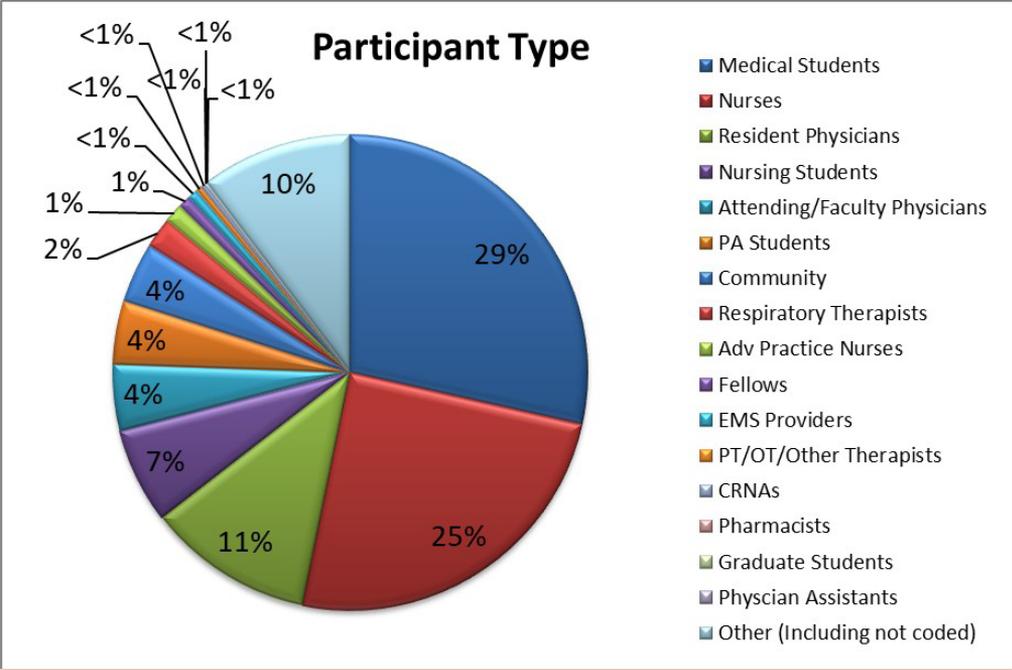
The total number of Center room hours dedicated to simulation-based education was 25,506.

Growth of Center activities has increased significantly since the Center moved into its current facility. Since moving into the current facility in January 2010, the Center has experienced:

- 142% increase in learners per year over the last 10 years
- 222% increase in contact hours per year over the last 10 years

## Learner Hours Per Fiscal Year





# Staff



Elizabeth Sinz, MD, MEd, FCCM FSSH - Director  
 David Rodgers, EdD, EMT-P, NRP, FAHA – Manager  
 W. Bosseau Murray MBChB MD, – Research Director  
 Mary Catherine Santos, MD, MEd, FACS - Director of Surgical Simulation  
 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  
 Michael Glass, BS – 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  
 Margie Gantz, NRAEMT – BLS Coordinator  
 Emily Scicchitano, RRT-NPS, CPFT – ACLS/PALS Coordinator  
 Stacey Carmo, BSN, RN – SP Program Manager  
 Jenifer Benovy, BS – SP Program Coordinator

*Simulation Education and Research Fellows:*  
 Lidys Rivera, MD; Nataliya Bilger, MD; Daniel Bauza, MD; Alexander Answine, MD; Benjamin Semakuba, MD

*Part-time Simulation Technicians:*  
 Gowri Reddy                      Eva Lynch, BSN, RN  
 Lee Phillips                      Blake Wolfe  
 Angela Rodgers, BS

# Contact Information

**Elizabeth H. Sinz MD, MEd, FCCM, FSSH**  
Director, Clinical Simulation Center  
Milton S. Hershey Medical Center  
Associate Dean of Clinical Simulation  
Professor of Anesthesiology and Neurosurgery  
Penn State College of Medicine  
esinz@pennstatehealth.psu.edu

**David L. Rodgers EdD, EMT-P, NRP, FAHA**  
Manager, Clinical Simulation Center  
Milton S. Hershey Medical Center  
drodgers1@pennstatehealth.psu.edu  
717-531-3947

**Franklin A. Banfer III, Esq, BSN, RN, CEN, PHRN, NRP**  
Program Manager  
Resuscitation Sciences Training Center  
Milton S. Hershey Medical Center  
fbanfer@pennstatehealth.psu.edu  
717-531-0003, Extension 284182

**Stacey Carmo BSN, RN**  
Program Manager  
Standardized Patient Program  
Penn State College of Medicine  
scarmo@pennstatehealth.psu.edu  
717-531-6304



Penn State Hershey Clinical Simulation Center  
500 University Drive  
Mail Code H182  
Room C2630  
Hershey, PA 17033  
717-531-4099  
<https://sites.psu.edu/hersheysimulation/>

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

