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.

COVID-19 Note - Some photographs were made prior to the COVID 19 pandemic and the mandate for mask wearing.
Message from the Director

To paraphrase Judith Viorst, 2020 was a “horrible, terrible, no good, very bad” year!

The COVID 19 pandemic has pushed us to overcome many challenges. Our response is a testament to our shortcomings as well as our resilience. Let’s debrief:

What went well...
- Some simulation programs closed; we adapted
- To create correct distancing staff worked onsite/offsite alternate days, one moved to nights, and our scheduler worked remotely
- Innovative strategies included standardized patient encounters on Zoom, remote team-leader mega-code testing, and individual kits for procedural practice at home
- Our ingenious staff became A-V superheroes!
- Groups moved to larger spaces vacated by students learning off-site
- 4000 hospital staff got hands-on practice for the new defibrillator roll-out
- We developed and tested new protocols for patients with COVID
- Our center delivered a trainer course for nursing home staff about personal protective equipment

What could be better...
- Space, space, space: The requirement to spread people out made our longstanding space concerns more evident
- Mastery learning: We started out strong but quickly ran out of time/energy to fully implement these proven practices
- New demands, coupled with our already breakneck pace, made it apparent that we must be more strategic going forward. This year, we will implement more formal processes to clearly link our activities with specific needs of the hospital and college of medicine
- An impending crisis eventually resulted in significant progress for the RSTC towards becoming a complete resource for resuscitation training. Look for an expanding portfolio of training opportunities in 2021
- Remote training strategies continue to evolve and improve

“Some of life’s greatest lessons are learned at the worst times.” - Ani DeFranco

Learning with simulation is the best way to safely learn from experience, but sometimes real experience offers us really tough lessons. Then we really have to pay attention because we won’t get a re-do!

With respect and gratitude,

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

During 2020, 149 unique course titles were supported or presented by the Clinical Simulation Center. The impact of the COVID-19 pandemic created new courses as the Center supported the Penn State Health response to the crisis. Additionally, many existing courses had to be modified to meet social distancing needs. This resulted in several courses adapting to hybrid presentations with portions of the course conducted virtually (both synchronously and asynchronously) combined with live skill sessions in the Center.

Among the course highlights in 2020:
• First stand-alone instructor course module – Coaching and Feedback.
• Patient experience simulations for leadership expanded to include support staff.
• Roll-out of the new Zoll defibrillators.
• Conversion of the ACLS-Experienced Provider course to a full virtual format.
• Expansion of simulation in new nurse and respiratory therapist onboarding.
• Participation as a virtual skills site in the Pediatric Critical Care Boot Camp conducted in conjunction with the Children’s Hospital of Philadelphia.
“One of my new July 2020 Critical Care graduate nurses had her patient code in the MRI suite today.

“Thanks to our practice in the sim lab during those first weeks of the program, she was able to efficiently and effectively record during the Code and used amazing closed loop communication.

“I am very proud of her and wanted to pass along a thanks to the sim lab for allowing me to train my nurses and make a difference in the lives of our patients.”

Nurse Educator

“In NEPD we are continuously grateful for our partnership with the simulation center staff! Thanks again!”

Nurse Educator

“I am so glad to have had the opportunity to come and gain this experience. I’m excited to use what I learned here today”

Course Participant

“Just taking a minute to tell you how awesome [the sim staff] were this week...I’m certain you are aware of how terrific your team is; nonetheless, I wanted to tell you specifically of the ways in which this course couldn’t have survived the past 2 days without their support... I am tremendously appreciative of ‘the extra mile’ [the staff] went this week.’THANK YOU’ to them doesn’t seem to be nearly adequate. So, in addition to thanking them, I wanted to let you know, as well, how much I am indebted to them for a successful week.””

Course Director
Faculty and staff affiliated with the Penn State Hershey Clinical Simulation Center had 11 peer reviewed publications in 2020. Other academic output from the Center included 8 conference presentations and national/international webinars, 3 poster presentations, and 1 book chapter.

Among the publications by Simulation Center staff were:


Cumulative Simulation-based Research Output

Since first being founded as the Simulation Development and Cognitive Science Laboratory in 1993, the Clinical Simulation Center has had a robust research history with publications in the peer-reviewed literature and presentations around the world.

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16 Books and Book Chapters
169 Peer-reviewed Journal Articles
29 Peer-reviewed Journal Abstracts
1 Peer-reviewed Journal Editorial
3 Peer-reviewed Journal Letters
16 MedEd Portal
167 Conference Presentations
119 Conference Posters
8 External Grand Rounds
7 Society/Association Sponsored Webinars
Simulation Education and Research Fellowship
Three new individuals were enrolled in the Simulation Education and Research Fellowship program during 2020.

Kwaku Owusu-Bebiako, MBChB, MPH – Dr. Owusu-Bebiako earned his medical degree at the University of Ghana and also received a Master of Public Health from Washington University in St. Louis. After service as a general practitioner in Ghana, Dr. Owusu-Bebiako worked in pediatric anesthesia research at the University of Michigan.

Mary Sukumar, MBBS, MD – Dr. Sukumar earned her MBBS and MD degrees at Christian Medical College in Vellore, India. She was awarded a diploma in Clinical Research Administration from the University of Liverpool and a certificate in Health Professions Education from the University of Connecticut. Most recently, Dr. Sukumar served as an anesthesiologist at Corniche Hospital in Abu Dhabi, UAE.

Luis Felipe Gonzalez Vazquez, MD – Dr. Gonzalez Vazquez received his medical degree from Universidad de Ciencias Médicas de Santiago de Cuba. He most recently served as an attending anesthesiologist at Saturnino Lora Hospital Santiago de Cuba. He also has a Masters in Natural and Homeopathic Medicine from Ciencias Médicas de Santiago de Cuba.

International Presentations by Simulation Staff and Fellows
Prior to COVID-19, simulation staff and fellows presented at the International Meeting on Simulation in Healthcare, held in San Diego in January 2020. Sim Fellow Nataliya Bilger, MD, and Sim Tech Hans Hinssen, Dipl. Ing, CHSOS, presented the interactive poster “Using an inexpensive video endoscope to teach laryngoscopy” as part of the SimVenters workshop. Sim Fellows Daniel Bauza, MD, and Lidys Rivera, MD, presented a session titled “Integrating simulation to prepare IMGs for United States Medical Licensing Examination (USMLE).” This session was presented twice, once in English and again in Spanish for the international audience.
Resuscitation Sciences Training Center

The Resuscitation Sciences Training Center (RSTC) managed AHA training for 8,489 learners.

The training numbers included:

- 2,657 in Basic Life Support (BLS)
- 1,258 in Advanced Cardiovascular Life Support (ACLS)
- 774 in Pediatric Advanced Life Support (PALS)
- 3,800 enrolled in Resuscitation Quality Improvement (RQI) program for Basic Life Support

The RSTC course offerings expanded to include National Association of Emergency Medical Technicians (NAEMT) courses. Additionally, the RSTC continued its administrative support for the American Academy of Pediatrics Neonatal Resuscitation Program and the Emergency Nurses Association (ENA) courses.

- ENA Courses (TNCC & ENPC): 198 learners
- NRP Courses: 346 learners
- NAEMT Courses (PHTLS and AMLS): 28 learners

During 2020, BLS at Penn State Health St. Joseph Medical Center transitioned to the Resuscitation Quality Improvement (RQI) program which is managed locally. This resulted in a drop in the number of BLS certifications processed by the Hershey Medical Center AHA Training Center. The RQI numbers represent Hershey Medical Center only.
RSTC Earns NAEMT Training Center Status

The National Association of Emergency Medical Technicians (NAEMT) awarded the Resuscitation Sciences Training Center (RSTC) status as an Authorized Training Center. This opens the pathway for the RSTC to provide EMS courses such as Pre-hospital Trauma Life Support (PHTLS) and Advanced Medical Life Support (AMLS).

ATLS Becomes part of RSTC

Operation of the American College of Surgeons Advanced Trauma Life Support (ATLS) program at Hershey was transferred to the RSTC. With this move, a new ATLS Course Coordinator was hired with Lori Double joining the department. ATLS has been transitioning into the Simulation Center over the past few years, first with training space and now with operational support, this move makes that process complete.

Innovation in Course Delivery

The COVID 19 pandemic forced many changes in course delivery formats. Increased emphasis on hybrid courses using both online sessions and limited live interactions was one way the RSTC met learners’ needs. Additional use of the RQI system for American Heart Association BLS certification was another.

ACLS-EP transitioned to a live remote learner course with sessions conducted using video conferencing. In-person course sizes were adjusted to meet social distancing requirements.

“Thank you once again for accommodating us last Friday to complete our PALS and BLS renewal. The in-person session was OUTSTANDING and was the first time I felt like I had really learned something useful and increased my fund of knowledge!”

RSTC Course Participant
The Standardized Patient (SP) Program underwent significant changes due to the COVID-19 pandemic. In March, the SP Program had to reinvent itself as a remote learning resource. With students and staff primarily working and learning from home, the traditional in-person interviews and assessments were not possible. The medical student Objective Structured Clinical Examination (OSCE) moved to a virtual format, being conducted via video conferencing programs.

The move to virtual formats required new skill sets for students, faculty, staff, and SPs.

The SP Program was quick to learn with these changes. The early experiences gained by the SP staff allowed them to provide assistance to Penn State College of Nursing campuses statewide and helped support Allegheny Health Network’s move to virtual patient interactions.

With the pandemic, total activity was down for the year with 3,773 SP hours being used.

Another major undertaking in 2020 was conversion of the SP pool from independent contractors to part-time staff. This move provided additional protections and benefits to the Standardized Patients.
Lifesaving Outcome in the Standardized Patient Program

Students, including medical, nursing, and physician assistant, frequently conduct some of their very first physical examinations with Standardized Patients (SPs). Usually these examinations are routine. However, there have been rare occasions when the student has identified a problem that required urgent intervention.

One of the SPs relayed this story about how being an SP made a difference in his life.

“And, here’s why the SP program is so important...

“Conducting the program in person (pre-COVID), I was interviewed by a variety of students in a variety of disciplines. A young nursing student was instructed to ‘take my vitals.’

“She took my blood pressure reading, and seconds later, (with a puzzled look on her face) she looked up at the Doctor narrator and said, ‘could it be this high?’ And, yes it was. My blood pressure was an amazingly high reading of 190/150! The doctor immediately paused the class and quietly spoke to me about the reading. He suggested that I see my family doctor ASAP. After the session, I spoke with my friend Dr. Dennis Gingrich and he instructed me to get to the PSH Fishburn Road facility and request an emergency meeting with any doctor to get some BP medicine.

“I got a prescription and started taking it immediately. Shortly thereafter, I met with my family practice doctor who informed me that I was ‘so very close to having a stroke.’ My BP has now averaged a more normal (and less dangerous) 135/78.

“So, I started doing SP work thinking I could ‘help the cause’. Little did I realize that doing SP work would save my life!”

“Amazing, just amazing work with this OSCE!! Thank You!!”

Faculty Advisor

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Interprofessional Education (IPE) is a major undertaking in the College of Medicine with medical students and physician assistant students, as well as nursing students from the College of Nursing. In addition to these Penn State students, the IPE program also includes health professions students from over 20 other area schools and universities with students in physical therapy, occupational therapy, and social work. Each year over 1,100 students and more than 200 faculty from these programs participate in IPE coordinated by Penn State.

Simulation scenarios use Standardized Patients (SP) to perform Structured Interprofessional Bedside Rounds (SIBR). The SIBR includes three phases: a team briefing to determine the flow of the encounter and what assessments need to be performed, the patient encounter with the SP, and discharge planning to coordinate their plan with the needs of the patient.

Faculty debrief the students to help them see associations between the scenario and the interprofessional concepts of shared values, roles, and responsibilities of the different professions, effective communication for all team members to contribute their profession-specific knowledge, and the teamwork necessary to develop an effective discharge plan.

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Jenny Rex, a clinical nurse educator at Penn State Children’s Hospital and frequent simulation educator, was selected as the January 2020 DAISY Award winner.

As her award citation noted, Rex was walking back to her office after a day of training new graduate nurses. She was carrying an infant simulation manikin, and when she passed a family, a young boy asked her about it.

Did the manikin have a trach, the boy wanted to know, because his little sister was going to get one to help her breathing. Yes, the manikin did have a trach, Rex responded. She stopped and showed the simulation manikin to the family and allowed the child to play with it. She answered the family’s questions and helped quell their worries.

“Jenny didn’t know this child, his sister or their situation and could have easily smiled and replied in response to the young man’s question and then carried on to her office after a long day of teaching,” wrote Kaela Appleman, a clinical practice nurse leader who nominated her. “Instead, she chose to put our patients and families above her own needs and take the time to calm a young boy’s fears about his little sister.”
Highlights

Simulation Responds to COVID-19 Pandemic

As the COVID-19 pandemic escalated in March of 2020, the departments of the Clinical Simulation Center responded to the crisis. While initially many courses were cancelled, the Center never closed and was called upon to assist with the health system’s response. Among the accomplishments were:

- Testing systems of care modified to manage COVID-19 patients (photo at top left).
- Simulations of the potential for one ventilator working with two patients simultaneously (photo at middle left).
- Personal Protective Equipment (PPE) training for all medical center resident physicians, both as the pandemic started and for incoming residents in June (photo at bottom left).
- Conversion of medical student Standardized Patient OSCE sessions to an online virtual format.
- Development of an anesthesia COVID-19 emergency airway kit.
- Modified Resuscitation Sciences Training Center courses to reduce class sizes and manage social distancing.
- Integrated hybrid (online and live) training for Advanced Trauma Life Support.
- Supported nursing education with reskilling simulations to prepare nurses being redeployed due to the crisis.

Center leadership helped other centers through a series of webinars for organizations including the Society for Simulation in Healthcare, American Association of Medical Colleges, and the American College of Surgeons. Center faculty produced two publications on simulation use for COVID-19 patient care.

The Center also supported a Pennsylvania Department of Health grant by conducting PPE training for long term care facilities throughout the south central region of the state.
Recognitions and Milestones

• Steve Allen, MD, Associate Professor, Department of Surgery, Division of Trauma, Acute Care and Critical Care Surgery and frequent faculty in simulation cases, was named a Penn State College of Medicine Distinguished Educator.

• Dr. Donald Martin, an anesthesiology faculty member at the College of Medicine and an early proponent for simulation-based education at Hershey was named the 2020 recipient of the Pennsylvania Medical Society’s (PAMED) Distinguished Service Award. The Distinguished Service Award is considered the PAMED’s highest honor.

• Theresa Brosche, MSN, BSN, RN, CCRN-K, CHSE was awarded membership in the National Society of Leadership and Success honors program.

• Former Simulation Fellow Lidys Rivera, MD, started her pathology residency at Penn State Health Milton S. Hershey Medical Center. She is the second simulation fellow to become a Hershey Medical Center resident, joining Angel Diaz Sanchez, MD, who is completing his anesthesia residency.

• Phil Stark, RRT, achieved the Certified Healthcare Simulation Educator (CHSE) credential from the Society for Simulation in Healthcare.

• Elizabeth Sinz, MD, Simulation Center Director, along with Dr. Ajay Soni and Dr. Temitope Adebayo received the 2020 Scholarship in Education Award from the College of Medicine for the publication “Developing and validating a simple and cost-effective strabismus surgery simulator” published in the Journal of the American Association for Pediatric Ophthalmology and Strabismus.

• Hans Hinssen, Dipl. Ing. CHSOS, and Nataliya Bilger, MS, joined the inaugural editorial board for the Society for Simulation in Healthcare STORM publication, a technical simulation operations journal.

“I was in the PALS class on Tuesday and I just wanted to express how great an experience I had. New certifications and tests can be a bit of a nerve-wracking experience and I felt that the staff did a great job presenting the information, answering questions, and helping us to feel prepared.”

PALS Course Participant
The COVID-19 pandemic had a noticeable impact on the Clinical Simulation Center’s utilization metrics. 643 scheduled simulation sessions were cancelled due to the pandemic and an untold number of others were never scheduled as limitations on gatherings and access to the campus were in force. While additional sessions were scheduled specifically to address the COVID-19 response (especially in the area of PPE training), these sessions were not enough to make up for the lost activity. As a result, there was a downturn in all utilization metrics. However, owing to an exceptionally busy first half of the fiscal year, there was still high utilization comparable to previous years.

Fiscal Year 2020 statistics:

- 2,971 Sessions
- 23,439 Learners
- 56,713 Contact Hours

The total number of Center room hours dedicated to simulation-based education was 21,568.
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

Part-time Simulation Technicians:
Gowri Reddy
Brian Lin, MS, MBA, EMT-P
Lee Phillips, Cer. AT
Blake Wolfe, Cer. AT
Angela Rodgers, BS
Nataliya Bilger, MD

Wendy Giulivo – Administrative Associate
Lori Double, BS – RSTC Program Coordinator
Anne Bonawitz – RSTC Administrative Secretary
Ann Marie Schupper – RSTC Staff Assistant
John Shellenberger, EMT-P, NRP – ACLS/PALS/BLS Coordinator
Phil Stark, RRT, CHES – RSTC Systems Integration Coordinator
Jenifer Benovy, BS – SP Program Coordinator

Simulation Education and Research Fellows:
Daniel Rodriguez Bauza, MD
Alexander Answine, MD
Benjamin Semakuba, MD
Kwaku Owusu-Bebiako, MBChB, MPH
Mary Sukumar, MBBS, MD
Rafaella Fadel Friedlaender, MD
Nataliya Bilger, MD
Luis Felipe Gonzalez Vazquez, MD
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The Clinical Simulation Center offers external consultation services and educational programming performed at the client’s location. See our web site for more information.