

2021

## MMC Simulation Annual Report 2020

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### Recommended Citation

(2021) "MMC Simulation Annual Report 2020," *Journal of Maine Medical Center*. Vol. 3 : Iss. 2 , Article 20. Available at: <https://knowledgeconnection.mainehealth.org/jmmc/vol3/iss2/20> <https://doi.org/10.46804/2641-2225.1111>

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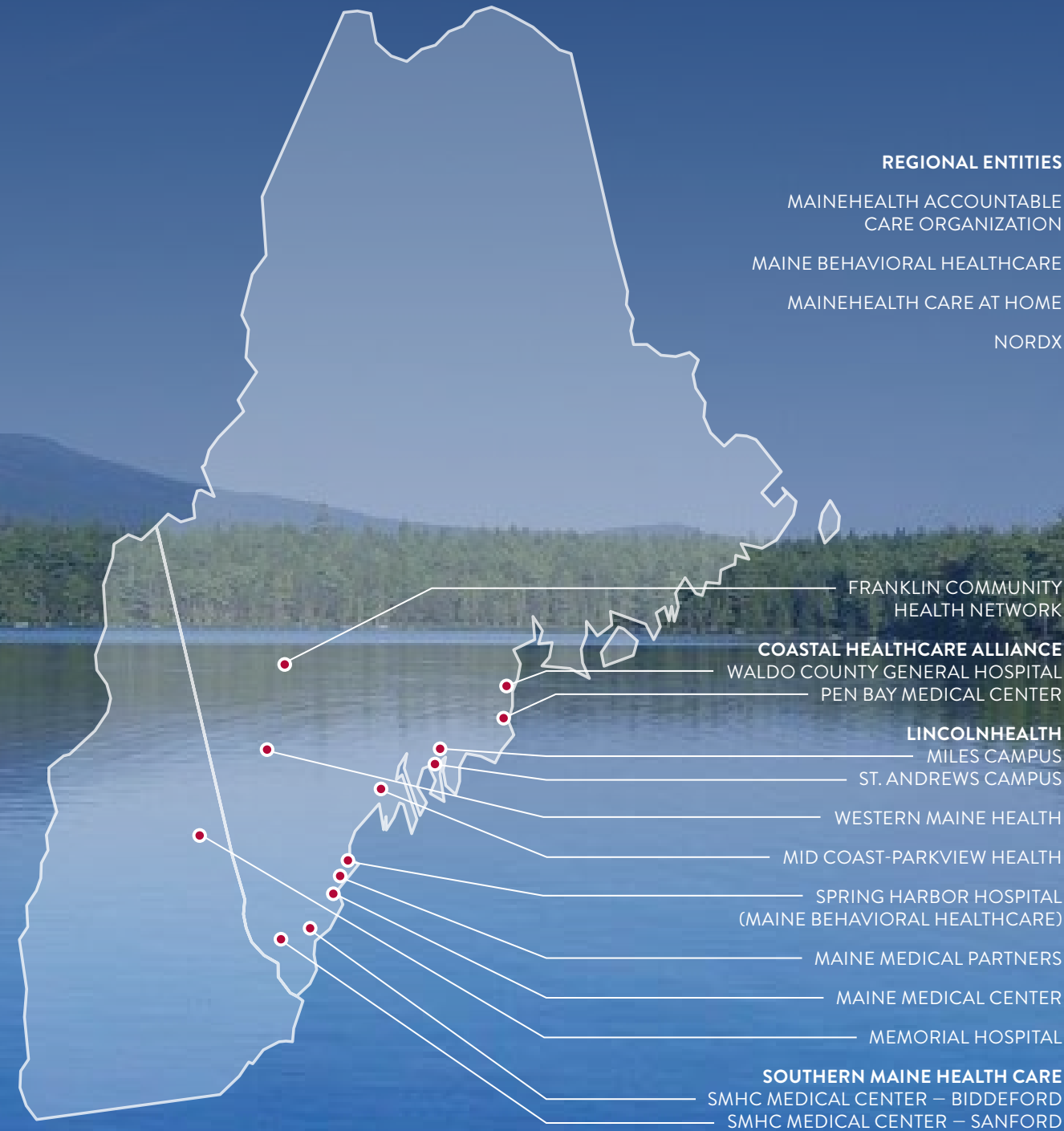
# 10 YEARS OF EXCELLENCE

SIMULATION  
ANNUAL REPORT 2020

  
Maine Medical Center  
MaineHealth



# THE MAINEHEALTH SYSTEM



The MaineHealth system reaches more than 1.1 million residents in central, southern and western Maine and eastern New Hampshire. MaineHealth organizations include Coastal Healthcare Alliance (Pen Bay Medical Center and Waldo County General Hospital), Franklin Community Health Network, LincolnHealth, Maine Behavioral Healthcare, Maine Medical Center, MaineHealth Care at Home, Memorial Hospital, Mid Coast-Parkview Health, NorDx, Southern Maine Health Care and Western Maine Health; the MaineHealth Accountable Care Organization is also part of the MaineHealth family. Affiliates of MaineHealth include MaineGeneral Health, New England Rehabilitation Hospital of Portland and St. Mary's Health System.

<https://knowledgeconnection.mainehealth.org/jmmc/vol3/iss2/20>  
DOI: 10.46804/2641-2225.1111

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## FROM THE DIRECTORS

“

I am incredibly proud of the accomplishments of our Sim Center, enabled by the hard work, expertise, and innovative spirit of an amazing team.

— Leah Mallory, MD

“

As we look to the future, we plan to leverage emerging technologies to strengthen our simulation programs and continue the important work we have started.

— Jeffrey A. Holmes, MD







## MEDICAL DIRECTOR'S LETTER:

What better way to celebrate the 10 Year Anniversary of the Hannaford Center for Safety, Innovation, and Simulation than by publishing our first Annual Report? And what a year this has been! Who would have thought, one year ago, that we would be debriefing in face masks, six feet apart, communicating with standardized patients virtually, and grateful to be back to “regularly scheduled training” amidst a global pandemic?

Under the leadership of our first Medical Director, Dr. Randy Darby, the Sim Center established itself as a world-class resource for realistic and effective training and education, primarily focused on residents, medical students, and nurses. With the opening of the Hannaford Team Training Facility at the Bramhall campus in 2016, we expanded to broader interprofessional team training. As the field of simulation evolved, we recognized that simulation could be a powerful tool to test systems and identify and fix safety threats before they cause harm, moving to more “in situ” events in clinical care environments. Now, with system integration and alignment, our simulation van travels across the state to serve other MaineHealth hospitals.

In this annual report you will learn about our educational successes, such as the uniform Disclosure of Adverse Events course developed by our Standardized Patient team in collaboration with our colleagues in Patient Safety and Risk Management. We will highlight work in systems integration and safety, particularly using simulation to test new teams and spaces in preparation for opening the new Sisters Heliport and the Coulombe Family Tower floors. Of course, no reflection on 2020 would be complete without reference to COVID-19, where challenges also presented opportunities. The simulation team rose to the occasion, assembling experts across disciplines to revise and test protocols and offer just-in-time training to keep our patients and care teams safe.

In this report you will see that I am incredibly proud of the accomplishments of our Sim Center, enabled by the hard work, expertise, and innovative spirit of an amazing team. As we complete our three year strategic plan, we look forward to 2021—expanding our reach into MaineHealth to foster alignment across the system, increasing the interprofessional focus of our educational training, continuing to advance patient safety through systems testing and team training, and improving our operational efficiency to optimally utilize our resources.

### LEAH MALLORY, MD

Medical Director, The Hannaford Center for Safety, Innovation and Simulation  
Pediatric Hospitalist, The Barbara Bush Children's Hospital at Maine Medical Center  
Associate Professor of Pediatrics, Tufts University School of Medicine



## REGIONAL MEDICAL DIRECTOR'S LETTER:

It is with great pride that I share some of the innovative, practice changing work our simulation center has been doing to help care for patients throughout the MaineHealth system. While COVID-19 certainly dominated the clinical landscape in 2020, it didn't sway our team's commitment to supporting our MaineHealth partners with simulation training.

The unification of MaineHealth presented a unique opportunity for a system of predominantly rural community hospitals to work together toward the strategic goals of enhancing the patient experience, improving care team well-being, improving population health, and making care more affordable. We believe that health care simulation can be leveraged to help accomplish these goals.

This year we delivered several multifaceted educational programs to our rural MaineHealth hospitals. As part of a national education and research collaborative, ImPACTS, we have helped our community hospitals maintain and improve their readiness for pediatric emergencies with “in situ” simulation-based assessments. Our neonatal resuscitation program has done important work helping our birthing hospitals' clinical teams maintain and improve their neonatal resuscitation skills. The serious illness care program is helping ambulatory clinicians improve the lives of people with serious illness by practicing how to have meaningful conversations about their values, goals and priorities. Finally, we successfully launched a pilot program using standardized patients to train clinicians on a telemedicine platform. Underpinning all these programs is a major emphasis on systems evaluation followed by developing and implementing action plans to improve quality and safety.

As we look to the future, we plan to leverage emerging technologies to strengthen our simulation programs and continue the important work we have started. Virtual and augmented reality serve as unique modalities that will allow our regional care teams to remotely and consistently continue these trainings. We are also currently building capacity to take full advantage of our online platforms for telesimulation and telemedicine.

It has been our privilege to partner with our MaineHealth hospitals to help them continue the excellent care they provide to their community. I hope you take a look inside our inaugural annual report to learn more.

### JEFFREY A. HOLMES, MD

Regional Medical Director, The Hannaford Center for Safety, Innovation and Simulation  
Emergency Medicine Attending, Maine Medical Center  
Assistant Professor of Emergency Medicine, Tufts University School of Medicine



# In Memory

## John “Randy” Darby Grand Rounds

In its first decade, the Sim Center has established itself as a cornerstone for training, education, and patient safety throughout MMC and, increasingly, across MaineHealth. It can be said with absolute certainty the Sim Center would not be where it is today without the vision and leadership of its founding medical director, Dr. John “Randy” Darby, who passed away in July 2018.

Randy loved simulation and believed in its value. To honor his legacy, a simulation grand rounds named in his honor was launched in October.

One of Randy’s research interests — CPR and improving survival-to-discharge rates after cardiac arrest — is shared by Dr. Elizabeth “Betsy” Hunt, director of the Johns Hopkins Medicine Simulation Center. In her research, she uses simulation as a tool to measure the performance of code teams and improve patient outcomes.

“I’m truly honored by the invitation, particularly in the setting of honoring Dr. Darby and all the work he’s done,” Dr. Hunt said. “In many ways, we were kindred spirits.”

Dr. Hunt’s talk — CODE ACES2: Using Simulation to Improve In-Hospital Response to Cardiac Arrest — can be viewed here: <https://youtu.be/ZagE-uhTcsM>.





## IN THE PRESS

# EVERY SECOND COUNTS



Photos by Shawn Patrick Ouellette Staff Photographer  
Maine Medical Center predicts that by 2022, there will be 750 medical helicopter landings a year at the Portland hospital

**An \$8 million helipad offers trauma patients quicker access to Maine Med's emergency department, and two landing spots allow the hospital to receive two patients at a time.**

By JOE LAWLOR  
Staff Writer

**A RACE  
AGAINST  
THE CLOCK**  
**2,100**  
patients a year  
transported

The LifeFlight of Maine medical helicopter landed at Maine Medical Center's new \$8 million helipad, positioning itself over the red "H" painted on one of two landing areas. Medics whisked a medical patient to the hospital's emergency department in 44 seconds. That's 98 seconds faster than the

director for the hospital's simulation department, followed them, stopwatch in hand, as the team made repeated training runs on Wednesday. During one of the runs, Mallory clocked the time from helicopter to the emergency department below at 1 minute 44 seconds. That's 98 seconds faster than the

employee parking garage. While saving less than two minutes might not sound like much, for patients experiencing trauma, every second counts. "When it's a stroke patient, after a stroke every minute brain cells die, so those saved minutes could mean the rest of your life between living and dying."

## PORTLAND PRESS HERALD

The Sim Center was honored to receive press coverage from two local media outlets in the past year. The Portland Press Herald featured our systems testing simulation of the Sisters Heliport as the lead story on its Local & State section on Sunday, December 17, 2019. The article included two color photographs of LifeFlight of Maine simulating a simultaneous landing of two helicopters with critically ill patients. While you can't see our manikins in the photos, they were the first "patients" to land at the new facility.

Read the story at: <https://www.pressherald.com/2019/12/15/maine-meds-new-8-million-helipad-saves-time-and-likely-lives-as-well/>

“

There are so many areas to orchestrate with the crew, to make sure we close any holes there are in the system, and get patients into the best care as quickly as we can.

— Jeffrey A. Holmes, MD





## MAINE MAGAZINE

The October 2020 issue of Maine Magazine focused on Mainers serving on the front lines during the pandemic to ensure essential services continued when so many people were sent home. The article featured restaurant owners, preschool teachers, immigrant advocates, and our simulation team on two double-page spreads!

Medical Director Leah Mallory is quoted in the article, “When the pandemic started, we had to make rapid changes to help patients and protect our fellow healthcare workers at Maine Med. With help from colleagues from across our hospital, our simulation team mobilized to develop, test, and train for new COVID-modified protocols. We worked quickly to change the way we intubate patients, respond to Code Blue cardiac arrests, conduct telemedicine appointments, and take patients safely to the OR. These efforts represented time above and beyond clinical demands and coming to work when others stayed home to make our health system safer for patients and for our coworkers as we continue to fight this pandemic.”

Read the story at: <https://www.themainemag.com/features/faces-from-the-frontline/>

“

When the pandemic started, we had to make rapid changes to help patients and protect our fellow healthcare workers at Maine Med.

— Leah Mallory, MD





BY PAUL KOENIG, ALEXANDRA POLKINGHORN • EMMA SIMARD  
PHOTOGRAPHY BY CHRISTINA WNEK

**T**his March scores of Mainers rapidly shifted to working from home while sheltering in place to prevent the spread of the novel coronavirus, COVID-19. But there were many for whom that was not an option. Essential workers from every corner of our state, in the face of a deadly and mystifying pandemic, continued performing their crucial roles to keep our communities functioning and safe. This month we are taking a moment to recognize these everyday heroes—our neighbors who never missed a beat when called upon to help. We interviewed those working in fields such as healthcare and social services, and transportation and education, but there are so many brave employees whose vital work deserves recognition. Thank you for everything that you're doing for Maine and its citizens; we are in your debt.





## TWITTER

This past year also saw the launch the @MMCSimulation Twitter account, where we share more lighthearted happenings in addition to the more notable programmatic highlights. A few samples below include speaking engagements and recognition events.



**Hannaford Simulation Center @ MaineMed** [@MMCSimulation](#)

We are extremely proud of our Standardized Patients! To thank them for their excellent work we treated them to brunch and 'sim socks' to keep their feet warm when portraying patients. Thank you to our SP's! For information about joining the team, email [splab@mmc.org](mailto:splab@mmc.org) [@ASPE\\_Tweets](#)

**Hannaford Simulation Center @ MaineMed** [@MMCSimulation](#)

Sim testing [#COVID19](#) code blue protocols-ED, anesthesia, ICU, RT, nursing, infection control [@MaineMed](#) [#justintimettraining](#) [#infectioncontrol](#)

**Hannaford Simulation Center @ MaineMed** [@MMCSimulation](#)

Today marks the first of 5 all-day "End of Third Year Assessment" events for our medical students, where our SP staff coordinates multiple SP encounters in EVERY room. How do we keep the trains running on time? A VERY detailed schedule! [@LindsayMalliar](#) [@TuftsMedSchool](#)

**Hannaford Simulation Center @ MaineMed** [@MMCSimulation](#)

Our [@BBCHMaine](#) nurse simulation education/research team presenting data looking at factors that influence nurse engagement during interprofessional debriefing. [#IMSH2020](#) [#INSPIRE2020](#) [@INSPIRE\\_Network](#)

**Hannaford Simulation Center @ MaineMed** [@MMCSimulation](#)

Pandemic distancing requirements force us to get creative for our Friday Pedi Team Training debrief. Great interprofessional learning and we enjoyed a picture perfect September day in Maine! [@BBCHMaine](#)

**Hannaford Simulation Center @ MaineMed** [@MMCSimulation](#)

First community site rollout of [@ImPACTS\\_Network](#) at Miles Memorial Hospital. Interprofessional simulation-based collaboration between ED staff from Miles and [@MaineMed](#), and pediatric ICU [@BBCHMaine](#) to ensure the best possible care for critically ill kids across [@MaineHealth](#)

**Hannaford Simulation Center @ MaineMed** - 1/8/20 [@MMCSimulation](#)

Sim Specialist Susie Lane presenting simulation moulage innovation to re-create a radiation burn to the neck for airway training at the New England Simulation Consortium Winter Event. [@MaineMed](#) [@unetweets](#) [#moulage](#)



# TIMELINE

## 2010

- Sim Center opens on Brighton Ave; Standardized Patient Program relocates from Falmouth

## 2012

- Sim-based clinical transformation initiative launched in Obstetrical services (First in-situ)

## 2013

- Sim Instructor Course launches
- First outreach — Doc 4 A Day at Orono

## 2015

- Hannaford Team Training Facility opens on Bramhall campus

## 2016

- Bi-weekly Code team training begins at MMC

## 2019

- First Systems Integration event with Coulombe Family Tower Expansion and Sisters Heliport

## 2020

- Covid Preparedness response
- First Virtual/“telesim” Standardized Patient experience
- Earned Accreditation by Society for Simulation in Healthcare





# MEET THE TEAM

All of the good work you're reading about in this publication wouldn't be possible without the 15 individuals (who combined have more than 100 years of simulation experience!) who make up the staff at the Hannaford Center for Safety, Innovation & Simulation. The key front-line simulation positions are:



**EDUCATION SPECIALISTS** — Concentrating in either high-fidelity manikin- and skill-based curriculum or standardized patient curriculum, the education specialists are responsible for collaborating with teaching faculty and other hospital stakeholders on the development, maintenance, and revision of simulation activities. They ensure the appropriate simulation modality is selected, that learning objectives are clear and measureable, serve as a centralized checkpoint so that curriculum is created to benefit the maximum number of learners, and ensure the clinical fidelity of our simulation activities.



**SIMULATION SPECIALISTS** — Simulation specialists implement and deliver high-fidelity simulation activities using manikins and skills trainers. Collaborating with faculty and the Sim Center's education specialists, they are responsible for "bringing the show to life" with voice acting and special effects makeup that allow learners to suspend their disbelief. They are also technically savvy in knowing how to program, run, and troubleshoot simulation equipment and the clinical equipment that is found in actual patient care environments. Our simulation specialists are extremely innovative, including creating proprietary 3D models for difficult airway and pessary trainers and a synthetic replacement for animal tissue.



**SIMULATION TRAINING SPECIALISTS** — Simulation training specialists are experts in the use of standardized patients (SP) in the delivery of high-fidelity simulation activities. Often confused with actors, SPs are real people who are trained to portray a myriad of clinical conditions and provide feedback to learners. Simulation training specialists recruit, train, and cast SPs, and collaborate with faculty and education specialists to edit scripts and manage precise minute-by-minute schedules that only the best event planner could appreciate. They also provide evaluations and mentorship to more than 70 SPs in our pool. Innovations include creating a system-wide telehealth simulation activity in response to COVID-19 and converting nearly all of the SP curriculum to a virtual platform using Zoom.

The frontline team described above is supported by two physician directors, an administrative director, operations manager, systems analyst, and administrative specialist.

Note: opposite page credentials —  
CHSOS = Certified Healthcare Simulation Operations Specialist  
CHSE = Certified Healthcare Simulation Educator



**Tracie Barbour, CHSOS**  
Simulation Specialist



**Chris DiLisio**  
Simulation Specialist



**Susie Lane, CHSOS**  
Simulation Specialist



**Christyna McCormack**  
Administrative Director



**Mike Shepherd, CHSE**  
Operations Manager



**Shelly Chipman, MSN, CCRN, CHSE**  
Simulation Nurse Education Specialist



**Jeff Holmes, MD**  
Regional Medical Director



**Christine Mallar**  
Standardized Patient Education Specialist



**Bethany Rocheleau**  
Simulation Training Specialist



**Erin Siebers**  
Simulation Training Specialist



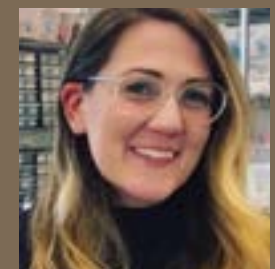
**Todd Dadaleares, CHSOS**  
Simulation Specialist



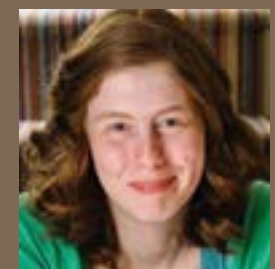
**Tyler Johnson**  
Simulation Specialist



**Leah Mallory, MD**  
Medical Director



**Stephanie Salamone**  
Administrative Specialist



**Mariah Wheeler**  
Associate Systems Analyst



# BEHIND THE SCENES

Creating a simulation event is more than building an event list or programming a manikin. It requires creativity and adaptable problem solving that we like to think of as “innovation.” In fact, that word appears in our name and is evident in the work we do every day behind the scenes to support our learners and faculty. Regardless of modality, our staff is eager to respond to requests for curricular improvements and always keeping an eye on the simulation landscape in order to introduce products and ideas that make our events even more realistic and satisfying. Below are a few examples of the things we regularly do that might not be obvious to the casual visitor.

## MOULAGE

Moulage is the application of make-up or other special effects used to enhance realism by replicating physical findings. Most often used with manikins, moulage can be also applied to Standardized Patients to show bruising, lacerations and other physical exam findings consistent with the simulated patient presentation being cared for. Depending on the severity of the injury, moulage can take just a few minutes or several hours to apply and remove. It may also include synthetic materials or common household food items sold in the grocery store. Members of our staff are routinely sought after by others in the industry to share their expertise. Please see our list of presentations on Page 45.



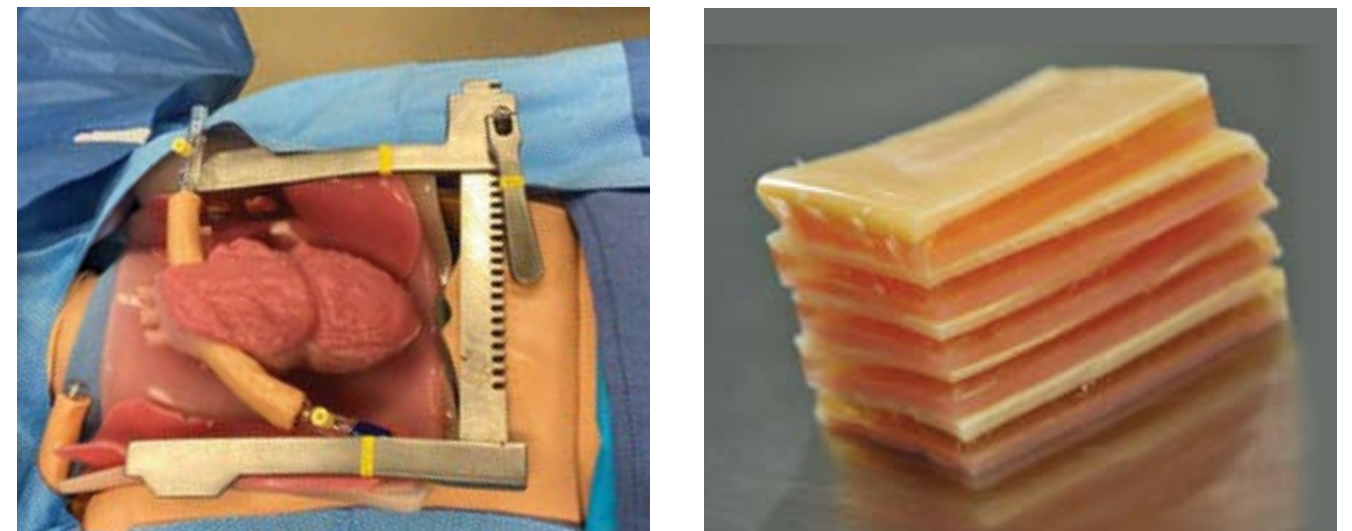
## SKILLS TRAINER DEVELOPMENT

Whether for routine supplies or unique training devices, our staff is well-versed and well-accomplished in creating innovative solutions. Earlier this year, an Ob-Gyn faculty member was seeking a realistic pessary insertion training model but unable to find anything available on the market. In fact, most DIY solutions for this training activity utilized a beverage coozy. After nine months of research and development, we introduced a pessary training insertion device in September. The device was well-received by learners and the program leaders called it a “huge success.”



## WORKSHOP INNOVATIONS – SYNTHETIC SKIN AND 3D-PRINTED PRODUCTS

Recognizing cultural sensitivities of some of our learners and out of a desire to be more respectful of our environment, we are moving away from animal tissue for technical skill acquisition such as suturing and knot tying. Our staff has developed a formula using silicone rubber, liquid plastic and dyes to create synthetic human skin that consists of layers of skin, fat, and muscle. A 3D printer is also used to create tracheas for difficult airway trainers, a simulated TEE probe, and prepared containers for reusable parts.





# BEHIND THE SCENES

## STANDARDIZED PATIENT TRANSITION TO VIRTUAL

The photo below shows a very detailed example of a half-day SP event, broken down minute-by-minute. These events are highly structured and closely monitored for timing. As we emerged from our Covid shutdown, the SP staff quickly transitioned a bulk of its curriculum to a virtual platform. Unlike our highly choreographed SP events, there was no blueprint to follow. This transition included hosting many “town hall” style meetings with SPs to ensure they had suitable technology available at their homes and that we knew how to “drive” the program. We played Scattergories and talked through fun Survivor scenarios as a way to experiment with navigating the Zoom platform to prepare for virtual events.



## STANDARDIZED PATIENT RECOGNITION

Every year, SPs are recognized for their contributions to our program. Though compensated for their time, these individuals are not MMC employees. As a result, each year we treat them to a recognition event as a show of our admiration for their dedication to our program. Typically, this involves a catered meal and special gift, which this past year was a pair of MMC branded socks to wear while in character. Here's Simulation Training Specialists Bethany Rocheleau, right, and Erin Siebers, left, passing out the socks at this year's appreciation breakfast at the Portland Country Club. Some of our SPs report happily wearing these socks when working as an SP at other institutions and all say our ongoing appreciation keeps them engaged with our program.

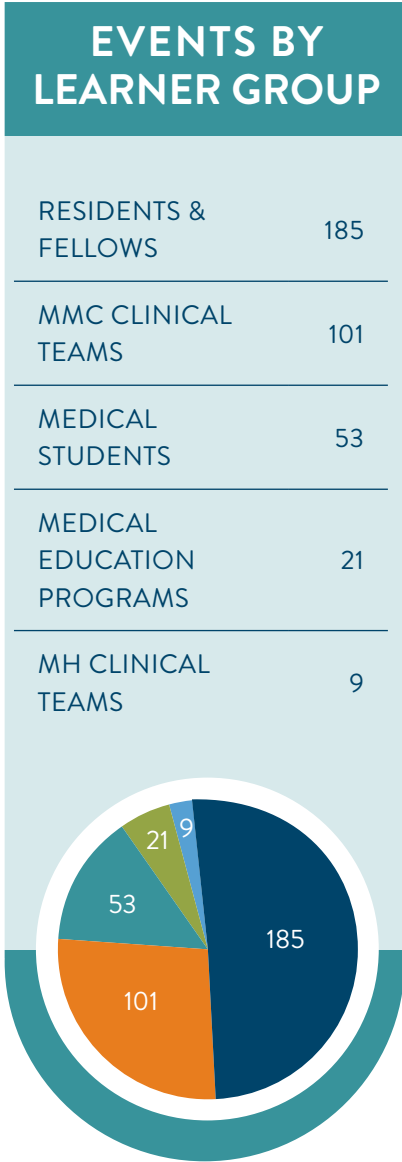
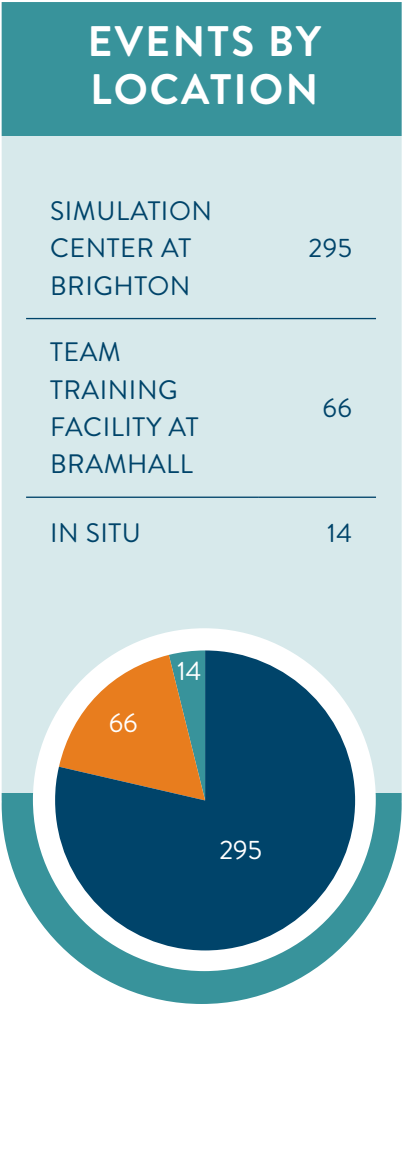
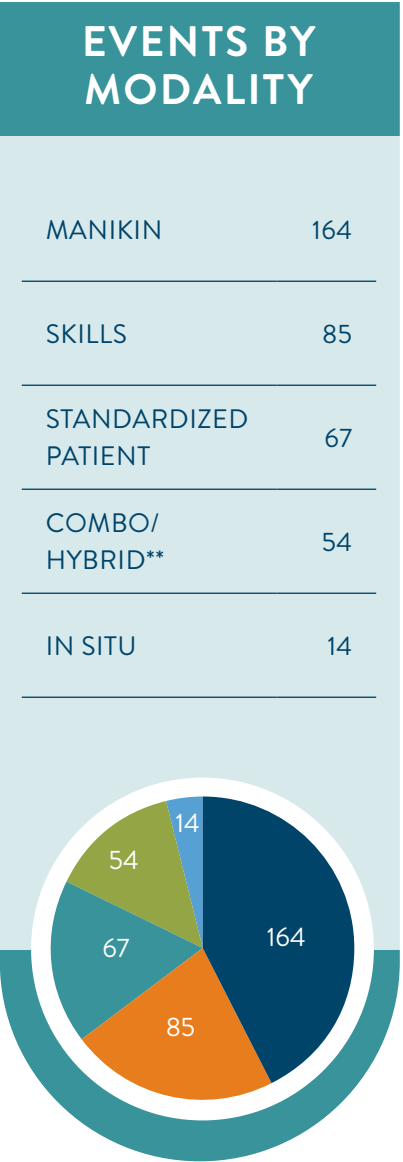




# CAPACITY DASHBOARD

THROUGHPUT	AY17-18	AY18-19	AY19-20*
EVENTS	507	483	375
LEARNERS	4,237	4,448	3,025
IPE EVENTS	22%	21%	23%

\*Regular simulation operations were suspended March 17–May 31 and reduced in the month of June due to Covid-19, resulting in reduced throughput for the year.



\*\*These events utilize more than one modality to meet learning objectives.

NUMBER OF EVENTS BY DEPARTMENT





# PATIENTS

## PATIENT SAFETY

**The Sim Center offers a powerful tool to improve patient safety. Simulation can be used to probe the system to identify and mitigate “latent safety threats” before they harm patients. Through realistic and carefully constructed exercises, we prospectively identify hazards in clinical environments, equipment, protocols, team performance and communication.**

This work often involves “in situ” events, which occur in native clinical environments. Our simulation team has staged events in diverse locations from the pediatric ICU, testing difficult airway team response to a ground floor public restroom in the hospital to test code team response to an opioid overdose, to the MaineHealth Cardiology Outpatient Clinic to train providers to have serious illness conversations.

## COVID

The arrival of COVID-19 presented challenges as we suspended all “usual” training for over three months as healthcare switched into crisis mode. However, recognizing that simulation is ideally suited to develop and test new protocols prior to implementation, our team turned this challenge into an opportunity. We rapidly assembled interprofessional colleagues from Anesthesia, Critical Care, Nursing, Respiratory Therapy, Emergency Medicine, Surgical Services, Infection Prevention, and Patient Transport to develop and test new COVID-related protocols for intubation, code team response, OR Services and patient transport. In the first few weeks of the pandemic we trained teams of providers in the HTTF daily and created open-sourced videos to reach those who could not attend.



Pediatric interprofessional team training “in situ” in the pediatric ICU.



Filming a COVID intubation training video.



PATIENTS



An interprofessional team conducts a table top simulation as part of the first phase of COVID Intubation protocol development.



Anesthesiologist Aurora Quaye, MD, and Respiratory Therapist Steven Desjardins practice safer protocols for intubation of patients with COVID-19



A Code Team in full PPE practices the resuscitation of a simulated Covid positive patient.



# PATIENTS

## NEW SPACE TESTING

The construction of the new floors and helipads atop the Coulombe Family Tower presented an opportunity to use simulation to test new spaces and teams before opening these facilities for patients.

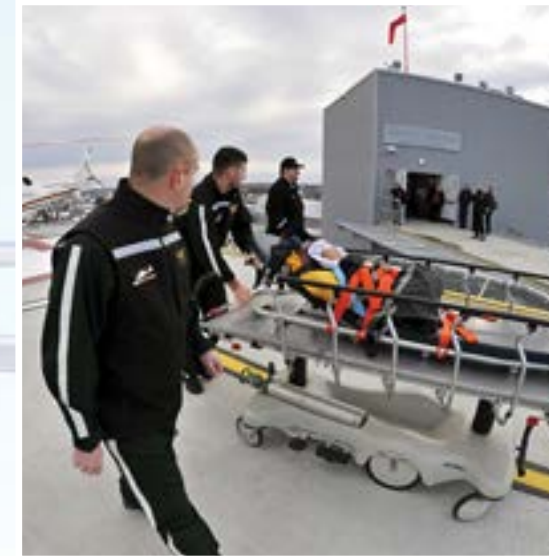
### Sisters Heliport:

During the course of several weeks, our team partnered with other MMC departments and LifeFlight of Maine in using a 3-phase strategy to test this new system prior to opening.

- **Phase 1:** Table-top simulation to determine optimal path-of-travel and communication plans
- **Phase 2:** Low fidelity simulated to test path-of-travel and communication assumptions
- **Phase 3:** High fidelity simulation that included simultaneous landings of two helicopters with critically ill simulated patients on board

These activities challenged assumptions made of the new facility while providing pilots and flight nurses the opportunity to discuss how changes in elevation, wind direction, and helipad diameters would affect the safe transfer of patients.

Teams simulate simultaneous landings of two Life Flight of Maine helicopters with simulated patients bound for the Cardiac Catheterization Lab and the Pediatric ICU.





# PATIENTS

## COLOUMBE FAMILY TOWER 6 AND 7

Assembling new teams in new spaces can introduce safety threats. Working with interprofessional colleagues from medical and surgical oncology, we again used a multi-phased approach to identify and mitigate safety threats. Skills training sessions accelerated familiarization of new nurses and those working in new clinical areas to population-specific competencies. Team training sessions focused on improving performance of new teams of interprofessional staff, as well as initial response to Code Blue emergencies. Finally, two high fidelity simulation events tested initial team performance and hospital Code Team response to the new spaces.



Sim man enjoys his view from the new CFT 7 space prior to team training.



Testing Code Blue team response to the new CFT 7 floor prior to opening.

## CENTRAL LINE INSERTION CREDENTIALING

As part of the institutional mission to eliminate Central Line Associated Bloodstream Infections (CLABSI), beginning in fall 2020, providers seeking credentialing to insert Central Venous Lines (CVLs), must complete a training module, followed by a proctored insertion. Simulation provides an ideal venue to simulate and observe CVL insertion. The simulation team, in partnership with MMC's Vascular Access Program and Patient Safety Department, collaborated to create a program to assess providers for credentialing in the simulation lab.



Dr. Jeffrey Holmes, right, uses ultrasound to place a CVL in a task trainer in a training session for simulation specialists, including Tyler Johnson, left.



Oncology surgeon Richard Royal, MD, observes the training of new teams who will be caring for patients on CFT 6.



Simulation team members receive proctor training from Vascular Access Nurse Educators.



# PEOPLE



## THE SIM CENTER IS INTEGRAL TO MEDICAL TRAINING AND EDUCATION

**The Sim Center is integral to medical training and education at Maine Medical Center for lifelong learners at all levels, including students, graduate medical trainees, and interprofessional care teams. Recently, the reach of the simulation center has begun to extend to other MaineHealth hospitals, community partners and the ambulatory setting.**

In the past year we have expanded the breadth of our interprofessional programming, invested in simulation faculty development, and initiated an educational quality improvement framework for established programs. We have begun to improve access to simulation for Graduate Medical Education (GME) programs. In addition, we have expanded simulation-based curriculum in conjunction with Tufts University School of Medicine curricular reform and adapted to virtual Objective Structured Clinical Exams (OSCEs) in response to COVID-19.

### SIMULATION INSTRUCTOR COURSE

Our annual Simulation Instructor course provides instruction for faculty new to simulation as well as those looking to enhance their abilities in simulation-based education. This immersive 2.5 day course introduces educational theory, skills related to good scenario development and guidance on how to create high-quality simulated events whether the focus is skills training, clinical decision making, enhanced communication or systems testing. In 2019 the course had 17 participants from across MaineHealth representing four different professions and 11 different departments.



## INTERPROFESSIONAL EDUCATION

A simulated environment is the ideal venue in which an interprofessional team can practice. Patient emergencies are challenging and stressful situations that require healthcare providers of all levels to communicate effectively and work together to ensure the best outcomes for the patient. In a realistic environment, simulation provides an opportunity for physicians, nurses, certified nursing assistants, respiratory therapists, pharmacists and advance practice providers to prepare for nearly any clinical situation. Our center conducts regular interprofessional team training events for obstetrical teams, the Code Blue response team, and pediatrics teams. Sessions are kept to 60-90 minutes in length, allowing staff to train and then return to their clinical assignments.

## THE CLINICAL SKILLS INTERCLERKSHIP

In the Clinical Skills Interclerkship event, third year medical students are given an opportunity to practice and receive feedback on advanced communication skills with standardized patients. The clinical encounters featured in this event focus on pain management and end of life care. In recent years, the event also focused on interprofessional collaboration, involving students in other healthcare professions, including social work and pharmacy.

## UNIFORM CURRICULUM FOR DISCLOSURE OF ADVERSE EVENTS

In an effort to improve the efficiency of our programming and decrease “siloe” educational activity, the Standardized Patient program, in collaboration with colleagues from Risk Management and GME educators, is piloting a unified curriculum available to all GME learners. This event replaces smaller trainings with similar objectives that occurred annually for seven different GME programs. Consolidating this training increases the rigor of the curriculum and outcome assessment, expands access to all GME learners, and uses our Sim Center resources more efficiently.



# POPULATION

## EXPANSION ACROSS MAINEHEALTH

The unification of MaineHealth offers a unique opportunity for a system of hospitals to work together toward the common goal of improving the health status of individuals and communities. Simulation can facilitate this by disseminating best practices among service lines to improve the outcomes of patients who depend upon a unified, efficient system of care. With innovative simulation programming that evaluates care teams and systems, the Sim Center and its regional program can foster local empowerment and offer regional support. In addition to enhancing institutional relationships and optimizing well-coordinated care, this programming can have a measurable and lasting impact by continuing to support improvement initiatives after training.

## IMPACTS (IMPROVING PEDIATRIC ACUTE CARE THROUGH SIMULATION)

While emergency departments at children's hospitals are designed and operated specifically for the care of children, only 10% of pediatric emergency care is delivered in those settings. When a child is ill or injured, care is most often provided to them in a community emergency department near where they live or attend school. Because pediatric emergencies are fortunately rare, remaining prepared to provide high quality care for the severely ill child presents a challenge.

In order to help community hospital emergency departments maintain these important skills, the Sim Center has partnered with a national education and research collaborative, ImPACTS. This simulation-based quality improvement collaborative works with academic children's hospitals and their community partners to maintain and improve their "pediatric readiness" using in situ simulation-based assessments to generate improvement plans. In addition to training local care teams, ImPACTs utilizes human factors engineering principles and plan-do-study-act cycles to test systems and generate a safer, more effective care environment for children.



Dr. Amber Richards and Dr. Jillian Gregory evaluate a septic pediatric patient during the Maine Medical Center ImPACTS training.



# POPULATION

## NEONATAL RESUSCITATION PROGRAM

Rapid and skillful neonatal resuscitation, performed by a confident and knowledgeable medical team in the delivery room, is crucial to reducing neonatal mortality rates. Neonatal resuscitation, which is used to help a newborn establish a regular heart beat and respiratory effort, is a critical skill. However, it is a high risk, low occurrence event for community hospitals in a rural state like Maine. Low birthing volumes in these hospitals limit opportunities for providers to maintain essential neonatal resuscitation skills. Simulation can meet this critical need to maintain and improve neonatal resuscitation skills.

The Sim Center works with neonatal intensive care specialists from The Barbara Bush Children's Hospital and local delivery room teams from MaineHealth birthing hospitals to deliver comprehensive interprofessional training on neonatal resuscitation. Training includes specialized skills such as neonatal intubation, emergency pneumothorax evacuation and umbilical IV access. Interprofessional delivery room teams then participate in realistic in situ high fidelity scenarios which serve as a platform for debriefing sessions that focus on teamwork, communication, and systems testing. Valuable clinical systems data is collected and used by these clinical teams to improve care delivery.

In an effort to continue these trainings and skills on a regular basis, we have initiated a telesimulation pilot program. Using telehealth technology, we can support local hospitals with simulation tools to run regular on-site neonatal resuscitation with remote feedback and coaching from specialists. The objective of the program is to make simulation training more sustainable by developing local simulation education expertise, while leveraging technology to offer subspecialty support.



A Waldo County General Hospital clinician practices intubating a premature neonate during the advanced skills workshop.



Standardized Patients Joyce Haley, right, and Glen Loper, enact a disagreement between family members regarding a loved one's end of life care plan during a Serious Illness Conversation training session for MaineHealth clinicians.

## SERIOUS ILLNESS CARE COLLABORATIVE

Evidence has shown that early discussions about goals of care for patients with serious illness are associated with better quality of life, reduced utilization of non-beneficial medical care at end-of-life, enhanced care that is consistent with the goals of the patient, positive family outcomes, and reduced health care costs. These conversations can be challenging for providers and may not occur because the vast majority — more than two-thirds — of clinicians have no formal training around this important skill.

In order to address this problem, Maine Medical Center's palliative care department has partnered with Ariadne Labs to develop a Serious Illness Care Program Implementation Collaborative throughout MaineHealth focused on ambulatory clinics. The mission of this work is to improve the lives of all people with serious illness by increasing meaningful conversations with their clinicians about their values, goals and priorities.

Through structured, formalized training with standardized patients, interprofessional clinicians from multiple specialties have the opportunity to practice serious illness conversations with patients. Coupled with coaching from interprofessional champions for this collaborative, our standardized patients have helped create valuable experiential training so clinicians can initiate challenging conversations in the right way and at the right time.



# VALUE

As the Sim Center continues to expand scope and grow, we remain cognizant of the responsibility to optimize the efficiency of our internal operations. By ensuring wise stewardship of our resources, we can maximize our value to the MaineHealth system in many ways, as highlighted by the following examples.



## TRACKING OUTCOMES OF SIMULATION SERVICES

For systems integration and safety testing work, we have adopted a Healthcare Failure Mode and Effect Analysis (FMEA) from the National Center for Patient Safety. Using this scorecard, we are able to categorize latent safety threats detected during simulation events and quantify the risk of each to patients and/or staff. High priority findings are then entered into the MaineHealth patient safety management system — RL Solutions — with a “simulation” flag to indicate the safety threat was detected without any harm to any patient or staff. At the same time, the entries are also routed to the stakeholders most appropriate to identify and implement additional preventive solutions.



## IDENTIFYING NEW SOURCES OF REVENUE

### GIFTS AND GRANTS

Through a strengthened relationship with the Philanthropy and Grants offices, an anonymous community member in August pledged a generous planned gift that will support future efforts to advance pediatric simulation-based training throughout MaineHealth. The Sim Center is actively searching for and submitting grant proposals to complement our ongoing programming and strategic goals.



## SUPPORTING MEDICAL STUDENT INTERNSHIPS

With one exception (due to Covid-19), every year since its founding the Sim Center has supported the Maine Medical Center Research Institute’s summer internship program for rising second-year medical students. This program provides an opportunity for a Tufts University School of Medicine-Maine Track Program student to participate in a simulation-based research project. Past summer simulation interns include:

- 2019 Richard Byrnes
- 2018 Campbell Belisle-Haley
- 2017 Laura Getchell
- 2016 Adrianna Eurich
- 2015 John Gilboy
- 2014 Jack Vernamonti
- 2013 Louis Eubank
- 2012 Erica Brown
- 2011 Bethany Bartley



## ENHANCING GOVERNANCE REPRESENTATION

The Simulation Governance Committee’s purpose is to advance the mission, vision and values of the Sim Center and establish and maintain principles that assure optimal and equitable use of the Sim Center and its resources. Membership of this committee has expanded to include key hospital and system-wide roles that complement the committee’s educational stakeholders. Current members include:

- Leah Mallory, MD  
Medical Director, Simulation
- Mike Roy, MD,  
Adult Medicine Service Line Chief
- Bob Bing-You, MD  
VP Medical Education
- Joel Botler, MD  
Chief Medical Officer
- Samantha Caprari  
DME Operations Manager
- Shelly Chipman, RN, MSN, CHSE  
Simulation Nurse Educator
- John Curran  
AVP Philanthropy
- Ed Farrell  
VP Strategy/Business Development
- Tim Fox, MD  
AVP Medical Affairs, LincolnHealth
- Erin Graydon-Baker  
Risk Manager, MaineHealth
- Samantha Green, CPA  
Director, Medical Education
- Paul Han, MD, MA, MPH  
Director, CORE
- Jeff Holmes, MD  
Regional Director, Simulation
- Christine Mallar  
Standardized Patient Educator
- Mary Ottolini, MD  
Pediatrics Service Line Chief
- Mark Parker, MD  
VP Quality & Safety
- Doug Sawyer, MD  
Chief Academic Officer
- Mike Shepherd, CHSE  
DME Operations Manager
- Bob Trowbridge, MD  
Director, UME
- Maureen Van Benthuyssen  
SVP, Clinical Services
- Kalli Varaklis, MD  
Designated Institutional Official
- Paula White, RN, MSN  
Director, CCPD
- Melissa Zelaya-Floyd, PhD  
Program Manager, iPACE



# VALUE



## SIMULATION-RELATED SCHOLARLY WORK

### PUBLICATIONS

Zia Bismilla, Tehnaz Boyle, Karen Mangold, Wendy VanIttersum, Marjorie Lee White, Pavan Zaveri, **Leah Mallory**. Development of a Simulation-Based Interprofessional Teamwork Assessment Tool. *Journal of Graduate Medical Education*; 2019 Apr; 11(2):168-176.

**Leah Mallory**, Rebecca Floyed, Cara Doughty, Tonya Thompson, Joseph Lopreiato, Todd Chang. Validation of a modified Jefferson Scale of Empathy for observers to assess trainees. *Academic Pediatrics*; 2020 Jun 12: S1876-2859(20)3026-1.

Scott Crawford, and **Todd Dadaleares**. (2019) The Healthcare Simulation Technology Specialist and Audio/Visual Technology. In *Comprehensive Healthcare Simulation: Operations, Technology, and Innovative Practice* (159-188). New York: Springer.

### ORAL/WORKSHOP PRESENTATIONS

**Tracie Barbour, Todd Dadaleares, Chris Dilisio, Tyler Johnson, and Susie Lane**. Workshop: *"Innovations from the MaineHealth Simulation Team"* New England Healthcare Simulation Consortium Symposium, January 8, 2020.

**Jeffrey Holmes and Shelly Chipman**. Panel Discussion: *"Translational Simulation — We Can Do It Better Together"* New England Healthcare Simulation Consortium Symposium, January 8, 2020.

**Shelly Chipman**, ALERT Presentation: What increases interprofessional engagement in team training debriefing? A Qualitative Study. International Network for Simulation-based Pediatric Innovation, Research and Education (INSPIRE) meeting at the 20th International Meeting on Simulation in Healthcare, January 18, 2020, San Diego, CA.

**Mike Shepherd**, Grace Gephardt, Akiko Kubo. Workshop: *"Capacity Analysis: Using a Simple Metric to Tell Your Story."* 20th International Meeting on Simulation in Healthcare, January 21, 2020, San Diego, CA.

Deepika Rao, Melissa Chan, Vaia Abatzis, **John Kwock**, Keith Littlewood, Melissa Leal. Psychological Safety: Managing the Fear of Speaking Up. 20th International Meeting on Simulation in Healthcare, January 20, 2020, San Diego, CA.

**Richard Byrnes, Zachary Priest, Christine Schreiber, Justin Michaud, Tracie Barbour, Michael Ferguson, Shelly Chipman, Wendy Craig, Leah Mallory**. Oral Presentation — Factors correlating with interprofessional engagement in debriefing following pediatric simulation-based team training.

- 20th International Meeting on Simulation in Healthcare, January 20, 2020, San Diego, CA
- The Maine Medical Center Research Institute Costas T. Lambrew Research Retreat, May 6, 2020, Portland, ME. \*Richard Byrnes was awarded the Peter W. Bates Award for Excellence in Health Professions Education Research Award

**Tracie Barbour, Chris DiLisio and Tyler Johnson** Innovative Moulage: Affordable Solutions to Increase Clinical Simulation Realism. Healthcare Simulation Webinar Series. <https://www.healthysimulations.com/webinars/presentations>. October 13, 2020

### POSTER PRESENTATIONS

Vaia Abatzis, **John Kwock**, Jessica S. Sheeran, Lisa Morton, Stephen Eason, Keith E. Littlewood, A Simulation-based Educational Program to Improve and Assess 3rd Year Medical Student Bag-valve-mask Ventilation (BVM) and Cardiopulmonary Resuscitation (CPR) Techniques for EPA #12: A Crossover Study (Preliminary Results). American Society of Anesthesiologist Annual Meeting 2019, October 21, 2019, Orlando, FL.

**Richard Byrnes, Zachary Priest, Christine Schreiber, Justin Michaud, Tracie Barbour, Michael Ferguson, Shelly Chipman, Wendy Craig, Leah Mallory**. Does Interprofessional team performance during simulated scenarios correlate with learner engagement and participation during debriefing? Oral presentation. 20th International Meeting on Simulation in Healthcare, January 20, 2020, San Diego, CA.

**Christine Schreiber, Zachary Priest, Justin Michaud, Richard Byrnes, Tracie Barbour, Michael Ferguson, Shelly Chipman, Wendy Craig, Leah Mallory**. Nurse learner engagement during simulation-based interprofessional team training debriefing. Oral presentation. 20th International Meeting on Simulation in Healthcare, January 20, 2020, San Diego, CA.

**Jeffrey Holmes, Shelly Chipman, Erin Graydon Baker, Olivia Morejon, Tracie Barbour, Justin Michaud, Michael Baumann, Leah Mallory**. Simulation-based testing of a new helipad using an iterative failure mode and effects analysis framework. Costas T. Lambrew Research Retreat at Maine Medical Center — Abstracts from 2020, *"Journal of Maine Medical Center"*: Vol. 2 : Iss. 2 , Article 19. DOI: 10.46804/2641-2225.1067



# VALUE



## DISTINGUISHED SERVICE TO PROFESSIONAL ORGANIZATIONS

- **Todd Dadaleares** sits on the Board of Directors of SimGHOSTS, an international organization for Healthcare Simulation Technology Specialists.
- **Tracie Barbour** is the Co-lead content reviewer for the innovation and technology track for SimOps 2020 as well as a reviewer for IMSH 2021 Innovators section.
- **Shelly Chipman** was selected to be a MMC Institute for Teaching Excellence (MITE) Academy Scholar for 2020-2022 cohort.
- **Dr. Leah Mallory** sits on the International Network for Simulation-based Pediatric Innovation, Research and Education (INSPIRE) Executive Board.
- **Mike Shepherd** is a member of the planning workgroup for the New England Healthcare Simulation Consortium, and serves the Society for Simulation in Healthcare as a subject matter expert for its certification committee and as a member of its Hospital Section metrics workgroup.

Top Left: Mike Shepherd, right, and co-presenters celebrate their standing-room only workshop.

Lower Left: Tyler Johnson and Tracie Barbour present Innovations at the 2020 New England Healthcare Simulation Consortium Symposium



# SIMULATION

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## OUR MISSION:

Our mission is to utilize experiential learning techniques of healthcare simulation to educate the caregivers of tomorrow, optimize the clinical teams of today, and bolster the safety of our systems and spaces to ensure Maine's communities are the healthiest in America.

## OUR VISION:

Our vision is to become a primary tool of MaineHealth to improve patient safety, develop and optimize a clinical workforce, and disseminate best practices in order to advance the science of healthcare simulation through data-driven research on effectiveness and become a differentiating factor for MaineHealth in the marketplace.





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If you would like more information about how you can further support The Hannaford Center for Safety, Innovation & Simulation at Maine Medical Center, please call 207-662-2669.

