The Medical Record

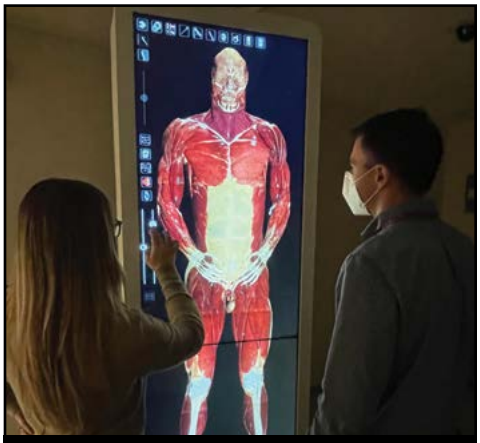
Simulation Education for Improved Professional Practice

A Newsletter of the Richard A. Henson Medical Simulation Center • Salisbury University Volume 6, Issue 2 | Fall 2021/Winter 2022

Room 106 Is Now the Virtual Dissection Lab!

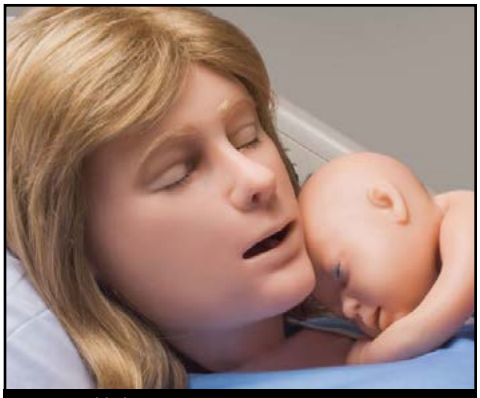
In November, the Sim Center welcomed an impressive new piece of technology: the Anatomage™ Table, a three-dimensional visualization system to teach anatomy and physiology and conduct virtual dissection. The Table contains a library of high-definition digital images from human and animal cadavers that allows for exploration and learning about human and animal anatomy from gross anatomy to the microscopic level. Images of anatomical structures are presented on an interactive, life-sized touch screen that is manipulated by learners. Anatomage™ features four gross anatomy cases, over 20 high-resolution regional anatomy cases and over 1,000 pathological examples.

When using the Table, learners can visualize anatomy exactly as they would on a fresh cadaver. Individual structures are reconstructed in accurate 3D, resulting in an amazing level of realistic, dissectable structures. This cutting-edge learning tool will help learners master important concepts of anatomy, physiology and pathophysiology such as viewing and analyzing injured muscles to identify which movements or actions produced by the muscles might be painful.



Rachel Prestridge, standardized patient program coordinator, and Zack Tyndall, acting assistant director, explore the many features of the Anatomage™ Table

Welcome Victoria!



Victoria and baby

Victoria is an adult female human patient simulator designed to help improve safety in women's health care. Learners can develop specialized skills to effectively communicate, diagnose and treat pregnancy complications, high-risk deliveries and postpartum emergencies. In a non-pregnant state, Victoria can also provide exceptional learning about care for adult women with various medical conditions.

Her capabilities include lifelike heart sounds, breath sounds, palpable pulses and the ability to secrete fluids. She is able to speak in real-time, made possible by an operator with a wireless headset. She even has natural eye movements, can track objects and illustrate signs of stress, stroke, head trauma, drug use, nerve impairment and many other conditions. She has a realistic airway that allows for emergency procedures like endotracheal intubation and can be placed on a mechanical ventilator.

Victoria replicates uncomplicated labor and childbirth, as well as common complications that occur before, during and after birth. She has multiple cervices that allow learners to practice pelvic exams. With articulating joints and pelvic tilting, Victoria can be placed in a variety of positions for delivery and childbirth maneuvers.

A full-term fetus of realistic size and weight can be positioned in Victoria's abdominal cavity, where it descends and rotates through the birth canal. The baby has a natural feeling umbilical cord and placenta and is equipped with active robotics that provide visible head movement and the ability to breathe and cry. Respiratory rate and sounds can be changed based on the scenario. After delivery, learners can obtain accurate one- and five-minute APGAR scores for this active newborn.

Learners can practice setting up and operating patient monitors and sensors during their evaluation of Victoria and her newborn, just as they would in the real world. This wireless manikin is controlled from a distant location, out of learners' view. Physiologic changes occur simultaneously in the manikin and on the vital signs monitor at her bedside. The ability to file-share images, lab results or multimedia presentations to the monitor in the room makes simulations even more realistic.

Victoria comes pre-programmed with many scenarios, but Simulation Center staff can create new scenarios for any learner group. This state-of-the-science birthing simulator provides invaluable experiences with common complications and life-threatening but rare situations in a safe and supportive environment.

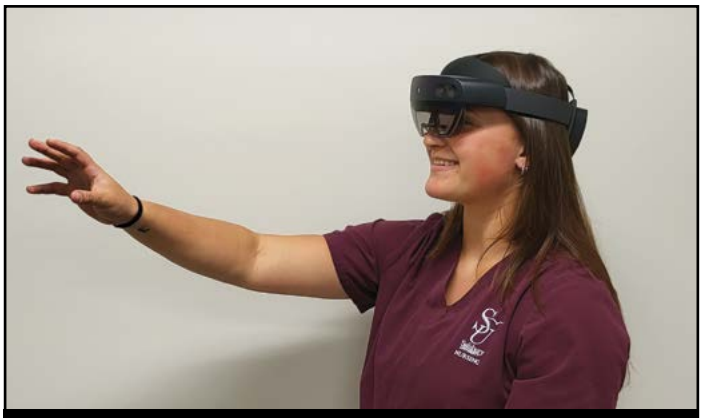
Salisbury UNIVERSITY

Mixed-Reality Learning Comes to the Sim Center

Mixed reality (MR) is a blend of the physical and digital worlds that uses computer graphics, video streams or holograms to create a fully immersive experience. Using MR, one can place a digital object, such as a hologram, in the physical world, as if it were actually present.

Now, the Sim Center has options for learning with MR in conjunction with Victoria, our adult female human patient simulator. The Obstetric MR™ is designed to help learners bridge the gap between theory and practice in a more cohesive way through holographic visualization. By synchronizing holograms viewed through a HoloLens2™ headset with the physical world, Obstetric MR™ allows learners to see inside Victoria and observe the dynamic physiology that occurs with difficult deliveries to promote greater understanding and deeper learning.

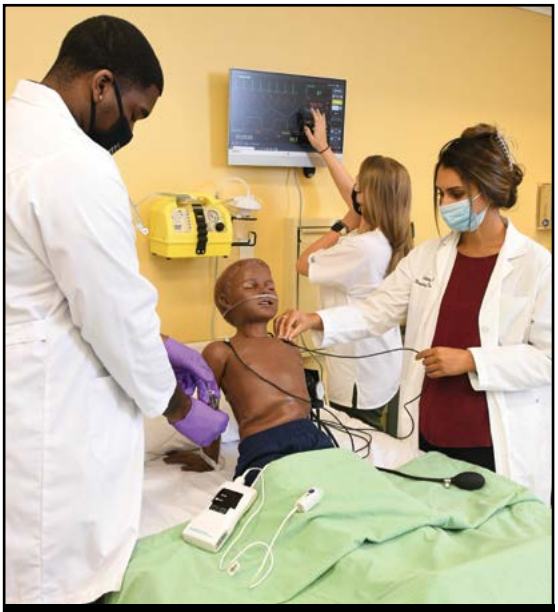
The MR experience also can be shared with a group of learners or those not physically onsite by connecting the HoloLens™ headset to Zoom technology and projecting the images. Obstetric MR™ helps learners understand clinical cause and effect through hands-on practice.



Alex Jakubowski, senior nursing student, demonstrates mixed-reality goggles

For safety when using MR, physical boundaries like walls and furniture appear digitally within the experience for users to avoid running into physical obstacles! Learning through mixed-reality technology opens up a whole new world of possibilities! Come experience it yourself.

Pediatric Hal® Advanced



(From left) Kevin Young (graduate teaching assistant); Alex Grimm (graduate research assistant); and Mason Cervantes (graduate research/teaching assistant)

Meet Pediatric HAL®, our newest high-fidelity pediatric patient manikin capable of simulating natural emotions through dynamic facial expressions, movement and speech. HAL® can cry and produce actual tears. Using HAL®, learners develop specialized skills to effectively communicate, diagnose and treat young patients in a vast array of clinical settings.

Learners can auscultate upper and lower lung sounds on the anterior and posterior chest and the right and left sides. The simulator also can mimic a lack of oxygen in the blood by turning its cheeks blue. Pediatric HAL® has palpable carotid, brachial and radial pulses and heart sounds, including various murmurs. Learners can even obtain accurate glucose testing via a finger stick.

The simulator responds to light and has horizontal and vertical eye tracking capabilities. It has injection sites on its upper arms and thighs and intraosseous access at the tibia. Learners can utilize actual patient monitors and sensors during their evaluation of Pediatric HAL®.

This unique capability allows learners to practice setting up and operating equipment just as they would in real-world situations.

While teaching CPR to various learners, faculty can evaluate the quality of their compressions and ventilations using the simulator's software. The software tracks the compression rate and depth along with ventilation rate and quality. The simulator also allows for defibrillation, cardioversion and cardiac pacing using real energy.

Gaumard Training – A Three-Day Intensive

With the acquisition of two new manikins and mixed-reality technology, the Sim Center staff was hard at work in three days of intensive training to prepare for a successful fall 2021 semester. It was all hands-on-deck for on-site training by Gaumard representative Steven Kanarian. One full day was devoted to unpacking and assembling our new Pediatric HAL® and learning updates to hardware and software. Our favorite new features include fully enclosed joints and ability of the manikin to support itself completely upright by resting on its hands; realistic eye-tracking that allows the manikin to follow an examiners finger or flashlight; facial expressions that show joy, sadness, pain, surprise and others; the ability to cry life-like tears that well up in the manikin's eyes like real tear ducts; and the ability to perform fingerstick blood glucose testing that registers a numeric value on a glucometer.

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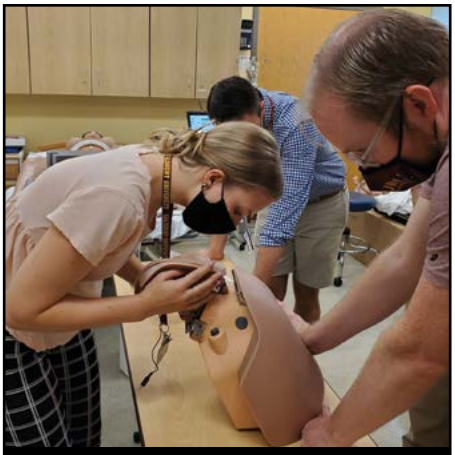


Alex Grimm (graduate research assistant), Zack Tyndall (acting assistant director) and Matt Trader (medical simulation technician) prepare one of Victoria's bellies

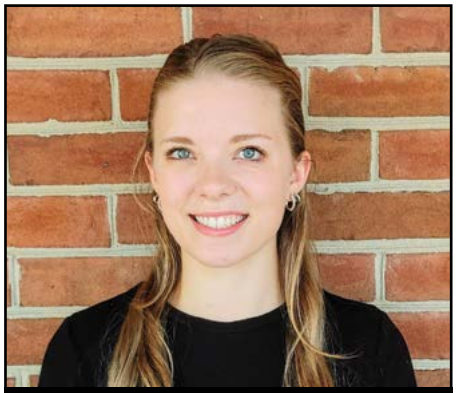
Gaumard Training – A Three-Day Intensive continued

Another day focused on Victoria, our new birthing simulator. All staff members helped unpack and assemble her while trying out her new features. Because she comes with multiple interchangeable abdomens, we learned how to remove and install each one. Staff also mastered other essential functions, including loading her baby in various positions for delivery, installing blood for a potential post-partum hemorrhage and filling her with other body fluids, including urine and tears.

The next day was spent immersed in learning about mixed-reality software and hardware. We learned how to calibrate the HoloLens2™ headset, connect to the Obstetric MR™ software and use the equipment both with and without the birthing manikin.

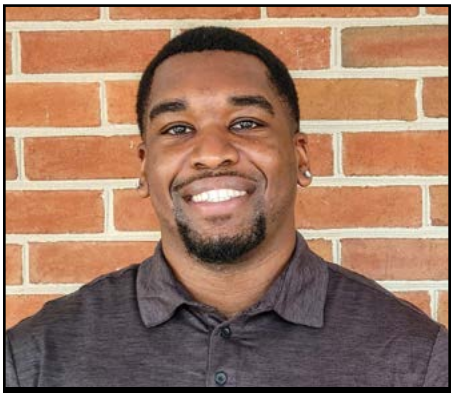
While three days of training gave us a good head start, we continue to learn something new about our equipment every day.

Welcome New Graduate Assistants



Alexandra Grimm, graduate research assistant

Alexandra (Alex) Grimm is a recent graduate of Salisbury University's undergraduate Exercise Science Program where she had countless memorable experiences and friendships. Despite the pandemic, she was able to see a future amidst the chaos. The essential worker and frontline health care providers encouraged and inspired her to alter her previous plan for graduate school and her future. There are many reasons why health and well-being are important to her: helping others to lead healthy lives, understanding human function and treating/preventing illnesses. Alex is currently enrolled in Salisbury University's graduate Health and Human Performance Program and is a graduate student research assistant to the Henson Medical Simulation Center. She assists with a variety of simulations and the overall operations of the facility.



Kevin Young, graduate teaching assistant

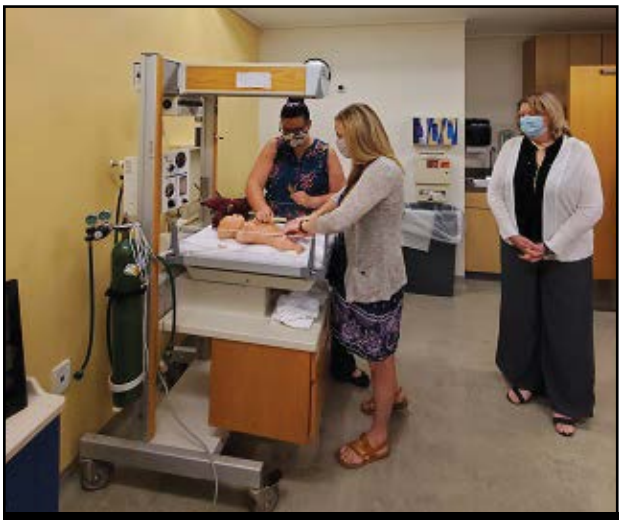
Kevin Young was born and raised in Long Island, NY. He attended Franklin Pierce University 2015-2019 where he received his Bachelor of Health Science. While attending Franklin Pierce University, he played on the men's basketball team and received the Coach's Award. He worked for three years as a physical therapy aide before coming to Salisbury University to attend the graduate Health and Human Performance Program. In his graduate assistant position, he splits his time supporting activities at the Henson Medical Simulation Center and is a lab instructor for the undergraduate Exercise Science Program.

Kevin Deminne, graduate teaching assistant

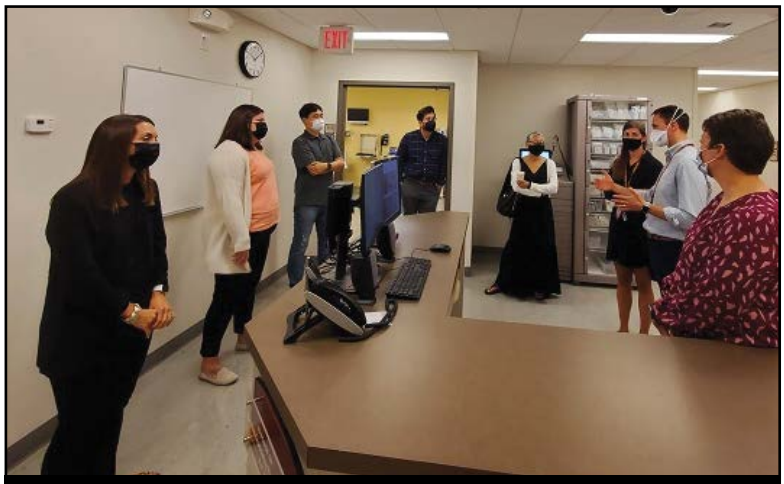
Kevin Deminne received a B.S. in exercise science with an athletic coaching minor from Salisbury University in 2014. He also coached varsity track and field athletes while attending SU. After graduation, he worked as a high school substitute teacher and track and field coach in Southern Maryland. He moved to Cape Cod, MA, to work as a high school special education paraprofessional while coaching high school and youth club track and field teams. He earned the USATF Level 1 Coaching and NSCA-CSCS certifications. In fall 2021, Deminne began SU's graduate Health and Human Performance Program and was selected as a graduate assistant for the Sim Center and undergraduate Exercise Science Program. He is a volunteer coach for the SU track and field team and strength and conditioning program.

CHHS New Faculty Orientation

The Sim Center welcomed 12 new faculty to a session of Dean Kelly Fiala's semester-long orientation program. Katelynn Cabrera, Kristen Hammerer, Donna Martin, Jaqueline Messner, Brooke Mills and Dr. Molly Dale from the School of Nursing; Margaret Harlin from Medical Laboratory Science; Dr. Kwonchan Jeon from Public Health; Drs. Daniel Green, Bibiana Koh and Stephen Oby, from the School of Social Work; and Dr. Margarita Treuth, director of the School of Health Sciences, toured the Center and explored learning opportunities for their students. This event was the first of its kind since the pandemic and we look forward to hosting it again next year.



(From left) Kristen Hammerer (NURS), Katelynn Cabrera (NURS) and Donna Martin (NURS)

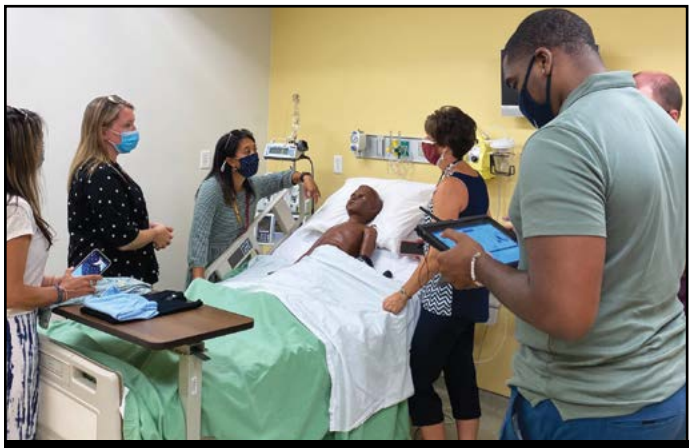


(From left) Jacqueline Messner (NURS), Molly Dale (NURS), Kwonchan Jeon (Public Health), Daniel Green (SOWK), Bibiana Koh (SOWK), Brooke Mills (NURS), Zack Tyndall (Sim Center), Kelly Fiala (Dean, CHHS)

Users Meeting

At the start of each fall semester, the Sim Center offers an annual user meeting for faculty to discuss new equipment, policies, procedures, staffing and professional development. The users meetings are typically well attended, and this year was no exception, with an excellent turn-out of current and new faculty. During the meeting, our team, including new graduate assistants, introduced themselves and described their roles in the Center.

A major focus was the unveiling of the new Sim Center MyClasses site, which was completely overhauled in summer 2021, resulting in a vastly improved user experience for students and faculty. Sim Center staff provided a comprehensive overview of the new site, pointing out the location of faculty resources and training materials. Participants reviewed new policies and the COVID-19 precautions for the semester ahead and discussed upcoming professional development opportunities. The meeting concluded with a tour of the Simulation Center and demonstration of new equipment.



(From left) Jennifer Hart (Nursing), Rachel Weber (Nursing), Teena Milligan (Nursing), Lisa Seldomridge (Sim Center director), Kevin Young (graduate teaching assistant) controlling the manikin and Kevin Deminne (graduate teaching assistant)

Sim Center Hosts CHHS Collaborative Conversation

Faculty and staff from various CHHS programs visited the Sim Center recently for a collaborative conversation about current and future simulation projects. Attendees learned more about the services of the Sim Center, the features of the high-fidelity manikins and how standardized patient actors can be used. As a special treat, the new Anatomage™ Table was introduced with opportunities to see some of its functions. We even had a surprise visit from SU's provost, Dr. Karen Olmstead. This brainstorming session sparked lively conversations that we hope will lead to expanded integration of simulations into programs not currently using the Center and expanded interprofessional collaborations. Those unable to attend are invited to contact us to start a conversation about how to use simulations with your students!

FAMI-MD – A Look Back at 2021

By Brad Hauck

The year 2021 was the busiest in FAMI's history and a perfect time to reflect on our accomplishments. In 2020, with COVID-19 starting and the Eastern Shore Faculty Academy and Mentorship (ESFAMI) five-year grant ending, FAMI made the decision to go bigger than ever. With ambitious plans to continue addressing the nursing faculty shortage, FAMI proposed a further expansion – to offer over 50 academies and train more than 500 nurses as clinical faculty from 2021-2026.

FAMI offers two virtual workshop experiences, known as academies, to nurses who are interested in being clinical nurse educators. To apply for an academy, nurses must have a bachelor's or higher degree in nursing and a minimum of two years of clinical nursing experience. Each academy, Intro-FAMI and Advanced-FAMI, is a 40-contact hour experience that runs over a six-week period with five synchronous Zoom sessions as well as asynchronous online content. Academies cover a wide variety of topics from legal aspects of teaching and providing student feedback to creating a positive learning environment and professional development. Each academy uses standardized patients (actors) to portray simulated nursing encounters on our simulation and mentoring nights.

In 2021, FAMI offered eight academy experiences, six Intro-FAMI and two Advanced-FAMI. There were 84 participants who attended in 2021, with an average of 10-11 participants per academy. One of the goals of FAMI is to increase the diversity of the nursing faculty workforce, as well as staff hard to recruit specialty areas such as maternity, pediatrics, community and mental health. Nearly half, 40 of the 84 participants, were from underrepresented gender, ethnic and racial groups in nursing. Another 48% of our participants represented specialties of nursing that are high need and difficult to staff, 40 of the 84 participants. We exceeded our 25% goal for both of these metrics, so 2021 proved to be an excellent year for representation across the board. About 65% of the participants who finished our academy in the first half of 2021 are already teaching! That means that in less than six months, these participants have decided to take the step and start teaching for colleges and universities in Maryland.

The success of FAMI is due in large part to our partnerships. We work with a dozen partners across the state to provide the quality academies that continue to attract excellent applicants. From the veteran nurse faculty who facilitate the academies to the hospital and educational partners who help recruit for FAMI, to our SU Sim Center partners who provide the high-quality scenarios for our participants. FAMI represents the potential impact that statewide initiatives can have on nursing. As we look back at 2021 with pride and a feeling of accomplishment, it's hard to not be excited for FAMI's the future. The year 2022 will bring new challenges and promises to be an even bigger year for FAMI, with 11 academies planned!

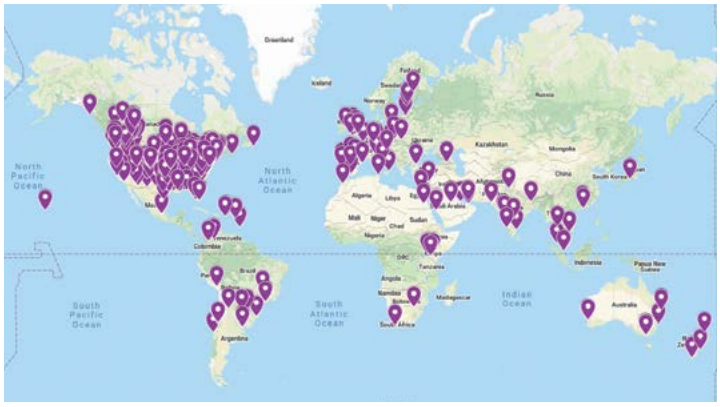
If you're interested in how you can be a part of FAMI and help solve the nursing faculty shortage in Maryland, please visit www.salisbury.edu/nursing/academy or email us at FAMI@salisbury.edu

Celebrating Healthcare Simulation Week 2021

What is Healthcare Simulation Week?

Healthcare Simulation Week is an annual celebration not only for our Sim Center, but for the simulation community all around the world. Members of this global community come together to raise awareness about the profession and to celebrate those who work in the industry. The Society for Simulation in Healthcare (SSH) is a non-profit organization that serves as a resource for all professionals in the healthcare simulation industry. Each year for Healthcare Simulation week, SSH hosts several events to share information, advocate for clinical simulation professionals and to stress the values of health care simulation. These events include presentations, question and answer sessions with presenters, webinars, social media posts, live events and, this year specifically, a video contest.

Additionally, SSH encourages simulation professionals worldwide to join in celebration by spreading the word about the importance of healthcare simulation in providing the opportunity to improve safety, effectiveness and efficiency of health care delivery. Check out the map of Healthcare Simulation Week participants from 2021!



How we celebrated

Each year, the Sim Center celebrates Healthcare Simulation Week on our social media pages by sharing news and information about our facility. This year, we created one social media post to share each day of the week. The Sim Center's Facebook and Instagram pages featured a short tour video, a clip highlighting the life of a Standardized Patient, a snapshot of an open house tour from health care simulation week and two posts with information about our newly acquired simulation technology and equipment.

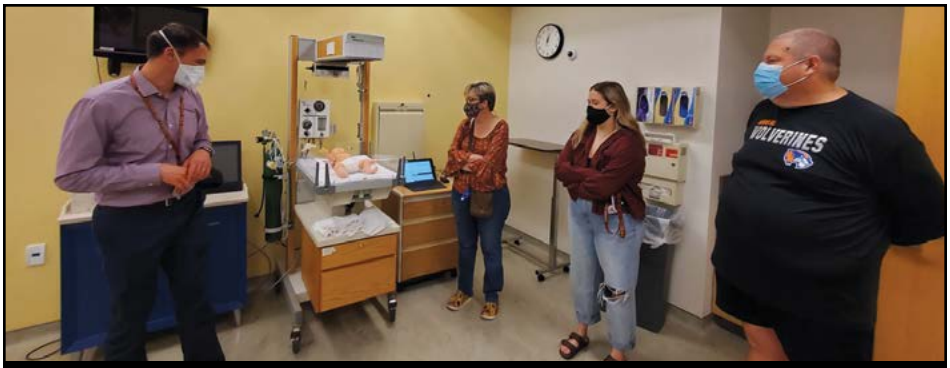
Follow us!

If you missed these posts, please be sure to check them out! The Sim Center can be found on Facebook at **Salisbury University's Richard A. Henson Medical Simulation Center** and on Instagram at **SUSimCenter**.

Homecoming/ Family Weekend Open House

For the third consecutive year, the Simulation Center opened its doors during Homecoming Weekend to alumni, current students and their families, and the community.

Tours were provided by the Center's director, Dr. Lisa Seldomridge, and acting assistant director, Zack Tyndall. The new high-fidelity pediatric and birthing simulators were featured along with five other high-fidelity patient simulators and videos showcasing the Center's Standardized Patient Program.



(From left) Zack Tyndall, acting assistant director, Maddie Burrows, junior nursing student, and her parents.

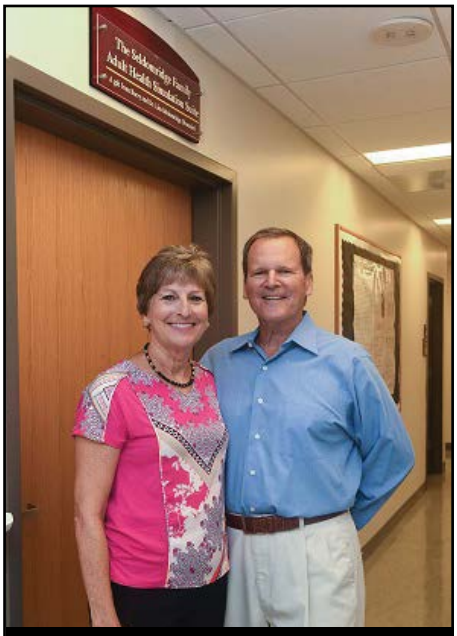
Current students proudly showed the Center to their families, talked about simulation experiences they recently encountered and spoke about the learning environment and how closely it mimics the clinical setting. Several alumni brought their own children to the Center to see how much things had changed since they were last on campus. These young learners had the opportunity to hear a heartbeat through a stethoscope and feel a manikin's pulses. It was a memorable visit for all!

Tyndall Earns CHSOS Certification!

Congratulations to Zack Tyndall, acting assistant director of the Henson Medical Simulation Center, on becoming a Certified Healthcare Simulation Operations Specialist (CHSOS). Earning advanced certifications in simulation provides formal professional recognition of specialized knowledge, skills, abilities and accomplishments in simulation education. Certification also indicates a level of competence and educational expertise in an area of health care simulation. There are two different simulation certifications available through the Society for Simulation in Healthcare, the international organization for simulation. These include the CHSOS, which focuses on special skills needed for overseeing simulation operations, and the Certified Healthcare Simulation Educator (CHSE), which focuses on the educational role and development of simulation activities for undergraduate and graduate students, and allied health and health care practitioners.

As of September 1, 2021, there were 3,270 people in the world with advanced simulation certification. Of those, only 439 have the CHSOS certification. The Sim Center is incredibly proud of Tyndall's accomplishment!


Acting Assistant Director Zackery Tyndall, CHSOS


Lisa and Barry Seldomridge

Seldomridge Family Gift

The Simulation Center recently received a generous gift from Dr. Lisa and Barry Seldomridge and their daughters Lauren and Emily to support the naming of a room at the Center. Dr. Seldomridge was a founding force in creating the Richard A. Henson Medical Simulation Center and wrote the original grant in 2009 that helped establish the Center. Since then, she has guided the Center's growth and currently serves as its director. Over her 35-year career at Salisbury University, Seldomridge has served in leadership roles as Nursing Department chair and graduate program director and has taught thousands of students in the specialty of adult health care. "It was a natural fit to name the Adult Health Simulation Suite because that's my area of clinical expertise," said Seldomridge.

To date, Seldomridge has raised over $11.4 million in grant funding, $9.4 million of which has supported the expanded use of medical simulation at SU and the surrounding community. The Seldomridge Family Adult Health Simulation Suite is a safe place for health care practitioners to learn, build confidence and competencies in a controlled, reflective environment.

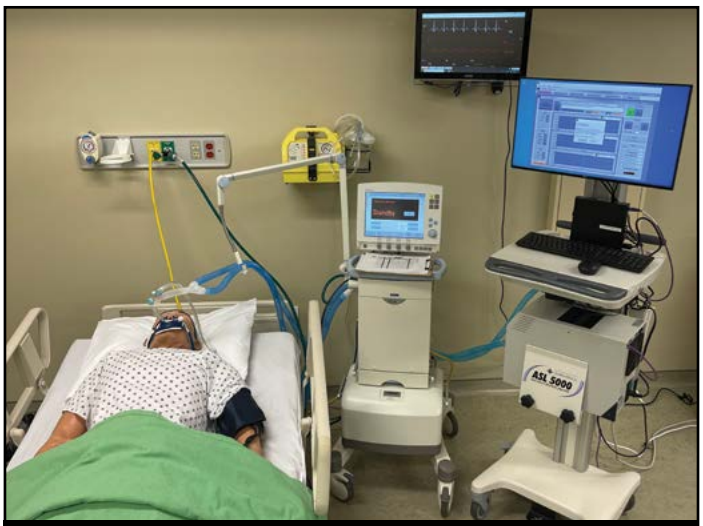
"Our gift is an investment in the future of the Sim Center for the benefit of SU students and the community," shared Seldomridge.

The Simulation Center has many naming opportunities. To learn more, contact Stefanie Rider at skrider@salisbury.edu.

A Collaboration for Development of Respiratory Care Simulations

Dr. Robert Joyner, director of TidalHealth Richard A. Henson Research Institute and former director of Salisbury University's Respiratory Therapy Program, and Zack Tyndall, acting assistant director of the Henson Medical Simulation Center, recently developed several new, unfolding, high-fidelity simulations focused on caring for patients in respiratory distress and with respiratory failure. The simulations utilize the ASL 5000 breathing simulator, which is capable of simulating various lung pathologies. Each case is appropriate for all health care providers who work with patients with respiratory disease, including nursing and respiratory therapy students, nurse practitioner students, and practicing health professionals. While these scenarios focus on an adult patient, they are adaptable for newborns and children.

Cases focus on chronic obstructive pulmonary disease (COPD) exacerbation to navigate learners through a pathway of assessment and treatment of respiratory failure. During this simulation experience, learners integrate respiratory failure signs and symptoms, and initiate invasive mechanical ventilation. Care providers can also work through skills in respiratory workload assessment, airway management and initiation of mechanical ventilation.



iStan Adult Male Manikin, Ventilator and ASL 5000

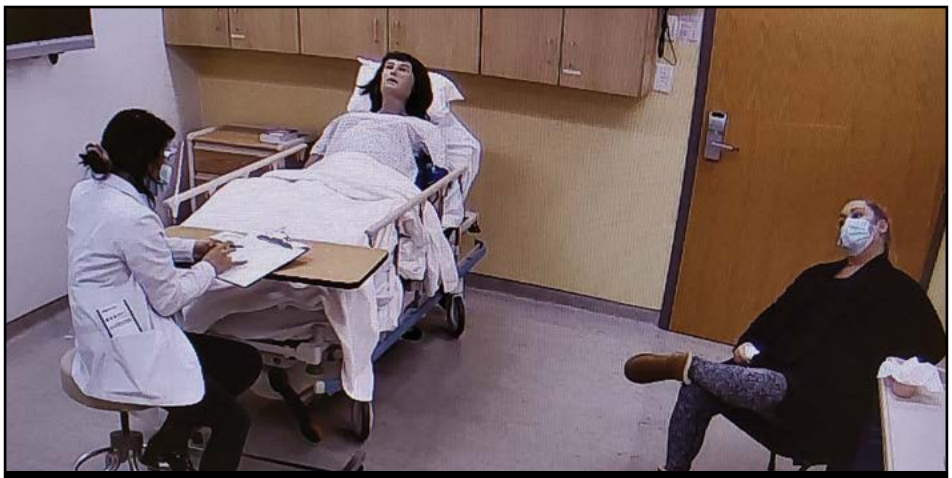
Each subsequent case builds upon the previous one, providing learners with the opportunity to reflect on their experience as they treat a critically ill patient. Faculty facilitators have the option to tailor the physiology of the patient across different pathways such as COPD exacerbation, patient-ventilator interaction, unsuccessful liberation from mechanical ventilation and successful liberation from mechanical ventilation.

These cases will be available in the Sim Center's scenario library beginning in spring 2022. We hope you will consider using them with your learner groups.

Competency Testing of Physician Assistant Students from University of Maryland Eastern Shore

In December, the Sim Center provided competency testing for 16 physician assistant (PA) students from the University of Maryland Eastern Shore (UMES). Working with Dr. Tiffany Maxwell, UMES PA Program director, and PA faculty Tim Sparta and Rebecca Ospital, the Center created two different scenarios for this evaluation experience.

Each PA student received a hand-off report, met their patient, conducted a focused history and physical examination, and considered various differential diagnoses. They had the opportunity to order laboratory and diagnostic studies to help confirm their diagnoses, which they conveyed to the patient – all within a 20-minute time allotment to mimic reality! Upon completion of the simulation, the student moved to a conference room to write up their documentation using a SOAP note format, which was then turned in to UMES faculty. In the final step, students were asked to reflect on their own performance and the overall experience.

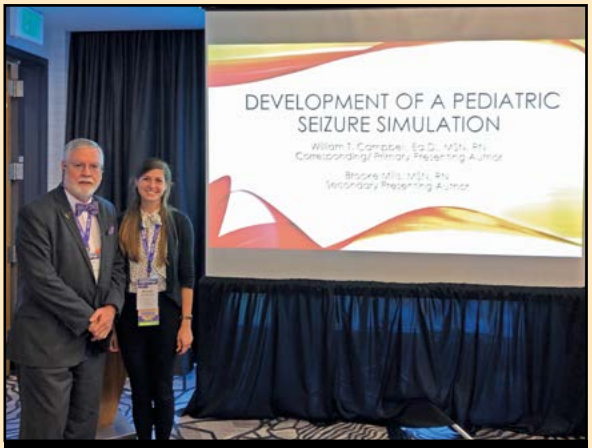

Vyphuong Tran, UMES physician assistant student, and Ann Nelson, standardized patient actor, participating in hybrid simulation with high-fidelity manikin, Victoria.

One student shared: "This was a great learning experience and I am appreciative of being able to know what I need to work on as a treatment provider."

Research Corner – Campbell and Mills Presentation of New Seizure Simulation

Campbell, W.T. and Mills, B. Hallet (2021). Creation of a new high-fidelity simulation on seizures. Sigma Theta Tau International Biennial Convention, 6-10 November 2021. Indianapolis, IN.

Problem: Many nursing students are not given opportunities to witness or manage children with a seizure disorder during their undergraduate nursing education. Therefore, there are many educational gaps and inherent negative attitudes toward pediatric seizure disorders, which ultimately impact the care of pediatric patients.



William T. Campbell and Brooke Hallett Mills (SU nursing faculty)

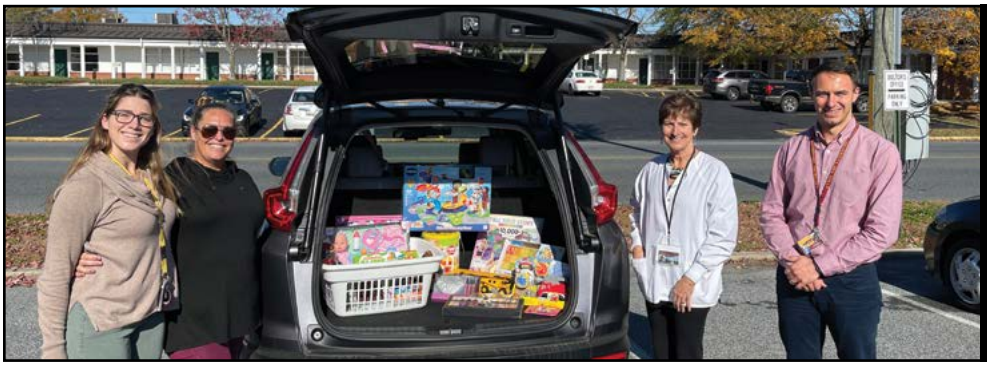
Purpose: This project served to develop a seizure simulation that exposed students to situations that they may not otherwise experience in clinical settings before becoming a health care professional. Simulations promote active learning processes, improve self-confidence and promote retention of clinical skills (Kahraman et al., 2019). Simulation experiences already established within the undergraduate nursing program for pediatric assessment, vaccine preparation and administration, post-operative care, child abuse, asthma, and diabetic ketoacidosis.

Population: This pediatric seizure simulation was focused on undergraduate nursing students in a nursing care of children clinical course at this mid-Atlantic public university. It could also be used as a refresher course for nurses in a pediatric health care setting such as a hospital, school or primary care office.

Method: After an extensive review of literature and discussions with pediatric intensivists, the researched information was integrated into the university's simulation center template and a simulated electronic health record (EHR) was created. A new simulation was developed. The Promoting Excellence and Reflective Learning in Simulation (PEARLS) was selected and used as a validated, effective debriefing model for guiding student reflection after the simulation (Walter & Adam, 2015). A trial run was performed to discover any potential problems, and the patient simulator was tested to view seizure activity. A flaw was identified in the manikin's simulated seizure activity, possible solutions were researched and tested, and a final resolution created. Then, a full simulation scenario trial run was conducted with stakeholders. Finally, the scenario was piloted with volunteer students and feedback was obtained.

Findings: Students evaluated the simulation using a 10-item, Likert scale (1-5) questionnaire post-simulation. Nine out of the 10 items were found to have a mean of 4.3 or higher on a 5.0 scale for overall effectiveness.

Conclusion: These results lend support for an overall positive learning experience for students. Pediatric seizure simulations can ultimately prepare nurses or future nurses for their careers. This simulation was integrated into the nursing program's pediatric clinical curriculum for the next academic year.



Sim Center donates to Toys for Tots: (from left) Rachel Prestridge, standardized patient program coordinator; Ann Nelson, standardized patient actor; Dr. Lisa Seldomridge, director; and Zack Tyndall, acting assistant director.

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