Center for Experiential and Applied Learning

Annual Report & Program Review

January 1 – December 31, 2023
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table of Contents</td>
<td>1</td>
</tr>
<tr>
<td>Welcome to the Center for Experiential and Applied Learning (CEAL)</td>
<td>3</td>
</tr>
<tr>
<td>Our Vision, Mission, Values</td>
<td>4</td>
</tr>
<tr>
<td>CEAL Team Members</td>
<td>5</td>
</tr>
<tr>
<td>CEAL Team/Faculty Leadership</td>
<td>6</td>
</tr>
<tr>
<td>Steering Committee</td>
<td>7</td>
</tr>
<tr>
<td><strong>CEAL Team Updates</strong></td>
<td>8</td>
</tr>
<tr>
<td>New CEAL Members and Organizational Shifts</td>
<td>8</td>
</tr>
<tr>
<td>Retirement Gathering Celebrating Frederick Kremkau, PhD</td>
<td>10</td>
</tr>
<tr>
<td>CEAL Team Gathers at ROAR to Bring in the Summer</td>
<td>11</td>
</tr>
<tr>
<td>Bridget Francis Honored with &quot;Friends of the Residency&quot; Award</td>
<td>12</td>
</tr>
<tr>
<td>CEAL Team Abstracts/Publications</td>
<td>13</td>
</tr>
<tr>
<td><strong>CEAL Administration</strong></td>
<td>14</td>
</tr>
<tr>
<td>CEAL Takes on WFUSOM Video Production</td>
<td>15</td>
</tr>
<tr>
<td>CEAL Admin Team Attends Conference</td>
<td>16</td>
</tr>
<tr>
<td>Social Media Update</td>
<td>17</td>
</tr>
<tr>
<td>Seen on Social</td>
<td>18</td>
</tr>
<tr>
<td>Post-Event Surveys Go Paperless in 2023</td>
<td>19</td>
</tr>
<tr>
<td><strong>CEAL Collaboration</strong></td>
<td>20</td>
</tr>
<tr>
<td>CEAL Participates in Spring Academic Forum for Wake Forest/Advocate Health Leaders</td>
<td>21</td>
</tr>
<tr>
<td>CEAL Takes Part in STEAM Night at the Dash Stadium</td>
<td>22</td>
</tr>
<tr>
<td>CEAL Team Helps Deliver Medical Education for WFU Summer Immersion Programs</td>
<td>23</td>
</tr>
<tr>
<td>Teddy Bear Clinic Introduces STEM to Elementary Students</td>
<td>27</td>
</tr>
<tr>
<td>Stokes Students Glove Up for Hands-On Medical Experience</td>
<td>29</td>
</tr>
<tr>
<td><strong>Anatomical Resources</strong></td>
<td>33</td>
</tr>
<tr>
<td>Anatomical Resources Update</td>
<td>34</td>
</tr>
<tr>
<td>Simulation</td>
<td>35</td>
</tr>
<tr>
<td>------------</td>
<td>----</td>
</tr>
<tr>
<td>Lighting the Way: CEAL Partners with Nursing to Test the Performance of a Light-Linking Infusion Device</td>
<td>36</td>
</tr>
<tr>
<td>Anesthesia Boot Camp Incorporates Simulation Training</td>
<td>37</td>
</tr>
<tr>
<td>CEAL Invited to Participate in NC OBGYN Society Annual Meeting</td>
<td>38</td>
</tr>
<tr>
<td>NC State Highway Patrol EMS Training</td>
<td>39</td>
</tr>
<tr>
<td>Weekend OBGYN Mega Simulation Event Has Immediate Impact</td>
<td>40</td>
</tr>
<tr>
<td>Standardized Patients</td>
<td>42</td>
</tr>
<tr>
<td>SP 101</td>
<td>43</td>
</tr>
<tr>
<td>Standardized Patient Year-in-Review</td>
<td>44</td>
</tr>
<tr>
<td>2nd Annual SP Christmas Luncheon</td>
<td>45</td>
</tr>
<tr>
<td>Surgical Services</td>
<td>46</td>
</tr>
<tr>
<td>Yadkin County Sheriff’s Office Undergoes Special Training with Help from CEAL Team</td>
<td>47</td>
</tr>
<tr>
<td>CEAL Partners with Intuitive Surgical for Robotic Training</td>
<td>48</td>
</tr>
<tr>
<td>CEAL Works with Surry Community College for Paramedics Skills Training</td>
<td>49</td>
</tr>
<tr>
<td>Ultrasound</td>
<td>51</td>
</tr>
<tr>
<td>CEAL Ultrasound Year in Review</td>
<td>52</td>
</tr>
<tr>
<td>2023 Mini Fellows Named</td>
<td>53</td>
</tr>
<tr>
<td>EM, GI, and CEAL Ultrasound Collaborate</td>
<td>54</td>
</tr>
<tr>
<td>State-Wide High School Event Offers Exposure to Various Medical Pathways</td>
<td>55</td>
</tr>
<tr>
<td>Internal Medicine Holds First Annual Wake Forest Residency POCUS Bowl</td>
<td>56</td>
</tr>
<tr>
<td>Renal Allograft Ultrasound Training for Surgery</td>
<td>58</td>
</tr>
<tr>
<td>Ultrasound in PA Studies</td>
<td>59</td>
</tr>
<tr>
<td>CEAL Ultrasound CME Portfolio</td>
<td>60</td>
</tr>
<tr>
<td>Whole Body Donation</td>
<td>61</td>
</tr>
<tr>
<td>Whole Body Donation Program Update</td>
<td>62</td>
</tr>
</tbody>
</table>
Welcome to the Center for Experiential and Applied Learning (CEAL)

2023 was the year of change for CEAL alongside continuing to serve the collective Atrium Health Wake Forest Baptist and Wake Forest University School of Medicine (academic enterprise + clinical enterprise + community missions). Despite experiencing a shift in May 2023 with the departure of our former leader, teammates came together and rallied through this significant change with outstanding accomplishments in serving learners. These are showcased within this report demonstrating the true essence of CEAL.

Additional change was instituted in Spring 2023 with the reporting structure of two anatomy lab teammates shifting to the newly formed Office of Education Excellence within the Dean’s Office. This transition has not impacted CEAL operations as teammates from each respective area continued to support each other through set processes of the Whole Body Donation Program.

In June 2023 notification was received of plans to reorganize the footprint of office spaces within the Bowman Gray Center for Medical Education (BGCME) building to better support students and student-facing functions. The CEAL administrative team was impacted by space on the 4th floor being reconfigured into a workstation area to accommodate four teammates. Assembly work was completed by December 31, 2023, for a fresh start in the office suite January 2024.

Since early 2023, institution leadership had been planning for a new position to serve as Associate Vice President of Simulation across Advocate Health and Wake Forest University School of Medicine. 2023 culminated with the announcement that Kelley Sava of Advocate Health Midwest Region was the selected candidate to lead in this capacity. Kelley held a virtual Simulation Team Introductions meeting December 20, 2023, that included teammates from all simulation centers in the Southeast and Midwest markets.

As you read our 2023 report, we anticipate you will see how CEAL persevered through the year of multiple changes to provide valued learning experiences.

Our Best Regards,

Louise Nixon
Administrative Manager

Ian Saunders
Experiential Learning Manager
Our Vision

To Train One, Train Many. To Help One, Help Many.

Mission

The Center for Experiential and Applied Learning (CEAL) exists to serve Wake Forest University School of Medicine, Atrium Health Wake Forest Baptist, and the healthcare community by promoting and sustaining the delivery of superior patient care, using experiential and applied learning that is grounded in educational theory and scientific discovery.

Values

We seek to advance the delivery of health care by providing hands-on immersive learning for current and future clinical professionals. We are guided by a responsibility to the patients who will be treated by the health care practitioners we support. For that reason, our primary mission is to improve the care and safety of the patients who will fall under the care of the students we train.
“This was a great learning experience. I thought the sim was very applicable to our role and provided a good learning opportunity.”

Neonatal Sim Participant
CEAL Team/Faculty Leadership

The faculty leadership serve as clinical and content experts and have CEAL associated job descriptions. Current CEAL team and faculty leadership is shown below.

- Casey Glass, MD – Director of Ultrasound
- Jim Johnson, PhD – Director of Industry Relations and Professional Education
- Lauren McCormack, MD - Director of Surgical Education and Innovation
- Louise Nixon – Administrative Manager
- Tom Perrault, PhD – Director of Human Tissue Services/Human Body Donation Program
- Ian Saunders – Experiential Learning Manager
- Justin Traunero, MD – Director of Simulation – Hawthorne Hill campus
Steering Committee

Tina Austin - Navicent Health
Martin Avery - Surgery Trauma
Mark Bullard - Carolinas Simulation Center, Charlotte & Emergency Medicine
Scott Carter - GME/Radiology
Nildris Cruz-Diaz - Surgery-Hypertension
Heath Earley - Nursing
Richie Flowers - CRNA/DNP
Casey Glass - Emergency Medicine, CEAL Director of Ultrasound
Robin Hack - Nursing
Jason Halvorson - Orthopedic Surgery
Daryl Henshaw - Anesthesiology
Toni Jackson - PA Studies
Rima Jarrah - Anesthesiology
JaNae Joyner - Associate Vice President & Assistant Dean, CEAL and Education Experience Areas (until May 2023)
Jim Johnson - CEAL Director of Professional Education & Industry Relations
Megan Lee - Radiology
Michael Lischke - CME/AHEC
Anika Lyerly - Nursing/Clinical Education
Buddy Marterre - General Surgery/Internal Medicine/Surgical Palliative Care
David Masneri - Emergency Medicine
Lauren McCormack - Surgery, CEAL Director of Surgical Education
Stephen S. McNatt - Minimally Invasive Surgery
Matt Miles - Pulmonary Critical Care
Sandra Moore - Navicent Health
Luke Neff - Surgery/Pediatrics
Kathy Nelson - Nursing
Bret Nicks - Emergency Medicine, Lexington
Josh Nitsche - OBGYN
Louise Nixon - CEAL/Administration
Tom Perrault - CEAL Director of Human Tissue Services
Reese Randle - Surgery
Jennifer Roper - Family Medicine
Greg Ross - Patient Safety/Anesthesiology
Aarti Sarwal - Neurology/Critical Care
Ian Saunders – CEAL/Simulation
Elizabeth Shilling – Surgery Trauma/Addiction Research & Clinical Health (ARCH)
Alton Sutter - Colorectal Surgery (admin, Kathy Monaghan)
Dawn Swiderski - Carolinas Simulation Center (CSC) Atrium Health
Heath Thornton - Family Medicine
Justin Traunero - Anesthesiology, CEAL Director of Simulation
Franklin Watkins - MD Program; Gerontology
Terri Yates - Vice Chief Academic Officer – Health Professions for Advocate Health
Josh Zavitz - Emergency Medicine
CEAL Team Updates
New CEAL Members and Organizational Shifts

One of the best things about CEAL’s 2023 staffing updates is that our new hires are not new. We retained excellent talent with a shift from one position to another within CEAL, and reclaimed a great team member with a history that overlaps CEAL operations from the time before CEAL was “CEAL.”

Renae Hutchens started 2023 as CEAL’s Logistics Coordinator, after a June 2022 hire. Renae managed the pace and complexity of CEAL scheduling and her skillset enabled her to help the Sim team on occasion. In August 2023, she accepted a position with the SIM team to transition those skills to a more active role in SIM operations. Renae’s training as a paramedic and her history with Atrium Health Wake Forest Baptist Patient Logistics give her a perfect background to interface with CEAL events and better understand context and issues with learners and curriculum. She is a good source of energy and clear thinking on any team, and we are lucky to have retained and engaged her skills at this new level.

Nate Veach joined CEAL the first week of November 2023 to fill the position of Logistics Coordinator that was vacated by Renae. Nate brought a strong skillset and a comfortable prior understanding of process through work with the Anatomy program on 4 Gray. He has a varied organizational background with Atrium Health Wake Forest Baptist beyond his specific experience with CEAL before CEAL was formed in this current iteration, and he has the skills, contacts, and persistence to manage this job as if he has been with CEAL all along. It was a seamless transition, and Nate is a very welcome member of the CEAL team.

Also seamless and new for CEAL in 2023 was a shift for the Anatomy function to rest with both the Office of Educational Excellence (OEE) and CEAL. The shared process integrates without a hitch, and we continued to process donations and deliveries and scheduled anatomy events with more tissue than at any time in the past seven years. We have a strong overall team with Anatomy/Whole Body Donation, and it is a joy and a privilege to be part of that work.

In May, JaNae Joyner, Associate Vice President & Assistant Dean, decided to leave the institution, and her position as head of CEAL was not replaced. Louise Nixon, Administrative Manager, and Ian Saunders, Experiential Learning Manager, continued to manage CEAL’s day to day operation, reporting directly to Terri Yates. In terms of CEAL’s staffing/organizational progress, 2023 saw cohesive and root-building growth on our team. Awards and citations and learner stats will tell a more precise story, but those improvements also reflect in changes and growth we saw as a team in 2023. CEAL staff at BGCME has relocated to central space on the fourth floor as we shift from 2023 into 2024, and our teamwork continues to deepen and evolve as we move forward. We have a strong team and are well positioned to grow into the challenges and new opportunities ahead.
Retirement Gathering
Celebrating Frederick Kremkau, PhD

After 38 years as Professor of Radiologic Sciences at Wake Forest University School of Medicine, Frederick “Fred” Kremkau, PhD, decided it was time to relocate to Virginia Beach, Virginia to be near family.

Dr. Kremkau was instrumental in developing ultrasound education courses in 1975 at Bowman Gray School of Medicine, now Wake Forest University School of Medicine, and served as Director of the Center for Medical Ultrasound 1985-2009. Under the newly formed Center for Applied Learning (CAL) 2010-2016 which preceded the formation of the Center for Experiential and Applied Learning (CEAL) in 2017, Dr. Kremkau has continued teaching ultrasound for CME courses and seminars as well as sharing his ultrasound expertise across the nation. He is world renowned in his field of teaching ultrasound physics having published 10 editions of his textbook, Sonography: Principles and Instruments.

A celebration of Fred’s contributions to Wake Forest Ultrasound was held April 24, 2023. Wake Forest faculty colleagues who directed the individual ultrasound course specialties throughout the years were able to attend, surprising Fred as he arrived for the celebration. After lunch, several shared their special memories of working alongside him.

CEAL presented Dr. Kremkau with a perpetual plaque naming a future competition among medical students as the “Annual Ultrasound Bowl.” He plans to be present for the first competition in February 2024. The plaque along with photos of Dr. Kremkau, past and present, as well as his textbook, reside in the CEAL Ultrasound Education Suite on main campus.
CEAL Team Gathers at ROAR to Bring in the Summer

Ian Saunders and Louise Nixon hosted a CEAL team outing on June 29th to show their support and appreciation for the team’s hard work through a season of transition in leadership and team structure.

The event was held at ROAR in downtown Winston-Salem, where the team was treated to heavy hors d’oeuvres and boutique bowling.

As shown in the pictures, fun was had by all, but we missed teammates Jamie Hardaway and Vernon Williams.
Bridget Francis Honored with "Friends of the Residency" Award

CEAL’s very own Bridget Frances, RDMS, was chosen by the Internal Medicine residency program for their “Friends of the Residency Award” that recognizes individuals who have been incredibly helpful to the education and training of our residents. They expressed their sincere appreciation for Bridget’s contributions toward the education of the residents throughout their POCUS training.

Bridget was honored at an awards ceremony on May 18th.

"Thank you, Bridget, for all that you do for our Internal Medicine residency program. The success we have had with our POCUS curriculum would not have been possible without you. You definitely deserve this award. We appreciate you so much!"

Christopher Kelly, MD
CEAL Team Abstracts/Publications

Abstracts


Mock T, Fallabrino E, Francis B, Joyner J. *Lessons Learned: Replacing SP E-mail with an Improved Scheduling System & Communication Hub*. ASPE 2023, Portland OR (Innovation & Discussion: Snapshot - Oral Presentation)

Kelly C, Francis B, Witek L, Glass C. *Embedding Structured Ultrasound Simulator Sessions into Residency Point-of-Care Ultrasound Training*. WCUME 2023, Detroit, Michigan (Oral Presentation)

Francis B, Hadaway J, Glass C. *Medical Education Teaching Sonographer Support for Basic Science Research: A Case Series*. WCUME 2023, Detroit, Michigan (Oral Presentation)

JaNae Joyner, PhD, MHA(1) and Dawn Swiderski, MSN, RN, CHSE, FSSH(2). *Driving the Future of Experiential Learning—Collaborations and Technology*. 2023 Annual ACS Surgical Simulation Summit, Chicago, IL, March 2023. (Poster Presentation)

(1) Center for Experiential and Applied Learning (CEAL), Winston-Salem, North Carolina. (2) Carolinas Simulation Center, Charlotte, North Carolina

Publications

CEAL Administration
CEAL Takes on WFUSOM Video Production

The Center for Experiential and Applied Learning has embarked on a collaborative journey, working with various groups within the Wake Forest University School of Medicine to meet diverse needs. Recognizing the power of visual storytelling, the center has actively engaged in the creation of a wide range of content, including videos, posters, and graphics.

One of the key strengths of the center lies in its ability to cater to unique needs across the school. Whether it’s showcasing cutting-edge research, educational programs, the vibrant campus life, or showcasing students and staff, the center’s video production graphic designer, Eleonora Fallabrino, has demonstrated versatility in capturing the essence of the School of Medicine.

The video production efforts have resulted in a diverse range of videos, each serving a unique purpose. From informative documentaries on medical research to engaging promotional videos for academic programs, the center has effectively utilized the visual medium to communicate a wide array of messages.

To truly represent the School of Medicine, the Center for Experiential and Applied Learning has ventured beyond the confines of the campus, filming videos all over Winston-Salem. Recording these videos showcase the school’s beauty for the incoming students, which not only provides a broader perspective but strengthens the connection between the school and the local community.

Through these videos, CEAL has managed to exhibit the impactful work happening within the School of Medicine. Connecting with Preceptors and showing how much of an impact they make in the community is another way CEAL contributes to our institutional goals. Whether it is featuring faculty members, students, or collaborative community initiatives, the videos serve as a testament to the school's commitment to excellence in education, research, and healthcare.
The CEAL Admin team attended the Administrative Professionals Conference at Legacy Stables and Events on April 27th, 2023. The event was comprised of representatives from Atrium Health Wake Forest Baptist, Forsyth Technical Community College, Novant Health, Wake Forest University and Winston-Salem State University.

The event hosts partnered with the Second Harvest Food Bank of Northwest North Carolina by asking participants to donate non-perishable items to support the many in our area who are food insecure. Conference attendees brought in over one thousand pounds of donated food.

The purpose of the conference was to provide an opportunity for area administrative professionals to come together and learn from one another while also listening to inspiring guest speakers throughout the day. The conference also included lunch, vendors, numerous door prizes, and goodie bags for all who attended. A “dance-off” occurred after lunch and it is rumored that select CEAL teammates participated, but no such photo evidence has surfaced to date.
Social Media Update

In the fast-paced world of education and professional development, staying connected is crucial. CEAL wholeheartedly embraces this reality through a robust and dynamic social media presence. Engaging online platforms have been a steady place for individuals seeking knowledge, course information, and valuable insights in the medical field.

**A Platform for Learning**
CEAL's social media channels serve as an extension of its commitment to experiential and applied learning. By effectively utilizing platforms like Twitter and Facebook, CEAL keeps its audience informed about the diverse range of courses it offers. Whether it's a new workshop, a specialized training program, or an upcoming event, followers can stay in the loop every week.

**Medical Insights and Expertise**
CEAL does not limit its online presence to course announcements. CEAL shares insightful posts related to the latest trends, breakthroughs, and research in the field. From highlighting advancements in medical technology to sharing success stories of professionals who have benefited from CEAL's programs, the social media channels are a place to share medical information.

**Community Engagement through Retweets**
One of the unique aspects of CEAL's social media strategy is its active engagement with the broader community. By strategically retweeting vital information from the medical community, CEAL amplifies the voices and concerns of its followers from all over the globe.

**Riding the Wave of Followers**
CEAL's social media presence has experienced a significant surge in followers. CEAL's commitment to delivering valuable content, timely updates, and community engagement has resonated with a broader audience. This rise in followers shows the impact CEAL is making in the lives of those in the medical field.

**The CEAL Experience Beyond the Classroom**
Social media is not just about courses and medical information but creating an immersive experience. The center shares behind-the-scenes glimpses, success stories, and shares with the audience when there are live classes to connect directly. This personalized approach transforms CEAL's social media into a virtual extension of the learning environment, transcending the traditional boundaries of a classroom.

The Center for Experiential and Applied Learning's social media presence is not just a digital bulletin board but a dynamic and interactive platform. By seamlessly integrating course updates, medical insights, community engagement, and a touch of personal connection, CEAL has crafted a social media strategy that reflects its commitment to holistic learning. As the followers continue to soar, CEAL's online presence stands as a shining example of how educational institutions can harness the power of social media to make a lasting impact.
Seen on Social

Wake Forest University School of Medicine
Apr 25 - Ready to blast off into the exciting world of STEAM?

Wake Forest University School of Medicine and Atrium Health Wake Forest Baptist teamed up to bring an unforgettable night of exploration and inspiration at the Winston-Salem Dash game.

From ultrasounds to suturing, our engaging activities introduced attendees to science, technology, engineering, art and mathematics.

Thank you Winston-Salem Dash for the incredible opportunity to ignite a passion for STEAM in the next generation.

Simulation Technician Network

Moulage of an arm simulating an industrial accident involving heavy machinery.  Kado’s to Troyanne McMillan RN CHSSC CHSE Center for Experiential and Applied Learning Wake Forest University School of Medicine

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Joel Reeves
Did you have participants dress the wound? How did it hold up to manipulation?

Johaín Ayala Falcón
This is SO GOOD!!

Melissa Stoll
Poor Apollo but this is amazingly done!!

Sasha Jenkins
Melissa Stoll this might be his twin Caesar 😂, or MelMan...lol

Aisha Sow:
This looks great.
Post-Event Surveys Go Paperless in 2023

CEAL depends on Post-Event Evaluations to evaluate the success of an event and identify areas for improvement. These surveys are useful in performance assessment and achievement of objections and are a vital component in our accreditation status with The American College of Surgeons and the Society of Simulation in Healthcare.

CEAL surveys use a 5-point Likert scale to provide a standardized and efficient way to measure attitudes and opinions, allowing for meaningful analysis and comparison of responses in a variety of research and survey contexts. In addition to quantitative data collection, we ask open-ended questions to gather qualitative information, which allow respondents to freely express their thoughts, opinions, and experiences. This is where we get some of the great testimonials featured in our annual reports. Data input, however, is a very laborious task when collecting over 1400 post-event surveys each year.

In 2023, we went 100% paperless with our surveys. Transitioning to a digital platform offers tremendous benefits across various sectors, contributing to efficiency, sustainability, and cost-effectiveness. In addition to environmental benefits, going paperless enhances organizational efficiency. Digital documents can be easily stored, retrieved, and shared, streamlining workflow processes.

Surveys are laminated and posted in learning spaces and have been streamlined to fewer versions. The results are tabulated and shared with faculty members, staff, and event champions annually. The reduction in survey completions has been minimal and the benefits have been exponential.

“For a PA student this was extremely helpful, and the content was perfect.!”

Airway Management Sim Participant

“Thank y’all so much this was an amazing experience. I am so glad I decided to do STEM”

Surry County iSTEM Participant
CEAL Collaboration
CEAL Participates in Spring Academic Forum for Wake Forest/Advocate Health Leaders

Academic Leadership of Advocate Health and Wake Forest University School of Medicine held a Spring Academic Forum on April 24, 2023, at Legacy Stables, Winston-Salem, NC. Leaders came together to develop an appreciation for the value of experiential learning for all learners, including life-long learners as well as to increase awareness of the importance of the educational pipeline in achieving the goals of our Academic Learning Health System.

CEAL was invited to demonstrate simulation during breakout sessions where stations were set up for participant hands-on experiences. These included performing CPR on a manikin, delivering a baby utilizing a childbirth task trainer, and utilizing ultrasound for needle guided IV placement.
CEAL Takes Part in STEAM Night at the Dash Stadium

Wake Forest University School of Medicine and Atrium Health Wake Forest Baptist teamed up to bring a night of exploration and exposure to STEAM at the Winston-Salem Dash game on April 25th. In addition to Ultrasound and CPR instruction, provided by the Center for Experiential and Applied Learning (CEAL) team, suturing and other engaging activities introduced the younger generation to careers in science, technology, engineering, art, and mathematics (STEAM).

The ultrasound table had an obstetrical model with a fetus. Children of all ages stopped by to try their hand at scanning and reveling the much-anticipated gender. Surprise… It’s a BOY!!!! It was great seeing their enthusiasm about performing their first ever ultrasound.

The simulation station focused on Basic Life Support skills. Students were introduced to CPR and airway management by using a High-Fidelity Manikin. Everyone was amazed at the opportunity to learn and train with the same resources used by our Medical Students.
CEAL Team Helps Deliver Medical Education for WFU Summer Immersion Programs

The Wake Forest Summer Immersion Program empowers high school students to manifest their goals through meaningful real-world experiences, robust academics, an inclusive campus culture, networking, and mentorship, to discover their passions and clarify their future pathway.

The program offers high school students the chance to explore a particular field of study. Those selected for the program in 2023 enjoyed access to world-class faculty, resources, industry professionals and a one-of-a-kind view from inside a career field. CEAL participated in delivering medical education for two of the summer immersion programs offered across four dates.

Students in the Medicine Institute program gained firsthand experience in the medical field and insight into the many career opportunities available within the various disciplines of medicine. While visiting healthcare facilities in Winston-Salem, students participated in simulations and labs and learned basic skills like taking blood pressure. Simulation experiences included ultrasound, childbirth, respiratory management, and cardiovascular/code blue scenarios.

The Sports Medicine program provided hands-on experiences ranging from the very building blocks of sports medicine to the integration of advanced techniques to injury prevention, rehabilitation, and athletic performance. Students learned from countless experienced orthopedic medical professionals, trainers, coaches and, of course, the athletes themselves. They also spend a full day in hand-on simulation experiences, including orthopedic knee surgery, traumatic brain injury involving a football player, suturing, laparoscopic surgery, and anatomy education.
WFU Summer Immersion

“The instructors were amazing, they explained directions clearly, made the simulation fun, and corrected us when we did something wrong. We all over all had an amazing time with the birthing simulation instructors, we really bonded with them over a short period of time, and I thank them for giving us such an amazing experience.”
“Thank you so much to all of the instructors! Everyone was so encouraging and helpful and seemed so passionate about what they were teaching us! This was such a great experience and definitely kept everyone engaged! I am so glad that we got to do the simulations!”
“Both Joel and Troy were fantastic and extremely positive and passionate. Their attitude toward the simulation was empowering and infectious, they are truly amazing!”

“Wonderful experience. This has further inspired me to pursue medicine. Thank you to everyone who provided us with this opportunity!”

“I want to give a special shout-out to Renae! She was absolutely amazing and informative when performing CPR techniques. She was also super encouraging of all people to learn new things and pursue a healthcare related career.”

“The birthing simulation was so incredibly cool. Troy did an EXCELLENT job explaining common obstetrics emergencies.”

“This program has been amazing! It has made me super excited for college and medical school.”
Teddy Bear Clinic Introduces STEM to Elementary Students

CEAL is heavily involved in K-12 education opportunities. Most of the learners are middle and high school students. However, on a few occasions, groups will request a learning experience for a much younger demographic. This year we integrated a teddy bear clinic for our younger grade school students at Petree Elementary.

The event occurred in the evening with a goal of involving parents more in their child’s education. The clinic had a check-in station where the students would receive a bear, name it, and rotate through four different stations. The students and their parents started at the cardiac station, where they were taught the basic technique of performing CPR. The second station was ECHO. The participants learned about ultrasound and scanned a larger bear with a ballistic gel heart mold inside of it. They received an ultrasound picture to put around their bear. The third stop was an Anatomy station, where students could see real bones. They imagined their bear had broken a bone and wrap it with colorful wrap. Each had a cute story about how their bear broke its bone. The final destination was a Lung station, where they could listen to lungs with a stethoscope. This was a fun experience, and the students loved playing doctor with their teddy bear. One student mentioned it being the BEST NIGHT EVER. This invaluable opportunity allowed students to be exposed to future healthcare tracks earlier in life. The teddy bear clinic was later integrated into the Imprints event, hosted by the Anesthesia team for K-12 learners, with CEAL excited to join.
Teddy Bear Clinic
Stokes Students Glove Up for Hands-On Medical Experience

The Stokes News | Staff Report | Nov 2, 2023. Updated Nov 4, 2023

KING — From P.E. classes to pep rallies, students use the school gym for a lot of different activities.

On Oct. 23, students from all Stokes County high schools used the West Stokes gym for some out of the ordinary purposes: delivering babies, doing CPR, performing ultrasounds and more.

A team from Wake Forest University School of Medicine’s Center for Experimental and Applied Learning (CEAL) visited the school to guide health science students in a variety of simulated medical scenarios.

“It was a fantastic experience for the students,” said Kelli Doby, who teaches health sciences at West Stokes High School and organized the event.

“For students interested in health care this gives them an opportunity to explore the careers in a more hands on way,” she said.

In addition to the different procedures, the students also held human heart, lungs, bones, and brains while learning the effects of harmful toxins on each, Doby said.

Another benefit of the program was student interaction with medical students and CEAL professors.

Doby said a smaller version of the event was held last year at West Stokes. This year, students from North Stokes and South Stokes also joined in.

The experience apparently won over even the most cynical of students.

“I did not have a single student that was not fully into the program before they finished. Every student was beyond ecstatic, with one even saying they could not wait to tell their mom that they held a heart, lung, brain, did an ultrasound, did CPR and delivered a baby at school,” Doby said.

“This event is absolutely a phenomenal way to get the students involved and eager to learn more.”

Stokes Students Glove Up

Myra Faulk, left, holding a brain, Aubree Dotson and Reese Snow, holding bones, learn about the coverings of the brain and the brain function itself.

Samuel Ramos has just delivered a baby with Kobe McMillian’s help since it was a breech birth.

Ashlynn Cox watches a student perform an obstetrical ultrasound while a CEAL team member explains how the skull measurements are taken during an ultrasound.

A group of Stokes County Schools health science students learn about ultrasound. As Myra Faulk is doing the ultrasound, the CEAL team member is showing how to determine the orientation of the baby with her mannequin to compare to the ultrasound monitor.
Stokes Students Glove Up

Isabella Jones performs an obstetrical ultrasound with Savannah Ingle looking on.

A Medical Student from Wake Forest shows a brain to Stokes County Schools students while explaining functions of the various lobes. This is a real brain as well as real bones.

Yahiara Vasquez-Vigo has just “delivered” a baby and is holding it up for “mom” to see. Yahiara wants to pursue a career in Obstetrics after high school.

“It makes me want to go into labor and delivery”
Stokes Students Glove Up

A CEAL team member shows Stokes County high school students Ashlynn Cox, left, Alyssa Ottati, Ashley Handshoe and Hannah Fulp how to use the Bag Valve Mask device in a CPR scenario.

Pictured from left, Rachel Caudle, Elizabeth Speights and Brianna Guraleczka compare healthy lungs to those scarred from COPD.

Riley Castellano, left, Myra Faulk and Maddie Carswell find out what deflated lungs feel like before inflating them with air, learning the effects of smoking and COPD from a Wake Forest University med student.

“Instructors were awesome and made everyone laugh constantly. Very lighthearted while learning a lot.”
Anatomical Resources
Anatomical Resources Update

Internally, Anatomical Resources provided cadaveric support and instructional training last year to 146 medical students of the class of 2027 for a 12-week labor intensive Clinical Anatomy and Physiology Course. We continue to provide procedural training to forty plus medical students in the class of 2024 looking to hone skills prior to residency. We support the Physician Assistant Program by providing instructional support to 90 Physician Assistant students in the class of 2005 during their Fundamentals of Basic Science Course. We supported well over one hundred residency and surgical education events during the 2023.

Externally, Anatomical Resources provided instructional assistance to over 150 operational medicine students (medics from the Airforce and Army) from all over the country across twenty-five events during 2023.

More locally, we continue our efforts in our local community through outreach via Rolling Bones educational events. These events spearheaded by Chris York and Ken Long reach out to local elementary, middle, and high schools to provide basic anatomy and physiology instruction.

“The Rolling Bones is a wonderful hands-on experience for the high school students interested in healthcare. Our students were excited and engaged. Thank you!”

West Stokes High School Teacher
Simulation
January through March of 2023, CEAL partnered with our colleagues in nursing to evaluate the performance of a commercially available infusion device, MedLite ID (Orion, Inc.). The study, led by Drs. Carolyn Huffman and Cliff Gonzales, was partially funded by the makers of MedLite ID. When a medication needs to be administered rapidly, time is of the essence to locate the correct injection port. With critical care patients receiving as many as 8-10 infusions at one time, locating the correct injection port can be challenging—requiring nurses to spend precious seconds tracing multiple lines to identify the correct port. MedLite ID is an innovative system that uses light linking technology to assist clinicians in locating the primary infusion line and injection port. The system consists of 3 devices that snap on the primary infusion line (one near the drip chamber, one midway on the line, and one directly above the injection port). When one of the three devices is pressed, all three light up and stay illuminated for approximately 50 seconds, providing nurses with a direct visual of the injection port.

In January of 2023, CEAL partnered with our nursing colleagues to evaluate the performance of this product. Forty-seven critical care nurses completed 188 critical care simulations testing the device against standard procedures in both day light and low-light conditions. In addition to testing the time it took nurses to identify the injection port, the study also assessed perceived usability and task load of the device compared to standard procedures. The abstract of the study was submitted to the 2024 IMSH conference by Dr. Cliff Gonzales and Ian Saunders and was selected as one of the 2024 award winners.

Carolyn Huffman, WHNP, PhD
Anesthesia Boot Camp Incorporates Simulation Training

Since 2012, Justin Traunero has been developing and leading a novel course that he named Anesthesiology Resident Introduction Boot Camp. This unique curriculum consists of two full days of didactic instruction and hands-on simulation-based teaching for intern residents in the Anesthesiology department. He based the curriculum on topics and concepts that he felt were lacking in his own transition from his intern year to the first year of clinical anesthesiology/PGY1 year.

A written syllabus of learning materials is provided to residents as part of this Boot Camp which serves as a reference of materials to assist them with the transition to clinical anesthesiology, reduce the stress of that transition, and permit them to be able to focus more of their efforts in early PGY2 year on studying and growing their anesthesia knowledgebase. This two-day curriculum is conducted in the CEAL Mock OR space for each group of interns that rotates in April, May, and June of each year, and is led by Dr. Traunero with significant support provided by Ian Saunders, Vernon Williams, Joel Ferris, and Troy McMillan.

The curriculum involves a simulation component using CEAL-provided high-fidelity manakins to simulate transporting a critically ill intubated patient from the ICU to the OR, using the Mock OR space to instruct residents on how to set up rapid infusion systems, IV lines, arterial line setups, and practice placing central lines using the CEAL central line task trainers. Dr. Traunero revises and adapts the curriculum yearly based on written feedback solicited from the residents since starting this program.
CEAL Invited to Participate in NC OBGYN Society Annual Meeting

In April 2023, our CEAL team along with our Wake Forest obstetric providers organized an Emergencies in Clinical Obstetrics (ECO) course at the North Carolina OBGYN society annual meeting.

The ECO course is approved by the American College of Obstetrics and Gynecology (ACOG) and has been created from the most recent, evidence-based literature to train all levels of providers to work together during obstetric emergencies. The course includes two parts; a three-hour online course, and a three-hour simulated session to provide the background for interprofessional team management of obstetrical emergencies.

The course was led by our ACOG trained instructors; Dr. Joshua Nitsche, Dr. Talla Widelock, and Dr. Zineb Mashak, and attended by obstetric providers from different institutions within the state of North Carolina. Topics covered included shoulder dystocia, umbilical cord prolapse, breech vaginal delivery, teamwork and communication, and postpartum hemorrhage.

Organizing this simulation involved many months of planning and obtaining CME approval through ACOG, which was made possible by Maria Crawford. Our CEAL team was able to transport our mannikins and all supplies to give our participants the best experience. Our wonderful CEAL team included Troy McMillan, Ian Saunders, and Joel Ferris, who were vital in making this simulation a success. They received so many positive comments and glowing feedback from participants and meeting organizers.

The NC OBGYN society has invited the CEAL team to participate in yearly simulations. This upcoming year, our team will be organizing a simulation involving repair of perineal lacerations. We look forward to continuing our partnership with the NC OBGYN society in future meetings!

Zineb Mashak, MD

“I wanted to reach out and tell you that while we were in Greensboro, many providers stopped by our booth and told us how much they enjoyed your team’s simulation. The simulation team does a great job and I know there is a lot of prep work that goes into it. Thank you so much for all you do!”

NC Obstetrical and Gynecological Society Member/Physician
NC State Highway Patrol EMS Training

In continuing its mission to provide high quality educational experiences to a variety of medical professionals, the CEAL team and Jeff Hinshaw, PA-C, Atrium Health Wake Forest Baptist Emergency Medicine, was able to offer training to members of the NC State Highway Patrol EMS Program. The program is an umbrella covering numerous state agencies including, but not limited to, the State Highway Patrol, State Bureau of Investigation, State Alcohol Enforcement, Wildlife Enforcement, State Capitol Police, Office of State Fire Marshal, and Emergency Management. The almost 40 personnel in attendance were credentialed paramedics who provide medical care within the scope of their enforcement professions (with many using the skills in local fire-rescue-EMS agencies).

Participants were able to gain experience in high risk/low frequency procedures, review basic paramedic skills such as intubation and emergency infant deliveries, and expand their knowledge with an introduction to ultrasound assisted peripheral IV placement.

Jeff Hinshaw, PA-C
Weekend OBGYN Mega Simulation Event Has Immediate Impact

The first multidisciplinary Birth Center Mega Simulation was held at the Birth Center on Friday 1/27/23 and Saturday 1/28/23. The simulation case utilized a high-fidelity birthing simulator “patient” admitted to the antepartum unit for pre-eclampsia evaluation. The case began when the patient had a hypertensive emergency followed by a placental abruption and non-reassuring fetal tracing requiring emergent cesarean delivery. She was transferred expeditiously to the Birth Center OR where she underwent a cesarean delivery. The cesarean delivery was complicated by a postpartum hemorrhage and DIC secondary to a prenatally unrecognized placenta accreta. SP had a maternal code (PEA), and effective cardiopulmonary resuscitation and massive transfusion protocol was activated. There was also involvement of the trauma team for the simulated placement of REBOA balloon. The Gynecology Oncology team was paged and presented to the Birth Center OR to assist with the hysterectomy. The case ended with the successful delivery, maternal and neonatal resuscitation, and completion of the cesarean hysterectomy.

The simulation was a tremendous successful and displayed the expertise, comradery and effective leadership and multidisciplinary teamwork amongst several team members- OB Anesthesia, Gynecology Oncology, Neonatology, Maternal-Fetal Medicine, Obstetrics, Obstetric residents, Blood Bank, OR team, antepartum nursing team. A special thank you to Lynette Sechriest (Birth Center OR Nurse Manager), Dr. Laurel Berry (Gynecology Oncology), and the entire CEAL team for their time and coordination in preparation for this incredibly valuable educational event.
Weekend OBGYN Mega Simulation Event Has Immediate Impact

A salient observation following the Birth Center Mega Simulation debriefing session was that the participants indicated that the simulation experience helped them to not only develop critical thinking and decision-making skills in an obstetric emergency, but to also improve their technical and non-technical abilities. In fact, one of the physicians who was on call and participated in the simulation had an obstetric emergency involving a uterine rupture with baby at the spleen, which took place shortly after the training event. He expressed how smoothly it went because everyone was ready, as a result of the perfectly timed simulation training that had just occurred.

Talla Widelock, MD

“Great learning environment. Course and simulations were very helpful for a new OB nurse.”

“Great course! Wish I had done this sooner. Thank you.”

“I thought this training was well done and organized. Very helpful for learning about these emergencies in a not pressurized manner.”

“Troy was great and made the experience less stressful and fun.”

ACOG ECO Course Participants
Standardized Patients
The Standardized Patient Program is a unique and valuable training method used in medical education. These individuals, known as standardized patients, interact with medical students, residents, or healthcare professionals in a simulated clinical setting. They provide realistic and standardized scenarios for learners to practice their clinical skills, communication, and bedside manner. This helps students gain hands-on experience and develop the necessary skills to provide quality patient care.

This program allows learners to practice in a safe and controlled environment, where they can make mistakes and learn from them without compromising patient safety. It also helps learners develop empathy and effective communication skills, as they interact with standardized patients who can provide feedback on their performance. The program promotes a patient-centered approach to healthcare, emphasizing the importance of understanding and addressing patients' concerns and needs. Overall, the Standardized Patient Program plays a vital role in medical education by providing a realistic and immersive learning experience for future healthcare professionals.

The SP program at Wake Forest University School of Medicine is led by Tonya Mock and provided 8,121 hours of service/education to our stakeholders in 2023.
Standardized Patient Year-in-Review

2023 was a busy year for the Standardized Patient program. Tonya Mock, SP program coordinator, continued to build out the online training module, Articulate Rise 360, for the development/advancement of SPs with the help of the Clinical Skills and Year 3 educators. Bias training has been one of the main topics the event coaches requested we focus on in 2023 and planning is underway to incorporate annual Bias training for our patient actors.

The pilot program for the evaluation tool and feedback process for SPs worked well and they will continue to be evaluated throughout the year. This tool helps the program define specific areas for training opportunities and continued growth for our SPs.

Tonya Mock traveled to Orlando, FL in January for the International Meeting on Simulation in Healthcare (IMSH) to give an oral presentation on her accepted abstract on the Articulate Rise 360 Training module. In June, she traveled to Portland, OR for the National Association of Standardized Patient Educators (ASPE) conference. While in Portland, she presented our recently developed and implemented Humanity scheduling system. She received great feedback, including emails from several other programs wanting detailed demo’s on how our institution uses the scheduling system and its benefit to the program. The system has been a wonderful addition to the program and proves to be very user-friendly, to which the SPs have adapted with minimal issues.

In 2023, a few of our SP veterans decided to retire from the program. Jeff & Donna Sparks and Mark Southern have each dedicated more than 5 years of their time to the institution and will be greatly missed. We onboarded 10 additional SPs in October, bringing our total to 90 patient actors. We will continue to onboard qualified candidates in 2024. A major goal for the SP program in 2024 is to find more opportunities for SPs to serve Wake Forest University School of Medicine, i.e., Mentorship for new SPs and assisting during major testing events.

"As a result of this course, I will be able to provide accurate ultrasound testing in addition to our EMG testing to help better diagnose patients."

Neuromuscular Ultrasound Course Participant
Back by popular demand was our 2nd annual SP Christmas potluck luncheon. This gathering always creates an opportunity for the team to socialize and get to know each other. This event has proven to bond us as a team, and we look forward to continuing this new tradition.
Surgical Services
Yadkin County Sheriff's Office Undergoes Special Training with Help from CEAL Team

Last Fall, our team continued its support of extra-mural education with non-traditional medical learners.

Thru the association with one of our team members, CEAL was able to support a local law enforcement agency in the training of their special response team in current concepts of "Self-Aid/Buddy-Aid". Lead by Jim Johnson, PhD and Jeff Hinshaw, PA-C, the program consisted of an introductory lecture, dry lab practice, with a capstone of human tissue training. The skills taught align with industry standards of Tactical Combat Casualty Care (for law enforcement and military personnel). Officers learned concepts of hypothermia prevention and demonstrated proficiency in casualty care with tourniquets and junctional hemorrhage control techniques, as well as other combat related injuries, providing deputies with a tactical mindset and the knowledge to help save lives with more speed and efficiency.

The class brought overwhelmingly positive feedback with many looking forward to additional training in the future.

Jeff Hinshaw, PA-C

“The class covered tourniquets and stopping bleeding in a way that I had never been exposed to before, and I appreciate the information and the use of your resources greatly.”

“I learned a ton of information that I feel will be beneficial in my job. I loved the hands-on training at Wake Forest Baptist Health and felt that the instructor was very knowledgeable and made it easy to understand and learn terms that I can apply in the field.”

“This training was as close to an actual event that we can get and allowed us to see correct and efficient ways of handling bleeding including pressure points on the body that we were not previously aware of.”

“I greatly appreciate the opportunity to participate in the Stop the Bleed class at Baptist Hospital. I have been in multiple classes dealing with the application of tourniquets through the military but being able to see if you are actually applying it correctly and seeing the bleed stop was extremely beneficial.”

“The Yadkin County Sheriff’s Office benefited greatly with this training, and we feel blessed to have had this opportunity.”

Yadkin County Sheriff’s Office Team Members
CEAL Partners with Intuitive Surgical for Robotic Training

In May and October 2023, Atrium Health Wake Forest Baptist was fortunate to have support from Intuitive Surgical for hands-on Robotic Surgery training. Intuitive generously provided a dedicated mobile Xi System that includes 2 Surgeon consoles, patient cart, vision tower and the SimNow simulator. Over 120 surgeon learning encounters using human and animal tissue models were completed during these two weeks of training. This included faculty, fellows and residents from six different surgical service lines.
CEAL Works with Surry Community College for Paramedics Skills Training

In February 2023, CEAL staff welcomed the graduating class from the Paramedic Program of Surry Community College for a capstone skills event. The program was looking for a "putting it all together" type event for their graduates and after discussion between institutions, a psychomotor skills event was determined to be the best fit.

The students performed common and high risk/low frequency skills in anatomy lab. The skills were performed under the direction of CEAL staff, Dr. James Johnson, SCC medical director Dr. Darrell Nelson, and Jeff Hinshaw, PA-C, Atrium Health Wake Forest Baptist Emergency Medicine. Scenarios included active hemorrhage control, needle decompression of tension pneumothorax, intraosseous needle placement, endotracheal intubation, and surgical airway management. The students were surveyed before and after the event and they noted a marked improvement in their confidence and ability to perform these lifesaving procedures, post-course.

The ability for EMS professionals to train in an anatomy lab is limited in the healthcare industry and CEAL has been a leader in this arena, having sponsored an advanced skills lab at the NC State EMS Conference since the early 2000s. Over seven hundred paramedics have completed this program to date.

Jeff Hinshaw, PA-C
CEAL Works with Surry Community College for Paramedics Skills Training

“Being able to practice these procedures and seeing exactly what you're looking for is invaluable.”

“This training was beneficial as an entry-level healthcare provider because it was as close to "real life" as we can get without putting patients in harm.”

“This training was beneficial, as we were able to perform many skills that were otherwise unable to be performed with any manufactured training device.”

“I absolutely loved it and at the end I felt much more confident in my skills. This is the best opportunity, and it was so beneficial!”

Surry Community College Paramedic Program Students
Ultrasound
CEAL Ultrasound Year in Review

The ultrasound team embarked on several important projects in 2023 that expand the breadth and depth of our instructional offerings and research support for the Winston-Salem and Charlotte Regions of Atrium Health while we continue to support Wake Forest University School of Medicine students and programs. The year saw exciting new collaborations with colleagues in surgery, family and community medicine, and animal sciences as well as new on-site instructional support in Boone, Cabarrus, and Kings Mountain.

Demand for hands-on ultrasound education continues to accelerate – we are finding that for many services our waiting lists have waiting lists! Finding new methods and models for delivering high value hands-on education is one of our most pressing challenges. For example, this year we worked hard to develop the next iteration of our Ultrasound Guided IV training course. To date the course has been delivered by our CEAL Ultrasound staff and has struggled to meet the ever-increasing demand for sessions from campuses across the southeast. Our sonographers collaborated with nursing education at the Winston-Salem campus to implement a train-the-trainer model that would allow our nurse educator staff to assist with instructional sessions, a change that will make the training available to many more nurses across our enterprise.

In addition to collaborations with allied health we have begun several new projects with physicians in the Winston-Salem market to improve the quality of ultrasound instruction and performance in several patient care areas. Our sonographers have worked with the Otolaryngology residents to expand point of care ultrasound skills for patient evaluations in the clinic setting and developed a novel curriculum for limited renal transplant evaluation in collaboration with the renal transplant service at Atrium Health Wake Forest Baptist Medical Center. CEAL Ultrasound resources and sonographer expertise continue to be instrumental to point of care ultrasound education for many of our graduate medical education programs including a new collaboration this year with the Family and Community Medicine program at Atrium Health Cabarrus.

The core of our ultrasound educational program deals with point of care ultrasound applications for patient care but healthcare providers are not the only teammates with a need for ultrasound educational support. In 2023 we supported several new basic science research projects with ultrasound practical instruction and ultrasound protocol development. The feedback we have received from our research colleagues suggests this will be an important and expanding part of our portfolio in the future.

We expect that 2024 will be an even bigger year for CEAL Ultrasound by any measure. The Center for Experiential and Applied Learning Ultrasound program continues to be a unique offering among our Advocate Simulation sister programs, and we will continue to work hard to improve patient care and the quality of ultrasound performance across our enterprise. We’re grateful to the many physicians, CEAL simulation teammates, and colleagues who partner with us and help make CEAL ultrasound programs great!

Casey Glass, MD, Director of Ultrasound
2023 Mini Fellows Named

The ultrasound program at the Center for Experiential and Applied Learning, under the direction of Dr. Casey Glass, Director of Ultrasound Education for CEAL, has been able to provide a focused ultrasound educational experience for Wake Forest University School of Medicine faculty since 2018. This year long experience includes 40-50 hours of supervised ultrasound instruction as well as education on point of care ultrasound program development and academic career opportunities for faculty with an interest in bedside ultrasound. The program has been instrumental in the development of several institutional point of care ultrasound programs with self-sustaining programs in Internal Medicine and Family and Community Medicine. Ultrasound Fellows participating in the 2023-2024 academic year are Dr. Matthew Ravish, Department of Orthopedic Surgery; Dr. Greg Ross, Department of Anesthesia; and Dr. Chris Nelson, Department of Family and Community Medicine.

Dr. Ravish is a pediatrician who specializes in non-operative orthopedics. Physicians in this field help treat pediatric developmental abnormalities and musculoskeletal injuries that can be managed without surgery. Dr. Ravish uses ultrasound frequently to assess a variety of pediatric conditions but is interested in expanding his understanding of ultrasound technique and bedside applications.

For many years Dr. Greg Ross has been the institutional Safety Officer for Wake Forest Baptist Medical Center in addition to practicing as a Pediatric Intensivist in the Brenner Childrens’ Hospital pediatric intensive care unit. Intensivists need to use ultrasound often for assistance with procedures and to evaluate children in the unit who have unexpected changes in their health. Dr. Ross is also working to improve his ultrasound technique and depth of knowledge as he works to expand the use of point of care ultrasound in his practice.

A sports medicine specialist, Dr. Nelson also uses ultrasound frequently in the assessment of musculoskeletal injuries and recovery. As a faculty member in the Department of Family and Community Medicine his goal is to increase his competency with a variety of point of care ultrasound exams to support resident education and learning.

The Ultrasound Mini Fellowship continues to be an important offering that supports the faculty who participate but also the many residents and students they touch through their careers. We’re grateful to the many individuals and our staff sonographers who help keep this experience going year after year. In 2024 we hope to see new changes to our faculty offerings that can reach even more staff who are interested in honing their ultrasound skills.
EM, GI, and CEAL Ultrasound Collaborate

Each year CEAL plays a big role in helping other departments deliver ultrasound education to their staff. In 2023 Dr. Casey Glass and sonographers Bridget Francis and Jamie Hadaway from the CEAL team got to be part of several new opportunities. A couple of the highlights were helping with the Emergency Medicine games and gastric emptying scanning lab.

Emergency medicine added some friendly ultrasound competition. The residents were divided into groups and challenged with 4 ultrasound related games, including Sono-Charades, Speed Scan Corn Hole, Clear Diagnosis/Blind Views, and Push Your Luck. The top 2 teams advanced to a relay race where they removed foreign bodies, fluids, and added coins using ultrasound. Who says learning isn’t FUN…not our EM docs.

CEAL ultrasound staff helped train GI residents and fellows on gastric ultrasound imaging to evaluate stomach contents. Instructional lab stations allowed learners to look at an empty stomach, a stomach with clear fluid in it, and a stomach with solid contents. A standardized patient was used for this event. The SP started out NPO, then was given water to drink and scanned again, followed by a third scan after the patient had consumed a sandwich. Recognizing the difference in these three stages will help determine a patient’s risk of aspiration.
State-Wide High School Event Offers Exposure to Various Medical Pathways

High school students face many decisions about their future. Some have wanted to be in medicine for as long as they can remember, and some never considered a career in healthcare. CEAL hosts many experiential learning opportunities for K-12 students each year. This is an amazing chance for the CEAL team to talk with students about the various healthcare paths available. Many students are surprised to learn about the different job careers they could pursue. As sonographers we are able to give the students an insight to the challenges we face in our career, the educational commitments, and ways we are utilized in our field. After every event, we receive comments about how an individual had never considered sonography until learning about it at the event they attended. In 2023, the CEAL sonographers attended their first state HOSA Future Health Professionals event in Greensboro to offer an ultrasound experience to those in attendance.

Students were exposed to ultrasound and had the opportunity to scan on different task trainers. One station consisted of a second trimester baby for them to practice anatomy scans. The other station taught students the techniques and benefits of ultrasound guided IV placement. The students were lined up to participate throughout the entire event and loved the experience. Based on participation, the future of sonography looks bright.
Internal Medicine Holds First Annual Wake Forest Residency POCUS Bowl

In February 2023, CEAL’s ultrasound team partnered with the Wake Forest University School of Medicine’s Internal Medicine (IM) residency program to put on the first annual IM Residency POCUS Bowl. This event took place on the Friday before the Super Bowl in front of both a live and virtual audience consisting of IM residents, faculty, and applicants who were visiting our institution for a second look. This was a fun Point-of-Care Ultrasound (POCUS) educational gaming session and competition between a team of our top second year IM POCUS Champion residents versus a team of our top third year IM POCUS Champion residents. Each team’s respective benches, along with two standardized patients on stretchers and two ultrasounds connected to big screen TVs were set up at the front near the speaker’s podium. The start of each round began with a scanning battle, during which one resident from each team competed against one another to obtain the specified POCUS view or image. Whichever team won the scanning battle for that round then had the opportunity to answer questions for points. If a team answered a question incorrectly, then the other team had the opportunity to answer the question correctly for points. After each question, Dr. Christopher Kelly spent a few minutes making high yield teaching points related to that ultrasound topic before moving on to the next round and next scanning battle.

The first annual Wake Forest IM residency POCUS Bowl was a huge success! Those in attendance improved their POCUS knowledge and skills while having fun in the process. This event cultivated a sense of camaraderie amongst the residents and faculty and stimulated interest in learning and using POCUS. It was a huge hit for both the residents competing and the residents observing in the audience. Additionally, the faculty and the 2nd look applicants who were visiting our program thoroughly enjoyed it. The second-year resident POCUS Champion team came out victorious, and they will be defending their title at next year’s second annual IM Residency POCUS Bowl.

Christopher Kelly, MD
POCUS Bowl
Renal Allograft Ultrasound Training for Surgery

The year 2023 marked a new collaboration between CEAL Ultrasound and our colleagues in transplant surgery. We were approached early in the year by Dr. Colleen Jay of the renal transplant service with a challenge: could we help them develop ultrasound training to enable the surgeons to participate in renal transplant ultrasound assessment?

The process of renal transplantation is perilous and although the procedure may appear to have gone very well problems can arise in the grafted kidney itself as well as the vascular anastomosis connecting it to the recipient’s arterial system. A sonographer is on call to image the grafted kidney in the operating room or recovery room so that surgeons can confirm adequate blood flow to the kidney and through the anastomosis and revise the operation immediately if problems are identified. When transplant surgeries happen in the evenings or overnight there can be a long wait for the sonographer who has additional responsibilities around the hospital. Our challenge was to create a curriculum for transplant surgeons so they can assess kidney perfusion while waiting for a complete ultrasound to be performed so that a later repeat operation can be prevented.

The CEAL ultrasound team put together a short ultrasound course including a syllabus, didactics, checklists, hands-on scanning labs, pre and post course testing, and other optional resources. Material covered ultrasound machines and physics, basic ultrasound safety, and infection control. Surgeons completed structured assessments on knobology and specific ultrasound scanning tasks. Training was accomplished through multiple hands-on scanning labs with a renal allograft patient with a pre-test was prior to the first lab, and a post-test after the final scanning session. Supporting materials created include a step-by-step renal allograft ultrasound booklet, a knobology worksheet for image optimization tips, an abnormal findings chart, a worksheet for them to complete on each patient to standardize a protocol, and a normal velocity chart for the renal allograft vasculature.

Training has been very well received with plans to include it as a standard component of the transplant fellow curriculum. The transplant surgeons will complete training this year with our first bedside applications in 2024. Projects like this one demonstrate the value that an ultrasound education program and teaching sonographer provide to our healthcare colleagues and ultimately our patients. We enjoy solving these clinical problems and look forward to building on this curriculum with our transplant surgery partners.
Ultrasound in PA Studies

For the last ten years, ultrasound has been integrated into the curriculum for the med students at Wake Forest University. This allows the students to have hands-on experience with ultrasound technology while still in the classroom and lab before heading to their clinical sites. This year CEAL sonographers Bridget Francis and Jamie Hadaway collaborated with Wake Forest University PA Studies to design a curriculum for the physician assistant program students to get the same hands-on experience.

It was with the assistance and coordination of Assistant Professor Toni B. Jackson, which allowed CEAL to become involved with the PA program at Wake Forest University School of Medicine. Toni, Bridget, and Jamie thoroughly reviewed the content of the students’ curriculum and began integrating ultrasound lectures and labs to complement the existing studies.

Throughout the year, CEAL Ultrasound travels between Winston-Salem and Boone to deliver the in-person teachings at Wake Forest’s two campuses for PA Studies. The students will learn how to scan abdominal, superficial, and pelvic structures. They will also learn how to start peripheral IV’s using phantom task trainers provided by CEAL. The year is wrapped up with a refresher day of ultrasound games such as “blindfolded scanning” as a fun way to review each skill that was learned throughout the year.

In addition to the integrated curriculum, the PA students may elect to join an ultrasound focus group. The CEAL sonographers were asked to assist in training this year’s focus group for the 2023 American Academy of Physician Associates Conference in Nashville, Tennessee. On the final day of the conference the focus group competed in an ultrasound “quiz bowl.” The PA program focus group worked with Bridget and Jamie after hours to enhance their scanning skills to be performance ready for their conference in the spring.
CEAL Ultrasound CME Portfolio

A significant part of the CEAL Ultrasound education comes from courses that offer CME and CNE for physicians, APPs and RNs and other medical professionals.

CEAL hosts six ultrasound courses throughout the year on Neurovascular, Neuromuscular, Obstetrics, Gynecology, and Emergency Medicine. Each course ranges from 2 to 6 days and provides up to 40 CME hours. Our courses attract participants globally because we offer some of the most specialized curricula available, taught by highly skilled individuals at the top of their field, practicing at notable universities and hospitals including Wake Forest University School of Medicine, Johns Hopkins Medical School, Harvard Medical School, Stanford University School of Medicine, and Texas Tech University Health Sciences Center, just to name a few.

Our Ultrasound Guided IV courses were developed by Dr. Casey Glass and are in high demand throughout Atrium Health Wake Forest Baptist and our regional hospitals. In 2023, over 100 UGGIV sessions were taught by Bridget Francis and Jamie Hadaway. The USGIV classes are among the highest scoring CEAL post-event survey results and students of the sessions can’t say enough good things about the education and the instructors. Below are just a few comments from these events.

"Great course learned very useful skills and instructors were great!"

"Thank you for an amazing course. Bridget and Jamie were great and very interactive!"

"Thank you for offering here at LMC."

"Wonderful class, very supportive instructors."

"Class was great, and instructors provided tips and tricks and feedback to help improve skills of US guided IV insertions."

"Jamie and Bridget were fantastic! They created a wonderful learning environment and made the class worthwhile. Extremely satisfied."

"The instructors were great and were able to teach the material in a way that was easy to learn and helped with any questions I had."

Neuromuscular Ultrasound Course Participants

USGIV Course Participants
Whole Body Donation
Whole Body Donation Program Update

2022 closed with new outreach materials in distribution to increase awareness for whole body donation to CEAL/WFUSM. 2023 saw a steady increase in contact and number of accepted donations throughout the entire year.

Process changes during the pandemic, and actual impacts from Covid, likely had an impact on contacts for donation. New materials and targeted outreach to explain updated procedures resulted in greater contacts for donation this year. Process upgrades in recent years made it possible to run a 30% greater donor complement through the program without significant impacts to operations or staffing. 2024 holds room for additional streamlines to make more time available for outreach and additional training for regional hospice and other healthcare facilities, which will continue to increase awareness and contacts for donation. Every additional donor accessioned makes it more possible to schedule additional learning events, and to make more immediate learning available for every learner attending scheduled events.

Print materials for interested individual donors and follow up contact with facility and funeral home contacts were streamlined to move out on a weekly schedule with minimal process time. Vital records documentation streamlined with new process negotiated through North Carolina Office of Vital Records (NCOVR) to align on requirements that have minimal impact to the program and improve overall process time for death certificates over former years. These changes combine to make it possible to aim for a higher number of accessions in 2024 and coming years, resulting in more educational opportunities and better patient care in our community.