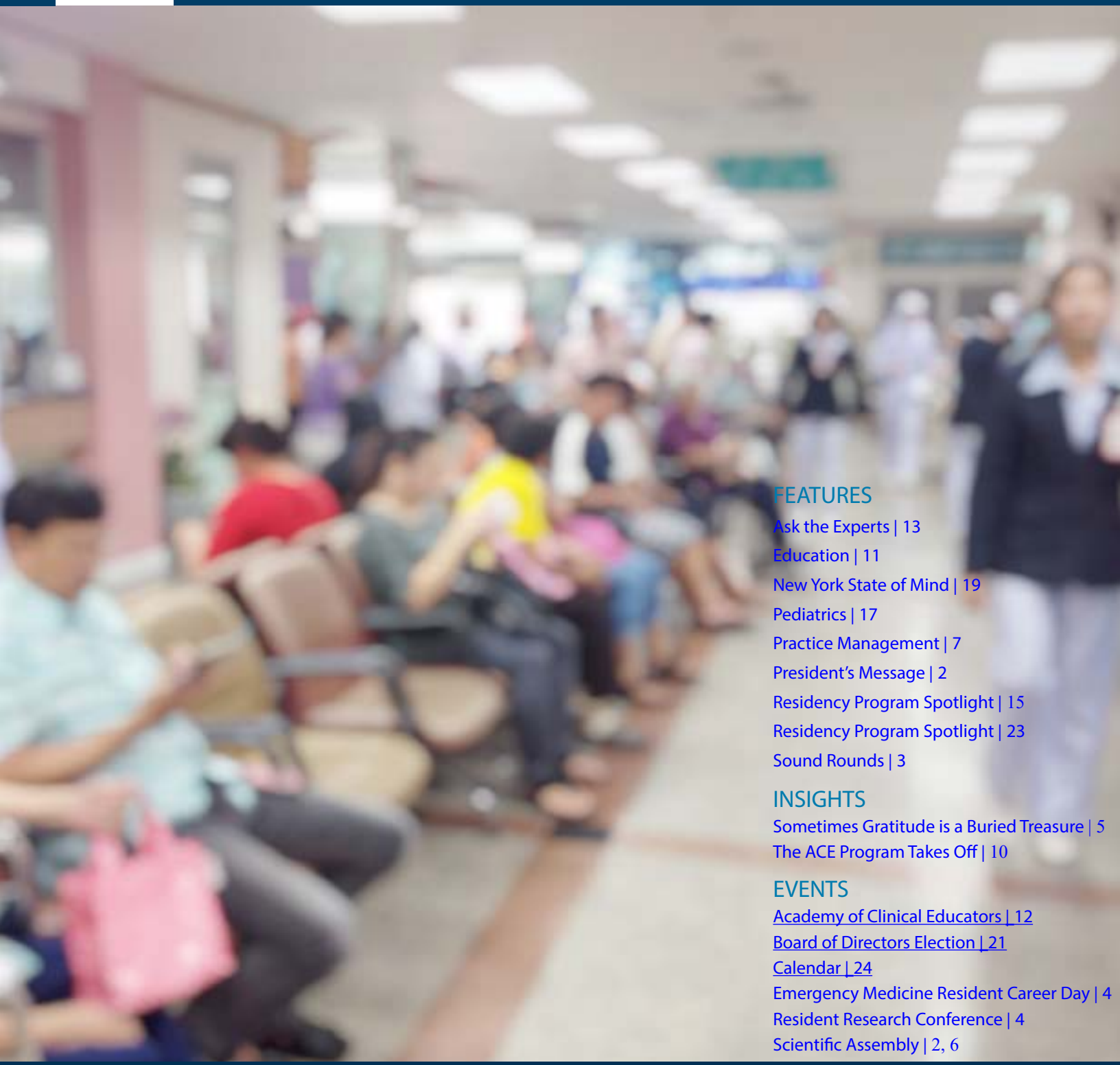
New York American College of Emergency Physicians



Empire State EPIC

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PRESIDENT'S MESSAGE

Nicole Berwald, MD FACEP
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The Challenges We Face

The last three years have been full of unprecedented events in emergency medicine. For many of us, it has felt like a roller coaster ride. As an emergency medicine physician leader, my experience in 2020 was both one of my scariest and proudest moments. Navigating the unknown to create the safest environment for my team, learning how to deliver care to a new and cryptic disease, while despite my own fears, comforting our patients and communities. We were purposeful in a time when so many could just sit back and watch. The world was charged up around us offering great support and appreciation. As a resident of New York City, the 7pm banging of the pots, the hooting and hollering from the surrounding buildings, took my breath away every evening. Emergency medicine was universally understood as the safety net. We were there when few others were. Our commitment to society was understood. But as we have seen the glory has slipped away and we are left with the burden of burnout, shortages, overcrowding, and now the unfamiliar problem of a resident shortage.

When I graduated medical school nearly 20 years ago, positions in emergency medicine residencies were not guaranteed. Even with competitive grades and test scores, I entered the match with trepidation I wouldn't match in one of my desired programs. When my department established a new residency program in 2010, we were cautiously optimistic about filling our first year. Though we knew the odds were on our side, we never presumed we would fill in subsequent years, though we did. These were "normal" nerves and healthy concerns. We never feared the reality of what we witnessed this past March with the unprecedented 555 initially unmatched positions and ultimately the 219 unmatched positions affecting a quarter of emergency medicine residency programs. I wonder what this will mean for the future of emergency medicine. We cannot continue on this path, or I fear the once predicted oversupply of emergency physicians by 2030 will not only be right-sized but lead to shortages.

Further, we cannot despair. I am excited for the approximately 2,500 students that will join the ranks of you BAFERDs one day. Emergency Medicine offers a remarkably, rewarding career, but we have some challenges to overcome, as we support our communities and the care they deserve by reenergizing our students and trainees. This is a call to action. We must support one another and seize this opportunity to shape the future of our specialty. In New York State this means pursuing our agenda on ED violence, ED boarding and support for the physician lead team such that we facilitate decreased burn-out, create sound working conditions, enhance recruitment back to emergency medicine, and protect the profession for both physicians and patients alike.

This is a challenging time in emergency medicine but our residents and communities need us. The future is uncertain, but I am confident we will come out on the other side with experiences that bring the value back to all of you out on the frontlines, changing and saving lives.

SOUND ROUNDS

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Is it a Clot or Not?

Case

A 16-year-old male presented to the Emergency Department (ED) with right sided chest pain since last night. He reported pain as pressure-like and worse with deep inspiration. The patient also reported one week of sore throat, body aches and mild cough. The patient had no other past medical history other than a spontaneous pneumothorax three months prior in the setting of vaping.

Upon ED arrival, his blood pressure was 113/62, heart rate 92 bpm, respiration rate 19, oxygen saturation 99% and temperature of 98.4F. On physical exam, the patient had a cardiac exam with regular rate and rhythm and bilateral breath sounds without evidence of respiratory distress. Bedside cardiac and lung point-of-care ultrasound (POCUS) was performed, demonstrating a hyperechoic mobile structure in the right atrium with grossly normal ejection fraction (Figure 1). There was no enlargement of the right ventricle or right atrium (RA). Lung sliding was present bilaterally and no pleural effusions were identified on lung POCUS. CT angiogram of the chest showed no evidence of pulmonary embolus or pneumothorax. Cardiology was consulted regarding the POCUS finding which was a Chiari network, an uncommon normal variant and could be followed up as an outpatient.

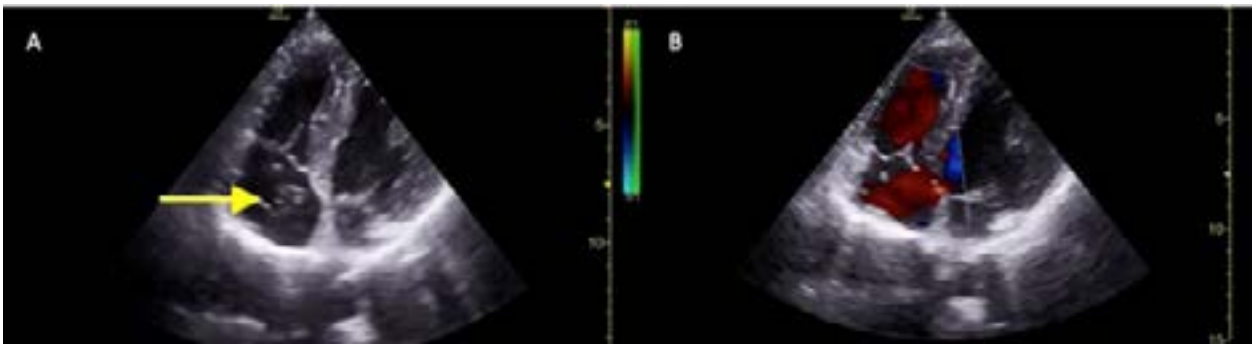
Discussion

Chiari network is a weblike structure in the right atrium that result from incomplete resorption of the right valve of embryonic sinus venosus.[1] It was first discovered by Dr. Hans Chiari in 1897 on autopsy. It's described as a fenestrated network of tissue with thread like components attached to wall of right atrium near the entrance of inferior vena cava. Today its prevalence varies from 1-3% and is usually an incidental finding.[2]

The Chiari network is often considered to be clinically insignificant. However, it can be mistaken for other pathology such as valve vegetations, flail tricuspid leaflet, ruptured chordae tendinae, right heart thrombus or tumor.[3,4,7] Transesophageal echocardiogram has been shown to help in differentiating these findings. Despite it being considered as a normal variant, it has been associated with a patent foramen ovale (PFO), thrombus formation, endocarditis, cardiac arrhythmias and catheter entrapment.

A PFO was found in 83% of patients with Chiari network compared to 28% of controls.[3] During fetal development, after atrial absorption of the sinus venosus, the atrium divides into two portions separated by the right valve of the sinus venosus. The two portions are the *sinus portion* with entrance of vena cava, coronary sinus and foramen ovale and the *muscular portion* with tricuspid valve.[1] The incomplete resorption of valve maintains right atrial flow pattern directing blood from the inferior vena cava towards the interarterial septum, which can be associated with a higher incidence of PFO.

A few case reports suggest that a Chiari network may act as



Figures 1A-1B. Cardiac POCUS. Figure 1A demonstrates an apical four chamber view with hyperechoic foci (yellow arrow) in the right atrium (RA). Figure 1B shows color flow Doppler over right atria and ventricle during systole.

SOUND ROUNDS

filter for thrombus entering the right atrium,[4,5] whereas others suggest the network could encourage new thrombus formation.[3] A Chiari network was significantly more common in patients with an unexplained arterial embolism compared to patients evaluated for other indications.[3] Another common association is having an atrial septal aneurysm with Chiari network, which may be associated with embolic events.[3]

There are reports of associations with endocarditis with Chiari network in patients with normal valves.[6,7] Chiari networks can also act as a physical barrier interfering with the introduction of right sided catheters.[8] Cardiac arrhythmias, such as supraventricular arrhythmias, are associated with Chiari networks that may cause abnormal intra- atrial conduction.[9]

Case Conclusion

The patient was discharged after a negative CT angiogram chest and was encouraged to follow up with cardiology for a comprehensive echocardiography.

Indications:

- Chest pain
- Dizziness
- Hypotension
- Shortness of breath
- Syncope

Pitfalls and Limitations:

- Chiari network can be misidentified as a valve vegetation, thrombus, or mass
- Recommend cardiology follow up for patients as a Chiari network can be associated with other complications

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Sometimes Gratitude is a Buried Treasure

I was knuckle deep, digging and tugging as determinedly yet gently as possible to loosen, fragment and ultimately extract the hard rock of stool the elderly gentleman, Mr. H, had been unable to evacuate over the preceding week. Although the lidocaine gel had provided some degree of relief, the poor man was clearly uncomfortable. I was uncomfortable. The nurse was uncomfortable. Nobody in that room wanted to be involved in this event, but after a week of laxatives and two failed enemas in the Emergency Department (ED), it was apparent the only way for Mr. H to experience relief was manual disimpaction. Multiple packets of lube, numerous pairs of gloves (always double – you only make that mistake once) and twenty minutes later, we had removed what we could and he was able to fully relieve himself. I saw another patient or two then went back to check on him. He smiled at me and said, "Thanks Doc. You really helped me out. I appreciate it."

There is nothing glamorous or dignified about a fecal disimpaction. There is no great skill, no critical thinking and no heroic measures. It is uncomfortable for everyone involved, it smells bad and it takes up a lot of valuable time. Nobody likes it. Yet it makes a big difference in the life of patients such as Mr. H and so many like him. His sense of gratitude, in spite of the pain and discomfort he had just had to endure, was genuine and heartfelt. I hadn't saved his life, nor had I really improved his health in any significant way. I had simply got down and dirty and helped him feel better.

We all live for the STEMIs, strokes, traumas and other challenging cases that make our work fun. We like to use our brains, make diagnoses, treat critical illness and feel like the healthcare heroes we are sometimes called. We often forget, though, we are as much of a hero to an elderly man with fecal impaction who just wants some relief as we are to the septic patient we resuscitate. Although I would have preferred to avoid having to disimpact Mr. H, it was quite gratifying to receive his heartfelt appreciation as he was leaving the department. It was also satisfying to be able to actually "fix" him. It made me feel good about myself and my job, even if it wasn't a crucial save or a great catch.

I write this to encourage all of you (and to remind myself) to find joy and fulfillment in the mundane aspects of our work. No one enters our specialty looking forward to managing patients with chronic pain or fecal impaction, but it is a part of our job, and providing the same care and compassion to these patients as we do to our critically ill patients not only makes a difference in their lives, it may help save ours. In a field of medicine prone to burnout, cynicism, and substance abuse, we need the smiles and thanks of the Mr. Hs to remind us of how we make a positive difference in people's lives. A good fecal disimpaction is definitely not the key to emergency physician wellness (wouldn't that make for an interesting workshop at a national conference!), but if we are willing, we can look for and find satisfaction in our jobs where we least expect it.

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Expanding the Scope of Emergency Care: The Clinical Forensic Medicine Fellowship at Kings County Hospital

The climate of healthcare and the field of Emergency Medicine has been irrevocably changed throughout the past several years. The COVID-19 pandemic challenged our specialty in terms of traditional healthcare delivery and brought to light a needed emphasis on social determinants of health. This paradigm shift not only created unconventional healthcare delivery modalities, but also created opportunities for Emergency Medicine providers to expand the scope of our specialty. While Emergency Departments (EDs) experienced surges related to viral illness, the pandemic also prompted an influx of patients seeking care as victims of trauma and abuse. Patients treated for injuries related to domestic violence and sexual assault were on the rise throughout the pandemic. The uptick in cases may be explained by the impact of the pandemic on mental health illness, decreased access to support systems and shelter in place orders which inadvertently exacerbated underlying domestic tensions. In an effort to equip front line providers with the necessary tools to care for this vulnerable cohort, the Department of Emergency Medicine at New York City Health + Hospitals / Kings County launched the nation's only active Clinical Forensic Medicine Fellowship for Emergency Medicine graduates.

The data surrounding the exacerbation of domestic and intimate partner violence throughout the pandemic is noteworthy. The peak of COVID-19 was met with an 11.5% increase in intimate partner homicides as reported by the New York City Mayor's Office.[1] Furthermore, there was a 17% increase in calls to the NYC Domestic Violence Hotline and a 36% increase in first time clients at the Family Justice Center.[2] Detailed analysis of the data also revealed black women were disproportionately affected by intimate partner homicides, accounting for 29.6% of homicides in New York City.[3] It is evident the impact of the COVID-19 pandemic was multi-faceted. This time period raised unprecedented challenges and reinforced our need to develop a training program intended to deliver the highest quality of care for these patients.

The appropriate identification and management of this patient cohort continues to challenge emergency providers. Data suggests at least 57% of all women presenting to the ED have experienced some form of intimate partner violence at some point, however injuries were only visualized by 7% of providers in the emergency department.[4] Survivors of strangulation can present to the ED with isolated symptoms such as a change in voice and no grossly visible physical exam findings.

Even in cases of deadly strangulation, up to 50% of injuries may not be visible.[5] This highlights the difficulty in identifying subtle physical exam features in the absence of a specific history detailing abuse. A formal training program is necessary to educate front line providers on all aspects of care surrounding these vulnerable populations. Through such a program, we will be able to best equip providers with the tools necessary for early detection and treatment initiation necessary to prevent further harm or death.

The Clinical Forensic Medicine Fellowship at New York City Health + Hospitals / Kings County is a one-year, non-ACGME training program designed to build leaders in the field of clinical forensics for *emergency medicine*. The goal of the fellowship is to teach clinicians to identify and care for victims of trauma and abuse, prevent the destruction of potential evidence and assist in legal proceedings. Through this program, fellows have the opportunity to rotate through various criminal justice disciplines such as the New York Police Department Special Victims Division, New York City Office of the Chief Medical Examiner, the Office of the District Attorney for New York City and Family Justice Centers throughout the city. In situ training with the Sexual Assault Response Team (SART) will provide fellows with hands on experience in collecting forensic evidence

to aid in legal proceedings. They will also be trained to work closely with community groups such as social workers, crisis counselors, patient advocates and other local agencies to connect patients to relevant services.

"Too often, victims of crime are re-traumatized as they receive medical care and seek justice through our criminal legal system," said New York City Mayor Eric Adams. "This new Clinical Forensic Medicine Fellowship will ensure that clinicians identify and care for victims of violence and trauma in a culturally sensitive and compassionate way. As always, NYC Health + Hospitals is paving the way to strengthen the criminal justice system and provide all New Yorkers with the highest level of care."

Times of crisis, while devastating in many ways, may pave the way for previously unforeseen opportunities. The pandemic highlighted the need to focus on vulnerable populations and implored us to respond through the development of a training program that will bridge the gaps between providers and victims. This educational resource has bolstered the confidence of our front-line providers and has increased the quality of care delivered to our patients. Through this expanded scope of emergency medicine practice, we intend to empower our specialty both inside and out of the clinical arena.

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Additional Resources

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The ACE Program Takes Off!

After a successful inaugural year, there is a bright future for New York ACEP's "Academy of Clinical Educators" or ACE program. The program consisted of a series of six lectures open to all New York ACEP members, as well as six corresponding workshops led by the expert faculty and attended by our cohort of 10 "ACEs". These 10 "ACEs" who are junior emergency medicine (EM) faculty and were selected via a competitive application process, gained valuable information, advice and mentorship, and became part of an ongoing statewide community of clinical educators.

Emergency medicine, perhaps more than any other field, has many niches, offshoots and subspecialties. Furthermore, the body of knowledge is broad and the teaching and learning environment is entropic. In this ecosystem we all find our own nooks and crannies of excellence and thus we each have so much to learn from colleagues, some junior and some senior to us. This differs from most other specialties, with defined boundaries to their bodies of knowledge and a more linear, structured or hierarchical paradigm for teaching and learning. In short, we are more communal and egalitarian in our teaching and learning than any other specialty and we do well when we nurture this.

The Academy of Clinical Educators grew from the idea that junior faculty could benefit from the experience and generosity of some of the best clinical educators from across the nation (Table 1), that they could deploy what they've learned and share it in turn with others at their institutions and meanwhile also expand their professional network as a community of dedicated EM faculty across our state. The initial responses from the first cohort of ACEs has been overwhelmingly positive. The scholars appreciated both the content delivered and also the opportunity to expand on their personal network and share their perspectives with one another during the in-depth, post-lecture discussions (Table 2).

As the inaugural year of the ACE program comes to a close, the initial cohort now has a new network of friends and colleagues across New York with whom to collaborate. We look forward to the final lecture, open to all New York ACEP members, June 14th on "Scholarly Productivity" by Michael Gotlieb, MD RDMS FACEP of Rush University in Chicago and to welcoming our next cohort in the Fall.

Table 1: Highlights from the ACE lecture series

Session Topic and Faculty	
Being a Good Mentor and Mentee *by* Kaushal Shah MD FACEP and Arlene Chung MD MACM FACEP	*"Mentors are not necessarily gifted or talented. Gifted people find mentors...mentors don't do much other than give the mentees confidence and support and most importantly, instill self efficacy."*
Culturally Responsive Medicine *by* Jeffrey Ring PhD	*"Racism doesn't want us to shine a light on pernicious poisonous ways, it wears its ugly head in the delivery of healthcare."*
Adult Learning Theory *by* William Paolo MD	*"Make your learners struggle"* - There is value when a learner struggles to work through an answer. The harder it is to learn something, the longer you retain it.
Faculty Citizenry and Academic Promotion *by* Daniel Egan MD FACEP	"Just say yes" - while there are times it is appropriate and necessary to say no to things, *"saying yes is the pathway to opportunity and collaboration needed to build a portfolio."*
FOAMed/Digital Scholarship and Creation *by* Teresa Chan MD MHPE	Say you are trying to reach medical student learners, and you're not on FB.....maybe you don't exist to them. *"Digital platforms are ways to get engaged with other people. For me, it's a way to be learner-centric...and we have to meet them where they are."*

Table 2: ACE comments on the program

"So far this program has been incredibly informative, with the lectures/discussion sessions on topics we don't often get exposure to via other means. The networking will likely prove very valuable in the future and overall I would recommend this program to other young faculty!" KD

"I've really enjoyed the ACE Program! I think it's been a great way to meet other folks who are in a similar stage in their career and build a community." MB

"Definitely was a stellar selection of presenters who discussed relevant topics to our everyday as well as our professional careers. They weren't just lecturers, they were conversationalists who made the discussions interesting and engaging." BP

EDUCATION

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Improving Diversity with Recruitment

The value of diversity in the medical field cannot be overstated. Studies have shown increasing diversity among physicians and healthcare professionals, in general, is not only important for the sake of representation, but for improving the quality of care for all patients and for patient satisfaction.[1] This further reinforces the importance of promoting diversity, equity and inclusion (DEI) within our specialty.

The most recent AAMC data shows a mismatch between the physician workforce and the demographics of the United States (US). The AAMC reports most doctors are white (63.9%) and male (58.6%). In addition, Undergraduate Medical Education (UME) data shows white students (46.8%) make up the largest racial group of medical students compared to their black (8.4%) and Latinx/Hispanic (6.2%) counterparts.[2] This is in stark contrast to US census data, which demonstrates black Americans and Latinx/Hispanic Americans make up 13.6% and 18.9% of the nation's population, respectively.[3]

This discrepancy leads us to recognize that a multifaceted approach is needed to acknowledge the root causes of the lack of diversity among emergency physicians. To address this disparity, we should focus on the factors that affect the matriculation of diverse applicants into emergency medicine, as well as methods to facilitate improvement. Strategies that may be used institutionally to increase diversity, equity and inclusion include:

Diversity: Pipeline Programs

In order to increase diversity among doctors, we must focus efforts "upstream," i.e., in the pipeline leading to medical school. Underrepresented Minority (URM) students face a range of barriers, including inadequate academic preparation, financial constraints and limited access to resources and opportunities. In response, many institutions have implemented interventions to increase the number of URM students who are motivated and prepared to pursue a career in medicine. These programs provide mentorship, academic opportunities and exposure to the medical profession, all of which are common barriers for URM students.[4,5] Participating students describe the experience as leveling the playing field and giving them an opportunity to live up to their dreams.[5]

Equity: Holistic Admissions Process

As an adjunct to modifications to the medical student pipeline, we must also use a holistic and equitable review in the admissions process. A holistic review process can be described as taking equal consideration of an applicant's experiences and attributes, as well as academic metrics and how the applicant could add value to a program.[6] This strategy helps mitigate bias that accounts for the disparity minority students face with a lack of educational opportunities and mentorship.[4] In this way, institutions can identify and select candidates who are likely to succeed in medical school and beyond, regardless of their background. This can be done by the creation of goals for recruitment, determination of program readiness and the formulation of DEI committees for recruitment.[7]

Inclusion: Culture of Support

Institutions can also create a culture of support to address the broader social and cultural factors contributing to the lack of inclusion in medicine. By addressing these issues at a systemic level, institutions can provide a learning environment that supports and attracts diverse learners to their institution. Strategies include cultural competency and bias training, increasing awareness and support of diverse learners and creating curricula or DEI task forces.[8,9]

Ultimately, it is important to remember that increasing diversity does not rely on a singular prescription, but rather a comprehensive and sustained approach to institutional changes. Identifying and addressing the root causes can serve as the foundation for implementing a combination of strategies that will be more effective in achieving a more diverse and inclusive medical community. By creating a supportive learning environment for our learners, we can promote higher achievement throughout the student community.

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ASK THE EXPERTS

Moshe Weizberg, MD FACEP
Chair, Department of Emergency Medicine
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Interviewee
Angela Barskaya, MD
Assistant Professor of Emergency Medicine & Medicine, Columbia University Irving Medical Center/NewYork-Presbyterian Hospital

Interviewer
Lauren Curato, DO FACEP
Assistant Professor, Department of Emergency Medicine, Columbia University Irving Medical Center/NewYork-Presbyterian Hospital

Emergency Department Critical Care

I had the pleasure of speaking with Dr. Angela Barskaya about Critical Care Fellowship and Emergency Medicine (EM) Critical Care. Dr. Barskaya currently divides her time between working in the Emergency Department (ED) and in the Medical Intensive Care Unit at Columbia University Irving Medical Center (CUIMC). She recently completed her fellowship in Anesthesia-Critical Care Medicine at NYP-Columbia and established the Emergency Department's new Critical Care Resuscitation (CCR) Unit. I learned a lot from our conversation and hope you will too. Thank you, Dr. Barskaya, for taking the time to speak with us!

Curato: Would you share with us how and when you developed an interest in EM-Critical Care and your path to fellowship?

Barskaya: When I was in medical school at the University of Buffalo, I did a few Critical Care rotations and discovered I really enjoyed taking care of sick patients. I chose Emergency Medicine because we see everything and I really think we as EM doctors should be the best doctors in the hospital and I wanted to be that.

My residency training at the University of Rochester really solidified that for me; it was excellent! Rochester is a Level I Trauma, Burn, STEMI and Stroke Center with cardiac and liver transplant programs and because of this, I felt like I got to see everything as a resident. I stayed on and worked as an attending at the University of Rochester and found my favorite part of the job was when I would take care of patients in the Critical Care Bay. I certainly liked it as a resident but even more so as an attending. I wanted to be the best at the medicine and the procedures; if I didn't know something the first time around, I would never allow that to happen the next time around. I wanted to be the best at taking care of critical patients and whatever was associated with that, including teaching the residents and just being *that* person for the department. That was when I started to think about a Critical Care fellowship, not because I wanted to work 'upstairs' in the ICU specifically, but because I wanted to bring that depth of care down to the ED.

Curato: You worked as an attending for two years before going back and starting fellowship, could you speak a little about what that transition was like and how you were received in the ICU?

Barskaya: It was an interesting ride, for a variety of reasons; one of which is that I started fellowship during the pandemic. Challenging times are excellent for learning. In some ways it was an adjustment, no longer being the one to call the shots and make the final decisions but I remembered to have perspective and to stay humble. I recognized I was in someone else's arena and there is a ton to learn. I also appreciated the opportunity to demonstrate what we as EM docs are capable of and tried to be a good ambassador for our specialty. I learned a ton, but I also think they learned from having the EM perspective upstairs, a perspective they don't typically have since we don't otherwise interact with one another a tremendous amount as specialties. The interdisciplinary environment was key in fostering open learning spaces and excellent collaborative care.

Curato: Now, getting into that idea of ICU care in the ED, what are the advantages of having a designated ED Critical Care space and what does that look like?

Barskaya: Critical care spaces in EDs can run the full spectrum, from a designated Resuscitation Bay that an ED doc and team manage (and once the patient is stabilized, moved out of) to a full-fledged ICU staffed by doctors boarded in Critical Care Medicine, to everything in between. Some places with a more intermediate framework have designated areas of the ED that are for patients as a "pit stop" to the Operating Room or upstairs ICU or perhaps to stabilize completely before going to the floor. The ability to have one of these areas will depend on the available resources, which will depend on a huge number of factors, including community vs. academic practice setting. Some departments may ask the ED attendings to have further certifications in critical care such as FCCS (Fundamental Critical Care Support) from the Society of Critical Care Medicine which trains non-intensivists to manage critically ill patients for the first 24 hours.

There are many advantages to having some version of an ED-ICU. Overall, the goal is that having a designated space enables the creation of an environment, with a cohesive team, that is fully dedicated to caring for the sickest patients in the department. Different EDs will have differing abilities to define that space, but it's important to offload the distractions. It's a challenging mental switch, for all members of the team, to pivot from an ankle sprain to a crashing acute pulmonary edema. I think cognitive offloading really optimizes care and can help mitigate bias. Having a specific resuscitation area enables you to be in the appropriate mindset to care for each of those patients in the best possible way.

Another advantage of a dedicated critical care space is the ability of the physician team to be physically co-located with nursing, techs and ideally, pharmacy. This truly allows everybody to become fully invested members of the team. Everybody takes on more responsibility and grows from it. We realize we cannot do our jobs without one another. Good team cohesion

becomes paramount for good performance and allows team members to truly excel and really work at the top of their degrees.

Interestingly, dedicated critical care spaces have also been shown to be cost neutral and improve value. This is in part because it is a restructuring of preexisting resources. There are also increasing numbers of ICU patients boarding in the ED and we know boarding is associated with increased morbidity and mortality. Existing ED ICU models have shown both improved survival and decreased ICU admission rates and all of this is without any increase in cost.

Curato: How did you go about implementing the Critical Care Resuscitation Unit in your ED? And what recommendations would you have for someone wanting to set this up in their shop?

Barskaya: Start with an overarching goal. For us, it was to provide excellent team-based care to the department's sickest patients. Then, identify the stakeholders. In most EDs, the key players will be the departmental operations leadership, nursing leadership and residency leadership. While it can be challenging to meet all these entities' individual needs, having a common mental model really helps facilitate everything from conception through to implementation. The primary driver is patient care, but resident education is going to improve. Nursing and attending job satisfaction is going to improve. Overall, this took quite a bit of work over about the course of a year. We did a lot of modeling, diagramed work flows, identified roles and responsibilities and ran simulations. We thought about every player's responsibility and what it would look like.

Geographically, most ED's are tight on space and may need to work within the confines of an already established floorplan. This was the case for us, and we had to implement a lot of space saving measures. For example, using rolling carts for intubation and difficult airway equipment, a procedure cart for commonly performed procedures including central line kits, IO's, chest tube equipment, as well as a nursing cart for common nursing needs including IV starts and monitoring equipment and of course a code cart. We even had to think about what outlets would be designated for our dedicated video laryngoscope and ultrasound in this area.

In running simulations prior to the opening of our Critical Care Resuscitation Area, we made sure to try to account for the work flow every step of the way, from how registration first engages new patients to how equipment is physically housed and moved through the space. We thought about how existing ED patients would be upgraded to the space in the event of deterioration and similarly, how patients would be moved out of the space depending on their disposition.

When the space first opened in our department, it was really rewarding to be able to observe our designed workflow in real time and to witness excellent bidirectional communication and shared learning between the ED residents and nurses, as well as with the consulting teams coming into the space.

It certainly took some persistence, but time spent up front delineating a common goal and shared mental model very much helped facilitate transitioning a potential space into a physical one.

Curato: There are several paths one could take to a critical care fellowship, what are they and what advice would you give to someone exploring this as a potential fellowship?

Barskaya: Board certification in Critical Care Medicine is available to EM trained physicians via four different pathways: Internal Medicine, Anesthesia, Surgery and Neurocritical Care. Not every program in the country admits EM graduates so potential applicants will need to do some research, both for specific programs and whether those programs participate in the standard NRMP match, San Francisco match or possibly a paper application. My advice would be to think about what type of ICU and what types of patients you want to be working with and learning from going forward. Think of what kind of specialty ICU you may want to work in and whether you'd want to be in academics or in the community. For example, if you want to be working with trauma patients then surgical critical care would be the best route. IM/CCM is going to set you up well for working in a Medical ICU, but there will likely be flexibility to extend to other ICUs depending on your specific location. Anesthesia CCM will expose you to a post-surgical and post-cardiac surgical patient population, with significant overlap with cardiology critical care and mechanical circulatory support, which can enable you to work in a variety of ICUs. There are different strengths to each of these fellowships.

For training, it may be helpful to learn what your 'home ICU' will be during the fellowship so you know what the general patient population, shock physiology and learning style you may be exposed to. Typically, the home ICU for IM/CCM is the MICU, for Anesthesia CCM is the SICU/CTICU, for Surgery Critical Care is the SICU, Trauma/Burn ICU and for NeuroCritical Care is the Neuro ICU. Whatever fellowship you choose, the more interdisciplinary the program, the better. Training with more than just one specialty's viewpoint allows you to take the best and most pertinent bits from everyone and form a much stronger foundation. It allows you to be able to tailor your care to a huge variety of practice settings.

We as EM physicians are still shaping the field of EM CCM and the ICU you may work in as an attending may be different from your home ICU during training. In addition to these routes for board certification in CCM, there is also a one-year non-ACGME fellowship in resuscitation that won't grant board certification or allow you to work in the ICU but will expand your abilities with regard to ED resuscitation.

Curato: What does the future look like for someone who has completed a fellowship in critical care?

Barskaya: I really think EM docs are very well suited for this space. When you combine the breadth of what we do in emergency medicine and the depth of what is done in critical care, out comes an excellent clinician who is both flexible and well-versed and can work in either or both environments.

EM is still rather new to critical care and the beauty of that is it's still rather unchartered (something I didn't realize at first!) so you can create your own path. Some choose to work entirely in the ED and be *the* Critical Care person for their department, others split their time between working 'upstairs' in the ICU and 'downstairs' in the ED, and some go on to work 100% in an ICU. While the numbers are growing, right now only about 1.2% of EM physicians are also board certified in Critical Care Medicine. Carving out a new space can be challenging but it can also be tremendously rewarding.

New York EM Residency Spotlight

Albany Medical Center

Demographics

Program Director: Sean Geary, MD

Program Coordinator: Kara Giglia

Program Coordinaor E-Mail: gigliak@amc.edu

Hospital Capabilities: STEMI, Stroke, Trauma

Total Number of EM Residents: 36

Residents Train Each Year: 12

Inagural Resident Class Year: 1988

Fellowships Offered: Surgical Critical Care, Ultrasound, Resuscitation, EMS, Administration

Benefits Offered: ROSH Review, Membership Dues Coverage, Cellular Phone, Lab Coat(s), In-House On-Call Meals, Dental Insurance, Health Insurance, Vision Insurance, Disability Insurance, Professional Liability Coverage

Website Link: https://www.amc.edu/academic/gme/programs/emergencymedicine/index.cfm

Instagram Link: https://www.instagram.com/albanyemresidency/

What is Your Program Known For? We are a national leader in ED Critical Care! With faculty trained in Surgical Critical Care, Anesthesia Critical Care, Medical Critical Care, and Resuscitation, we started our own ED Resuscitation Fellowship in 2022 and are continuing to develop an ED Critical Care service. Our faculty has the unique ability to split time upstairs and downstairs, which allows our residents to spend 1-on-1 time with ED Critical Care faculty at bedside in the Emergency Department. Combined with our incredibly sick population, the busiest level 1 trauma center in New York State, and referrals from all across Upstate NY and VT, residents have an unparalleled experience to take care of the critically ill in the emergency department setting.

What Makes Your Program an Excellent Place to Complete a Residency? Albany Med is a great place to complete your residency training because you get all of the pathology and acuity of a large urban tertiary care center but with the ease and accessibility of a more suburban community center. Functionally, we are an academic program that feels very much like a "County" department, so while we are frequently under-resourced for our volume, we work seamlessly with our colleagues from the referral services that are expected of a large academic center. Also, the faculty here have diverse academic interests and are completely invested in our residents. No matter what your interests or ambitions, we have faculty to help navigate those next steps in life. This environment results in residents who are prepared to handle anything, have seen a little bit of everything, and are able to lead comfortable lives outside of the hospital even during training.

PEDIATRICS

Geoff W. Jara-Almonte, MD
Associate Residency Director, Department of Emergency Medicine
Icahn School of Medicine at Mount Sinai

Interviewer
Sophia Lin, MD RDMS
Director of Emergency Ultrasound
Assistant Professor of Clinical Emergency Medicine and Clinical Pediatrics
Weill Cornell Medicine

Pediatric Ovarian Torsion

Introduction

Because of the risk of ovarian loss, timely diagnosis of ovarian torsion in pediatric patients is critical. Diagnosing ovarian torsion can be challenging given the variability in clinical presentation and imaging results. In pediatric patients, it can be even more difficult to diagnose ovarian torsion depending on a patient's developmental age and ability to verbalize symptoms. Additionally, because ovarian torsion is less common in the pediatric population, clinicians may inadvertently fail to consider this diagnosis, especially in premenarchal patients. However, ovarian torsion in the pediatric population accounts for 15% of all ovarian torsion cases.[1] Pediatric patients experience a delay in diagnosis ranging from 12 hours to four days.[2] Premenarchal patients comprise 25-68% of all pediatric patients with ovarian torsion[2-4] and are at increased risk for delayed diagnosis.[2] Given the potential impact on future fertility that may result from missed or delayed diagnosis of ovarian torsion, recognizing presentations consistent with ovarian torsion is important in diagnosing this surgical emergency.

Case 1

A 12-year-old perimenarchal girl with a history of constipation presents with acute onset lower abdominal pain, primarily in the left lower quadrant. The patient's pain began approximately 18 hours earlier while she was playing in a soccer game. The pain is constant and the patient also has nausea without vomiting or diarrhea. Her last bowel movement was three days earlier. The patient has a history of similar episodes of the pain in the past, previously attributed to constipation. More recently, menarche occurred four months earlier and these episodes of pain have been attributed to menstrual cramps. Because the patient's pain has persisted for longer than her previous episodes, her parents bring her to the emergency department (ED) for evaluation. On exam, the patient is in no acute distress. She is afebrile and the remainder of her vital signs are unremarkable. Her exam is significant only for bilateral lower quadrant tenderness, more so in the left lower quadrant.

The differential diagnosis for this patient includes constipation, early gastroenteritis and ovarian pathology. The patient's urine pregnancy test and urinalysis are negative. Her transabdominal pelvic ultrasound shows normal arterial flow to both ovaries. Her left ovary is enlarged and edematous with an ovarian volume of 35 cm^3 and peripheralization of follicles. Neither ovary contains cysts or masses. Pediatric surgery is consulted and performs detorsion.

Case 1 Discussion

In pediatric patients, approximately half of ovarian torsion cases occur in the 9-14 year age group.[5] Increased hormonal stimulation during the perimenarchal years results in ovarian cyst development and enlargement, increasing the risk of ovarian torsion. However, 25-55% of pediatric ovarian torsion cases occur in patients with anatomically normal ovaries.[3,6-12] Premenarchal patients have higher rates of ovarian torsion in an ovary without cysts or masses[2,4] with rates of up to 64%.[4] In general, pediatric patients are more likely to have ovarian torsion in an ovary without underlying anatomic pathology.[13] This may be explained by anatomic differences between pediatric and adult patients. In pediatric patients, especially those who are premenarchal, the uterus is relatively small and the utero-ovarian ligaments are relatively long, making the ovaries more mobile and at increased risk for torsion. Additionally, some pediatric patients may have congenitally longer utero-ovarian ligaments.

Classically, pain associated with ovarian torsion is described as acute in onset and intermittent. The colic component of pain is thought to be due to intermittent torsion as the ovary torses and detorses with change in activity.[14] However, 33-46% of pediatric patients report constant abdominal pain with ovarian torsion.[7,15]

As an ovary twists about the utero-ovarian ligament, edema develops. Through a transudative process, peripheral follicles become more fluid-filled and prominent. Edema and hemorrhage occur, making the ovarian stroma more echogenic. As a result of this and follicular peripheralization, a "string of pearls" sign can be seen with ovarian torsion.

Normal arterial flow cannot be used to rule out ovarian torsion. Arterial flow may be preserved with torsion due to a dual blood supply from both the ovarian and uterine arteries. In early torsion venous and lymphatic outflow may be compromised with relative preservation of higher-pressure arterial inflow. If torsion persists the ovary becomes more engorged, intraovarian pressure increases and arterial flow is then affected. In pediatric and adolescent patients who have never been sexually active, pelvic ultrasounds are performed using a transabdominal instead of an endovaginal approach. Doppler flow may be less reliable with the transabdominal approach.

In pediatric patients, ovarian size and volume are dependent on patient age and menarchal status.[16,17] Increased ovarian volume and asymmetric ovarian enlargement are more reliable indicators of torsion in pediatric patients. Because of variability in ovarian volume, volume should be compared to reference standards based on age. In a premenarchal child, normal ovarian volume is 1-2 cm^3 and in a postmenarchal adolescent, mean ovarian volume is 6-9 cm^3. Normal ovarian volume in a postmenarchal patient can range up to 22 cm^3 depending on menstrual cycle stage.[13] Comparing ovarian size to the contralateral ovary is critical in assessing for unilateral ovarian torsion,[15] and a three-fold increase in volume is concerning for torsion.[13]

PEDIATRICS

Case 2

A four-year-old girl with a history of constipation presents to the ED late at night with right lower quadrant abdominal pain since the evening. The patient's mother first noted the patient had pain when she began crying before dinner. The mother believes the pain was acute in onset. The patient ate her normal dinner portion. She went to bed later in the evening but had difficulty sleeping due to the pain. She also had an episode of nonbloody, nonbilious emesis prompting her mother to bring her to the ED. The patient has had no diarrhea or fever and her last bowel movement was three days earlier.

On arrival in the ED, the patient appears uncomfortable. After being triaged, the patient asks to use the bathroom. After passing a formed stool, the patient appears more comfortable and indicates her pain is much improved. She is afebrile and her other vital signs are unremarkable. On exam, the patient is watching videos on her tablet. Her abdomen is soft with minimal tenderness in her right lower abdomen.

The differential diagnosis for this case includes constipation, early appendicitis and ovarian torsion. An abdominal x-ray is ordered to assess for stool burden and shows a nonobstructive bowel gas pattern and moderate stool burden. Right lower quadrant and transabdominal pelvic ultrasounds are also ordered. On ultrasound, the patient's appendix is not visualized and her right ovary is enlarged with no arterial flow. No ovarian masses or cysts are seen. The patient undergoes emergent detorsion of her right ovary.

Case 2 Discussion

Abdominal pain due to ovarian torsion is classically described as severe. However, younger premenarchal patients may not be able to communicate their symptoms well and may not present with severe pain. In several cases series of pediatric ovarian torsion, 46-67% of pediatric patients did not present with "severe" abdominal pain.[4,18] The absence of severe pain may contribute to pediatric patients presenting later. One case series showed that approximately half of patients did not present until after two or more days of pain[4] and another case series showed 14% of patients presented after two or more weeks of pain.[18] Premenarchal patients are more likely to present later than postmenarchal patients with ovarian torsion[4] and are more likely to have a delay in diagnosis.[2]

This patient had right lower quadrant abdominal pain and tenderness. She also had a history of constipation. Because of this, both early appendicitis and constipation were in the differential diagnosis. Ovarian torsion affects the right ovary more often than the left ovary with a 3:2 predominance.[11,19] This is thought to be due to anatomic differences between the right and left lower abdomen. The smaller and more mobile cecum restricts movement of the right ovary less and the larger and fixed sigmoid colon impedes movement of the left ovary more. Constipation can also be a presenting symptom of ovarian torsion[18] and should always be a diagnosis of exclusion in children presenting with lower abdominal pain.

Case 3

A seven-year-old girl with no significant past medical history presents with three days of left lower back and flank pain and two days of dysuria. She was seen in an urgent care clinic the previous day. Her urinalysis was positive for leukocyte esterase and she was started on antibiotics for a urinary tract infection. Since starting the antibiotics, the patient's symptoms have worsened. She has developed worsening pain and nausea and vomiting with three episodes of emesis. The patient's worsening symptoms prompt her mother to bring her to the ED.

In the ED, the patient is tired-appearing and uncomfortable because of her back pain. She is febrile with a temperature of 100.4 and has a pulse of 112 beats per minutes. Her other vital signs are unremarkable. Her exam is notable for moderate bilateral lower quadrant tenderness.

The differential diagnosis for this case includes pyelonephritis, appendicitis and ovarian torsion. Bloodwork and a urinalysis are ordered and the patient receives intravenous fluids, an antipyretic, an antiemetic and analgesia. The patient's complete blood count is notable for a leukocytosis with a left shift. White blood cells and leukocyte esterase are seen on urinalysis. Right lower quadrant and transabdominal pelvic ultrasounds are ordered. On ultrasound, a moderate amount of pelvic free fluid is seen. The appendix is normal and the right ovary is normal in size with normal arterial flow. The left ovary is not clearly visualized. However, a large midline pelvic mass is seen and the radiologist is concerned the midline pelvic mass may be the torsed left ovary. Pediatric surgery confirms ovarian torsion on laparotomy and the ovary is detorsed.

Case 3 Discussion

Signs and symptoms of ovarian torsion can easily mimic the presentations of much more common diagnoses including appendicitis and urinary tract infection. Patients with ovarian torsion can present with dysuria.[18] They can also have a sterile pyuria[7,20] just as patients with appendicitis can have sterile pyuria. In patients with ovarian torsion, sterile pyuria results from inflammation due to a torsed and edematous ovary adjacent to the bladder. Fever can also be seen with pediatric ovarian torsion.[20]

There is variability in the appearance of a torsed ovary on ultrasound depending on the degree of edema, hemorrhage, infarction and necrosis that has developed.[13] In pediatric patients, the torsed ovary can be seen in an atypical position – either midline or on the contralateral side.[13] The most often seen finding on ultrasound in pediatric ovarian torsion cases is ovarian enlargement.[16,19]

Case 4

A six-month-old girl without significant past medical history presents to the ED with fussiness for the past week. She has also had rhinorrhea and congestion, but no fever. Her parents report their daughter has had episodes of crying, during which she is difficult to console. Three days earlier, the patient was seen by her pediatrician and diagnosed with an otitis media. She was started on antibiotics. The patient's fussiness has not improved. Additionally, since starting the antibiotics, the patient is feeding less well and has had a few episodes of emesis. Her urine output has been normal and she has had no fever or diarrhea.

In the ED, the patient's vital signs are unremarkable. She is tired-appearing but comfortable on exam. She has mild generalized abdominal tenderness on exam. There are no exam findings that explain this infant's fussiness and episodic crying – tympanic membranes are non-opacified and non-erythematous, oropharynx is clear, no corneal abrasions are

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NEW YORK STATE OF MIND

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Validation of a Clinical Decision Rule for Ultrasound Identification of MRSA Skin Abscesses in Children

Gutierrez CM, Malia L, Ng LK, Dayan PS, Rabiner JE ; Division of Pediatric Emergency Medicine, Department of Emergency Medicine, Columbia University College of Physicians and Surgeons, New York, NY; Pediatr Emerg Care; 2022 Oct 26.

OBJECTIVE: The aim of this study was to validate an adult-derived clinical decision rule for ultrasound identification of methicillin-resistant Staphylococcus aureus (MRSA) skin abscesses in a pediatric cohort.

METHODS: We conducted a retrospective study of skin and soft tissue infections in patients <21 years presenting to the emergency department who had radiology performed ultrasounds completed and wound cultures obtained. Ultrasound scans were reviewed for edge definition, volume, and shape by two pediatric emergency physicians with expertise in point-of-care ultrasound, with approximately 25% of scans reviewed by both experts to evaluate interrater reliability. A third, blinded expert weighed in for discrepancies before analysis. Test performance characteristics were calculated for the clinical decision rule in children.

RESULTS: Two hundred nine patients were enrolled, with mean age of 9.8 (±6.7) years; 87 (42%) were male. Sixty-nine (33%) patients had a wound culture positive for MRSA. The clinical decision rule had a sensitivity of 86% (95% confidence interval [CI], 75%-93%), specificity of 32% (95% CI, 25%-41%), positive predictive value of 38% (95% CI, 35%-42%), negative predictive value of 82% (95% CI, 71%-89%), positive likelihood ratio of 1.26 (95% CI, 1.08-1.46), negative likelihood ratio of 0.45 (95% CI, 0.24-0.84), and an odds ratio of 2.8 (95% CI, 1.31-5.97).

CONCLUSIONS: This clinical decision rule for ultrasound identification of MRSA abscesses had moderately high sensitivity and negative predictive value in pediatric patients, with similar sensitivity compared with the original adult validation group. Ultrasound may help identify MRSA abscesses, allowing for improved antibiotic choices and outcomes for children with MRSA abscesses.

Pediatric Croup Due to Omicron Infection Is More Severe Than Non-COVID Croup

Scribner C, Patel KI, Tunik M; Department of Pediatric Emergency Medicine, Bellevue Hospital, New York, NY; Pediatr Emerg Care; 2022 Dec 22.

OBJECTIVE: Croup due to infection with the omicron variant of COVID is an emerging clinical entity, but distinguishing features of omicron croup have not yet been characterized. We designed a study to compare the clinical features of croup patients presenting to the pediatric emergency department pre-COVID pandemic with COVID-positive croup patients who presented during the initial omicron surge.

METHODS: This was a retrospective observational cohort study of children 0 to 18 years old who presented to our urban, tertiary care pediatric emergency department with symptoms of croup. The study compared a cohort of croup patients who presented in the year before the onset of the COVID pandemic to a cohort of COVID-positive croup patients who presented during the initial omicron surge. The primary outcomes included illness severity and treatments required in the emergency department. The secondary outcome was hospital admission rate.

RESULTS: There were 499 patients enrolled in the study, 88 in the omicron croup cohort and 411 in the classic croup cohort. Compared with the classic croup patients, omicron croup patients were more likely to present with stridor at rest (45.4% vs 31.4%; odds ratio [OR], 1.82; confidence interval [CI], 1.14-2.91) and hypoxia (3.4% vs 0.5%; OR, 7.22; CI, 1.19-43.86). Omicron croup patients required repeat dosing of inhaled epinephrine in the emergency department more often (20.4% vs 6.8%; OR, 3.51; CI, 1.85-6.70), and they were more likely to require respiratory support (9.1% vs 1.0%; OR, 10.18; CI, 2.99-34.60). Admission rates were significantly higher for omicron croup patients than for classic croup patients (22.7% vs 3.9%; OR, 7.26; CI, 3.58-14.71), and omicron croup patients required intensive care more frequently (5.7% vs 1.5%; OR, 4.07; CI, 1.21-13.64).

CONCLUSIONS: Pediatric patients with omicron croup develop more severe disease than do children with classic croup. They are more likely to require additional emergency department treatments and hospital admission than patients with croup before the COVID pandemic.

Parent and Physician Preference for Anxiolytic Medication Prior to Laceration Repair in Young Children

Waseem M, Asad H, Shariff MA, Epstein E, Umar Y, Leber M; Emergency Medicine, New York City (NYC) Health and Hospitals Lincoln Medical Center, New York; Cureus; 2022 Dec 11;14(12):e32412.

OBJECTIVES: Pediatric laceration repair is a daunting process for parents and physicians. The repair could take place quickly if the child is calm and relaxed.This study aimeds to evaluate parental and physician preference for anxiolytic medication administration prior to laceration repair, with a pre-and post-repair survey on parents' and physicians' initial preference and follow-up perception.

METHODS: Parents or guardians of children aged six months to five years who presented with simple lacerations and their physicians were asked to complete a survey on potential benefits and expectations of anxiolytic use before and after the laceration repair.

RESULTS: Fifty parents/guardians completed the survey. Forty-three (86%) expressed their preference for anxiolytic medication use if it had been available, before laceration repair. Parents/guardians perceived reactions to laceration repair before and after the procedure were significant, ranging from "uncontrolled crying" to "continuous crying" (p=.032). The parents/guardians overwhelmingly preferred to take part in the decision-making process during the repair (not significant). Preference for anxiolytic use was high before repair at 54% and increased to 62% after witnessing the procedure (not significant). Physicians who completed the survey supported the use of anxiolytics 84% of the time. Forty (80%) physicians preferred the intranasal route, while parents/guardians preferred the oral route (58%).

CONCLUSIONS: Procedural sedation is critical for anxiety control and to minimize the difficulties related to treatment. In our study, parents and physicians supported the administration of an anxiolytic agent to help alleviate

NEW YORK STATE OF MIND

anxiety and achieve optimal outcomes.

Emergency Medicine Residents' Perceptions of Working and Training in a Pandemic Epicenter: A Qualitative Analysis

Aurrecoechea A, Kadakia N, Pandya JV, Murphy MJ, Smith TY; SUNY Downstate Health Sciences University, Department of Emergency Medicine, Brooklyn, New York, NYC H+H Kings County Hospital, Brooklyn, New York; West J Emerg Med; 2022 Dec 30;24(2):269-278.

INTRODUCTION: We sought to describe the range of emergency medicine (EM) resident physicians' perceptions and experiences of working and training during the initial coronavirus 2019 (COVID-19) pandemic surge at two, large-volume, urban training hospitals in Brooklyn, New York.

METHODS: A total of 25 EM resident physicians who worked at either of two large emergency departments (ED) from March 15-April 11, 2020 participated in semi-structured interviews conducted in July and August 2020. Interviews were conducted by the authors who were also emergency medicine resident physicians working in the ED during this time. We asked open-ended questions to residents about their experiences and emotions at work and outside of work, including their relationship with co-workers, patients, and their community. The interviews were audio-recorded and transcribed. We then conducted a thematic analysis to identify, classify, and define themes from interview transcripts. Iterative commonalities and differences between interview response themes were grouped to create a broadly applicable narrative of the residents' perceptions and experiences of working and training during this initial wave of a novel pandemic. Interviewees also responded to a demographics survey.

RESULTS: Study participants described four major aspects of their perceptions and experiences of working and training during the stated time, including emotional challenges such as anxiety and feeling underappreciated; protective thoughts, including camaraderie, and sense of duty; workplace challenges such as limited knowledge surrounding COVID-19 and a higher volume of acute patients; and adaptive strategies including increased communication with ED administrators.

CONCLUSION: Emergency medicine residents have a unique perspective and were key frontline hospital responders during a prolonged disaster and mass triage event within a local health system. Considering the chronic case and mortality fluctuations and new variants of COVID-19, as well as the anticipation of future infectious disease pandemics, we believe it is important for key decision-makers in resident education, hospital administration, and all levels of public health management to inform themselves about residents' emotional and workplace challenges when establishing hospital and residency program disaster protocols.

Hip Effusions or Iliopsoas Hematomas on Ultrasound in Identifying Hip Fractures in the Emergency Department

Cohen A, Li T, Greco J, Stankard B, Mingione P, Huang V, Gold A, Zarider N, Nutovits A, Nelson M; Department of Emergency Medicine, Donald and Barbara Zucker School of Medicine at Hofstra/Northwell, Hempstead, NY; Am J Emerg Med; 2023 Feb;64:129-136.

OBJECTIVE: We evaluated the sensitivity, specificity, predictive values, and likelihood ratios of hip effusion and/or iliopsoas hematoma on point-of-care ultrasound (POCUS) performed by ultrasound fellows and fellowship trained emergency providers to identify hip fractures in emergency department (ED) patients with a high suspicion of hip fracture.

METHODS: This was a prospective observational study of a convenience sample of patients with high suspicion of hip fracture at two academic EDs between 2018 and 2021. Patients with negative x-rays who did not receive further imaging with magnetic resonance imaging (MRI) or computed tomography (CT) were excluded. Sonographers were blinded to clinical data and ED imaging results. At the primary site, eight ultrasound fellows and 4 emergency ultrasound fellowship-trained emergency providers performed the ultrasonographic examinations. At the secondary site, two ultrasound fellows, four emergency ultrasound-fellowship trained physicians, and one sports medicine fellowship-trained emergency provider performed the ultrasonographic examinations. A positive ultrasound was defined as either the presence of a hip effusion or iliopsoas hematoma on the affected extremity. The primary outcome measures were sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV), positive likelihood ratio (LR+), and negative likelihood ratio (LR-) of POCUS findings for identification of a hip fracture compared with a ranked composite reference standard consisting of x-ray, CT, or magnetic resonance imaging (MRI); the highest-level test performed for each patient was used for comparison.

RESULTS: Among 213 patients analyzed, all 213 received an x-ray, 116 received a CT scan, and 14 received an MRI; 113/213 x-rays (53.1%), 35/116 CT scans (30.2%), and 7/14 MRIs (50.0%) were positive for a hip fracture. A total of 123 patients were diagnosed with a hip fracture (57.7%). There were 13 false negative x-ray results. Overall, compared with the reference standard of x-ray, CT, or MRI, POCUS had a sensitivity of 97% (95% CI: 94%, 100%), specificity of 70% (95% CI: 61%, 79%), PPV of 82% (95% CI: 75%, 88%), and NPV of 94% (95% CI: 88%, 100%) in the identification of hip fractures; with a positive likelihood ratio of 3.22 (95% CI: 2.35, 4.43) and negative likelihood ratio of 0.05 (95% CI: 0.02, 0.12).

CONCLUSION: In a convenience sample of ED patients with high clinical suspicion for hip fracture, the presence of a hip effusion and/or iliopsoas hematoma on POCUS performed by expert emergency ultrasonographers showed high sensitivity in diagnosing patients with a hip fracture.

Temperature Threshold in the Screening of Bacterial Infections in Young Infants With Hypothermia

Lo YHJ, Graves C, Holland JL, Rogers AJ, Money N, Hashikawa AN, Ramgopal S; Emergency Medicine, NewYork-Presbyterian Hospital/Weill Cornell Medicine, New York, New York; Emerg Med J; 2023 Mar;40(3):189-194.

BACKGROUND: Young infants with hypothermia presenting to the emergency department (ED) are at risk for serious bacterial infections (SBI), however there is no consensus temperature to prompt evaluation for SBI among these children. We sought to statistically derive a temperature threshold to guide detection of SBI in young infants with hypothermia presenting to the ED.

METHODS: We performed a cross-sectional study of infants ≤90 days old presenting to four academic paediatric EDs in the United States of America from January 2015 through December 2019 with a rectal temperature of

≤36.4°C. Our primary outcomes were SBI, defined as urinary tract infection (UTI), bacteraemia and/or bacterial meningitis, and invasive bacterial infections (IBI, limited to bacteraemia and/or bacterial meningitis). We constructed receiver operating characteristic (ROC) curves to evaluate an optimally derived cutpoint for minimum ED temperature and presence of SBI or IBI.

RESULTS: We included 3,376 infants, of whom SBI were found in 62 (1.8%) and IBI in 16 (0.5%). The most common infection identified was Escherichia coli UTI. Overall, cohort minimum median temperature was 36.2°C (IQR 36.0°C-36.4°C). Patients with SBI and IBI had lower median temperatures, 35.8°C (IQR 35.8°C-36.3°C) and 35.4°C (IQR 35.7°C-36.3°C), respectively, compared with those without corresponding infections (both $p<0.05$). Using an outcome of SBI, the area under the ROC curve (AUROC) was 61.0% (95% CI 54.1% to 67.9%). At a cutpoint of 36.2°C, sensitivity was 59.7% and specificity was 59.2%. When using an outcome of IBI, the AUROC was 65.9% (95% CI 51.1% to 80.6%). Using a cutpoint of 36.1°C in this model resulted in a sensitivity of 68.8% and specificity of 60.1%.

CONCLUSION: Young infants with SBI and IBI presented with lower temperatures than infants without infections. However, there was no temperature threshold to reliably identify SBI or IBI. Further research incorporating clinical and laboratory parameters, in addition to temperature, may help to improve risk stratification for these vulnerable patients.

Effects of Physical Exertion on Early Changes in Blood-Based Brain Biomarkers: Implications for the Acute Point of Care Diagnosis of Concussion

Bazarian JJ, Abar B, Merchant-Borna K, Pham DL, Rozen E, Mannix R, Kawata K, Chou Y, Stephen S, Gill JM; Department of Emergency Medicine, University of Rochester School of Medicine and Dentistry, Rochester, New York; J Neurotrauma; 2023 Apr;40(7-8):693-705.

Blood-based brain biomarkers (BBM) such as glial fibrillary acidic protein (GFAP) and ubiquitin carboxy-terminal hydrolase L1 (UCH-L1) have potential to aid in the diagnosis of concussion. Recently developed point-of-care test devices would enable BBMs to be measured in field settings such as military and sport environments within minutes of a suspicious head hit. However, head hits in these environments typically occur in the setting of vigorous physical exertion, which can itself increase BBMs levels. Thus, efforts to develop BBMs as acute concussion aids in field settings need to account for the effects of physical exertion. To determine the acute effects of physical exertion on the BBMs, we measured GFAP, UCH-L1, tau, and neurofilament light chain (NF-L) immediately before, immediately after, and 45 min after a single workout session consisting of aerobic and resistance exercises in 30 collegiate football players. Subjects wore body sensors measuring several aspects of exertion and underwent diffusion tensor imaging 24 h before and 48 h after exertion. All subjects were male with a mean age of 19.5 ± 1.2 years. The mean duration of activity during the workout session was 94 ± 31 min. There was a significant decrease in serum GFAP immediately after (median decrease of 27.76%, $p<0.0001$) and a significant increase in serum UCH-L1 45 min after (median increase of 37.11%, $p=0.016$) exertion, compared with pre-exertion baseline. No significant changes in tau or NF-L were identified. The duration of exertion had a significant independent linear correlation to the increase in serum UCHL1 from pre-exertion to 45 min after exertion ($r=0.68$, $p=0.004$). There were no significant pre- to post-exertional changes in any of the 39 examined brain white matter regions, and biomarker changes did not correlate to variation in white matter integrity in any of these regions. Thus, exertion appeared to be associated with immediate decreases in serum GFAP and very acute (45 min) increases in UCH-L1. These changes were related to the duration of exertion, but not to changes in brain white matter integrity. Our results have important implications for how these BBMs might be used to aid in the on-scene diagnosis of concussion occurring in the setting of physical exertion.

Board of Directors Election

This June, New York ACEP members will receive the 2023 Candidate Profile. Through this proxy, members will elect four board candidates to serve three-year terms on the New York ACEP Board of Directors.

Members can cast their vote on board positions by proxy no later than July 7. Proxies will be sent by email to all New York ACEP members in June. Members may cast a proxy in person at the New York ACEP Annual Meeting Wednesday July 12 at 1:15 pm at The Sagamore Resort on Lake George in Bolton Landing.

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seen, there are no hair tourniquets and she has no inguinal hernias. Abdominal and transabdominal pelvic ultrasounds are performed to evaluate for intussusception and ovarian torsion. On ultrasound, a torsed right ovary is found. Pediatric surgery is consulted and detorses the ovary.

Case 4 Discussion

Infants are at increased risk of missed intraabdominal pathology for several reasons. They are unable to describe their symptoms and often present with vague, nonspecific symptoms for which there is a broad differential diagnosis. Infant girls are particularly at risk of missed ovarian torsion. While most cases of ovarian torsion occur during the perimenarchal years, there is a bimodal age distribution for pediatric ovarian torsion. Approximately 16% of pediatric ovarian torsion cases occur in the 0-12 month age group.[5] This is likely due to in utero maternal estrogen exposure causing ovarian cyst formation. Thus, ovarian torsion should be considered in any infant female presenting with fussiness, inconsolability or feeding difficulty.

Ovarian torsion can also present as an inguinal hernia in infants. Up to 80% of infant girls with an inguinal hernia have ovary within the hernia.[21] Because these patients are at risk for ovarian torsion with hernia incarceration or strangulation, all infant girls presenting with an inguinal hernia should undergo an ultrasound to determine hernia contents.

Summary

Although ovarian torsion is less common in the pediatric population, this diagnosis should be included in the differential for any pediatric female patient presenting with abdominal pain. Ovarian torsion is a surgical emergency, necessitating timely diagnosis to prevent ovarian loss and impaired fertility. Diagnosing ovarian torsion in infants, children and adolescents can be challenging for multiple reasons. Pediatric patients often do not have symptoms classically associated with ovarian torsion. They also present with signs and symptoms that are seen with much more common diagnoses such as appendicitis, urinary tract infection and constipation. Additionally, imaging findings can be variable and subtle. Thus, it is important to maintain a high level of suspicion for ovarian torsion in any pediatric patient presenting with abdominal pain, especially younger premenarchal patients. In infants, presenting symptoms may be even more nonspecific and ovarian torsion should be considered in any female infant presenting with fussiness, poor feeding, or an inguinal hernia.

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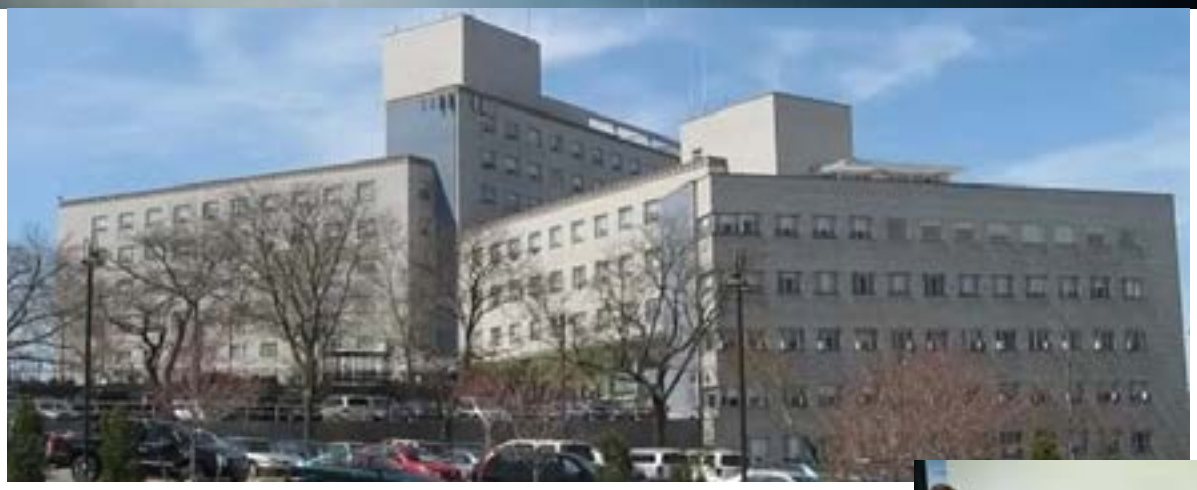
New York EM Residency Spotlight

St. John's Riverside Hospital



Demographics

Hospital/Institution: St. John's Riverside Hospital

Program Director: Miriam Kulkarni, MD

Program Coordinator: Victoria Monges

Program Coordinator E-mail Address: vmonges@riversidehealth.org

Hospital Capabilities: Stroke

Total Number of EM Residents: 30

Residents Train Each Year: 10

Inagural Resident Class Year: 2017

Benefits Offered: ROSH Review, Membership Dues Coverage, Lab Coat(s), In-House On-Call Meals, Dental Insurance, Health Insurance, Vision Insurance, Professional Liability Coverage

Website Link: https://sjrhmededem.org/

Twitter Link: @StJohnsEMRes

Instagram Link: @stjohnsemres

Most Unique Program Feature: St. John's is a great place to train because our residents get to practice and learn how to function in all types of settings, from the tiny 5-bed ED in Dobbs Ferry, to a medium-sized community center in Yonkers, to large academic level 1 trauma centers in the Bronx and Queens. We guarantee you: managing a STEMI or walk-in trauma patient in a tiny suburban ED is a very different ballgame than managing these patients in a large academic center, and you need to learn to function in both environments!

What is Your Program Known For? We are known for our research program! Our residents and faculty have led several national studies, some of which were large multi-center collaborations. Our list of publications and presentations is one of our proudest accomplishments, and it gets much longer as each year of the program passes.

Here is the list of journals and other venues where you can read samples of our team's peer-reviewed work: AEM, AEM Education & Training, Clinical Practice and Cases in EM, Disaster Medicine and Public Health Preparedness, EM Journal, EM Reports, Journal of Education & Teaching in EM, Journal of Graduate Medical Education, Prehospital Emergency Care, WestJEM

Calendar

June 2023

8 Practice Management Conference Call, 1:00 pm
14 Education Committee Conference Call, 2:45 pm
14 Professional Development Conference Call, 3:30 pm
14 Academy of Clinical Educators Zoom Meeting; 4:30 pm
15 EMS Committee Conference Call, 2:30 pm
21 Government Affairs Conference Call, 11:00 am
21 Emergency Medicine Resident Committee Conference Call, 2:00 pm
21 Research Committee Conference Call, 3:00 pm

July 2023

11 Board of Directors Meeting, Sagmaore Hotel; 11am -12 pm
11-13 New York ACEP Scientific Assembly, Sagamore Hotel, Bolton Landing, NY
12 New York ACEP Annual Meeting, Sagamore Hotel, 1:15 pm
12 New York ACEP 2023 Award Presentations; 130 pm
12 New York ACEP Committee Meetings, Sagmaore Hotel; 2 pm
13 New York ACEP Board of Directors Meeting, Sagmaore Hotel; 7-8 am

August 2023

2 Emergency Medicine Resident Career Day, 8 am - 12:30; New York Academy of Medicine

September 2023

13 Education Committee Conference Call, 2:45 pm
13 Professional Development Conference Call, 3:30 pm
14 Practice Management Conference Call, 1:00 pm
20 Government Affairs Conference Call, 11:00 am
20 Emergency Medicine Resident Committee Conference Call, 2:00 pm
20 Research Committee Conference Call, 3:00 pm
21 EMS Committee Conference Call, 2:30 pm

Ocotber 2023

7-8 ACEP 2023 Council Meeting, Philadelphia, PA
9 New York ACEP Reception, Philadephia Marriott
9-12 ACEP23 Scientific Assembly
11 Education Committee Conference Call, 2:45 pm
11 Professional Development Conference Call, 3:30 pm
12 Practice Management Conference Call, 1:00 pm
18 Government Affairs Conference Call, 11:00 am
18 Emergency Medicine Resident Committee Conference Call, 2:00 pm
18 Research Committee Conference Call, 3:00 pm
19 EMS Committee Conference Call, 2:30 pm

NEW YORK ACEP
American College of Emergency Physicians
ADVANCING EMERGENCY CARE

Save the Dates

Emergency Medicine Resident Career Day

Get ready for everything that comes next and gain insight into life after residency.

Wednesday, August 2
8:00 am - 12:30 pm
New York Academy of Medicine
FREE to Residents

2023 Research Conference

2023 Research Conference

Wednesday, November 1
8:00 am - 11:45 am
Location: Columbia University Irving Medical Center
FREE to Residents