

EM Resident

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August/September 2018

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Insurance Policy Creates Barrier for Care

Emerging Threat: Spice

**EMRA Original Research:
Pediatric Sedation**

**Approach to
Postpartum Hemorrhage**





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Resident Advocacy Matters

Tommy Eales, DO

*Editor-in-Chief, EM Resident
Indiana University
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Advocacy is second nature to emergency physicians.

Whether it's standing up to a difficult consultant or making an extra phone call to ensure that a patient has appropriate follow-up after discharge, advocating is a fundamental skill of EM and is paramount to our success as clinicians.

However, the responsibility to advocate for our patients does not stop at the end of the shift.

Every day, key issues affecting our specialty are discussed throughout organized medicine and at all levels of government. Without our involvement, we stand the risk of others making these critical decisions without us.

While most residency programs offer some form of didactic programming in the domain of advocacy and health policy, a great way to supplement this is to attend a regional or national advocacy conference. For those able to travel, the ACEP Leadership & Advocacy (LAC) conference in Washington, D.C., occurs annually and is an excellent opportunity to participate in EM advocacy at the highest level.

For learners who are hesitant to attend an advocacy conference due to a perceived inability to understand health policy, EMRA and the ACEP Young Physicians Section host a Health Policy Primer annually at LAC to bring the junior attendees up to speed on the essentials. While much of the core session content is available online, conference attendees interact directly with health policy experts and are able to ask questions in real time.

LAC is structured similarly to other major advocacy conferences. The

programming begins with inspirational talks by specialty leaders and breaks off into multiple lectures and small-group sessions focused on public speaking and evidence-based advocacy strategies. Eventually, the groups converge back together, and the year's advocacy initiatives are presented. Health policy specialists then break down the evidence supporting the initiatives and offer strategies for discussing the issues with legislators. Finally, conference attendees are shuttled to Capitol Hill for a full day of meetings with legislators in their congressional offices.

This year, several key advocacy initiatives were addressed at LAC.

First was the recruitment of support for a letter to the U.S. Food and Drug Administration requesting further investigation into the critical drug shortages plaguing hospitals across the country.

Second was the Alternatives to Opioids (ALTO) in the Emergency Department Act, created to support hospital implementation of non-opioid pain management protocols.

Next was the Preventing Overdoses While in Emergency Rooms (POWER) Act, proposed to support ED-based buprenorphine treatment as part of a comprehensive addiction treatment strategy.

Last was the reauthorization of the Pandemic and All-Hazards Preparedness Act (PAHPA), initially created in 2006 in the wake of Hurricane Katrina. While many components of PAHPA directly affect EM practice, there was special emphasis on addressing emergency drug shortages, solving multiorganizational

communication deficiencies, and supporting military trauma training in civilian hospitals.

While the initiatives this year were carefully selected to represent the experience of a wide range of EDs, there remains a long list of ongoing issues that still require our attention. In this, there are unlimited opportunities for trainees to get involved in local and national advocacy efforts.

Of the upcoming issues facing EM, **few are as potentially detrimental to our patients as the expanding practice by insurance companies of withholding ED visit reimbursement for certain patients whose visits are retrospectively determined to be non-emergent in etiology.** A small group of insurance providers have started enforcing these policies in select markets, and we are approaching a critical point at which the practice may become more widespread.

If this controversial practice remains unopposed, the majority of our insured patients may soon face a dangerous reality in which the decision to come to the ED is based not on the concern for a life-threatening illness, but rather on the ability to pay an astronomical bill if the visit is ultimately ruled to be non-emergent. This injustice clearly illustrates the importance of emergency physician involvement in advocacy.

With patient lives at stake, it is imperative that students, residents, and fellows take an active role in advocacy. As the future leaders of the specialty, it is our responsibility to ensure that patients continue to receive the best care possible. ★

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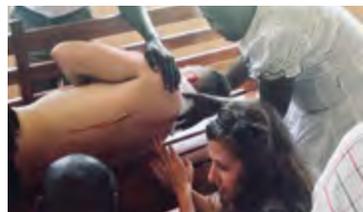
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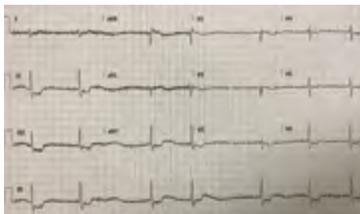


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UPCOMING EVENTS

- Aug. 18: Fall Resolutions Due
- Aug. 18: EMRA Board Nominations Due
- September (month): EM Day of Service
- Sept. 15: 2019 Main Registry Match
Opens @ Noon EDST
- Sept. 28-Oct. 4: EMRA Events @ ACEP18
- Sept. 30: EMRA Medical Student Forum
- Sept. 30: EMRA Residency Program Fair
- Oct. 1: EMRA Committee Meetings
- Oct. 1: Case-Con Poster Presentations
- Oct. 1: EMRA Job & Fellowship Fair
- Oct. 2: RepCo Meeting & Board Elections
- Oct. 2: EMRA Resident SIMWars
- Oct. 2: EMRA Party at PARQ Nightclub
- Oct. 3: EMRA Airway Stories
- Oct. 4: EMRA MedWAR
- Oct. 5: EM Resident Articles Due
- Oct. 13-16: ABEM Fall Oral Certification Exam
- Nov. 30: NRMP standard registration deadline

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Respecting Our Past, Defining Our Future

Zachary Jarou, MD

EMRA President

*ACEP Fellowship in Administration,
Quality, Informatics, and Policy*

*University of Chicago Administrative Fellowship
@zachjarou*

Four years ago, I sat in a historic Denver theatre auditorium, ready to embark upon some of the most challenging, transformative years of my life. Faculty shared words of wisdom for docs new and old. And as I sat in that same auditorium on the cusp of my own residency graduation, I reminisced about the trials and tribulations of my journey. I reflected on the lessons I remembered hearing 4 short years ago, at the beginning of my voyage:

- 1) Don't forget your roots.
- 2) Some of life's worst regrets are failed acts of kindness, including to oneself.
- 3) The greatest joy in life is being part of something bigger than yourself.

These words can easily be applied to our personal and professional lives, but with a little imagination, I think we also see how they might be applied more broadly. In light of Dr. John Rogers recently stepping down from his position as ACEP President-Elect, I think we should apply this wisdom to how we think about our specialty, too.

Don't Forget Your Roots

For me, becoming a physician was a grueling task. The standardized approach to patient interaction taught by medical schools felt scripted, overly regimented, and ultimately dehumanizing to me as a student. One of the biggest gifts that I ever gave myself was permission to be myself, while also being a doctor. Life's

more fun when you're your genuine self. Know where you're going, but don't forget where you came from.

While EMRA believes the only pathway to the independent practice of emergency medicine in the 21st century is residency training and board certification, this policy does not say we do not value the pioneers who paved the way for us. Modern medical school graduates can now easily match into one of more than 200 emergency medicine residency programs, and upon successful completion of their training will become board-certified by ABEM or AOBEM.

Emergency medicine is one of the youngest medical specialties, and it would not exist if not for the handful of mavericks who knew there had to be a better way. They challenged the status quo. They formed organizations to advocate for the creation of a new specialty in the house of medicine. The earliest of them trained in residency programs for a specialty that didn't yet exist. They built a system for acute, unscheduled, episodic care unlike anything the world had ever known. We are thankful for the trailblazers. We are who we are today because of you. You took the road less traveled, and it has made all of the difference.

Don't Regret Failed Acts of Kindness, Including to Yourself

We each have the opportunity to make a difference in the lives of others every day. When our ability as physicians to solve problems falls short, our ability to make an impact by being compassionate human beings begins. We can listen. We can empathize. We have the privilege of healing those from all walks of life,

sometimes through the simple act of kindness. Working in the ED can be stressful, and in those moments of chaos, take a deep breath, smile, and forgive yourself for being only human.

I have been taken aback by the recent activities of a vocal few emergency physicians on social media who have been hurling insults against individuals and organizations. It's disappointing to see this behavior at all, and even more disappointing if any group of professionals finds it acceptable. The practice of medicine is challenging enough without us attacking and criticizing one another. Be kind to your colleagues. If you want a membership organization to take action on an issue, become a member and get involved. A social media post is not a replacement for a resolution or thoughtfully written letter to a leader. You might be surprised by what you can accomplish when you take a kinder, more thoughtful approach.

The Greatest Joy in Life

To get into medical school and residency, we must succeed as individuals. To be effective leaders and emergency physicians, we must learn to succeed as a team. I am so thankful to my family and friends, the EMRA Board and staff, the members and leaders of ACEP, and the attendings, nurses, techs, and co-residents at Denver Health for allowing me to experience the joy of being something bigger than myself.

At the end of the day, we're all in this together. We all want what is best for our patients and our specialty. We need to experience the joy of what it means to be an emergency physician.

As John Rogers says, we need unity. ★

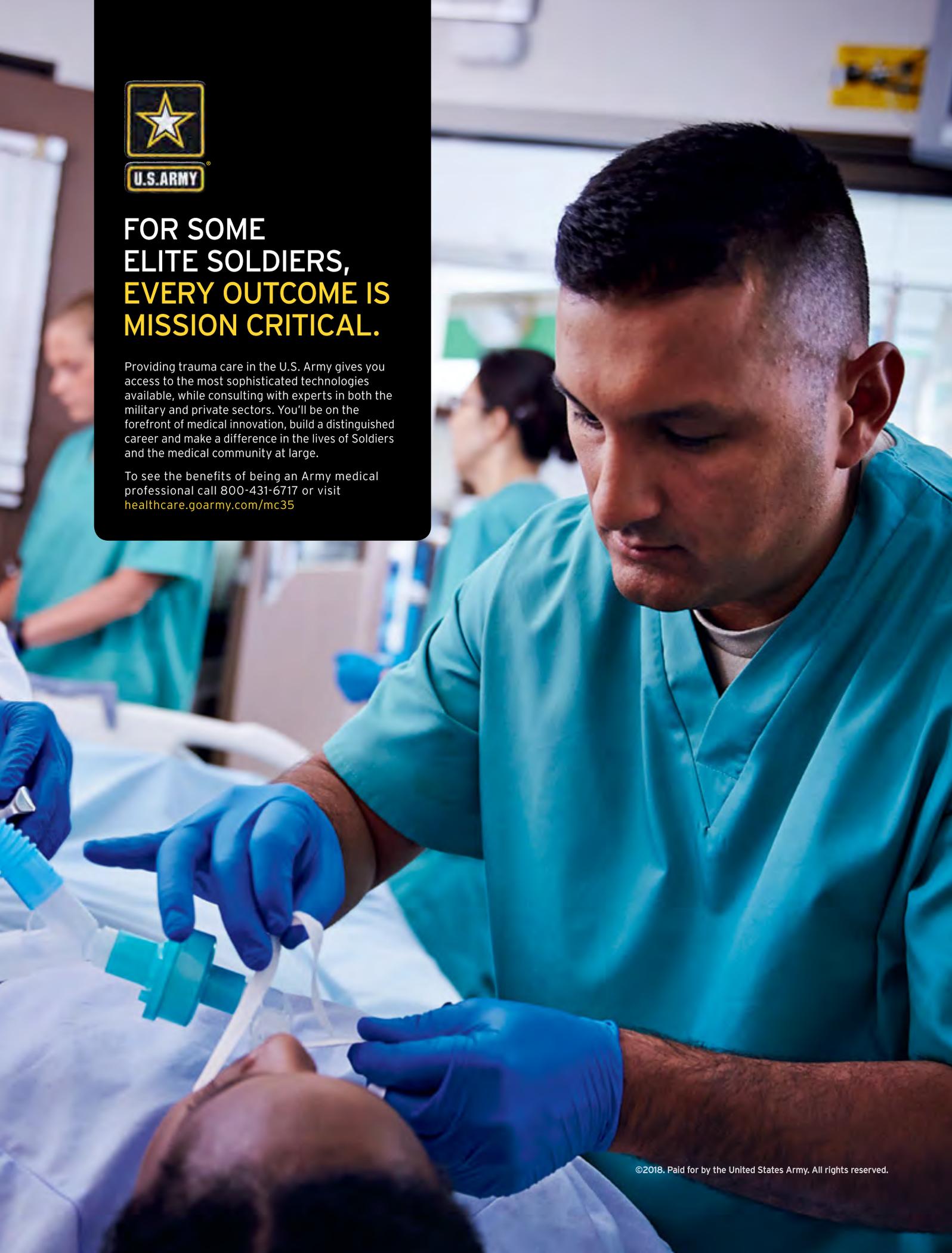


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EMRA Rep Council Prepares for Fall Meeting

Nathan P. Vafiaie, MD, MBA

Vice Speaker of the Council

We are preparing for the next meeting of the EMRA Representative Council (RepCo), which convenes Tuesday, Oct. 2, in San Diego, in conjunction with ACEP18.

There's a lot to be done, and we need your help.

Shaping Policy through Resolutions

Do you think we need to take a stand on an issue? EMRA members can submit resolutions on any topic pertaining to EM residency or the practice of emergency medicine. These resolutions will be evaluated for possible adoption as official EMRA policy. Before a resolution becomes policy, it goes through several steps.

- **Step 1:** Submit your resolutions via the EMRA website. The early deadline is Aug. 18. Emergency resolutions may be submitted up to Sept. 22.
- **Step 2:** All EMRA members should review pending resolutions online and

offer feedback to the EMRA Representative at their residency program.

- **Step 3:** Pending resolutions are presented in a Public Hearing and subsequent Reference Committee Work Meeting (both scheduled Monday, Oct. 1). Language is discussed, amended, or abandoned during these meetings.
- **Step 4:** Final resolutions are presented to the full RepCo for debate and a vote. This fall, that vote takes place during the Oct. 2 RepCo Meeting.

Electing the EMRA Board

In addition to resolutions, the RepCo elects members of the EMRA Board of Directors. We will fill 5 vacancies in October, including:

1. President-elect
 2. Vice Speaker of the Council
 3. Resident Representative to the ACEP Board of Directors
 4. Director of Membership
 5. Director of Health Policy
- If you want to run for the EMRA Board,

submit your nomination by Aug. 18. Then show up Oct. 2 to make your bid for the position you want. Members will be able to browse your candidacy packet online ahead of the vote, and the RepCo will cast ballots on Oct. 2.

Who Has All this Power?

RepCo is composed of residents chosen to be the voice of their respective programs. These EMRA Program Representatives commit to sharing EMRA news with their fellow residents, understanding the will of the group on any matter put to a vote, and attending the two in-person meetings per year in order to vote on their program's behalf. *(RepCo now facilitates virtual voting for EMRA Program Reps who can't travel.)*

We will hold conference calls to discuss the resolutions in September in preparation for the meeting, and we're looking forward to seeing EMRA members in-person at the fall meeting. All members are encouraged to attend! ★

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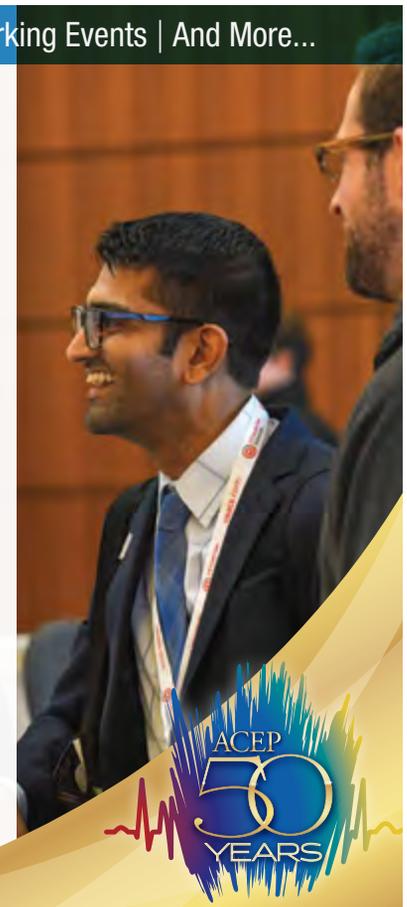
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RAT POISON HIGHS

Brodifacoum-laced Synthetic Cannabinoids

Daniel O. Bral, DO, MPH, MS

*EMRA Toxicology Committee Chair-elect
@DrBral*

Kim Aldy, DO, MS, MBA

*Toxicology Fellow
UT Southwestern*

Between March and April 2018, several cases of unexplained bleeding with INRs ranging from 5-20 were reported to the Illinois Poison Center from local EDs. This led to a full investigation by the CDC. The link between these patients seemed to be recent reported use of synthetic cannabinoids thought to be laced with brodifacoum, a long-acting vitamin K antagonist similar to warfarin that has been used as a rodenticide for decades.^{1,2} The association was later confirmed by testing blood samples and the synthetic cannabinoid products they used. Lacing synthetic marijuana with brodifacoum may have been intentional for euphoric purposes,³ or possibly not intended for consumption if the plant material was sprayed during growth to prevent crop damage. The CDC uncovered additional reports through other parts of the Midwest and Northeast, with Illinois remaining the highest area affected, at 164 cases and 4 deaths (and counting).⁴

Though brodifacoum exposure and its lethality is not new, the route by which patients were exposed in this case was unique. The most common route of brodifacoum exposure is ingestion, but it can be readily absorbed through the skin and via inhalation. Significant vapor exposure is unlikely during the handling of either solid or liquid brodifacoum for its intended use as a rodenticide. However, as evident with this new outbreak and prior case reports, there is a great deal of absorption potential through the respiratory tract.^{5,6}

How Bad is Brodifacoum?

In contrast to warfarin, which has a half-life of 35 hours, brodifacoum possesses an exceptionally long half-

life up to 90 days in the serum.^{3,7} In addition, it delivers a 100-fold increase in potency, which has led many to call it a “superwarfarin.”^{5,7}

What Are the Clinical Effects?

Delayed and prolonged bleeding are common. The effects of brodifacoum may take several days to appear and can last several months. Therefore, patients who may have already sobered from the synthetic cannabinoid will present with hematemesis, epistaxis, bleeding gums, hematuria, hematochezia, or unexplained ecchymosis. More concerning are the possible atraumatic findings, such as spontaneous cerebral, thoracic, or abdominal hemorrhage.

How Can I Diagnose This?

Unfortunately, brodifacoum-specific testing is not readily available at most hospitals and will likely take several days. Getting a set of coags (PTT, PT, INR) can help indirectly diagnose coagulopathy and should be trended at least daily to monitor the efficacy of treatment.⁷ High INR levels in the absence of chronic anticoagulant use history should be highly suspicious for other sources of acute anticoagulation, such as brodifacoum.

What is the treatment?

For oral ingestions of brodifacoum, activated charcoal theoretically may be useful if given early. However, it would have little-to-no benefit with inhalational exposure. Acute treatment generally follows the standard of care for warfarin toxicity with prothrombin complex concentrate, fresh frozen plasma, and vitamin K1. The main difference in treatment for brodifacoum is the much greater doses of vitamin K required (up to 400 mg IV initially, and 50-200 mg PO daily).⁷ Given the long half-life of brodifacoum, long-term (weeks to months) doses of vitamin K will be necessary.⁷

Consult your local poison control center and medical toxicologist for

individualized patient diagnostic testing and management. (National hotline is 1-800-222-1222.)

Take-Home Points

- **Maintain a high level of suspicion.** Many of these patients will present to the ED days after synthetic cannabinoid use and will have non-specific chief complaints. It is imperative to maintain a high level of suspicion, especially in the Midwest states where many cases have already been identified. In the standard HPI of any of the above chief complaints, it would help to elicit a “history of synthetic cannabinoid use.” Lab results may be normal for the first 24-48 hrs after exposure, but INR may return > 5 or even above the level of detection.
- **In future pre-surgical and pre-procedural patients, consider obtaining history of synthetic cannabinoid use.** Given this recent outbreak, there may be a greater unidentified risk of bleeding in patients with impending ED procedures or surgical emergencies. Additionally, advise patients to abstain from synthetic cannabinoid use because of their inherent dangers and the risk of contamination with an anticoagulant.
- **Collaborate with your local poison control center.** ED clinicians are often the first to experience and recognize a potential outbreak or epidemic. Consulting the local poison control center is vital because it allows for monitoring the incidence and prevalence of exposures. It also helps clinicians individualize the treatment of their patients. ★

Acknowledgement: We would like to thank Steven Aks, DO, FACEP, Director of Medical Toxicology for the Cook County Health and Hospitals System, for his expertise and guidance.

Insurance Policy Creates Barrier for Care

Daniel Thomas, MSIII

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A key selling point for health insurance is peace of mind. People pay monthly premiums for those moments when they develop a strange rash or a sudden tightening in their chest. So imagine their shock upon receiving a letter from their insurer stating, “Save the ER for emergencies. Or you’ll be responsible for the cost.”¹ In January, Anthem expanded their rollout of such letters to policyholders in 14 states. Based on retrospective claim reviews, the nation’s largest insurer is retroactively determining if the patient’s case was emergent or not. Lawmakers, physicians, and patients have complained about both the detrimental health effects and dubious legality of this policy. Anthem asserts it intends to reduce wasteful health care spending — but its approach highlights the need for transparency in the industry.

Rather than working with providers to provide a sustainable long-term solution in the form of coordinated care between primary care physicians and hospitals, Anthem hopes to intimidate patients into filing fewer claims. Jeremy Faust, MD, MS, attending physician at Brigham and Women’s Hospital/Harvard Medical School, is dismayed by Anthem’s approach.

“It takes medical students and residents years of training and thousands upon thousands of patient encounters to learn to identify which patients are

truly having an emergency and which are not,” Dr. Faust said. “Asking patients to play doctor based on symptoms alone is unrealistic and frankly dangerous. The reality is that patients have no idea whether their symptoms are serious or not.

“In fact, a great deal of physicians have no idea whether patients are having a true emergency or not. That’s why emergency medicine as a field exists.”

Anthem argues that all billing codes related to a visit were reviewed by a physician. Aside from this review coming after the fact, the Missouri Hospital Association reviewed a previous list of codes Anthem had deemed avoidable ED usages and found that only 15% of the 1,900+ codes were considered truly avoidable by the widely cited NYU ED code database.¹ In fact, only 5% were considered always non-emergent. No patient should ever worry if a severe allergic reaction or an automotive accident deserves emergent care or not. Yet reporters have documented Anthem’s initial rejection of claims related to each of these situations.¹⁻² While Anthem maintains its current list has been updated, it has never provided a copy of this new list.

Imagine a customer purchasing a warranty for their phone that voided based on certain conditions, but then being told they couldn’t read the fine print — and that after they elect for

Jeremy Faust, MD, MS

“I’m concerned that the prudent layperson policy punishes people with poor health literacy and has discrimination against those with cognitive disabilities baked right into it. The standard based on an ‘average knowledge of health and medicine’ sounds reasonable until you remember that half of all people have below-average knowledge of health and medicine. Many of our patients, including those with substantial cognitive impairments, don’t have the luxury of being able to assess their own risks. Is Anthem going to punish them for that?”

a repair, a technician will arbitrarily accept or deny coverage. Anthem refuses to release its updated list of non-emergent codes and/or codes it would consider potentially non-emergent. Anthem essentially tells their members, “Your policy has potentially budget-crushing fine print, but no one gets to read it. In fact, we’ll determine if you are ineligible after you are already on the hook.” In many states, these lists remain confidential, despite lawmakers’ requests. No health care spending solution should be premised on the utter lack of transparency from the party responsible for settling the bills.

Trevor Pour, MD, FACEP, attending physician at Mount Sinai Hospital/Icahn School of Medicine, points out the egregious financial implications. “We often refer to the ED as a ‘safety net’ for good reason; we see patients regardless of their ability to pay,” Dr. Pour said. “But if a visit comes with the risk of a 4-figure price tag, it’s suddenly out of reach for most Americans.”

Without a publicized and responsibly chosen list of non-emergent codes, Anthem’s policy will continue to intimidate patients into second-guessing their medical emergencies. Dr. Pour worries the policy rolls back decades of hard work by physicians and hospitals to save lives. “For years, the American Heart Association (AHA) and others have waged public health campaigns urging

patients to call 911 with symptoms of strokes and cardiac events. But now we've got a policy that potentially punishes patients for following those instructions, if their eventual diagnosis turns out to be reflux, costochondritis, or a tension headache."

Echoing his and others' concerns, the head of the AHA pointed out in a 2016 letter to Missouri physicians and hospitals, "The very real unintended consequence of such a policy is to discourage their policyholders from immediately seeking or altogether foregoing potentially life-saving care when time is of the essence."³

Dr. Faust can easily imagine such a scenario. "I remember a patient who was sent to the emergency department with chest burning. She was convinced it was acid reflux, but what she had was a massive ST-elevation myocardial infarction," he said. "Imagine if she had sat at home thinking to herself: 'I better not go to the hospital because this is probably not a real emergency and I'm going to get a huge bill when my claim is rejected.'"

After lawmakers like Sen. Claire McCaskill, D-MO, threatened to bring legislative pressure through the Affordable Care Act's prudent layperson standard (which states insurers must reimburse must cover ED visits that "a prudent layperson who possesses

an average knowledge of health and medicine" determined necessary), Anthem made concessions in February to always cover visits involving surgery, IV fluids, MRI/CT scans, or if billed as urgent care.⁴ In addition, Anthem claims that medical records will be requested along with billing codes. As ACEP has pointed out, these concessions do not change the fact that patients are being asked to make in-the-moment determinations of symptom severity with the possibility of crippling financial bills hanging over their heads.⁵

While the prudent layperson standard will continue to be litigated by interest groups, the lack of informed discussion and accountability about what constitutes non-emergent care is a huge part of the problem. In addition to requiring medical record review by physicians, the industry must be willing to provide their diagnosis code lists — the terms and conditions of the warranty. There may be a reasonable case for withholding reimbursement for a limited number of codes that would be clearly non-emergent to the average patient. But that list must be made public for providers and watchdogs to examine and debate. Economists have always admitted that health care is a singularly essential good for a consumer: drop a smartphone in the ocean and life goes on; brush off a tightening chest and life could be over.

ACEP Sues Anthem to Protect Patients

ACEP and the Medical Association of Georgia sued Anthem's Blue Cross Blue Shield of Georgia in July, asking a federal court to halt Anthem's retroactive denials of emergency care. The lawsuit asserts that Anthem's policy — which is being used in Georgia and 5 other states — violates the prudent layperson standard and also violates the 1964 Civil Rights Act because Anthem's denials disproportionately affect members of protected classes. "We can't possibly expect people with no medical expertise to know the difference between something minor or something life-threatening, such as an ovarian cyst versus a burst appendix," said ACEP President Paul Kivela, MD, FACEP. "ACEP and MAG have tried multiple times to work with Anthem to express these concerns and urge them to reverse this policy, and they have refused. We felt we had no choice but to take action to protect our patients, and therefore are asking the federal court to force Anthem's BCBS of Georgia to abide by the law and fulfill their obligation to their policyholders."

Efforts to reduce utilization should and must be pursued, but not at the expense of the patient (both his pocketbook and his life). For Dr. Pour, gambling with patients' lives to avoid potential abuse is untenable. "Of course, every emergency physician has seen their share of ED abuse; I had a patient last week who earnestly said they were hungry and needed a sandwich — and this was their only complaint," Dr. Pour said. "But I'm happy to keep my doors open for dozens of those visits if it means we're not missing the true emergency — a heart attack, stroke, or worsening infection or surgical emergency — who is deteriorating at home over fear of cost."

What Can You Do Now?

Get involved in the Fair Coverage fight. Visit faircoverage.org for details. ★

Trevor Pour, MD

"Just recently, I cared for a young woman who delayed an ED visit for worsening ulcerative colitis due to her concerns about her co-pay. By the time she arrived, her condition had significantly worsened. We need to reduce the barriers to seeking timely care, not expand them."

On the problem with asking patients to determine the true urgency of their condition...

"We're able to use our years of medical training, along with a good physical exam, to determine whether a patient's complaint needs immediate testing and/or treatment. Yet even with those tools, we frequently need EKGs, imaging test, and labs to judge if a condition is emergent. But most patients aren't armed with that knowledge and depend on us to help them. Putting the onus on the patient, who has no medical training and no access to those resources, is misguided and dangerous."

Pediatric Sedation Simulation for EM Residents

Improving Safety with Standardized Procedural Checklists

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In EDs where pediatric volume is low, pediatric sedation is a low-frequency, high-consequence procedure, in which the nature of the medications and procedure are all the risks of airway management and medication reactions. In 2006, a large multicenter retrospective review on pediatric sedations demonstrated that significant complications such as development of stridor, laryngospasm, wheezing, or apnea occurred in 1 out of 400 pediatric sedation cases, with 1 out of 200 sedations requiring immediate airway management such as bag valve mask, oral airway, or intubation.¹ The probability of adverse reactions increases significantly with an upper respiratory tract infection, which are ubiquitous in pediatric patients.^{2,3} Advances in airway management, namely end tidal CO₂, have been shown to improve detection of apnea and hypoxic events prior to oxygen desaturation. This allows for quick airway management, including physical stimulation, airway

manipulation, nasal or oral airway, oxygen supplementation, and positive pressure ventilation for the mitigation of life threatening situations.^{4,5} For the inexperienced operator, failure to recognize these impending complications allows for degeneration into life-threatening situations if not managed appropriately. Safety checklists and procedural skills are imperative to ensure operator competency and patient safety. In this grant-funded study, the investigators created a multi-phase module at an academic 3-year EM residency program to train all active EM residents in procedural sedation with emphasis on patient safety, especially in the pediatric population.

Methods

All EM residents at Thomas Jefferson University, excluding the principal investigator, were asked to participate in the study with N=36 (out of 38) enrolled. The participants first completed a pre-test on medical knowledge of sedation protocol, and were then assigned to 4 separate groups (2 control, 2 experimental) for regularly scheduled pediatric sedation didactics at the institutional simulation center. Each group underwent a structured simulation exercise in the simulation center with emphasis on sedation techniques, medical management, and technical skills using a Sim Man 3G model, with each session concluding with a preceptor-led review of relevant rescue airway management techniques and medication reactions. The control groups experienced the simulation without the aid of a developed procedural

checklist; the intervention groups were given the procedural checklist to guide procedure flow. At the end of the course, all participants were tasked to perform a simulated pediatric procedural sedation graded based on achieving specific critical actions and a post-simulation written test on sedation protocol.

Results

Residents scored together an average of 70% on the pre-test. The most commonly missed questions involved pediatric endotracheal tube size, depth of insertion for intubation, and performing Larson's maneuver (18/36 correct). Recognition of hypopnea on an end tidal CO₂ tracing was marked correct by a majority of learners (32/36). Comparison between pre- and post-didactic tests demonstrated higher scores for residents across all PGY levels with PGY-2 residents experiencing the highest increase in their exam score when provided with a checklist. The most frequently missed question included evaluation of Mallampati (6/11 control, 8/16 experiment); however the learners improved on recognizing appropriate pediatric endotracheal tube and depth of insertion. Residents in the experimental group achieved at least 3 more critical actions than the lowest scoring control group. The most frequently missed critical action in both control and intervention groups was termination of the procedure once respiratory distress was detected.

Discussion

The experimental groups who received a checklist in addition to standardized procedural sedation

didactic obtained several more critical actions than the control group. While both groups demonstrated improvement in post-didactic test scores, the largest increase in exam scores was noted from the checklist group.

There are numerous limitations to this study. The sample is small; more study is needed to elucidate if this improvement in critical actions is sustained in simulation samples. The groups were also not randomized due to scheduling conflict; however, a majority of the junior learners present (PGY1 and PGY2) were coincidentally distributed in roughly even numbers across control and intervention groups. Of note, the authors did not notice a correlation between group seniority and achieving higher examination scores or more critical action items. Interestingly, the group with majority PGY1 residents scored the highest number of critical actions out of all groups with the checklist. The cause of this unique finding may be multifactorial. The study occurred during the second half of the academic year, in which senior residents may not have been as enthusiastic as their junior counterpart. This was reflected with sample survey responses from senior residents consistently selecting the same answer choice to all questions.

Conclusion

Pediatric sedation is a low frequency procedure for many adult EDs, therefore requiring frequent review of rescue techniques and medication considerations. This study is preliminary data demonstrating that a safety checklist may reinforce safe pre-procedural techniques and setup and allow for review of critical actions in crisis. Future studies should attempt to evaluate longitudinal improvement in resident performance after repeated trainings with the checklist.

In addition, this training program has great potential to be developed as an in situ, *just-in-time-training* module for pediatric procedural sedation, to take place in the clinical environment, just prior to application.

Disclosures

Human subjects: This study was exempt from IRB review according to the Thomas Jefferson University IRB criteria for research subjects involved in normal educational practices. As part of the didactic curriculum, all human residents gave implied consent for participation in an educational activity. Animal subjects: All authors have confirmed this study did not involve animal subjects or tissue. Conflicts of interest: According to the

*ICMJJE uniform disclosure form, all authors declare the following: Payment/ services info: EMRA provided a scholarship of \$500 for the development of this project and purchase of materials relevant to the completion of the study. Financial relationships: All authors have declared no financial relationships at present or within the previous 3 years with any organizations that might have an interest in the submitted work. Other relationships: All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work. **

TABLE 1. Pre- and Post-Simulation Written Examination Scores

PGY level	# of Pre-test Participants (N _i)	Pre-test Exam Score*	# of Post-test Participant (N _j)**	Post-simulation Exam Score in control group (no checklist)	Post-simulation Exam Score in Experimental Group (w/checklist)
1	12	6.58±2.43	10	7.5±1.91	7.67±1.21
2	12	6.08±1.62	9	7.17±1.33	7.67±0.58
3	12	6.17±2.44	8	5.00±0.00	5.57±2.15
Average		6.28±2.14		7.09±1.58	6.75±1.88

*All exams were scored out of 10 points.

**Post-simulation exams were distributed electronically to all residents with voluntary participation.

TABLE 2. Critical Actions Achieved During Final Procedural Sedation Simulation

Group Number	No Checklist		With Checklist	
	1	2	3	4
Number of participants	3	8	8	8
PGY level of resident (year)	PGY1 = 2 PGY2 = 1 PGY3 = 0	PGY1 = 2 PGY2 = 5 PGY3 = 1	PGY1 = 5 PGY2 = 2 PGY3 = 1	PGY1 = 1 PGY2 = 1 PGY3 = 6
Total Critical Actions Achieved (out of 15)	12	10	14	13

Simulation Grading Rubric

Critical Action	Completed Yes/No
Recognize need for sedation	
Performing airway evaluation prior to procedure	
Consent (Verbal)	
Obtaining airway equipment and COPE cart at bedside	
Application of Cardiac, Pulse Oximetry	
Application of ETCO ₂ monitor	
Calculation of accurate weight based sedation dose (any medication)	
Calculation of reversal agent (optional, if applicable)	
Calculation of paralytic dose (if applicable)	

CRITICAL ACTIONS.

Hypoventilation I and II

Drugs	All Meds	Critical Action Completed (Yes/No)
Case Specific Critical Actions	Recognition of ETCO ₂ waveform	
	Physical Stimulation	
	Supplemental O ₂	
	Sniffing position or Jaw Thrust	
	BVM	
	Extra credit: Supraglottic airway or RSI or reversal agent	

Management of Pediatric Seizures

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You are working in the pediatric emergency department (PED) when a 9-month-old girl is rushed into the resuscitation room unresponsive and actively seizing. You perform a brief survey of ABCs and attempt to obtain IV access. Patient suddenly stops seizing, but is otherwise unresponsive. You instruct the nurse to obtain a rectal temperature while you obtain a point-of-care glucose.^{1,2}

Introduction

Seizures account for about 1% of all ED visits for children < 18 years old, and at least 5% of pediatric patients will have a seizure by the time they are 16 years old.^{1,2} The highest incidence of new, unprovoked seizures is in those younger than age 1.¹

Treating pediatric seizures in the emergency department poses myriad challenges for the ED physician. Parents are frightened and frantic, and those involved in the care of the child may also be anxious. Seizures range from benign to life-threatening, and while some resolve rapidly, others progress to status epilepticus requiring airway and circulatory management.¹

Emergency physicians must be able to diagnose and treat life-threatening causes of seizures, avoid unnecessary testing and radiation in those without emergent pathology, and choose medications that appropriately terminate the seizure while reducing potential consequences.¹ How can we best approach the seizing child — and with what evidence?



How do you distinguish seizures from seizure mimics?

Taking a proper history is essential to distinguish between true seizures and seizure mimics. Use a stepwise approach to obtain the exact timeline of events. Witnesses should be asked about the onset, duration, nature of movements, and recovery phase. Specifics such as eye movements, tongue biting, urinary incontinence in children who are toilet trained, and presence of aura in children who are able to describe the event are also helpful.

What elements are highly suggestive of true seizures?³

1. Lateralized tongue biting (high specificity)
2. Flickering eyelids, deviation of gaze
3. Dilated pupils with a blank stare
4. Lip smacking
5. Increased heart rate and blood pressure, desaturations in pulse oximetry during event

What should I look for in my seizing patient?

Compared to unprovoked seizures, which usually occur in structural neurological abnormalities such as hypoxic ischemic encephalopathy, provoked seizures occur in the presence

of brain insult (trauma, toxins, fever/infections, electrolyte disturbances/metabolic derangements). Regardless of the cause, look for altered level of consciousness, autonomic activity, movement, and behavior.²

Generalized seizures involve both hemispheres, so look for convulsive bilateral motor involvement, but don't be surprised if there are no convulsions present. Partial seizures can be simple (think of a fully alert child with arm twitch) or complex (the child with impairment of consciousness and automatisms +/- aura). Around 30% of patients with partial seizures will progress to generalized seizures.²

When should I worry?

While older guidelines define **status epilepticus** as any continuous seizure lasting longer than **30** minutes or any intermittent seizures without full recovery/return to baseline status in 30 minutes,^{1,2} ACEP and other current guidelines define status epilepticus as any seizure lasting 5 minutes or longer, or any repeated seizure activity without regaining consciousness between episodes.³ Mortality and morbidity associated with prolonged seizures are secondary to metabolic derangements and hypoxemia¹, **so think and act fast!**

Mimics — How do you distinguish breath holding spells from seizures?

Breath holding spells can happen to children anywhere from 6 months to 6 years old, but are most common in younger patients. The spells are characterized by a clear trigger that upsets the child, followed by crying, pallor, and a brief syncopal activity secondary to decreased cerebral blood flow. A history of iron deficiency anemia might indicate breath holding spells. Recovery, however, is rapid and without the post-ictal phase. Seizures typically do not involve these precipitants.³

Mimics — Psychogenic Non-Epileptic Seizures (PNES) vs. true seizures

PNES are epileptic seizure mimics that present with side-to-side head, leg, or arm movements with closed eyes. If the eyes are open, they appear normal rather than deviated. Bicycling movement of the legs is highly suggestive of PNES. Also, PNES are suppressible and activity is reduced with distraction techniques. Usually there is a history of an inciting event (emotional triggers, stress, etc.). These are more common in the adolescent population since the younger pediatric patient cannot feign seizure activity.³

Mimics — Syncope vs. Seizure

Loss of consciousness always precedes perceived seizure activity with syncope. Although some brief twitching episodes may be noted as opposed to a true tonic clonic seizure, recovery is usually rapid.

Did the patient have a fever?

Simple febrile seizures are a unique pediatric entity and are characterized by:

1. Temp $\geq 100.4^{\circ}\text{F}$ or 38°C
2. Ages 6 mo – 5 yrs
3. Seizure activity < 15 min
4. Single seizure in 24 hrs

There is good evidence to show that in an otherwise healthy, well-appearing child, any further work-up of the seizure is unnecessary and management should focus on the underlying febrile illness (UTI, viral syndrome, etc.)⁴ However, if the child is unvaccinated, shows meningeal signs, or is being treated with antibiotics, an intracranial infection should be considered.^{4,5-7}

Complex febrile seizures are those that do not meet the previously mentioned criteria and are much more difficult to evaluate. Currently, there are no consensus guidelines for the treatment of these seizures, and inter-physician management varies widely.¹² (See Table 1)

Febrile seizures are the most common convulsive events in pediatrics, occurring in 2-5% of children and accounting for the most common cause of provoked seizures.¹

Pearl. Simple Febrile Seizures tend to occur early, within 24 hours of fever onset. If seizure occurs > 24 hours after fever onset, suspect a bacterial cause.

When do we LP?

Lumbar punctures (LPs) can be painful and challenging, so be prudent in performing them. Current evidence and

AAP guidelines are clear that LPs are not to be routinely performed on healthy, well-appearing children with simple febrile seizures.⁷ Unfortunately, data regarding the need of LPs in complex febrile seizures, non-febrile/unprovoked seizures, or status epilepticus¹³⁻¹⁵ is lacking and inconclusive. The general consensus is that LPs should be reserved for patients who are too young or delayed to assess mental status, those with risk factors for or clinical signs/symptoms of meningitis/encephalitis, or those with unexplained status epilepticus (especially in febrile patients with ongoing seizure activity or altered mental status). In any of these cases, an LP should be performed as soon as possible if the patient is hemodynamically stable and if clinically feasible. However, if you are unable to obtain LP, antibiotics and/or antivirals should not be delayed and should be started at meningitic doses — NOT bacteremic doses.

Negative LP... no meningitis?

Initial LP may be negative in those who develop meningitis later.²

Does my patient need labs?

Infants < 6 months are at increased risk for hyponatremia from excessive dilution of formula. A temperature $< 36.5^{\circ}\text{C}$ is the best predictor of these hyponatremic seizures. The verdict is still out for those > 6 months. Based on the available data, routine labs are unlikely to change management in patients with recurrent seizures in the absence of a suggestive history, or potentially young age.²

When do I need to get a CT?

Avoid unnecessary radiation. First-time simple febrile seizures do not warrant a head CT, and clinical judgement should guide the need to CT a child with a complex febrile seizure.

First-time, non-febrile, unprovoked seizures generally do not need scanning. The Sharma study guides recommendations for obtaining a head CT in this group and is reserved for those who are high-risk: focal seizure in those < 33 months and those with predisposing condition such as focal or persistent seizure, ventriculoperitoneal

TABLE 1. Simple and Complex Febrile Seizures

	Simple Febrile Seizure	Complex Febrile Seizure
Age	6 months to 5 years	Any
Frequency	Single seizure in 24 hours	Multiple seizures in 24 hours
Nature	Generalized	Focal or generalized
Duration	Lasting < 15 minutes	Can be prolonged
Recovery	Post-ictal with return to baseline and normal neurological exam	Post-ictal, may not fully return to baseline after multiple seizures

Sources

Current APA Guidelines: Subcommittee on Febrile Seizures & American Academy of Pediatrics. (2011). Neurodiagnostic evaluation of the child with a simple febrile seizure. *Pediatrics*. 127(2):389-394.

Landmark Article: Nelson,KB, Ellenberg,JH. Predictors of epilepsy in children who have experienced febrile seizures. *N Engl J Med*. 1976;295(19):1029-1033.

shunts, focal neurological deficits, travel to region endemic for cysticercosis, HIV, sickle cell, malignancy, vomiting, altered mental status, and closed head injury associated with LOC are among other high-risk patients.²

PEARL. What appears as a **first-time seizure** may not actually be a patient's first seizure. Diagnosis of epilepsy is made after 2 unprovoked seizures or 1 unprovoked with an abnormal EEG.²

Intubation

Airway is a priority in the seizing patient. There is poor evidence about when to intubate a patient with status epilepticus, but if your first- and second-line seizure abortive therapies fail, and you consider using barbiturates or propofol, think about intubating^{16,17} in addition to assessing the patient's clinical status (O₂ sat and ability to protect airway).

Anticonvulsants

Next, stop the seizure. The first line is benzodiazepines, with lorazepam having the highest potency. Benzodiazepines are best administered intravenously but can also be given intraosseously, intranasally (lorazepam and midazolam), intramuscularly (midazolam) and rectally (diazepam)¹⁷ if IV access is difficult to obtain in pediatric patients.

Drug	Route	Dose
Lorazepam	IV	0.1 mg/kg, max single dose: 4 mg
	IN	0.1 mg/kg
Midazolam	IM	0.1-0.2 mg/kg, max single dose: 10 mg
	IN	0.2-0.3 mg/kg, max single dose: 10 mg
Diazepam	IV	0.1-0.3 mg/kg, max single dose: 10 mg
	Rectal	Age 2-6y: 0.5 mg/kg Age 6-12y: 0.3 mg/kg Age >12y: 0.2 mg/kg

If seizing continues, try one more dose of benzodiazepines. Then turn to hydantoins (phenytoin and fosphenytoin). IV fosphenytoin is preferred given that fosphenytoin is the water-soluble pro-drug of phenytoin and can be infused faster intravenously

with less tissue irritation and fewer cardiovascular effects such as a drop in blood pressure.¹⁸

Is the patient still seizing?

Next options would be phenobarbital (20 mg/kg), valproic acid (20-40 mg/kg), or levetiracetam (20-60 mg/kg).²⁴ Phenobarbital is most commonly used in the developed world, although this has been declining because of its cognitive and behavioral adverse effects. It can also cause sedation, hypotension, and respiratory depression necessitating intubation, especially if you start a continuous infusion.¹⁹

Special Considerations

Consider non-accidental trauma in infants and pregnancy in adolescent females. Patients with a known seizure disorder should also have their medications reviewed for any recent changes and have drug levels in blood checked if applicable.

PEARL. Don't forget that older teenagers may drive. Some states have mandated reporting laws. It is important to know whether your state is one of them and for what period they need to be seizure-free before driving again.

Pyridoxine and When To Use It

Pyridoxine-dependent seizures are a diagnosis unique to pediatric patients. Administer pyridoxine (100 mg IV) to infants with seizures unresponsive to conventional anticonvulsants (defined as unresponsive to first and second line anti-seizure medications).²⁴

If an accidental ingestion or suicide attempt is suspected, ask parents about the availability of isoniazid in the house, as overdose is a possible cause of seizures resistant to conventional anticonvulsants. Pyridoxine administration is the antidote; recommended dosing is 1 g for every gram of isoniazid ingested (common pediatric dosage is 70 mg/kg).²⁴

Disposition

ACEP policy states that adult patients with normal neurologic exam can be safely discharged with outpatient follow-up.²⁶ While it's reasonable to extend this to children who have brief unprovoked seizures, those < 1 year old should be

admitted, as they are more likely to have recurrent seizures. All patients with first-time non-febrile seizure should have an outpatient EEG. Patients with status epilepticus should be admitted for observation.²

Patients can be discharged after simple febrile seizures unless admission is needed for management of the infection.² Complex febrile seizures are more likely to recur, especially if prolonged or associated with focality, so these patients should, at the minimum, be observed for longer periods of time based on the underlying pathology, if any.²⁴

Patients with known seizure disorder can be considered for discharge if they have reliable caregivers. These patients should avoid swimming and being in a bathtub unsupervised.²

PEARL. One unprovoked seizure doesn't equal seizure disorder. One pediatric prospective study of 407 patients demonstrated that 5-year recurrence rate was only about 42%.²⁵

CUTTING EDGE

Cannabinoids for pediatric epilepsy: Up in smoke or real science?

Despite current enthusiasm for the use of "medical marijuana" in treating epilepsy, specifically CBD (cannabidiol) among parents of children with intractable epilepsy,²⁶⁻²⁸ the evidence is inconclusive at best.²⁸

Case Conclusion

Since hypoglycemia is a reversible cause of status epilepticus, POC glucose was obtained and was 120. Patient was febrile to 40 C. Patient stopped seizing but remained in a postictal state that lasted for 15 minutes. Rectal acetaminophen was given. During this time, she remained hemodynamically stable with an oxygen saturation of 100%. A urinalysis was obtained because the patient is a young female, and it was positive for a urinary tract infection. Mom endorsed patient was back to baseline and smiling. Patient was observed in the ED and discharged home with antibiotics. ★

Rheumatic Heart Disease in the United States

A Thing of the Past or Present?

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Rheumatic heart disease (RHD) remains a major cause of cardiovascular disease in developing nations. However, in industrialized nations with routine access to vaccines and antibiotics to treat Group A streptococcus, the incidence and mortality of RHD has declined dramatically since the 20th century.

Prior to the antibiotics era, the mortality rate following acute rheumatic fever was 1.5% per year, with recurrent rheumatic fever and heart failure accounting for 80% of fatalities. Severe forms of the disease can lead to fulminant heart failure in young patients, often from severe chordal and mitral valve leaflet inflammation leading to severe mitral regurgitation and even chordal rupture.

The Case

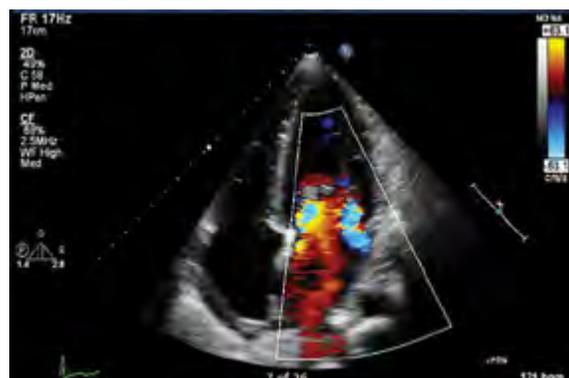
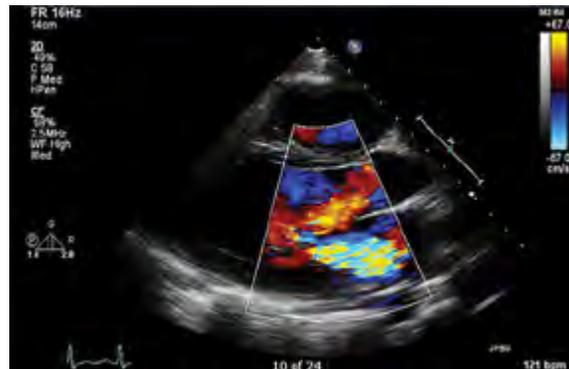
A 19-year-old male presented to the ED for shortness of breath. He complained of progressive exertional dyspnea for at least 4 days as well as cough, chills, and nausea. He had presented to a local urgent care center a day prior to evaluation in the ED, was diagnosed with “sepsis from pneumonia,” and was discharged with a prescription for oral doxycycline after 2 liters of intravenous fluid resuscitation. He presented to the ED stating he was unable to sleep flat on his back and felt worse than he did prior to his initial evaluation at the urgent care. His childhood history was remarkable for

recurrent viral infections and febrile seizures. He received all routine childhood vaccines. He states that he was diagnosed with mononucleosis 10 days ago, although it was unclear where this occurred. He denied any tobacco or IV drug use.

In the ED, his initial vital signs were remarkable for tachycardia, tachypnea, and a BP of 93/45. His physical exam was remarkable for wheezing in all lung fields, bibasilar crackles, and a holosystolic murmur on his left midclavicular, 5th intercostal space. No petechiae, splinter hemorrhages, or Osler nodes were noted, and there was no lower extremity edema. A limited bedside echocardiogram was done and did not show evidence of pericardial effusion, right heart strain, or significantly reduced ejection fraction. His chest radiograph showed bilateral opacities that were worse compared to the film performed at the urgent care. His labs were remarkable for a normal WBC, hemoglobin of 12.9, platelets of 414, normal BUN and creatinine, BNP of 230, and an initial troponin of 1.26. His EKG showed sinus tachycardia with PR depression in leads II, III, aVF, and V5-V6, but no ST elevation. His influenza swab was negative. With the troponin and BNP elevation, myocarditis versus papillary muscle rupture was suspected. He was promptly treated with furosemide 20 mg intravenously, with adequate increase in urinary output. He was also treated with intravenous antibiotics.

A STAT formal echocardiogram was ordered, and cardiology was consulted. The echocardiogram was remarkable for severe mitral and tricuspid regurgitation with a vegetation measuring 8 x 13 mm on his mitral valve. (See Figures 1 and 2)

The study was unable to definitively



diagnose the etiology of the lesion, and Cardiology admitted the patient for further evaluation and management. He was started on an esmolol drip for tachycardia. Cardiology ultimately consulted cardiothoracic surgery for mitral valve replacement. Mechanical mitral valve replacement was recommended after a transesophageal echocardiogram.

The diseased mitral valve specimen was sent to pathology and showed changes consistent with rheumatic origin. The patient tolerated surgery well, but post-operatively developed a Mobitz Type 1 AV block, which resolved prior to discharge. Infectious disease was consulted due to the pathology findings, and the patient was started on penicillin 250 mg twice a day, which he will continue to take for 5 years. The patient was discharged home with cardiac physical therapy and close follow up with Infectious Disease and Cardiology. ★

Approach to Postpartum Hemorrhage

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A 31-year-old female G4P4004 presents via EMS after having delivered a 39-week baby boy at home. EMS states the baby was already delivered when they arrived; they clamped and cut the cord and transported the baby without issues. As you confirm the baby is healthy, the nurse states, "There is a lot of blood on the sheets." Mom appears pale and anxious with HR 115 and BP 95/60. How do you approach this situation?

Introduction

For the purposes of this article, we will focus on the mother rather than the neonate. Postpartum hemorrhage (PPH) has been classically defined as blood loss > 500 mL and 1000 mL after vaginal and caesarean section, respectively. More recently, the American College of Obstetricians and Gynecologists redefined PPH as blood loss > 1000 mL or signs and symptoms of hypovolemia in the setting of bleeding within the first 24 hours.¹ PPH is the leading cause of maternal mortality worldwide, and in the U.S. it accounts for about 15% of maternal mortality.²⁻⁴ While it is difficult to predict who will suffer from PPH, risk factors include history of PPH, known coagulopathy, prolonged

labor, chorioamnionitis, multiple gestation, and > 4 previous deliveries (vaginal or caesarean). Recognition of patient risk can help emergency providers better prepare for PPH, ideally before deterioration in vital signs.

Etiology of PPH

Normal physiologic changes in pregnancy include an increase in stroke volume, circulating blood volume, and procoagulant factors which prepare the maternal system for expected blood loss during delivery.² However, beyond 20% blood loss, the systemic vascular resistance cannot compensate and the patient's physiology behaves similar to that described in the Advanced Trauma Life Support classification of hemorrhage shock.^{2,5} The majority of PPH etiologies can be remembered by the 4T's: Tone, Tissue, Trauma, and Thrombin.

Tone of the uterus (ie, atony) comprises 80% of PPH.^{1,2} At the time of delivery, blood flow to the uterus reaches 500-900 mL/min. After delivery, high levels of oxytocin help potentiate uterine contraction and vasoconstriction of uterine arteries in order to minimize blood loss.¹ The pathophysiology of uterine atony is often attributed to risk factors: (1) impaired contractions from local inflammation and acidosis of uterine tissue (chorioamnionitis), (2) down regulation of oxytocin receptors (prolonged labor), and (3) diminished actin-myosin interaction from an enlarged uterus (fetal macrosomia,

multiple-gestation pregnancies).³ Importantly, atony can also occur in the absence of risk factors.

Trauma during delivery is the second most common cause of PPH. 80% of the lacerations sustained (most often to the vagina or perineum) are minor.³ If bleeding from a laceration does not stop with pressure, repair by a qualified provider is required. Packing can be placed to tamponade bleeding until appropriate repair can be performed. Cervical lacerations, often more difficult to visualize, should also be kept in the differential for continued postpartum bleeding of unknown source.

Tissue refers to retained products of conception (ie, placenta). The disruption of the placenta from the uterine wall helps stimulate uterine contraction. The placenta should always be examined to ensure it is fully intact. Bedside ultrasound showing a thickened endometrial stripe or a mass in the uterus could indicate retained products.¹ Treatment involves manual removal of the retained products, which may need to occur in the operating room if analgesia cannot be achieved adequately for the exam.



TABLE 1. Treatment of Uterine Atony

Medication	Administration	Interval	Contraindications
Oxytocin (Pitocin)	20-80U IV (in 1L NSS) or 10U IM	Once (IM) or Continuous infusion	None
Misoprostol (Cytotec)	1000 mcg rectal	Once	None
Methylergonivine (Methergine)	0.20 mg IM	Every 2-4 hours	Hypertension
Prostaglandin F2α (Hemabate)	0.25 mg IM	Every 15 minutes (maximum 2 mg or 8 doses)	Asthma

Thrombin refers to both inherited and acquired coagulation disorders. Often, patients will present knowing their past medical history which will allow you to provide therapies targeted to hemophilia A, B, or von Willebrand disease. An acquired coagulopathy can occur as a result of placental abruption or amniotic fluid embolism, leading to significant hemodynamic compromise from disseminated intravascular coagulation or hypofibrinogenemia.¹ Bleeding related to coagulopathies involves replacing the factor deficiency.

Management of Uterine Atony

Providers should approach PPH just as they approach other resuscitations. Start with the ABCs, large bore IV access, and place the patient on a monitor (Figure 1). It is easy to be distracted by the neonate and lose precious time in the maternal resuscitation.

Providers should then target care towards the underlying cause. As discussed previously, thorough pelvic and placental exams are required to determine an etiology of the PPH. A soft “boggy” uterus suggests bleeding is due to uterine atony. If atony is diagnosed, start with bimanual massage. This involves compressing the uterus between both hands, one internally and the other externally. Uterotonics can then be used to encourage the uterus to clamp down. Oxytocin, a hormone naturally produced by the body to stimulate contractions, can help with achieving uterine tone. For every birth, 20 units of oxytocin in 1 L normal saline should be given intravenously. If you do not have IV access, 10 units of oxytocin can be given intramuscularly to the buttock as an alternative. In the setting of PPH, an additional 20 units intravenously or 10 units intramuscularly can be given. A 2013 Cochrane review found oxytocin decreased bleeding by more than 500mL regardless of the dose given.⁶ Additional medications include misoprostol, carboprost, and methylergonovine. The dosing of and contraindications to these medications are detailed in Table 1.

If uterotonics are not achieving their desired effect, the antifibrinolytic tranexamic acid (TXA) may be considered. TXA indirectly stabilizes clot

formation by inhibiting plasminogen from working to break down fibrin. While studies have shown decreased blood loss with TXA, it is still an area of active research.^{1,3} Some clinicians suggest TXA to be used as an adjunct to other therapies in severe PPH or those who refuse blood transfusion.

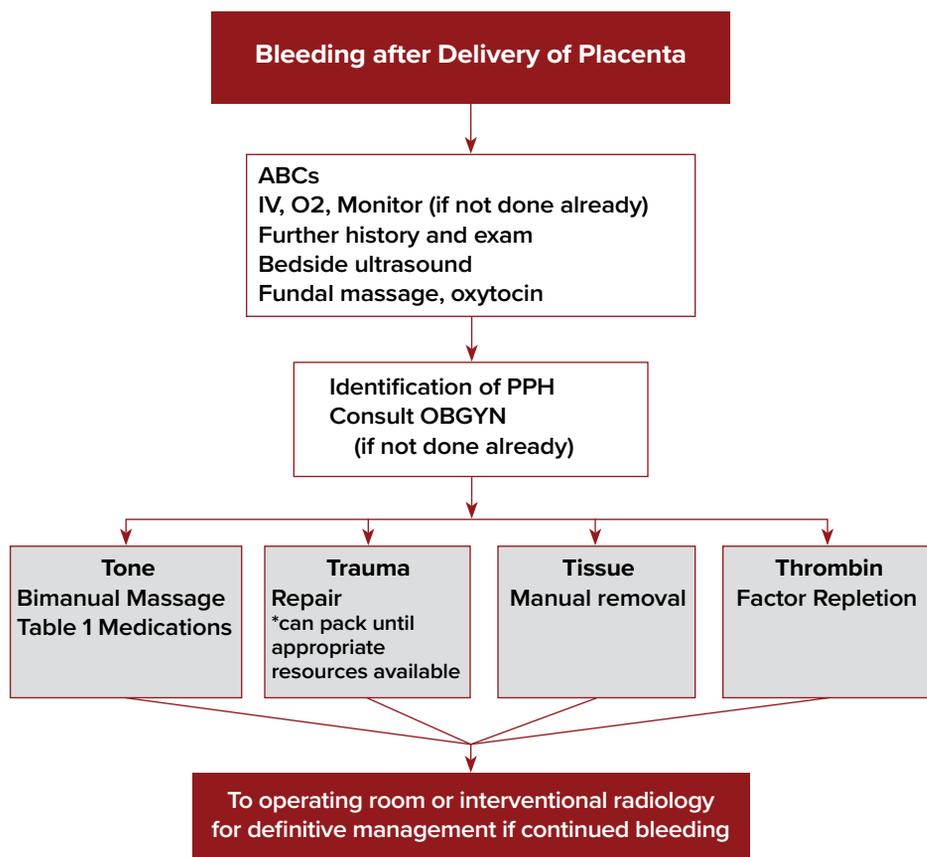
More advanced therapies are required if uterotonics and uterine massage are unsuccessful. It is reasonable to activate your institution specific massive transfusion protocol if there is persistent bleeding and concern for anticipated blood loss expected to lead to hemodynamic instability. At our hospital, for example, activation of massive transfusion automatically supplies 6 units of packed red blood cells, 1 unit platelets (pooled) and 6 units of plasma. Mechanical approaches to stopping bleeding include uterine tamponade, most commonly performed with a Bakri balloon. If this is unavailable, multiple Foley catheters or uterine packing can be considered.

Bleeding refractory to these therapies requires invasive interventions. If

the patient is deemed stable and interventional radiology is immediately available at your institution, embolization of the uterine arteries can prevent need for emergent hysterectomy in 85% of qualifying women. This procedure has minimal side effects and preserves fertility.¹ When this fails or a patient is unstable, open surgery may be required to perform B-lynch sutures, hypogastric artery ligation, or, ultimately, a hysterectomy.

Precipitous deliveries are not an uncommon reason for patients to present to the emergency room. Postpartum hemorrhage cannot be consistently predicted and requires emergency providers to quickly recognize this complication and be prepared to initiate therapies unique to this patient population. Understanding what resources are immediately available in the emergency department, as well as resources they can call upon outside the department can maximize outcomes for postpartum patients. ★

FIGURE 1. Approach to PPH



Massive Hemoptysis



Artist: Upasana Khatri

Consensus is lacking on specific thresholds to characterize massive hemoptysis because these numbers can be challenging to reliably obtain and fail to predict the severity of disease.

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Massive Hemoptysis

Massive hemoptysis has been variably defined with a range of expectorated blood volume from 100 to >1000 mL in 24 hours along with a persistent airway hemorrhage.¹ Consensus is lacking on specific thresholds to characterize massive hemoptysis because these numbers can be challenging to reliably obtain and fail to predict the severity of disease. Increasingly, focus has shifted away from attempts to quantify the volume or rate of bleeding and toward the estimated risk of major sequelae. In the clinical environment, these risks include hemodynamic instability, shock, and hypoxic respiratory failure. Most cases of hemoptysis seen in the ED are small in volume and associated with bronchitis, with only 1-5% of hemoptysis cases involving massive or life-threatening bleeding.² Though relatively rare, emergency physicians need to have working knowledge of massive hemoptysis pathophysiology given the high risk of mortality and the need for timely management.

Anatomy

The lungs have a dual blood supply from the pulmonary and bronchial arterial trees. Alveolar perfusion is supplied mostly from the low-pressure pulmonary arteries, while the connective tissues and pleura are fed by the comparatively smaller, but high-pressure circuit of bronchial arteries. The bronchial circulation, which arises from the thoracic aorta, is a small-caliber, high-pressure system that is the source of 90% of cases of massive hemoptysis. Of the remaining, half are actually fed by the pulmonary arterial system, and the rest by the aorta directly, non-bronchial systemic branches such as the intercostals, subclavian, or phrenic arteries.³

Etiology

The most frequent worldwide cause of hemoptysis is tuberculosis. In the West, the cause of as much as half of the cases of hemoptysis remains unestablished, and of the rest, common causes include inflammatory disease of the airway, bronchiectasis, and bronchial carcinoma and metastases.⁴ Epistaxis and dental bleeding leading to aspiration and expectoration is a common cause of reported non-massive pseudohemoptysis.⁵

Pathophysiology

The mechanism of respiratory failure in massive hemoptysis is primarily obstruction of the proximal airways with clotted blood, rather than by flooding of the distal airspaces or by cardiovascular collapse due to frank exsanguination. Because the average total volume of the adult tracheobronchial space is approximately 150 to 200 mL, a fairly small collection of blood can swiftly impede gas exchange. Understanding this pathophysiology focuses the resuscitation to the patient's tracheobronchial blood clearance, and avoids false reassurance in the hemoglobin concentration or distribution of disease seen on chest imaging. Pre-existing impairment of lung function is an important factor in determining the critical rate of hemorrhage for each patient, rather than an independently derived cutoff, and correlates inversely with tolerance of airway bleeding.⁶

Management

The paramount priority in emergent management of massive hemoptysis is to maintain or establish and then preserve airway patency, in parallel with testing to identify the source of bleeding to then ultimately coordinate further treatment options. Management of massive hemoptysis often requires interdisciplinary input and co-management by pulmonologists, interventional radiologists (IR), thoracic surgeons and intensivists, a collective grouping that should ideally be coordinated early after presentation by the emergency physician.

The conventions of "securing" an airway with an endotracheal tube and universally positioning the patient on to the bleeding side may be inappropriate in some instances. We recommend against routinely committing a patient to intubation and

supine or lateral decubitus positioning who is otherwise clearing airway matter without impairment in gas exchange, and instead favor the natural airway and the most comfortable position the patient finds (which is usually upright and coughing). If intubation is required, a large diameter (8.0 or wider) endotracheal tube should be used to facilitate emergent flexible bronchoscopy. Turning to the affected side can be attempted, theoretically allowing for continued patency and ventilation of the unaffected lung, but only maintained if gas exchange is thereby improved and adequate suctioning is not limited as a result. In confirmed left-sided bleeding, a right-mainstem intubation can be attempted if the practitioner is confident about managing single-lung ventilation.^[7] Left-mainstem intubations are more difficult to achieve without fiberoptic bronchoscopy. Double lumen endotracheal intubation is not routinely recommended due to high risk of malposition and numerous complications including bilateral pneumothoraces, pneumomediastinum and carinal rupture.⁸

The next most important step after securing the airway is to localize the bleeding. An initial chest radiograph (CXR) is quick and inexpensive, but because of its low sensitivity, a negative CXR in a patient with hemoptysis with signs of impaired gas exchange or any perceived limitation in maintaining a clear airway, should always warrant further diagnostic studies. CT angiography (CTA) of the chest has become instrumental in management of severe hemoptysis, primarily by guiding subsequent bronchial artery embolization (BAE). The goal of this procedure is to reduce the systemic arterial perfusion pressure in the bronchial arteries of the affected area sufficiently to stop the bleeding, with a technical success rate ranging from 65 to 92% depending on the focus of bleeding and case series studied.⁹ This success rate has largely obviated the role of direct surgical control of hemorrhage, at least as a primary approach. Although CTA rarely identifies the exact source of bleeding, it provides rapid identification of abnormalities of the pulmonary and bronchial arterial systems, such as

aneurysms or suspect tortuosity, and non-bronchial feeder arteries contributing to or primarily responsible for the hemorrhage, which are crucial information for interventionalist attempting BAE. CT can also identify other causes of hemorrhage, including those known to be recalcitrant to embolization and for which surgery or other treatments such as bronchoscopy may be the preferred management to offer.¹⁰ Critical complications of BAE include recurrent bleeding, particularly in patients with chronic lung disease, and rarely, spinal cord ischemia.¹¹

For the rapidly hemorrhaging patient, bronchoscopy can be severely limited in yield while carrying all of the usual risks, and in those instances should be reserved for airway clearance in patients who are already intubated or who cannot tolerate a CT scan.^{12,13} In the stable patient with no compromise in oxygenation, if the CTA is unrevealing or an endobronchial lesion has been identified, follow up with pulmonology for outpatient bronchoscopy is reasonable.

In patients with a history of or suspected bronchiectasis presenting with hemoptysis, broad spectrum antibiotics covering gram positive and gram negative pathogens are recommended even in the absence of other symptoms of active infection.¹⁴ Novel treatment options including inhaled lysine analogues (antifibrinolytics), ice-cold saline lavages, endobronchial application of vasopressors, direct tamponade with topical hemostatic agents, argon beam therapy, endobronchial stenting, and extracorporeal membrane oxygenation as a bridge to definitive treatment have all been described, but are not well-studied or universally recommended.¹⁵⁻²²

Disposition

All patients with diagnosed or presumed massive hemoptysis should be admitted to the hospital for close monitoring of airway clearance and gas exchange given the high rates of complications and limited predictive value of blood volume produced and extent of disease depicted by radiography. A multidisciplinary approach should always be considered, even for palliation of incurable or unresolvable disease burden, with an aim to diagnose if not directly treat the specific cause of bleeding. ★

Management of Hyperkalemia

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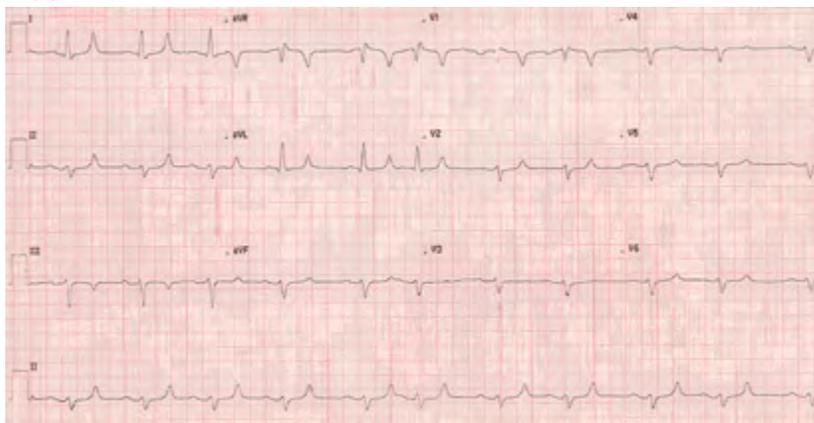
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Introduction

Hyperkalemia is generally defined as a potassium level > 5.5 mEq/L and can be further classified as mild (5.6–6.0 mEq/L), moderate (6.1–7.0 mEq/L), and severe (> 7.0 mEq/L). Etiologies frequently seen in the ED include renal failure, hemolysis, rhabdomyolysis, adrenal insufficiency, acidosis, and medication effects (eg, ACE-I, ARB, B-Blockers).

The cardiac manifestations of hyperkalemia stem from its effect on the resting membrane potential. Elevated plasma potassium concentrations reduce this potential, leading to a decreased influx of sodium. The net result is an action potential with reduced amplitude and slower conduction. As the conduction delays worsen (reflected on the ECG by widening of the

FIGURE 1.



A 60-year-old female presents to the ED with worsening generalized weakness and SOB over the past 3 days. Her history is significant for ESRD and she missed dialysis today. Initial vital signs were grossly unremarkable. An EKG obtained at triage (Figure 1) showed sinus rhythm with first degree AV block and peaked T-waves.

FIGURE 2.



The patient was brought to a room and placed on the monitor, which showed a wide complex tachycardia. A repeat EKG (Figure 2) showed a widening QRS, loss of P-waves, and ST-segment changes all concerning for an impending sinoventricular rhythm. Labs sent from triage showed a hyperkalemia of 8.8 mEq/L.

QRS complex), the risk of ventricular dysrhythmias, including ventricular fibrillation, increases. Severe hyperkalemia can alter the resting membrane potential sufficiently to reduce automaticity of cardiac pacemaker cells, leading to severe bradycardia or even asystole.¹

EKG Changes

The EKG changes seen in hyperkalemia are typically sequential and correlate with the severity of hyperkalemia. While often seen in the following order, there are exceptions to the rule, and changes can be rapid and easily missed.

1. Peaked, symmetric T-waves with a narrow base
2. PR prolongation and QT shortening
3. QRS widening and decreased P-wave amplitude
4. Increased QRS widening (both initial and terminal portions) and loss of P-waves
5. Sine-wave pattern (sinoventricular rhythm)
6. VF, asystole²

A helpful tip to remember the EKG changes that follow peaked T-waves is to imagine the PQRS-T complex being pulled from either side like a string.

It is important to reinforce that an EKG is specific but not sensitive for hyperkalemia as patients can have only minimal EKG changes despite high potassium levels. As well, the EKG changes may not always be sequential, and a life-threatening dysrhythmia can occur at any time at almost any potassium level.

TREATMENT

The goals of treatment are stabilizing the resting membrane potential, shifting potassium intracellularly, and eliminating potassium from the body. A helpful mnemonic is “C B²IG K Drop.”

Calcium

This can either be calcium gluconate via a peripheral line or calcium chloride if central access is available. Calcium chloride contains more calcium per mL but extravasations can lead to tissue necrosis. Calcium counteracts potassium’s depolarizing effects, stabilizing the cardiac membrane and decreasing the risk for dysrhythmias.

Dose: 10 mL of 10% solution over 2-5 minutes, repeat every 5 minutes until EKG normalizes

Onset of action: < 3 min; **Duration:** ~20-50 min

Beta-agonist

This is typically nebulized albuterol which is readily available and can be administered without IV access. It works by shifting potassium from the serum into the cells. The efficacy of albuterol maybe increased when used in combination with insulin and dextrose.

Dose: 10-20 mg nebulized over 10 min

Onset of action: 15-30 min; **Duration:** 2-4 hrs

Bicarbonate

While traditionally considered part of the hyperkalemia treatment “cocktail,” the literature doesn’t support its use with hyperkalemia in the setting of a normal pH. Bicarbonate infusions (not boluses) may play a role in the treatment of patients who are both acidotic and hyperkalemic.

Insulin and Glucose

This should be the first IV treatment given after calcium. It works by shifting potassium into the cells. The effect is dose dependent and the dose of glucose should be adjusted per the patient’s blood glucose level and risk factors for hypoglycemia (renal disease, use of diabetic medications, etc.).

Dose: 10 units regular insulin IV with 25-50 grams (1-2 amps) 50% dextrose solution

Onset of action: 10-30 min; **Duration:** 2-6 hrs

K represents Kayexalate (sodium polystyrene sulfonate)

SPS is a cation exchange resin that binds potassium in the gut and increases fecal potassium excretion. Because of questionable safety and efficacy, its role in the treatment of hyperkalemia is limited. Patiromer sorbitex calcium is a new cation exchange polymer approved for hyperkalemia. Neither of these medications are indicated for acutely treating hyperkalemia.

Dialysis (and Diuretics)

Dialysis is the most effective and reliable treatment to remove potassium. While bedside dialysis can sometimes be arranged fairly quickly (depending on your ED setting), patients will often require the other treatments as temporizing measures given the acuity of their presentation.

Diuretics can also be considered in patients who still make urine. Loop diuretics, such as furosemide, lead to the most potassium excretion.

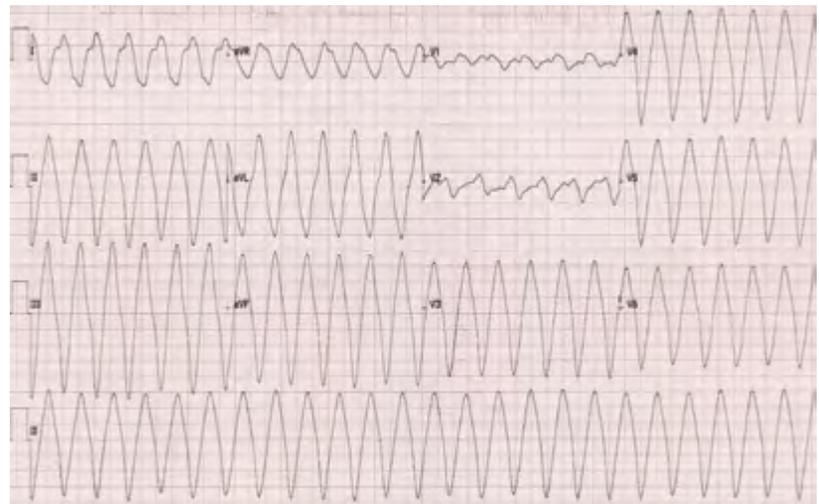
Case Continued

The patient was given calcium gluconate, nebulized albuterol, and insulin with dextrose. A few minutes after the calcium was administered, a repeat EKG (Figure 3) showed improvement of the QRS duration and ST-segment abnormalities.

FIGURE 3.



FIGURE 4. While arranging for emergent dialysis, the patient was noted to be in a WCT on the monitor. A repeat EKG (Figure 4) showed a regular WCT.



The patient remained hemodynamically stable, and while discussing treatment options, amiodarone was considered and discarded as a treatment option — but why?

FURTHER TREATMENT

Amal Mattu, MD, FACEP, describes hyperkalemia as sodium channel “poison.” Administering a sodium blocking antidysrhythmic medication to treat a WCT in the setting of hyperkalemia would exacerbate this problem, leading to what he calls a “clean kill.” (Note: Search “clean kill wide complex tachycardia” on the Essentials of Emergency Medicine channel on YouTube for Dr. Mattu’s lecture on “regular really wide complex tachycardia.”)

Cardioversion is the safest treatment for patients with an unstable WCT and hyperkalemia. This needs to be done in conjunction with aggressive treatment of the hyperkalemia, most importantly membrane stabilization, to prevent further episodes of dysrhythmias. Magnesium can be considered if the patient is known to have hypomagnesemia, but otherwise does not play a role in the treatment of hyperkalemia or its associated dysrhythmias.

Case Resolution

The WCT resolved spontaneously, and dialysis was emergently started in the ED. The patient was admitted and was discharged home after an uneventful hospital course. ★

Perspectives From a Busy Ski Clinic

Anterior Cruciate Ligament Rupture

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A 29-year-old female is brought in by ski patrol to ski clinic. She recalls that her left knee twisted awkwardly when she fell slowly while skiing. She tells you that she felt a 'pop' and then immediate pain, which quickly subsided. When she attempted to ski down, her left knee felt too unstable to bear weight and she was brought in by ski patrol in a rigid knee brace.

If you work in a busy ski clinic, you will realize the scenario above is not infrequent. Knee injuries are the most common injury in skiers, in stark contrast to snowboarders, in whom upper limb injuries are more common.¹

Downhill skiing has a strong association with anterior cruciate ligament (ACL) injury, with an incidence of 8.5 per 100 skier seasons.² Recreational skiers have the highest injury incidence.³ Other factors associated with ACL injury are high BMI, joint laxity, genetic predisposition, and muscle fatigue. Female skiers have

a higher injury rate in comparison to male skiers.

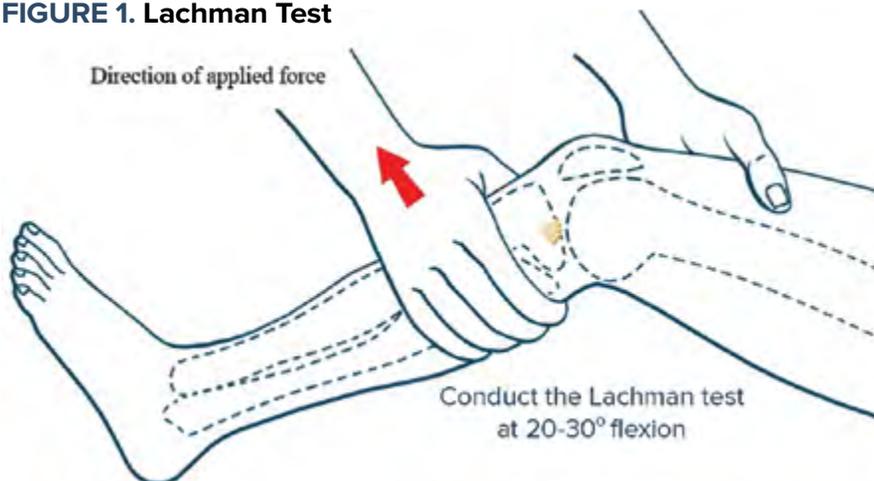
Environmental factors also have an impact on ACL injury risk. Skiing during icy conditions or during a heavy snowfall increase the risk of injury. This allows physicians staffing ski clinics to expect to see this injury based on the conditions they encounter traveling to work.⁵

Diagnosing

Most ACL injuries can be diagnosed through a careful history coupled with a good physical examination. Within the history, the skier often acknowledges hearing or feeling a "pop" with immediate pain. The pain often subsides quickly, and it is not uncommon for the skier to attempt to continue skiing only to realize that the knee feels unstable.

There are classic mechanisms of ACL injury. The most common in recreational skiers is the "boot-induced anterior drawer," where a quickly fired quad muscle pulls the tibia forward on the femur and tears the ACL, and the "phantom foot," where a skier falls backward and the inside ski catches the snow and twists the lower leg. More advanced skiers have other distinct ACL injury mechanisms, but most involve the skier leaning too far back.⁶

FIGURE 1. Lachman Test



The best test for diagnosing an ACL injury is the Lachman test (sensitivity of 84% and specificity of 92%)⁷ (See Figure 1).

Hold the knee in 20-30 degrees flexion. Stabilize the proximal femur with one hand and pull the proximal tibia anterior with the other, thereby inducing anterior translation of the tibia on the femur. A positive Lachman test is suggested by excessive anterior translation of the tibia with a “soft end point” in comparison to a “firm end point” when the ACL is intact.

There are other clinical tests available for assessing ACL injury:

- Anterior draw test (62% sensitive)
- Lever test (63% sensitive)
- Pivot shift test (most specific for ACL injury, but can cause severe pain on a fresh injury)⁹⁻¹¹

While joint effusions and an antalgic gait are other classic findings, the bleeding from an ACL injury is slow, and an effusion usually is not present immediately after the injury. If you see a large effusion early, think about other injuries like tibial plateau fractures.

Plain radiographs are used to rule out fracture. These fractures may be related to the ACL injury in the case of a Segond fracture (a small avulsion fracture of the anterolateral tibial plateau that is associated with ACL injury in approximately 75% of cases) or a tibial spine fracture.⁸ MRI can confirm the diagnosis and identify concurrent injuries.

Lachman: Getting It Right

The Lachman test sounds simple, but it can be tricky and takes practice to get correct. The key to performing a Lachman test is to get your patient to relax. Have them lay flat, relax their head back, and ensure their quads are loose. To achieve quadriceps relaxation you can place your knee or a pillow under the patient’s knee as you do the exam.

Finally, the Lachman test is much easier to do on someone with a small leg, so practice on your diminutive friends. You know you have it when you feel the ACL distinctively catch as you pull the tibia forward.

It is important to examine the unaffected knee; many patients have

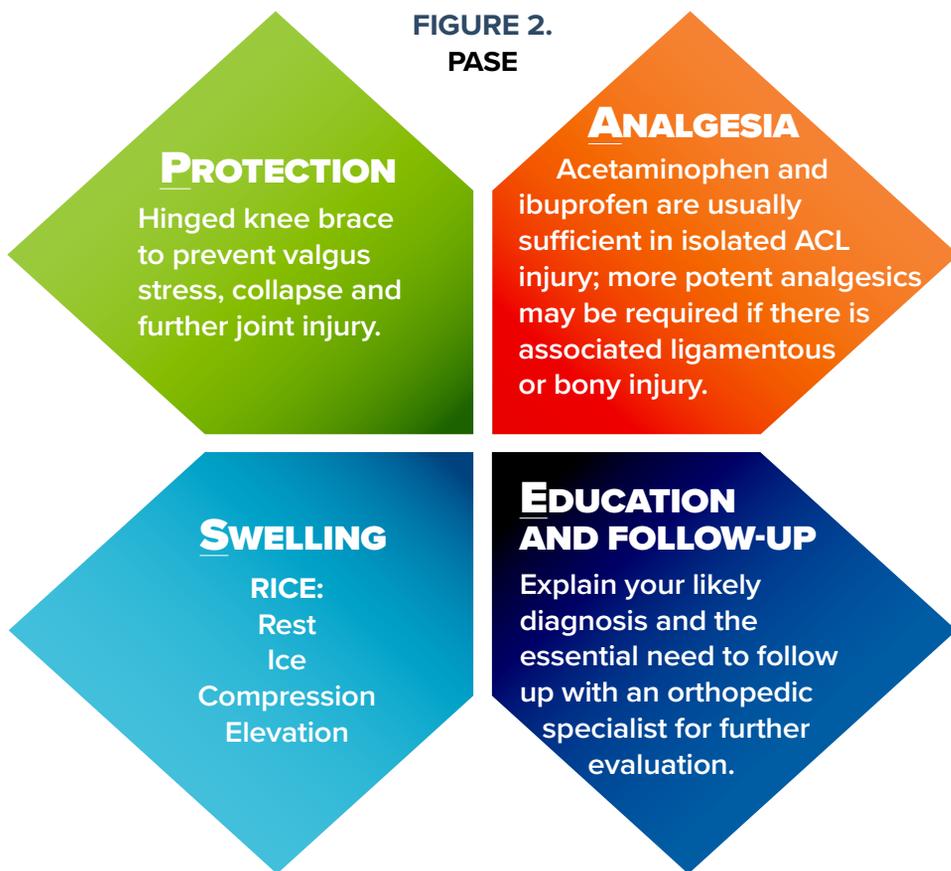
laxity that is not pathologic. It is also essential to evaluate the other knee structures that may be injured with the ACL. Many of you may recall the term “unhappy triad,” which describes the simultaneous injury of the ACL, medial collateral ligament, and medial meniscus.

Injury Management

Management of ACL injuries is a hot topic in musculoskeletal medicine. There have been rapid advances in surgical approaches to ACL reconstruction and

better with surgical reconstruction.

There is a tendency for people to develop quadriceps inhibition and a decrease in knee range of motion (ROM) after an ACL injury. Before you discharge your patient, teach them to do focused quadriceps strengthening and ROM exercises. These exercises can be as simple as performing sets of heel slides, ankle pumps, straight leg raises, and knee extension exercises as they prepare for surgery.¹²



rehabilitation over the past decade. In a ski clinic, immediate priorities are simple: protection of the injured joint from further injury, analgesia, management of swelling/inflammation and good patient education (PASE). See Figure 2.

If your patient is involved in activities that are primarily directed in a frontal plane, with little lateral movement, they can consider not having surgery. If they plan on doing activities with a high lateral stress load, they will usually do

Finally, this injury can be an emotional hit for your patients. Recovery usually takes 6 months to a year. Plan a pep talk. Something like, “I know that an ACL injury sucks. We have great surgeons who are going to get your knee back together. You will be back skiing next year and I bet if you went into the lift line and asked everyone to raise their hand if they have had an ACL injury, 20-30% of them would have a hand up. You’re gonna do great.” ★



Case Report

Synchronous Obstructive Ureterolithiasis and Acute Diverticulitis

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A 43-year-old male arrives in the ED with left lower quadrant pain that started 2 days ago. The pain has been constant and has been getting progressively worse, reaching a rating now of 6/10. He denies radiation of the pain. There are no alleviating or remitting factors. He denies any fever but reports some mild chills. He has had no nausea or vomiting, but he does report a decrease in appetite. He denies any urinary frequency, urgency, or hematuria. No history of kidney stones. His medical and surgical history includes asthma and an open reduction and internal fixation of the left knee. He denies past or current tobacco or drug use. He admits to social alcohol consumption.

Vital signs at presentation are blood pressure 129/95 mmHg, heart rate 97 beats/min, respiratory rate 20 breaths/min, temperature 37° C, and oxygen saturation 97% on room air. On clinical examination, the patient is in moderate discomfort. There is tenderness to the left lower quadrant. There is no guarding or rebound and no costovertebral angle tenderness. The rest of the physical exam is within normal limits.

The patient is initially treated with IV fluids and 4 mg of morphine.

Laboratory evaluation includes a complete blood count, complete metabolic profile, and urinalysis. The results of the CBC reveal a white blood

cell count of $16.12 \times 10^9/L$ and urinalysis was positive for hemoglobinuria; the CMP was unremarkable.

A CT of the abdomen and pelvis without contrast reveals acute uncomplicated acute diverticulitis of the sigmoid colon as well as a 2.3 mm stone in the left distal ureter at the ureterovesicular junction.

Discussion

Abdominal pain is the leading reason for ED visits in the U.S. for both females and males, according to the Centers for Disease Control and Prevention. Abdominal pain accounted for almost 8% of ED visits in 2013. The use of medical imaging for overall abdominal pain diagnosis has increased from 20% in 2000 to 44% in 2008.³ In a study published by Choy and Yoon in 2013, 50% of the patients with abdominal pain had intra-abdominal pathology on CT that could explain their abdominal pain. Intra-abdominal pathology correlated with age greater than 35 and leukocytosis.²

Causes of left lower quadrant pain in males can be vast, including vascular, gastrointestinal, genitourinary, abdominal wall pathologies. Guided by strong clinical correlation, a CT scan is the preferred modality to evaluate LLQ pain in a male patient when suspicion for diverticulitis or obstructing urological pathology is high.

Acute Diverticulitis

Diverticulitis is a complication of diverticulosis, a condition when small pouches form in the wall of the colon from herniation of the colonic mucosa and submucosa. Many patients with

diverticulosis will be asymptomatic and only be diagnosed when they have a colonoscopy or an abdominal CT. Diverticulosis can be silent, or it can be expressed with diverticular bleeding or inflammation as in diverticulitis.⁸ Diverticulosis occurs in 5-10% of people by 45 years of age, and 10-20% of people diagnosed with diverticulosis will end up developing diverticulitis.⁷ The prevalence of diverticulitis increases with age, and its incidence is higher in developed countries than developing countries.

The exact pathophysiology of how diverticula develop remains uncertain. Numerous theories exist, combining aspects of diet, motility, the microbiome, and inflammatory factors. The archaic theory of diverticulitis resulting from the consumption of high fat or fiber-lacking foods which along with stool lodges in diverticula, in turn causing trauma, ischemia and focal perforation.⁸ The most typical presenting symptoms and findings are left sided abdominal pain, fever, rigors, leukocytosis and elevated C-reactive protein.

CT scans have reported around 100% sensitivity in the diagnosis of diverticulitis. CT scan of the abdomen and pelvis is the preferred imaging modality to diagnose the disease, evaluate its severity, and screen for associated complications. In the U.S., the severity of diverticulitis can be assessed by the Buckley or Hinchey classification system.^{7,8}

Diverticulitis can be uncomplicated or complicated. In uncomplicated diverticulitis with no sign of systemic toxicity, patients are treated as

outpatients with antibiotics. In the complicated diverticulitis cases, patients can develop abscesses, peritonitis, fistulas, or obstructions. In these complicated cases, patients should be hospitalized and treated with IV antibiotics, bowel rest, and/or surgery.⁸

Ureteral Colic

Urolithiasis has a prevalence of 12% in men and 6% in women and accounts for 1.0% to 1.7% of annual ED visits.^{3,4} Urinary stones are formed in the kidney and continue their course down the ureter. Around 75% of the stones are made of calcium oxalate and calcium phosphate, which results from hypercalciuria. Hyperexcretion of calcium is linked to disease states such as hyperparathyroidism and sarcoidosis, dietary increase in calcium intake, and increased gut absorption of calcium. Uric acid stones account for 6% of renal stones and are the result of hyperexcretion of uric acid from conditions such as gout, malignancy, insulin resistance, and kidney insufficiency. Fifteen percent of stones are made of magnesium-ammonium-phosphate, caused by

urinary tract infection with urea-splitting organisms such as *Proteus*, *Pseudomonas*, and *Klebsiella* species. Cystine stones, caused by a condition where there is a decrease in reabsorption of cystine, make up only 2% of all stones.⁶

Ureteral stones usually present with sudden onset of severe colicky flank pain, which can be associated with nausea, vomiting and hematuria. Non-contrast CT scan has become the imaging of choice for detecting ureteral stones with both specificity and sensitivity of approximately 95%.⁶

Management of ureterolithiasis in the ED consists of NSAIDs for pain, antiemetics, and IV fluids. Criteria for admission include acute kidney injury, fever, bilateral obstructing stones or intractable vomiting or pain. Stones less than 5mm typically pass spontaneously, although studies have shown that use of tamsulosin can facilitate the expulsion.⁴ The greatest benefit from alpha blockade has been shown for stones between 5-10 mm. Extra-corporeal shock-wave lithotripsy or ureteroscopy is indicated for stones bigger than 10 mm.³

Conclusion

No cases of synchronous obstructive ureterolithiasis and acute diverticulitis have ever been reported in the medical literature. However, a case of synchronous obstructive ureterolithiasis and acute appendicitis was reported in 2012. The patient was a 47-year-old male with previous episodes of nephrolithiasis who presented with umbilical abdominal pain for 3 days.¹⁰

The symptoms of the patient in our case were recognized promptly; however, it was unclear if the patient had acute diverticulitis or obstructive uropathy. The correct diagnostic imaging modality was utilized, and appropriate laboratory tests were ordered. Considering the patient was clinically stable, had no significant medical comorbidities or impaired immunity, and was nontoxic appearing, he was discharged home to be treated as an outpatient with ciprofloxacin and metronidazole. He was advised to follow up with urology within 10 days, and strict, detailed instructions to return to ED were provided. ★

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Flaccid Paralysis in a 7-week-old Infant

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Background

Flaccid paralysis of the bilateral lower extremities in infants can be the presenting feature for a variety of diseases. We describe the presentation and clinical course for an infant presenting to the emergency department (ED) with this chief complaint.

History

A 7-week-old previously healthy male was brought in for evaluation of decreased activity, a weak cry and refusal to feed. Parents reported leaving the infant in the care of a babysitter for approximately 10 hours on the day prior to presentation. While giving him a bath on the day of presentation, his mother noted that both of his legs appeared “dead.” Parents denied any history of trauma, fever, rhinorrhea, rashes, difficulty breathing, seizure-like activity, travel, or sick contacts. He had been feeding, voiding, and acting at baseline until the day prior. One week prior he was diagnosed by his pediatrician with oral thrush and diaper dermatitis and was prescribed nystatin topical and oral. He was born at term following an uncomplicated pregnancy and uneventful perinatal period. He had no known allergies, was circumcised, on no other medications, and had not yet received any immunizations.

Physical Examination

Vital signs in the ED were age-appropriate with the exception of a temperature of 38.1°C, and a respiratory rate of 52 breaths per minute. The infant was well developed and well-nourished, but lethargic and ill-appearing with a weak cry. Nasal flaring with subcostal retractions were noted, but lung fields were clear to auscultation. Neurological examination revealed decreased spontaneous movement of both lower extremities with bilateral hypotonia, more pronounced on the right relative to the left. He had unrestricted passive

range of motion and symmetric deep tendon reflexes with up going plantar reflexes bilaterally.

ED Course

Complete blood count showed a white blood cell count of 13.5 K/mm³, hemoglobin of 8.8 gm/dL, and a platelet count of 332 K/mm³. Differential count, reticulocyte count, and peripheral smear were unremarkable. Comprehensive metabolic panel, urinalysis, and electrocardiogram were unremarkable. CRP was elevated at 17.2 mg/L and albumin was low at 3.2 gm/L. Cerebrospinal fluid analysis demonstrated 243 nucleated cells with protein > 460 mg/dL. Blood, CSF, and urine cultures were obtained, and the patient was started on meningitic doses of ampicillin and cefotaxime. Chest radiograph showed an opacity over the left upper chest with a tapered appearance and splaying of the posterior 3rd-5th ribs, concerning for a paraspinal mass.

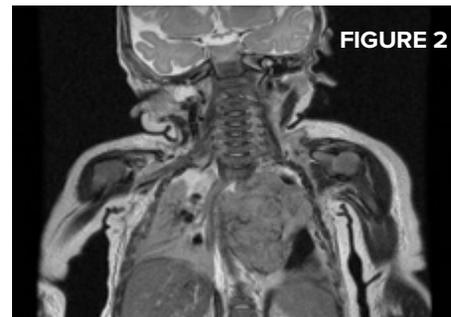
Final Diagnosis

Computed tomography of the thorax with contrast showed a 4.5 cm calcified left paraspinal mass with thinning and splaying of multiple ribs, with extension into the spinal canal from T3 through T6 and displacement of the airway and aorta (Figure 1 below).



Magnetic resonance imaging showed a large mediastinal component (6.5 x 4.9 x 4.3 cm) with possible supraclavicular extension versus lymph node involvement (Figure 2 top right).

He was started on high-dose steroids,



and an emergent thoracic laminectomy with tumor excision was performed. Final tumor pathology demonstrated poorly differentiated neuroblastoma and the patient was classified as stage 3 neuroblastoma, intermediate risk, based on the International Neuroblastoma Staging System.

Discussion

1. Unexplained flaccid paralysis of the lower extremities in an infant should prompt further evaluation and the differential diagnoses are varied.
2. Potential etiologies include infectious, inflammatory, traumatic (accidental versus non accidental), congenital and/or neoplastic causes.
3. Neuroblastoma arises from the adrenal glands or follows the distribution of the sympathetic ganglia along the paraspinal areas from the neck to the pelvis; thus, neuroblastoma is likely to extend into the intra spinal space.
4. Up to 50% of patients with intra-spinal tumour extension present with peripheral neurologic deficits and neurological symptoms from compression of the nerve roots or the cord.
5. Neuroblastoma is usually an incidental diagnosis, identified on imaging ordered for another indication (e.g. chest radiography for pneumonia as with our case).
6. A normal CBC does not rule out infiltrative/neoplastic processes, and in the appropriate clinical setting, additional evaluation with CT or MRI is required.

Conclusion

ED physicians must be cognizant of the widely variable clinical presentation of neuroblastoma in children. ★

Advancing ED Workflow through an Innovative RAT

Michael Ullo, MD

Rutgers New Jersey Medical School

Gregory Sugalski, MD

Associate Professor

*Department of Emergency Medicine
Rutgers New Jersey Medical School*

In traditional ED flow models, patients who arrive via EMS often experience similar prolonged door-to-bed, door-to-doctor, and ED length-of-stay times as walk-in patients. ED overcrowding, a national crisis, often exacerbates this problem. At Rutgers New Jersey Medical School, we identified the need for a new workflow model for EMS arrivals that would allow us to provide efficient care without adversely affecting overall clinical operations for the department.

RAT to the Rescue

The Department of Emergency Medicine initiated a 9-session pilot project utilizing the Rapid Assessment Team (RAT) to address some of our key operational inefficiencies. Our hospital is an academic, tertiary care, Level I trauma center located in an urban city with an ED annual census of roughly 90,000 patients. Approximately 30% of our patients arrive via EMS. Using data from available benchmarking resources, we identified deficiencies in throughput times and implemented a unique strategy to improve ED flow. Historical data from our ED was obtained from our electronic health record prior to the implementation of this pilot project and focused on important metrics of throughput.

A multidisciplinary team was conceptualized, composed of physicians, advanced practice providers, ED

technicians, and nurses in an effort to create a more streamlined approach for patients arriving via EMS. This team was formed by reassigning existing ED staff, and no additional resources were needed for this pilot. The team operated from 7 am to 3 pm out of a multipurpose space within the ED that had previously been used to hold boarding admissions.

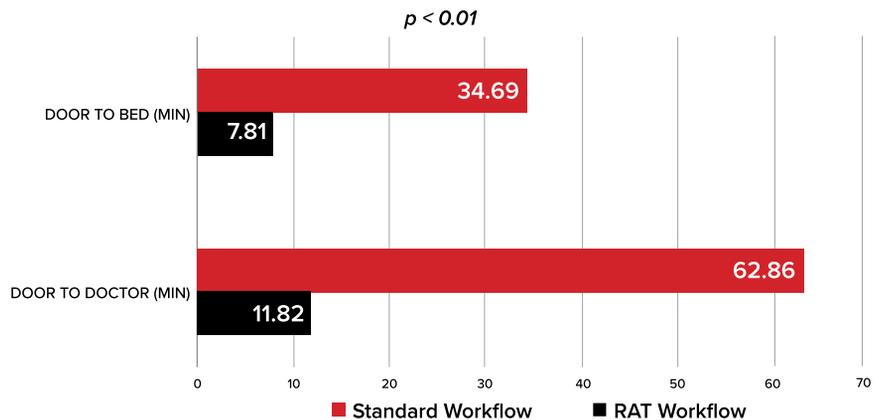
Bypass the Waiting

During the pilot sessions, patients transported by EMS were immediately placed in one of the designated RAT beds. The RAT initiated a diagnostic workup for each patient, including laboratory studies, diagnostic imaging, and initial therapeutic interventions based on each patient's presentation. Patients were then transferred to the most appropriate care area of the ED for their ultimate management and disposition.

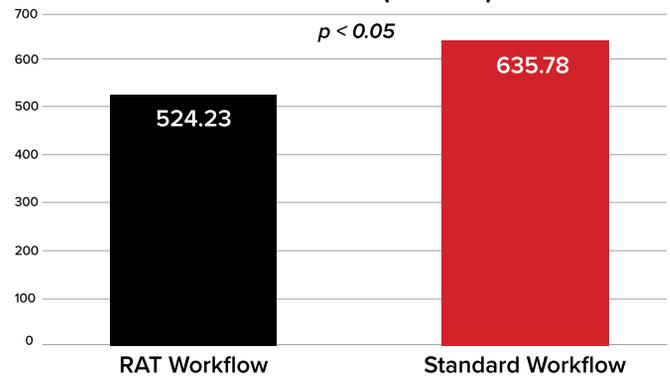
While the establishment of a RAT is an accepted Provider-in-Triage alternative flow model, most focus on the evaluation and treatment of low-acuity patients. Our model is innovative in its unique focus on higher acuity patients who arrive via ambulance.

After each pilot session, the relevant data was assessed and compared to data on the same day during hours in which the RAT was not operational. Analysis of

Impact of RAT on Arrival Metrics



Total ED LOS (Minutes)



the data after each of the 9 pilot sessions revealed a significant improvement in the targeted metrics. For the target population, patients arriving via EMS, door-to-doctor times were reduced by a mean of 85% (46.9 minutes), door-to-bed times by 80% (24.5 minutes), overall length of stay by 11% (73.2 minutes), and the LWBS rate were reduced by 35%.

By front-ending the labor-intensive aspects of patient care such as specimen collection, electrocardiogram acquisition, and imaging, the RAT improved downstream operational efficiencies by enhancing the providers' ability to make a disposition. Such improvements resulted in increased bed availability for all patients regardless of arrival method. As such, walk-in patients experienced a reduction in mean door-to-doctor times (6%), door-to-bed times (4%), and LWBS rates (8%).

The substantial improvements that have been demonstrated by the RAT highlight an important success in the quest for improved ED workflow. ★



Katelyn Banks, MD

Palmetto Health Richland

Caroline Brady, MD

Palmetto Health Richland

Heather Brown, MD, MPH, FACEP

Palmetto Health Richland

International medical electives are becoming increasingly popular among EM residents as programs take the initiative to provide a valuable educational experience for their residents while ensuring time abroad provides value to the host institution. Given the short-term nature of medical electives, this goal can prove rather challenging and usually requires the development of long-term relationships with host institutions.

In this vein, the Palmetto Health/

SIMULATION OUTREACH

Bringing Continuing Education to East Africa

University of South Carolina Department of Emergency Medicine has sought to build sustainable impact through established long-term relationships with physicians at local medical centers in both Uganda and Tanzania. In Uganda, we have an ongoing collaboration with Masindi-Kitara Medical Center (MKMC) and the nonprofit organization OneWorld Health. Over the past 5 years, Palmetto Health faculty, residents, and alumni have traveled to Uganda several times per year to participate in outreach clinics, provide specialized training to hospital staff, and collaborate with local providers on research initiatives.

Physicians at MKMC have identified a need for trauma and critical care training among their hospital staff and other providers in the Masindi region. In response, our global health fellow and subspecialty track resident have developed a unique, context-appropriate curriculum that utilizes both didactic lectures and simulations. Although not a novel

approach in the U.S., simulation medicine is truly a foreign concept for many of the providers we have encountered.

In 2017, a multidisciplinary trauma training was implemented over 2 days in Masindi, which was attended by 40+ local and regional health care providers. This training utilized simulation supplies and standardized patients to replicate clinical scenarios and was the first training of its kind in the Masindi region. We worked with our hospital's simulation center to craft simple and affordable skills stations, and learned the art of moulage makeup to enhance the realism of each case. Although there were initial hurdles in conveying the concept of simulation, the course was very well-received and will become a recurring project.

The debut course focused on initial evaluation and stabilization of the critically ill patient. Materials addressed some of the area's most common causes of illness. These lectures were supplemented by EM on-shift guides provided by EMRA.



In the simulations, participants worked together to recognize and stabilize critically ill patients with a variety of illnesses, including a ruptured ectopic pregnancy, a patient with cerebral malaria, and hypovolemic shock from cholera. Participants were able to practice needle decompression and chest tube placement on a novel, low-cost simulator, which the Palmetto Health Simulation Center helped us create. By the end of the daylong course, participants were familiar with the concept of simulation and felt much more comfortable diagnosing and managing critically ill patients. We were able to train providers from 6 different hospitals, and the course was so successful that the local Minister of Health recognized our efforts.

We then traveled to Mbeya Zonal Referral Hospital (MZRH) in Mbeya, Tanzania, where University of South Carolina (USC) family medicine, surgery, and EM departments have working relationships with local providers. We coordinated with a USC trauma surgeon and Mbeya's only EM residency-trained physician to replicate trauma training. Participants learned to manage blunt and penetrating trauma, burns, and orthopedic

trauma. Their procedural and leadership skills were challenged when they were expected to "run" the trauma simulations as if they were in the ED setting. We had more than 70 participants over the course of 2 days, with overwhelmingly positive feedback.

Over the course of 1 week, we traveled to 2 countries, trained 101 health care providers, gave 20 lectures, acted in 108 scenarios, and hopefully made a lasting impact on those communities. We believe this model provides an opportunity for impactful involvement for residents and faculty who are unable to spend several weeks abroad, but want to participate in a meaningful global health project.

We hope to continue the relationships in Uganda and Tanzania. The Ugandan collaboration continues with another multidisciplinary critical care conference, focusing on acute cardiac care, scheduled for spring. Presently in Tanzania, our global health EM program is continuing to partner with the USC surgery department and the Mbeya Zonal Referral center to introduce regional trauma training via simulation while simultaneously implementing the hospital's first trauma registry. ★



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Health Policy Mentorship Program

Residents in Action in State Legislatures

Erik Blutinger, MD

*EMRA Health Policy Committee Vice Chair
University of Pennsylvania
@blutie202*

This year, the ACEP State Legislative and Regulatory Committee (SLRC) partnered with the EMRA Health Policy Committee to create a mentorship program. Medical students and residents were paired with health policy experts to receive career guidance and further training in health policy.

The program has led to concrete success — not only for the participants, but also for the specialty as a whole. Sign-up is now available online for those seeking a mentor and also for those who would like to serve as a mentor. Go to the EMRA Health Policy Committee page at <https://emra.org/be-involved/committees/health-policy-committee> to access the form.

Why take part in this initiative? Several participants reflected on their own experiences.

JORDAN WARCHOL, MD

Fellow, George Washington University



“My experience with the mentorship program has been excellent. I was paired with someone who had the same interests as me and has had a career path very similar to one I hope to pursue. His mentorship has opened

new doors for me, and I hope that even when the program is officially over, I can continue to turn to him for professional advice and mentorship.”

MOODY KASSEM, MD

St. George's University School of Medicine



“I loved that we were matched with folks who were most aligned with our future interests and that there was opportunity to ask the mentor whatever we wanted. The program was useful, and I would do

it again. I recommend it to all prospective medical students interested in Emergency Medicine as a specialty, too!”

MARISA DOWLING, MD

University of Maryland



“The EMRA/SLRC mentorship program has been great for expanding my network and horizons in health policy. EMRA made it so easy to do. My mentor was also very proactive in arranging a meeting, and helped push

me to expand my activities in health policy. So I felt very welcome and supported from the start!”

ERICA GOLDSTEIN

New York University School of Medicine



“EMRA/SLRC paired me with a perfect mentor who has focused on getting to know me and has given me exercises on self-awareness, so that I may choose a path that is consistent with my core values. He has been an invaluable

sounding board and has helped me identify and approach challenges that I am likely to face throughout my career.”

AGNES USORO, MD

Johns Hopkins University



“I am very appreciative of the opportunity to be a part of the EMRA/SLRC mentorship program. I have learned so much from my mentor about ACEP's current efforts to improve the practice of emergency medicine for all EM physicians. Our conversations included issues related to the

prudent layperson standard, payment reform through MACRA, and the ACEP Single Payer Task Force. Most memorably, I had the pleasure of attending ACEP's 2018 Leadership and Advocacy Conference, where I was able to meet him in person. His mentorship has strengthened my passion for becoming a lasting advocate for emergency medicine physicians.”

GURURAJ SHAN, MD

SUNY Downstate/Kings County



“The EMRA/SLRC mentorship program has been a rewarding and educational experience. My mentor provided unique advice regarding future career paths and options for how I can pursue them. Additionally, she introduced me to leaders within

NY ACEP and helped get me involved in their Government Affairs Committee, which has jumpstarted my health policy education.”

SAR MEDOFF, MD

Emory University



“Thanks to the program I was paired with an EP in private practice who was previously academic faculty. Through our conversations I learned about her experiences with both the Tennessee and Iowa ACEP chapters as well as her suggestions for getting more involved in advocacy work moving forward plus contacting my legislators about issues that are important to me. My mentor has been a great role model for my advocacy work thus far and I look forward to working alongside her to advance Emergency Medicine in the years to come.”

HANNAH GORDON

FIU Herbert Wertheim College of Medicine



“I feel so humbled and energized to be part of such an amazing program. I was extremely fortunate to be partnered with my mentor, whose advocacy work directly reflected my intention to help develop and implement health policy as an attending. She has supported me at both LAC and EM Days, Florida’s legislative days, by guiding me in how best to approach legislators, understand ACEP’s policy priorities, and network. This assistance helped me organize a session at EM Days that brought together a Florida State Representative, an EMR expert, and a legislative Chief of Staff to discuss future legislation to prevent duplicative testing in Florida’s EDs.”

Special thanks to these physicians who offered their time and service as mentors this year.

Andrew I. Bern, MD, FACEP
John R. Corker, MD
Marilyn Heine, MD, FACEP
Chadd Kraus, DO, DrPH, MPH, FACEP
Ashley Norse, MD, FACEP
Nicholas Vasquez, MD, FACEP

Anthony Cirillo, MD, FACEP
Maria Guyette, MD, FACEP
Sarah Hoper, MD, JD, FACEP
Jim Mitchiner, MD, MPH, FACEP
Steve Sherick, MD, FACEP
Anne Zink, MD, FACEP

The EMRA Health Policy Committee hopes to expand this program.

Please sign up on the [EMRA website!](#) All are welcome. ★

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James Bryant
jbryant@emra.org
469.499.0187

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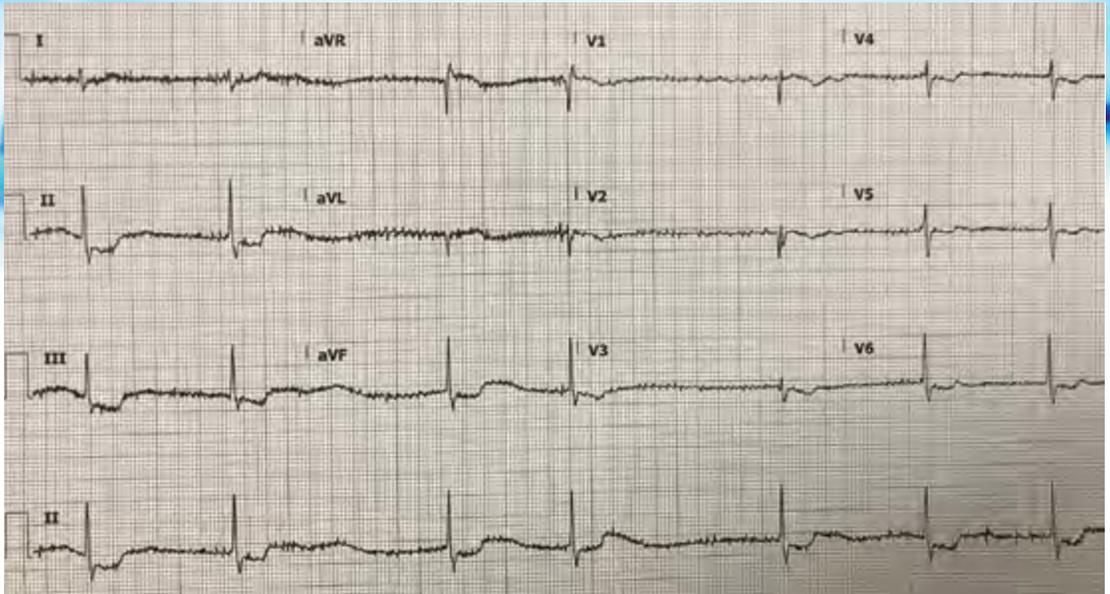
ECG Challenge

Kaela Reinert, MD

Christiana Care Health System

Jeremy Berberian, MD

*Associate Director of Resident Education, Dept. of Emergency Medicine
Christiana Care Health System
@jgberberian*



CASE.

An 89-year-old female with atrial fibrillation presents with altered mental status.

What is your interpretation of her EKG?

See the ANSWER on page 36

Ali Rashidbaigi, MD

*SUNY Upstate
@biofilmMD*

Omid Rashidbaigi, MSIV

NYIT College of Osteopathic Medicine

Darren Cuthbert, MD, MPH

*Rutgers Robert Wood Johnson
@carpe_em*

A 53-year-old man presents to the ED for worsening pain associated with a longstanding whole-body rash. He states that 2 years ago a small blemish started on his chest, and it spread to involve predominantly his forearms, chest, and legs. He has previously been to the ED for the same symptoms and was discharged with cream for eczema.

The patient states his skin has been dry, flaky, with pink-red scales and plaques. The pain is alleviated by applying lotion, but as soon as the lotion dries the pain returns.

Visual Diagnosis



Diagnose This Skin Lesion

Physical exam is unremarkable except for the findings exhibited in the photographs.

What is your assessment of his condition?

See the ANSWER on page 37



ECG Challenge

ANSWER**Digoxin Toxicity**

This ECG shows atrial fibrillation with a slow ventricular response ~40 bpm and STD with TWI (also described as “scooped ST-segment/T-wave complexes”) in the inferior and mid-lateral precordial leads. The scooped ST-T complexes are best seen in leads with tall R-waves and are seen with therapeutic levels of digitalis derivatives (eg, digoxin). This what is commonly referred to as “digitalis effect,” or the Salvador Dali sign, and is not a sign of toxicity, only use. The presence of AFib with a slow ventricular response in the setting of digoxin use strongly suggests toxicity.

About Digoxin Toxicity

Digoxin, a cardiac glycoside, is a sodium-potassium ATPase blocker. Digoxin toxicity can be acute or chronic. Acute toxicity is typically caused by overdose of digitalis containing medications or ingestion of plants that contain cardiac glycosides such as foxglove, oleander, or Lily of the valley. Common causes of chronic toxicity include renal disease, electrolyte abnormalities, dehydration, and drug interactions. Chronic toxicity manifests over days to weeks and typically presents with vague symptoms that include anorexia, abdominal pain, nausea, and CNS symptoms. Hyperkalemia, more common in acute toxicity, is associated with a high mortality rate.

Dysrhythmias associated with digoxin toxicity are varied, and if digoxin toxicity were more common it would certainly compete with hyperkalemia for the title of the “syphilis of electrocardiography.” Common findings include PACs and PVCs, and dysrhythmias associated with toxicity include paroxysmal atrial tachycardia with variable block, accelerated junctional rhythms, AFib with slow ventricular response, and bidirectional VT.

First-line treatment for symptomatic dysrhythmias is digoxin immune FAB (eg, Digibind or DigiFab). Other treatments include atropine for bradycardias and AV blocks, and lidocaine or phenytoin for ventricular tachycardias if digoxin immune FAB isn’t available or effective.

For more information on ATPase blockers, please see page 58 of the EMRA EKG Guide.

LEARNING POINTS**Sodium-Potassium ATPase Blockers Toxicity****General Features**

- Includes cardiac glycosides (eg, digoxin and digitalis derivatives)

EKG Features

- Seen with therapeutic levels
 - Scooped ST-segment/T-wave complexes most pronounced in leads with tall R-wave (digoxin effect)
 - PR lengthening
 - QT shortening
- Seen with toxicity
 - Paroxysmal atrial tachycardia with variable block
 - Accelerated junction rhythms
 - Atrial fibrillation with slow ventricular response
 - Bidirectional ventricular tachycardia

Clinical Significance

- Hyperkalemia is associated with a high mortality rate
- Treat with digoxin immune FAB when clinically indicated ★

CASE RESOLUTION

The patient’s labs showed worsening renal function and an elevated digoxin level twice the upper limit of therapeutic. Her heart rate normalized after treatment with digoxin immune FAB, and she was admitted to cardiology service. ★

Assessment

Mycosis Fungoides (MF)

Mycosis fungoides is a T-cell lymphoma commonly misdiagnosed as eczema or other dermatological issue. Because of this, it is often mistreated and can be frustrating to the patient for many years. Proper diagnosis and treatment is often multifaceted, based on extent of disease.

Definition

- T-cell lymphoma in which neoplastic lymphocytes infiltrate the epidermis and form plaques, nodules, and ulcers

Diagnosis

- Skin biopsy

Epidemiology

- Middle age and older adults

Etiology

- Unknown
- Possible virus or bacterial Ag

Clinical

- Early-patch
 - Flat, scaly lesions more than 5 cm in photo-protected sites
 - Round, ovoid, or digitate dermatosis (finger-shaped)
 - Referred to as “plaque parapsoriasis”
 - Poikiloderma vasculare atrophicans: history of regressing to wrinkled macules of hypo- and hyperpigmentation with telangiectasia

- Plaque
 - Same location and size as patches, but lesions are thicker, varying shades of red-brown with induration and elevation
 - Occasionally ulcerate
- Tumor
 - Solid nodule at least 1 cm that arises within or adjacent to pre-existing patches and plaques
 - Frequently ulcerate
- Sézary syndrome
 - Leukemic form of mycosis fungoides

Management

- Hematology consultation
- Topical or intralesional corticosteroids (1st line)
- Bexarotene
- UVA or UVB phototherapy
- Apheresis
- Total Skin Electron Beam (TSEB)



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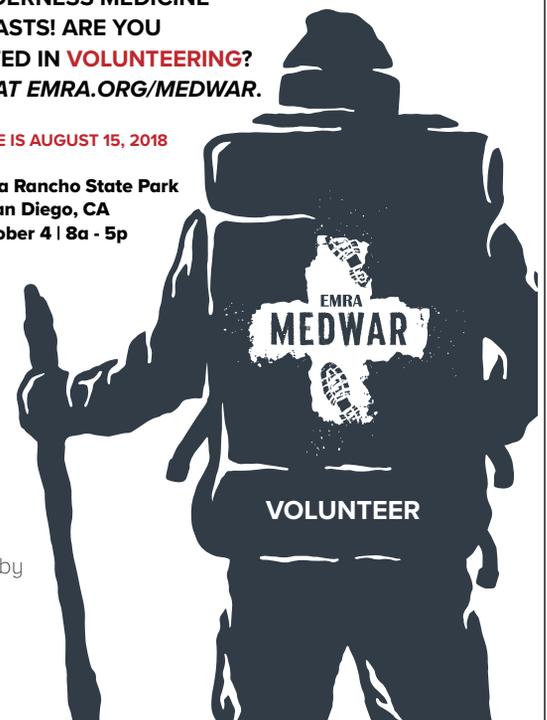


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Just a Quiet Ride Home...

Eric McDonald, MD
ACGME RC-EM Representative

The Daddy Diaries

Most days, my ride home is my quiet time. I let the events of the shift fade away, and I do my best to morph from a busy emergency medicine resident into a father and husband focused on his home life. That's most days.

This day, I was just trying not to fall asleep at the wheel...

Exhausted after a seemingly endless stretch in the ICU, I seem to be a passenger on autopilot. Just as I'm daydreaming while staring at the road — BOOM!

Cars go everywhere, and smoke rises immediately. I'm not even sure what happened, and my first thought is frustration that they are blocking the road. I'm off duty, I'm weary, I'm needed at home. Let me go.

I pull closer. People are running around as if they have no sense of direction. It's pure chaos. I debate even getting out of the vehicle, but my conscience gets the best of me.

With years of fire department experience, this isn't my first rodeo. I survey the scene and begin delegating tasks. Driver 1 is yelling in pain, but responds appropriately to me — check. Driver 2 is...Driver 2?

We have a problem.

Driver 2 is unresponsive and dark

blue. Clearly apneic, but "Does he have a pulse?" I yell at bystanders. "Yes, but it's weak," they reply. The volunteer fire department arrives. "Grab a BVM as we extricate the patient." Before long, we've got a roadside cardiac arrest. Intubation, bilateral needle thoracostomies, and IVs — ROSC.

It felt like everything happened fast, but it took almost 1.5 hours to get Driver 2 en route to the hospital. Then, standing on the roadside amid the wreckage, I began to critique our work. What could I have done better? The outcome will not be good; the patient was apneic for a while. Did I do everything possible? Do it right? What a frustrating end to a day. Even when I was finally off work, I wasn't really off. Worse, I didn't have a good feeling about the help I provided.

The morning came all too quickly, and I wandered into the ICU like a zombie to prepare for rounds. But this morning was different. I was getting meaningful looks — a lot of them. Finally, I asked. News of my eventful ride home had traveled fast, and I had a new patient in the ICU with me. You guessed it — Driver 2.

My worries had been well-founded. The outcome looked grim and the prognosis was terrible. They hypothesized hypoxic brain injury. I couldn't help but think about the waste. I couldn't help but think about how exhausted I was, and for what? An extra note after rounds the next day.

Later in the week, as I was still in the

ICU, one of the nurses approached me saying that the family of Driver 2 had heard that the doctor who stopped to help at the scene worked here. They knew that much, but they didn't know I was that doctor. She pleaded her case for me to go talk to them. She said, "I know it will be tough, but it's closure for them — do it for them."

I didn't feel like I could. I didn't feel like I wanted to try. After all, what good had I really done?

"Please think about it," she begged.

Eventually I swallowed my pride and sought out the family. And I found that they were very thankful for my hard work, not upset that it hadn't been enough. They also donated ALL of their loved one's organs, so what I had viewed as wasted effort turned out to be a lifesaving gift for multiple people, and a way for the family to find a small measure of comfort in their grief. They were thankful for the extra days to say goodbye and for the chance to turn death into life.

In that moment a few of the murky truths of our specialty hit home with me: Even when our efforts are not "successful," they are not in vain. And there's really no such thing as being completely off-duty. We are conditioned to provide the help we can, whenever we can. Sometimes that's inconvenient. It's exhausting. It's confusing. But it's also worthwhile, and even our "failed" efforts can have unexpected, momentous consequences for people we'll never meet. ★

A Difficult Investment

Lessons from a Burned-Out You

Perrin Nimlos, MD

Maricopa Medical Center

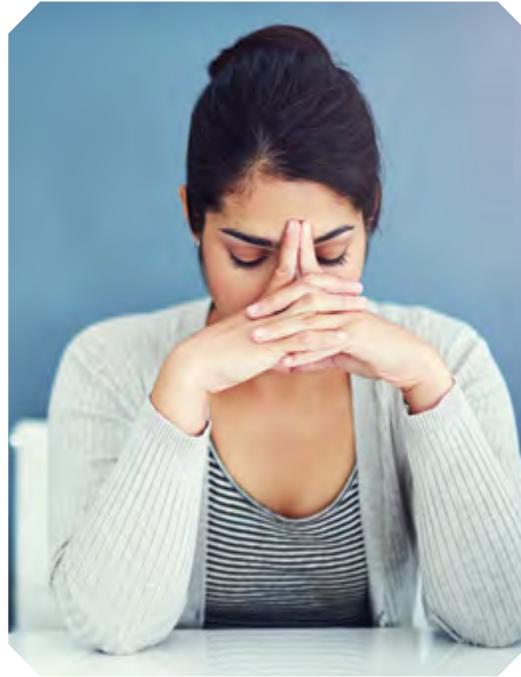
When I was halfway through my (only) 3-year residency in emergency medicine (not neurosurgery), I took a 2-month break (*what?!*). It wasn't because I was admitted to the ICU, L&D, a psychiatric unit, or jail. In fact, I'm sure I could have continued to go on shifts, complete my assignments, and on paper been an adequately competent resident. So what was my deal?

My intern year had been typical. Challenging, exhilarating, frustrating — emergency medicine was still my dream job, even during my trauma rotation, the overnight shifts, and the inevitable interpersonal difficulties. I hated getting shouted at by attendings and watching kids die, but I was willing to come to terms with it for the privilege of serving our patients. Most rants became funny stories by the next shift.

Things changed after I got engaged during intern year, when I moved into my fiancé's "fixer-upper" and made plans to marry within the year. It was a time of ridiculous excitement, over-commitment, and stress. At first it was fun spending most of my time on residency and in my free time picking dress colors and demolishing decrepit cabinets -- but over time, these labors of love started to wear on me.

I started cutting back on my work outside residency, but by late fall, as my wedding loomed and our plumbing failed, I noticed myself not exactly looking forward to my scheduled shift. At first the hesitance was minimal, and I usually forgot about it by the time I finished my coffee, but it gradually worsened.

Soon I caught myself counting the hours to signout, and even resenting some of my difficult patients. I started each shift emotionally exhausted and



left a little worse for wear. Though I was continuing to learn and develop as a clinician, I was becoming progressively neurochemically unfit for duty.

In my personal life I found myself losing patience to a surprising extent with my fiancé and having difficulty re-grounding myself. It was around then, when I began worrying about my future marriage, that hopelessness began to rear its ugly head, and I knew I was burning, hard. Because that just wasn't me. I loved my family and my work, and something had to give.

I knew what burnout was, and I had followed the national conversation about wellness (which naturally grapples with the hidden curriculum of indefatigability). Programs are still unclear exactly how much "wellness" residents need, but it's somewhere between adequately controlling suicide rates and making residency a vacation, and no one knows how to balance our needs for both meaningful rest and rigorous training.

My program director was part of this

"wellness" conversation, and I knew he would put his money where his mouth was. If I was honest about my state of being, he would probably agree that time off was a good idea and make it happen. Our department was well-staffed, and amazingly, the program could afford my absence.

So why hesitate?

I didn't like the idea of quitting or backing down. I took pride knowing (from experience) that I could do 1,000+ pushups in a week or run a marathon without training, and I had just enough perfectionism in me to want to continually prove my grit. On a more sobering note, I had considered running for chief resident since intern year, and I knew time off would instantly call into question my ability to manage the additional responsibility.

Finally, there was the alternative of putting my head down and powering through. I could "grow up," "stop complaining," and delay gratification until graduation. In fact 65% of residents suffer burnout but choose not to take time off, and it's probably the best choice for most of them given the circumstances.

But for me, at that specific time in my life, the benefits of taking time off were greater than I think they will ever be in the future. I wanted to get the most out of residency, and return to it fully present and focused. I plan to be an EM physician for life — and not merely tolerate the field until I retire early.

It worked, I would say, and it was absolutely an investment in myself as a learner, a doctor, and a wife. I am fortunate to be in a progressive field with a permissive schedule and understanding PD. Time off doesn't make sense for every resident, but sometimes just knowing you have the choice helps put it in perspective. ★

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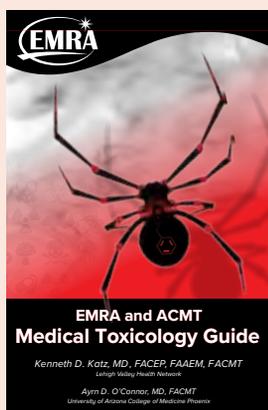
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EMRA and ACMT Debut On-Shift Toxicology Guide

EMRA has collaborated with the American College of Medical Toxicology to produce a brand-new bedside guide for treating the poisoned patient.

EMRA and ACMT Medical Toxicology Guide debuts this fall. With the support of an educational grant from BTG, the new book will be included in resident member kits.

Rather than serving as a textbook (which it is not), this on-shift guide will help the clinician quickly identify and initiate treatment, providing clear direction as quickly as possible. It was developed by a team of emergency physicians and medical toxicologists from around the country, along with the residents and faculty at Lehigh Valley Health Network.

“Nothing like it exists currently,” said editor-in-chief Ken Katz, MD, FACEP, FAAEM, FACMT. “There’s no app like it, and it’s not a textbook — it gives you quick, clear information to treat the poisoned patient at the bedside. Plus it’s written by people who are putting their extensive collective experience at your fingertips.”

Suzanne Ward, PharmD, Senior Director of Medical Strategy for BTG International, Inc., said the new resource fits BTG’s philosophy of supporting educational activities that are objective, balanced, and scientifically rigorous.

“BTG is committed to promoting excellence in patient care and supporting medical education that is relevant to BTG’s business and therapeutic areas,” Dr. Ward said. “To this end, we have provided an educational grant to support the publication of the EMRA and ACMT Medical Toxicology Guide in hope that it will benefit and facilitate the education of emergency medicine residents and their future patients.” ★

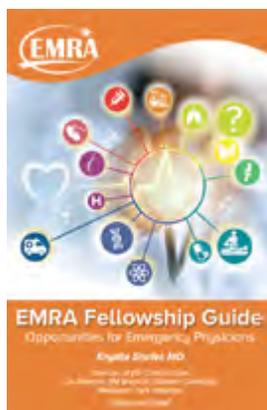
Considering a Fellowship? WE CAN HELP

The *EMRA Fellowship Guide: Opportunities for Emergency Physicians, 2nd edition*, is now available at <https://emra.org/books/fellowship-guide-book>.

Editor-in-chief Krystle Shafer, MD, led an all-star team of authors and editors in reprising this incredibly helpful resource. Find out how to choose a fellowship, what programs are available, when to start applying — and how to be successful.

The Fellowship Guide was written, edited, and reviewed by people who have walked each fellowship path before you. It offers real-life advice and updated guidance based on an ever-changing fellowship environment.

Read online now! Or download the free PDF and read it at your convenience, from your desktop. ★



Electing the EMRA Board of Directors

Repco will fill 5 vacancies in October, including: President-elect, Vice Speaker of the Council, Resident Representative to the ACEP Board of Directors, Director of Membership, and Director of Health Policy. If you want to run for the Board, submit your nomination by Aug. 18. Then show up Oct. 2 to make a bid for the position you want. Members will browse your candidacy packet online ahead of the vote, and the RepCo will cast ballots on Oct. 2. ★

Your Must-Have Antibiotic Guide is Coming Soon!

Have you updated your address in the EMRA database? Do that now, because in a few short weeks we’re shipping the brand-new *EMRA Antibiotic Guide*, 18th ed. — and you don’t want your copy to get lost. It’s a must-have resource on every shift, and this new edition includes key updates:

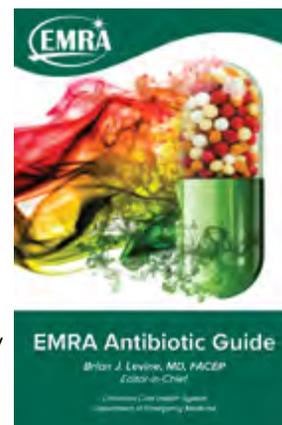
- An improved antibiogram
- Choosing Wisely guidance
- Penicillin allergy insight
- List of newly FDA-approved medications

All EMRA members — from students to alumni — receive a complimentary copy of the *EMRA Antibiotic Guide*. Editor-in-chief Brian Levine, MD, FACEP, and the entire Christiana Care Health System EM residency program invested a year in its development.

“Trust me, this book will make your life better,” Dr. Levine said. “Our antibiogram may change the way you think about susceptibility, and it’s definitely going to make your decision-making easier. We also address penicillin allergy. The true risk of anaphylaxis with penicillin is 0.01% — think about that! The majority of patients claiming penicillin allergy really aren’t allergic, and following our chart can open up many new antibiotic options.

“This has always been a great book to have on-shift, but we’ve gone the extra mile to make it absolutely essential,” Dr. Levine added.

EMRA offers you this resource with the help of an educational grant from US Acute Care Solutions. CEO James Frary said the company is proud to support EMRA and the Antibiotic Guide. “As the largest physician-owned integrated acute care group in the country, we have a vested interest in your training and education,” Mr. Frary said. “Some of you will be our partners, but all of you will be our colleagues. We wish you the best with your training, which will serve you and your future patients well.” ★



Medical Humanities Seeks Creative Geniuses

The **ACEP Section of Medical Humanities** is soliciting submissions for its 12th annual **Writing Award** and its 6th annual **Visual Arts Award**. Criteria include:

- **Writing:** Creative works of no more than 2500 words published in print or online between November 2017 and August 2018. Blog must be reconfigured and submitted as an independently publishable piece of creative writing. Poetry and prose — including song lyrics — will be considered in separate categories. Limit 2 pieces per person.
- **Visual Arts:** Submit a digital image or file (photograph, sculpture, textile, pottery, painting, etc). Limit 2 pieces per person. Email entries to Tracy Napper (tnapper@acep.org) before **Sept. 4**. A judging panel composed of Section members will vote on the blinded entries. Winners will be announced at ACEP18 in San Diego. ★

acep.org) before **Sept. 4**. A judging panel composed of Section members will vote on the blinded entries. Winners will be announced at ACEP18 in San Diego. ★

What Will You Do for...



Emergency physicians, residents, nurses, physician assistants, and medical students are servant leaders in every community, caring for and advocating on behalf of patients while working clinically. We also respond to the call to give back to the communities we serve. The EM Day of Service was created with this essential concept in mind.

Throughout the month of September, the EM community will identify and tackle greatest needs within their towns and neighborhoods. From improving public spaces through cleanup days to hosting free CPR training or micro-clinics for the underserved, EM Day of Service events offer care in a thousand unique ways.

Plan your EM Day of Service event, [register it at emra.org](http://register.it.at.emra.org) so you get recognition on a national scale, and be sure to use the power of social to spread the message! [#EMDayofService](https://twitter.com/EMDayofService). ★

Neurocritical Care Becomes 10th Subspecialty Available for EM

The **American Board of Medical Specialties** has approved subspecialty certification in **Neurocritical Care**. NCC is co-sponsored by the American Board of Anesthesiology, the American Board of Emergency Medicine, the American Board of Neurological Surgery, and the American Board of Psychiatry and Neurology.

There will be 2 pathways to certification in NCC: a training pathway and a time-limited practice pathway. The practice pathway will start at the time the first exam is offered. Eligible pathway criteria will be posted on the ABEM website by the end of 2018. ABPN will develop and administer the examination; physicians will submit applications to their primary certifying board. The first examination is expected to take place in either 2020 or 2021.

NCC becomes the 10th subspecialty available to ABEM-certified physicians, along with Anesthesiology Critical Care Medicine, Emergency Medical Services, Hospice and Palliative Medicine, Internal Medicine-Critical Care Medicine, Medical Toxicology, Pain Medicine, Pediatric Emergency Medicine, Sports Medicine, and Undersea and Hyperbaric Medicine. ABEM-certified physicians also have pathways to subspecialty certification in Addiction Medicine and Clinical Informatics (through the American Board of Preventive Medicine), Brain Injury Medicine (through ABPN), and Surgical Critical Care (through the American Board of Surgery). ★

Airway Stories: Life in the ED

Birth, death, redemption, and failure — from the highest victory to the lowest defeat, you will encounter it all in the ED (sometimes in the span of a single shift). Because you are a master of compartmentalizing, you will absorb all of those accompanying emotions, file them away, and carry on.

But they won't disappear.

Some experiences will morph into shining touchstones of why you're doing this thing called medicine. Some will haunt your quietest moments, when your reserves are low and your doubts are high. All will demand attention sooner or later. Start now. Bring those stories into the light by sharing them at "**EMRA Airway Stories: Life in the ED**," a new event at ACEP18 hosted by the EMRA Wellness Committee.

We're seeking the stories that illustrate the scope of your life in the ED — whether they deal with airway or not. By sharing your most defining experiences to date, you will see them in a new perspective. You will learn. You will grow. And you'll help others do the same.

Send a written synopsis of your story by Aug. 25, and we'll line up the open-mic presentation format. All EMRA members are welcome, and we'll have complimentary food (plus beverages while supplies last). The event takes place Wednesday, Oct. 3, from 6-8 pm, just ahead of the ACEP Closing Party. ★

New Event Puts Students on a National Stage



The **EMRA Research Committee** is hosting a new event designed to give medical students an opportunity to speak at a national conference. Make plans to support them by attending the event!

EMRA Case-Con is a poster presentation contest featuring interesting or notable emergency medicine cases. Presentations will include a 5-minute lecture followed by 2 minutes of group discussion.

A panel of EM residents and faculty will evaluate each case based on clinical insight, public presentation, and more. Three winners will be selected and awarded cash prizes.

Case-Con takes place Monday, Oct. 1, from 10 am-noon, during ACEP *Scientific Assembly* in San Diego. Attend this event in the Marriott Marquis to show support for these up-and-coming medical students focused on improving emergency care. ★



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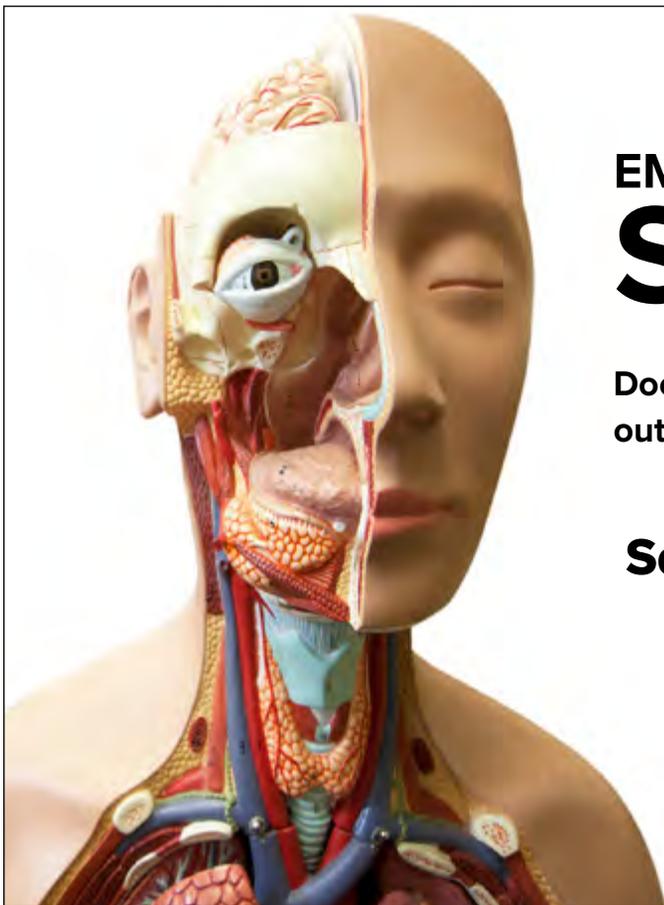
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Board Review Questions



PEER (Physician's Evaluation and Educational Review in Emergency Medicine) is ACEP's gold standard in self-assessment and educational review. These questions are from PEER IX, published in print in 2017 and updated continually on its digital platform.

For complete answers and explanations, visit the [Board Review Questions](#) page at [emresident.org](#), under "Test Your Knowledge."

1. A 35-year-old woman presents following a syncopal event that occurred 1 hour earlier. She had chest discomfort, palpitations, shortness of breath, and a sense of gasping for air. Shortly before losing consciousness, she felt a tingling in her hands. There is no evidence of cardiac disease; she has a medical history of anxiety. What laboratory value and resultant physiologic response is associated with this phenomenon?
 - A. Hypercarbia, cerebral vasoconstriction
 - B. Hypercarbia, cerebral vasodilation
 - C. Hypocarbia, cerebral vasoconstriction
 - D. Hypocarbia, cerebral vasodilation
2. An elderly man presents with chest discomfort. His history is worrisome for ACS, but the examination is significant only for chronic medical issues. Vital signs are normal. The ECG demonstrates normal sinus rhythm with no ST-segment or T-wave abnormalities. Initial therapy is initiated, and laboratory tests are ordered. The patient remains stable, and the initial troponin level is normal. Which of the following is the correct approach to treatment, observation, and reassessment?
 - A. Intravenous heparin, oral clopidogrel, and oral aspirin with immediate exercise stress testing
 - B. Intravenous heparin, oral clopidogrel, and oral aspirin with serial troponin and 12-lead ECG sampling
 - C. Oral aspirin therapy with immediate exercise stress testing, with or without nuclear imaging
 - D. Oral aspirin therapy with serial troponin measurement and 12-lead ECG sampling
3. Which of the following treatments for acute asthma in the emergency department reduces the relapse rate?
 - A. Heliox
 - B. Long-acting beta2-adrenergic receptor agonists
 - C. Oral corticosteroids
 - D. Oxygen via nasal cannula
4. Which of the following is a clinical manifestation of opioid withdrawal?
 - A. Constipation
 - B. Delirium
 - C. Miosis
 - D. Piloerection
5. Which of the following statements about uterine trauma in pregnant patients is correct?
 - A. Cardiocotographic monitoring is unlikely to identify occult trauma
 - B. Pelvic fractures are associated with extremely high morbidity and mortality rates
 - C. Ultrasonography is the best diagnostic modality for uterine rupture
 - D. Uterine perforation occurs most commonly in the first trimester ★

ANSWERS
1. C; 2. D; 3. C; 4. D; 5. B



Emergency Medicine

Gundersen Health System – La Crosse, Wis.

Gundersen Health System is seeking a BC/BE physician to join our outstanding Emergency Medicine department in La Crosse, Wis.

Highlights:

- 60,000 combined visits annually to UC/ER
- Work 182 eight-hour shifts annually, egalitarian style
- Level II Trauma Center, medical management of both ground and air emergency transport
- Participate in Gundersen Medical Foundation's Global Partners program, working to create sustained connections with the Oglala Sioux Tribe on the Pine Ridge Reservation in South Dakota, the Matagalpa district of Nicaragua and Yetebon, Ethiopia

Gundersen Health System is a dynamic and top-rated physician-led organization, serving residents of western Wisconsin, southeastern Minnesota, and northeastern Iowa. Employing nearly 500 physicians, we are a teaching hospital with excellent support for research. Gundersen is the first known health system in the nation to achieve offsetting 100 percent of our fossil fuel use with local renewable energy. Gundersen offers one of the best work environments in the nation, loan forgiveness, competitive salary and an impressive benefits package.

For more information:

Cathy Mooney, physician recruiter
Medical Staff Recruitment
camooney@gundersenhealth.org
(608) 775-3637
gundersenhealth.org/medcareers



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About La Crosse

- 135,000+ residents in the metropolitan area
- Countless outdoor recreation opportunities, from the bluffs to the Mississippi River
- Vibrant and historic downtown
- Many annual celebrations and festivals
- Excellent schools, including three universities
- Affordable housing in safe neighborhoods
- Endless variety of live and cultural entertainment

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ALABAMA

Mobile — ACADEMIC EMERGENCY MEDICINE POSITIONS ON THE GEORGEOUS GULF COAST

— The University of South Alabama, is seeking faculty for growing EM academic programs at both hospital ED's (level 1 University Medical Center and the Children's Hospital). Must be EM or Peds EM trained and board eligible/certified. Fellowship in PEM, EMS, education/admin or research is a plus. Opportunities to lead, initiate or contribute to new programs and services. Also recruiting for Chief, Division of Peds EM and Research Director. Applicants are invited to submit CV and letter of interest to: Edward A. Panacek, MD, MPH, Chair of Emergency Medicine, USA-COM, Mobile, AL (eapanacek@health.southalabama.edu). Further information at www.southalabama.edu/departments/academicaffairs/resources/healthsciencepositions/medicine/USA.EM.%20Recruitment_notice_2015.pdf.

ALASKA

Fairbanks — New full-time position for a BC/BE Emergency Medicine physician to join a stable, democratic group of 10 physicians. This is a hospital practice based at Fairbanks Memorial Hospital. Annual visits exceed 36,000. Fairbanks Memorial Hospital is a JCAHO accredited 159-bed hospital that is the primary referral center for the 100,000 citizens of Alaska's interior. Fairbanks is a truly unique university community with unmatched accessibility to both wilderness recreation and urban culture. We aim to strike a balance between life and medicine, offering excellent compensation and benefits with a 2-year partnership track. 10 hour shifts with excellent mid-level coverage. For additional information please contact: Michael Burton MD, President (907) 460-0902 mrb5w@hotmail.com or Art Strauss MD, Medical Director (907) 388-2470 art@ghepak.com.

CALIFORNIA

Ventura — New hospital under construction and scheduled to open in the spring of 2018 with a state-of-the-art Emergency Department. Practice with a stable ER group on the central coast of California and only 70 miles from LAX. Positions available in two facilities for BC/BE emergency physician. Main facility is a STEMI Center, Stroke Center with on-call coverage of all specialties. This is a teaching facility with residents in Family Practice, Surgery, Orthopedics and Internal Medicine. Admitting hospital teams for Medicine and Pediatrics. 24-hour OB coverage in house and a well-established NICU. Annual volume is 48K patients with nearly 70 hours of coverage daily and 12 hours of PA/NP coverage. All shifts and providers have scribe services 24/7. Affiliated hospital is a smaller rural facility 20 minutes from Ventura in Ojai. Malpractice and tail coverage is provided. New hires will work days, nights, weekends and weekdays. Come work with a well-established high caliber group with expected volume growth potential at our new facility. Enjoy the life style of a beach community yet outside the hustle of the LA area. Please send a resume to Alex Kowblansky, MD, FACEP, at kowblansky@cox.net.

FLORIDA

EMERGENCY MEDICINE PHYSICIANS BC/BE

Full-time, Part-time or Per diem Needed in Coastal Central Florida

Steward Health Care a physician-led organization is seeking Emergency Medicine physicians to join our rapidly expanding system in Eastern Florida. Steward Health Care is a fully integrated community care organization and community hospital network operating 39 hospitals in the US, across 10 states and the country of Malta. Our Emergency Medicine departments offer excellent support staff, EMR, midlevel coverage, flexible scheduling, and more. Full-time, part-time, and per diem opportunities available.

Our practices are located in beautiful beachfront communities on the East Coast of Central Florida and border seventy-two miles of white sand beaches which lie in wait of sunbathers, surfers, families, and fishermen year-round. The area is home to numerous top notch private, charter and public A-rated schools.

One of the many other advantages of living in this beautiful area is its close proximity to the area attractions and theme parks like Universal Studios, Epcot, Sea World, Islands of Adventure, Walt Disney World, Aquatica and Kennedy Space Center! Fine dining, golf, camping, fishing, water sports, outlet/mall & specialty shopping, MLB spring training, NBA team within distance and night life also a bonus!

Other Steward Florida Emergency Medicine highlights include:

- Join a large group of Emergency Medicine physicians
- Newly constructed state-of-the-art Emergency Departments
- Provides 24 x 7 x 365 quality emergency care
- One-hour drive to Orlando

If you are interested in learning more about this opportunity, or would like to apply, please contact: Dave Rezendes, Senior Physician Recruitment Specialist, Steward Health Care at 781-551-5640 or email: david.rezendes@steward.org

All inquiries will remain confidential. Steward Health Care is an equal opportunity/affirmative action employer.



Practice Emergency Medicine in Award-Winning Community of Saratoga Springs, NY



Saratoga Hospital Medical Group - Emergency Medicine

seeks Emergency Medicine physicians to join its well-regarded group in Saratoga Springs, NY. Practice at one of our two state-of-the-art facilities, a spacious, 8-year-old, 41-bed ED, with annual census of 40,000 visits, or at Malta Med Emergent Care (MMEC), a five-year-old, 24-bed advanced Urgent Care center with 36,000 annual visits, open 24 hours, located 10 miles from the hospital. We seek full-time, part-time and per diem employees. We also staff a third urgent care, Wilton Medical Arts with 33,000 annual visits.

The Saratoga Hospital Medical Group is the hospital's 160+ member multispecialty group, offering a shared-governance model of leadership.

An enhanced compensation package for BC/ BP Emergency Medicine physicians includes competitive pay; a sign-on bonus, moving expenses, and loan forgiveness/retention bonuses. Differentials: 20% nights; 10% weekend days; 30% weekend nights; and time-and-a-half holiday pay. Benefits: \$5K CME; 403 (b) Retirement Plan; family health, prescription, dental, vision, insurance waiver credit, Flexible Spending Account, Company Paid Life Insurance and Long Term Disability; \$200 YMCA discount; and more!

Saratoga is a great place to live and work, offering a variety of neighborhoods, upscale apartments, shops, eateries, and businesses. This small award-winning city is known for world-class entertainment and abundant, year-round recreational and athletic opportunities. Famous venues include Saratoga Race Course, Saratoga Performing Arts Center, Saratoga Spa State Park. Outdoor enthusiasts will love the beauty of the Adirondacks, nearby Berkshires and Green Mountains, Saratoga Lake, Lake George, waterways, and more!

View our website at www.saratogahospital.org.

Visit our community at:

<http://www.saratoga.org>

<http://discoversaratoga.org>

<https://www.iloveny.com/places-to-go/capital-saratoga>

Contact: Denise Romand, Medical Staff Recruiter,
Saratoga Hospital:
dromand@saratogahospital.org
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We are seeking a BC Emergency Medicine physician with PEM training to assist with expansion of our Pediatric ED.

We offer **partnership, Top 10% income potential** and the ability to work within both the Pediatric and Adult ED's - 72,000 total visits.

Living in Anchorage, comes with once-in-a-lifetime experiences, it's a place where young spirits and adventurous souls come to live and play.

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INDIANA

South Bend — Memorial Hospital. Very stable, Democratic, single hospital, 24-member group seeks additional Emergency Physicians. 60K visits, Level II Trauma Center, double, triple and quad physician coverage. Equal pay, schedule and vote from day one. Over 375K total package with qualified retirement plan; group health and disability insurance; medical, dental and CME reimbursement, etc. Very favorable Indiana malpractice environment. University town, low cost of living, good schools, 90 minutes to Chicago, 40 minutes to Lake Michigan. Teaching opportunities at four year medical school and with FP residency program. Contact Joseph D'Haenens MD at southbendemergency@gmail.com.

Richmond — Long standing Emergency Medicine group of 12 — recruiting 3 BE/BC residency trained EM physician. Partnership day one! Excellent compensation package including \$50K signing bonus, \$100K student loan repayment and \$10k relocation. 401(k) with match and profit sharing! Community hospital with annual volume of

48,000 emergency room visits. New 217-bed hospital featuring 33-bed ER designated as Level 3 trauma. Epic EMR, no admitting orders, and strong specialty support. Richmond is a college community of 40,000 with draw area of 150,000. Three major metro cities within one hour — Indianapolis, Dayton and Cincinnati. Family oriented community with relaxed lifestyle and excellent schools. Outdoor Recreational activities abound. Great place to live and practice medicine. Contact Amy Powell, Recruiter, Reid Health, PhysicianRecruitment@ReidHealth.org or 765-983-3104.

MASSACHUSETTS

EMERGENCY MEDICINE — GREATER BOSTON

Steward Health Care is seeking Emergency Medicine physicians to join our rapidly expanding system. Full and part-time opportunities are available throughout Eastern Massachusetts. Full-time, part-time or per diem opportunities are available for qualified candidates. Must Be Board Certified/Board Eligible in Emergency Medicine.

Steward Health Care System Emergency Medicine highlights:

- Locations in and around Boston
- More than 90 Emergency Medicine physicians
- Provides quality care to 400,000 patients annually
- Recently opened 4 newly constructed Emergency Departments
- 3 of our EDs have resident rotations, including 2 with Emergency Medicine

Benefits of joining the Steward physician-governed dedicated EM group:

- Competitive compensation package
- Attractive year-end incentive bonus
- Comprehensive benefits package
- 401K and deferred compensation
- And more!

Steward Health Care, the largest private hospital operator in the United States, is a physician-led health care services organization committed to



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Academic and Community Openings for BE/BC Emergency Physicians

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 - Stroke centers & STEMI programs
 - Ultrasound programs with bedside US machines
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Tower Health is seeking Emergency Medicine physicians across its six acute-care hospitals to help serve a population of more than 2.5 million with comprehensive services and technology!



Spotlight: Reading Hospital in West Reading, PA

- #1 Busiest Emergency Department in Pennsylvania
- #8 Busiest Emergency Department in the US in 2017
- Over 50 physicians treating 135,000+ patients annually
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The Reading Hospital Emergency Medicine Residency

With 120 ED beds, Reading Hospital's EM residents practice in an outstanding clinical environment with a large variation of patient conditions and populations. The curriculum has been designed to expose residents to a multitude of experiences throughout their training to ensure they're equipped to practice Emergency Medicine in any setting. **Energetic and forward-thinking residents are sought to join our team!**

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providing the highest quality of care in the communities where patients live. Steward operates 39 community hospitals in the United States and the country of Malta, that regularly receive top awards for quality and safety.

For additional information, please contact: Catrina Morgan, Physician Recruitment Specialist, E: Catrina.Morgan@Steward.org P: 781-551-5629.

OHIO

EMERGENCY MEDICINE PHYSICIANS BC/BE

Full-time, Part-time or Per diem Needed in Northeast OH

Steward Medical Group is seeking BC/BE Emergency Medicine Physicians to join its team in northeast Ohio. Full-time, part-time or per diem opportunities are available for qualified candidates. Serving patients in the Mahoning Valley, you will join a group of providers offering world-class, patient-centered care.

Our Emergency Medicine highlights include:

- Newly constructed Emergency Department in July 2014
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Benefits of joining our physician-governed EM group include:

- Competitive Salary
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Steward Health Care, the largest for-profit private hospital operator in the United States, is a physician-led health care services organization committed to providing the highest quality of care in the communities where patients live. Steward operates 39 community hospitals in the United States and the country of Malta, that regularly receive top awards for quality and safety.

If you are interested in learning more about this opportunity, or would like to apply, please contact: Dave Rezendes, Senior Physician Recruitment Specialist, Steward Health Care at 781-551-5640 or email: david.rezendes@steward.org

All inquiries will remain confidential. Steward Health Care is an equal opportunity/affirmative action employer.

OREGON

Salem — Outstanding BC/BE EM physician partnership opportunity at Salem Health Emergency Department (SEPS). Well-established, independent, democratic group with 37 physicians and 6 APPs who staff 110K annual visit, Level II trauma center, with excellent specialty backup. Competitive pay and benefits including scribes, flexible scheduling, malpractice, 401k, and more. We structure our practice to minimize turnover through maximizing work-life balance. We love living in Salem, the heart of Oregon wine country, as it is convenient to the bounty of Oregon's recreational opportunities, and is a safe and affordable community. See what we're about at sepspc.com, then send your CV, cover letter, and a recent photo to sepspc@salemhealth.org or call us at 503-814-1278.

TEXAS

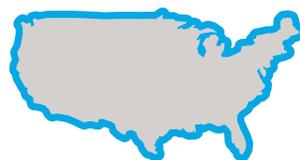


Leading Edge Medical Associates is a one-of-a-kind, private, independent group of all board-certified EM physicians in northeast Texas, offering a full range of clinical opportunities in EM. Our physicians enjoy shifts in a tertiary care trauma center as well as in nearby, lower volume clinical settings, all with high compensation and excellent full benefits. We are known for innovation in the industry and for developing strong EM leaders through LEMA's Leadership Development Institute. Almost half our physicians are former chief residents. LEMA is unique in its ability to offer physicians the best of both worlds, hospital-based and freestanding, academic and community medicine. LEMA is a group of exemplary physicians who work together as a team, value each member's input, and have a level of integrity, honesty, and trust that makes this innovative group truly one-of-a-kind. Interested in joining Texas's premier private group? Contact: **SUZEE MEEK, MD, CAREERS@LEMA-EM.COM**

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EMERGENCY MEDICINE



University of
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UMASS Medical School

Emergency Medicine Fellowship Opportunities

The UMass Medical School Department of Emergency Medicine invites qualified candidates to consider our fellowship training opportunities. Nationally-renowned fellowship directors and faculty oversee intensive, focused curricula that prepare fellows to assume leadership roles in their chosen areas. Our department's nationally-recognized track record in leadership, clinical care, education, and research, coupled with a strong stature within our medical school and 5-hospital health system, as well as the opportunity for pursuing UMass master's-degree education when applicable, makes our institution an ideal place to gain exceptional sub-specialty expertise and launch highly successful careers.

Our fellowship opportunities include:

- Administration/Leadership
- Disaster Medicine (may be taken in sequence with EMS)
- Emergency Medical Services (may be taken in sequence with disaster medicine)
- Emergency Ultrasound
- International EM & Global Health
- Medical Toxicology
- Research (PhDs also considered)

In addition to superior training, our location in the heart of New England offers affordability with easy access to activities to satisfy all interests and lifestyles. Worcester, the second largest city in New England, has excellent museums and restaurants and hosts several minor-league sports teams. The amenities of Boston are only 40 minutes away, and world-class outdoor activities are either right outside your door or easily reached in 1-2 hours.

Fellows will assume limited clinical responsibilities at one or more of our Emergency Departments. Prior to starting, fellows must have completed an ACGME-accredited EM residency program, must be EM board-certified or eligible, and must be eligible for full medical licensure in the Commonwealth of Massachusetts.

For more information, please refer to our web site:

umassmed.edu/emed and contact our Fellowship Coordinator, Jeffrey Abbott at jeffrey.abbott@umassmed.edu, (508) 421-5522



**Weill Cornell
Medicine**

New York-Presbyterian

EMERGENCY MEDICINE FACULTY

Weill Cornell Medicine's new academic Department of Emergency Medicine, led by Dr. Rahul Sharma, is seeking motivated full-time residency-trained academic Emergency Medicine faculty. We are seeking candidates to join a diverse enthusiastic group of academic Emergency Physicians at one of the premier academic medical centers in the nation.

For the 2017-18 period, New York Presbyterian Hospital ranked No. 8 in the nation and No. 1 in the New York Metropolitan area US News & World Report Best Hospitals rankings.

The Emergency Department at New York Presbyterian-Weill Cornell Medical Center serves as one of the major campuses of the fully accredited four-year New York Presbyterian Emergency Medicine Residency Program. Our Emergency Department is a high volume, high acuity regional trauma, burn and stroke center caring for more than 90,000 adult and pediatric patients. Several faculty also have the opportunity to work at our New York Presbyterian-Lower Manhattan Hospital ED campus, is a busy community hospital seeing 45,000 annual visits.

We offer programs in Medical Toxicology, Geriatric Emergency Medicine, Wilderness Medicine, Global Emergency Medicine, Simulation and Ultrasound. We have dedicated medical scribes and have implemented several innovative initiatives focusing on telehealth, education, improving operational efficiency and the patient experience.

We offer a highly competitive salary, a comprehensive benefits package, and a generous retirement plan. Academic appointment at Weill Cornell Medicine and salary will be commensurate with experience.

New York Presbyterian Hospital-Weill Cornell Medicine is an equal opportunity employer-Minorities/Women/Vets/Disabled encouraged to apply.

**Please send curriculum vitae
and cover letter to:**

Rahul Sharma, MD, MBA,
CPE, FACEP

Chairman of Emergency Medicine
ras2022@med.cornell.edu

New York Presbyterian Hospital-Weill Cornell Medicine is an equal opportunity employer-Minorities/Women/Vets/Disabled encouraged to apply.



**Weill Cornell
Medicine**

New York-Presbyterian

EMERGENCY MEDICINE RESEARCH FACULTY

Weill Cornell Medicine's new academic Department of Emergency Medicine, led by Dr. Rahul Sharma, seeks Clinician Research faculty to join the Department at the Assistant, Associate or Professor level on the Investigation Pathway. The successful candidate should have the requisite experience and training to continue a successful research career, and have a strong record of scholarship with national recognition in clinical, translational, biomedical, or health services research. Of particular interest are candidates who have experience with varied funding mechanisms. Faculty rank will be determined by the qualifications and experience of the successful candidate.

We are particularly interested in candidates who have expertise and a track record of funding in Healthcare Innovation, Technology Development, Informatics, EMS, Global EM, Wilderness Medicine, Pediatric EM, Medical Education, Resuscitation Medicine, and Simulation.

We offer a highly competitive salary, a generous support package to ensure the candidates transition and continued success, a comprehensive benefits package, and a generous retirement plan. Research infrastructure needed for success is already present within the Department, including research coordinators, a Research Associate Program, statistical support, and administrative support.

In addition to providing excellent care, and teaching house staff and medical students, the new clinician researcher will mentor junior colleagues, engage in the training mission of the department, and create collaborations throughout the medical center. He or she is expected to focus on creating new knowledge, securing extramural research funding, producing scholarly output, and engaging in the educational component of our program as it relates to research.

The Emergency Department at New York Presbyterian-Weill Cornell Medical Center serves as one of the major campuses of the fully accredited four-year New York Presbyterian Emergency Medicine Residency Program. Our Emergency Department is a high volume, high acuity regional trauma, burn and stroke center caring for more than 90,000 adult and pediatric patients. Faculty also have the opportunity to work at our New York Presbyterian-Lower Manhattan Hospital ED campus, which is a busy community hospital seeing 45,000 annual visits.

We offer programs in Medical Toxicology, Geriatric Emergency Medicine, Wilderness Medicine, Global Emergency Medicine, Simulation and Ultrasound. In addition, we offer fellowships in Geriatric Emergency Medicine, Healthcare Leadership and Management, Pediatric Emergency Medicine as well as PA and NP residencies in Emergency Medicine.

**Please send curriculum vitae
and cover letter to:**

Sunday Clark, ScD, MPH
Chair of Search Committee
Weill Cornell Medicine
suc2010@med.cornell.edu

New York Presbyterian Hospital-Weill Cornell Medicine is an equal opportunity employer-Minorities/Women/Vets/Disabled encouraged to apply.



**Department of Emergency Medicine
Fellowship Opportunities**

The Department of Emergency Medicine at University Hospitals Cleveland Medical Center is currently seeking ABEM/ABOEM certified or eligible physicians for the following fellowships in July 2018:

- **Global Emergency Medicine Fellowship**
Program Director: Dr. Justin Yax
- **Ultrasound Fellowship**
Program Director: Dr. Vicki Noble
- **Administrative Fellowship**
Program Director: Dr. Christopher Miller
- **EMS Fellowship (ACGME-Accredited)**
Program Director: Dr. Jeffrey Luk

University Hospitals Cleveland Medical Center (UHCMC) is a 1,032-bed Magnet facility on the campus of Case Western Reserve University (CWRU) located in the cultural heart of Cleveland: University Circle. UHCMC is a verified Level I Adult Trauma Center, Comprehensive Stroke Center, and STEMI Center. The Department of Emergency Medicine hosts a three-year emergency medicine residency training program with 10 residents/year. UHCMC also includes Rainbow Babies and Children's Hospital, which is a verified Level I Pediatric Trauma Center. UHCMC is a teaching affiliate of the CWRU School of Medicine.

Visit our website to learn more:
<https://www.uhdoctor.org/center-for-emergency-medicine>

Salary and academic rank will be commensurate with accomplishments and experience.

Qualified candidates should email a letter of interest to the appropriate fellowship director c/o Ms. Dildred Houston, Education and Practice Coordinator, Department of Emergency Medicine, at Dildred.Houston@UHhospitals.org

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- Regional referral center and Trauma center
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- **Competitive compensation** and benefits package, including productivity option and relocation

Berkshire Medical Center, BHS's 302-bed community teaching hospital and Trauma Center, is the region's leading provider of comprehensive healthcare services.

Interested candidates are invited to contact:
Shelly Sweet, Physician Recruitment Specialist
msweet@bhsf.org or
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Physicians interested in stability and lifestyle wanting to join a group dedicated to providing top-notch EM services at our Vineland Medical Center, Elmer Medical Center, and Bridgeton SED.

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Emergency Medicine, Inspira Health Network, 856-641-7733; e-mail matthew.warner@ihn.org



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Emergency medicine physician opportunities at Geisinger

Geisinger, a national leader in healthcare innovation and technology, is seeking BC/BE Emergency Medicine trained physicians for opportunities throughout central, south central and northeast Pennsylvania.

Join Geisinger's growing team of Emergency Medicine staff physicians in practicing state-of-the-art medicine in one, or a variety of settings.

With Geisinger, you can take advantage of:

- Competitive compensation package
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Locations throughout PA include:

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Bloomsburg
- Geisinger Wyoming Valley Medical Center (GWV)
Wilkes-Barre
- Geisinger South Wilkes-Barre (GSWB)
Wilkes-Barre
- Geisinger Holy Spirit (GHS)
Camp Hill
- Geisinger Shamokin Area Community Hospital (GSACH)
Coal Township

Geisinger is nationally recognized for our innovative practices and quality care. A mature electronic health record connects a comprehensive network of 13 hospital campuses, two research centers and nearly 1,600 Geisinger primary and specialty care physicians.

For more information, visit geisinger.org/careers or contact Miranda Grace, Talent Management, at 717-899-0131 or mlgrace@geisinger.edu

Geisinger



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HIRING Emergency Medicine Physicians

Kettering Health Network is seeking a BC/BE Emergency Medicine physician to join a highly regarded, regional private group located in **Dayton, OH.**

- Strong group of 70+ physicians and advanced practice providers
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- Trauma Level II and III options
- Competitive salary, generous benefits package
- Sign-on bonus up to \$40,000 matched by group and hospital
- Epic EMR utilized across the network
- Warmth and charm of the Midwest

Site visits are being scheduled now!

Contact Cindy Corson
Physician Recruitment Manager
cindy.corson@ketteringhealth.org
(937) 558-3475 (office)
(503) 201-8588 (cell)



CAPE REGIONAL CAPE EMERGENCY PHYSICIANS Emergency Medicine Physicians

Cape Emergency Physicians is a small independent emergency medicine physician owned and operated practice that has been staffing **Cape Regional Medical Center** for over 20 years. It is a small community based hospital in Cape May County New Jersey with approximately 45k visits per year. The hospital is just minutes away from the beautiful beaches of Stone Harbor, Avalon and Cape May.

We are seeking BC/BE emergency medicine physicians for FT, PT, or per diem positions.

- Competitive hourly rates of \$175/200/225 per hour
- Sign on bonus
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- Generous benefit package
- Profit sharing and 401K
- CME allowance,
- 10 hour shifts
- Allscripts EMR
- 11 bed acute care, 9 bed sub acute care, 9 bed fast track and 5 bed behavior health unit

If interested, please reply to Laura Ashley at staffing@urgentcarephysicians.org with your contact information and CV.



{ Job Opportunities }

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PEDIATRIC EMERGENCY MEDICINE LEADERSHIP OPPORTUNITIES

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EMERGENCY MEDICINE RESEARCHER POSITIONS



The Emergency Medicine Department at Penn State Health Milton S. Hershey Medical Center seeks energetic, highly motivated and talented physicians to join our Penn State Hershey family. Opportunities exist in both teaching and community hospital sites. This is an excellent opportunity from both an academic and a clinical perspective. As one of Pennsylvania's busiest Emergency Departments treating over 75,000 patients annually, Hershey Medical Center is a Magnet® healthcare organization and the only Level 1 Adult and Level 1 Pediatric Trauma Center in PA with state-of-the-art resuscitation/trauma bays, incorporated Pediatric Emergency Department and Observation Unit, along with our Life Lion Flight Critical Care and Ground EMS Division. We offer salaries commensurate with qualifications, sign-on bonus, relocation assistance, physician incentive program and a CME allowance. Our comprehensive benefit package includes health insurance, education assistance, retirement options, on-campus fitness center, day care, credit union and so much more! For your health, Hershey Medical Center is a smoke-free campus. Applicants must have graduated from an accredited Emergency Medicine Residency Program and be board eligible or board certified by ABEM or AOBEM. We seek candidates with strong interpersonal skills and the ability to work collaboratively within diverse academic and clinical environments. Observation experience is a plus.

FOR ADDITIONAL INFORMATION, PLEASE CONTACT:



Susan B. Promes, Professor and Chair, Department of Emergency Medicine, c/o Heather Peffley, Physician Recruiter, Penn State Health Milton S. Hershey Medical Center, 500 University Drive, PO Box 855 Mail Code A595, Hershey PA 17033, Email: hpeffley@pennstatehealth.psu.edu
OR apply online at: <http://hmc.pennstatehealth.org/careers/physicians>



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One thing sets North Shore Medical Center apart—our team based model of care which is founded on the principle that physicians, nurses, and other care providers working together will provide higher quality and a better patient experience. Today, that team focus drives our providers to be leaders of quality of care, patient safety and process improvement initiatives throughout NSMC.

While practicing as an Emergency Medicine physician at NSMC you will enjoy:

- working at one of the top hospitals in Boston with a new Emergency Department opening in October 2019
- the benefits of NSMC's membership in the Partners Healthcare System, founded by Massachusetts General Hospital and Brigham and Women's Hospital
- our combined annual adult ED volume of 80,000 visits provides an array of pathology with a fast track and PA program in place and excellent multispecialty back up
- a culture focused on communication, growth, and work/life balance
- excellent compensation and comprehensive fringe benefits
- being an active contributor to quality of care, patient safety and process improvement initiatives

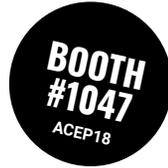
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Interested candidates should send their CV to: Louis Caligiuri, Director of Physician Services at lcaligiuri@partners.org



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Since 1972, Emergency Physicians of Tidewater has delivered emergency care to Southeastern Virginia EDs. Our seven locations allow our physicians to choose a location based on patient acuity, ED flow, resident coverage, & trauma designation. EPT employees enjoy the coastal living in Virginia Beach & Norfolk as well as the perks of having plenty US history, quaint towns, and mountains just a short drive away.



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EMERGENCY MEDICINE OPPORTUNITIES



Baystate Health



University of Massachusetts Medical School

Baystate Health is western Massachusetts's premier healthcare provider and home to the prestigious University of Massachusetts Medical School - Baystate. The cornerstone of our organization is Baystate Medical Center, a 716-bed tertiary care hospital that boasts the state's single busiest emergency department and the region's only Level-I trauma center. With 4 community hospitals, Baystate Children's Hospital and Baystate Primary Care Medical Practices, we offer an amazing, diverse culture that provides outstanding opportunities for physicians and advanced practice providers to start or advance their career.

Emergency Medicine Opportunities:

- ASSOCIATE REGIONAL EMS MEDICAL DIRECTOR
- EMERGENCY MEDICINE PHYSICIAN - Baystate Medical Center, Springfield
- EMERGENCY MEDICINE PHYSICIAN - Baystate Eastern Region/Community Medicine

The Pioneer Valley is a thriving area located in western Massachusetts and provides extensive access to urban, suburban and rural amenities. Anchored by the city of Springfield, our region boasts a myriad of opportunities for recreation, music, education and art enthusiasts. When you live and work in the Pioneer Valley, you will enjoy picturesque four-season living, excellent schools and year-round social and cultural events. In fact, Massachusetts was once again ranked #1 in Education nationally by [U.S. News and World Report](#).



For more information please visit us online at: choosebaystatehealth.org or interact with us socially at facebook.com/BaystateCareers or on [Twitter @BaystateCareers](https://twitter.com/BaystateCareers).

All correspondence can be directed to: Niels Rathlev, MD c/o Kristin Richard, Senior Physician Recruiter
Telephone: 413.794.7847 • Fax: 413.794.5059 • Email: Kristin.Richard@BaystateHealth.org

Baystate Health is an Equal Opportunity employer. All qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, marital status, national origin, ancestry, age, genetic information, disability, or protected veteran status.

Exciting Emergency Medicine Opportunities with Steward Health Care!

STEWARD HEALTH CARE, the largest private hospital operator in the United States, is a physician-led health care services organization committed to providing the highest quality of care in the communities where patients live.

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Carney Hospital, Dorchester, MA
 Good Samaritan Medical Center, Brockton, MA
 Holy Family Hospital, Haverhill & Methuen, MA
 Norwood Hospital, Norwood, MA
 Morton Hospital, Taunton, MA
 Saint Anne's Hospital, Fall River, MA
 St. Elizabeth's Medical Center, Brighton, MA

OHIO

Hillside Rehabilitation Center, Warren, OH
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Easton Hospital, Easton, PA
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For more information please contact:
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 O:781-551-5629 | C:781-635-9703
 Email: Catrina.Morgan@Steward.org

Steward



The Emergency Group, Inc.

Honolulu, Hawaii

The Emergency Group, Inc. (TEG) is a growing, independent, democratic group that has been providing emergency services at The Queen's Medical Center (QMC) in Honolulu, Hawaii since 1973. QMC is the largest and only Level 1 Trauma Center in the state and cares for more than 65,000 ED patients per year. QMC opened an additional medical center in the community of West Oahu in 2014, which currently sees 60,000 ED patients annually.

Due to the vastly growing community in the West Oahu area, TEG is actively recruiting for EM Physicians BC/BE, EM physicians with Pediatric Fellowship who are BE/BC and an Ultrasound Director. Physicians will be credentialed at both facilities and will work the majority of the shifts at the West Oahu facility in Ewa Beach, Hawaii.

We offer competitive compensation, benefits and an opportunity to share in the ownership and profits of the company. Our physicians enjoy working in QMC's excellent facilities and experience the wonderful surroundings of living in Hawaii.

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- Northwest Texas Healthcare System - Amarillo, Texas
- Northwest Emergency at Town Square - Amarillo, Texas
- Comanche County Memorial Hospital - Lawton, Oklahoma
- Wellington Regional Medical Center - Wellington, Florida

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Tufts Medical Center

BOSTON EMERGENCY MEDICINE OPPORTUNITY

The Department of Emergency Medicine at Tufts Medical Center, the principal teaching hospital for Tufts University School of Medicine in Boston, is seeking an ABEM/AOBEM BP/BC Emergency Physician to join our dynamic, independent group of residency trained, board certified emergency physicians. The Department currently offers a variety of clinical and educational programs with emphasis on resident and medical student education. Research opportunities within the Tufts Clinical and Translational Science Institute abound. Personal growth is guaranteed.

At Tufts Medical Center you will experience the following:

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- Students and Residents who will stimulate you
- Colleagues and Nursing Staff who you will enjoy working with side by side
- An excellent compensation package

Please contact or forward CV to:
Brien A. Barnewolt, M.D., F.A.C.E.P.
Phone: 617-636-4721
Email: bbarnewolt@tuftsmedicalcenter.org

Emergency Medicine & Toxicology Faculty

Rutgers Robert Wood Johnson Medical School

The Department of Emergency Medicine at Rutgers Robert Wood Johnson Medical School, one of the nation's leading comprehensive medical schools, is currently recruiting Emergency Physicians and Medical Toxicologists to join our growing academic faculty.

Robert Wood Johnson Medical School and its principal teaching affiliate, Robert Wood Johnson University Hospital, comprise New Jersey's premier academic medical center. A 580-bed, Level 1 Trauma Center and New Jersey's only Level 2 Pediatric Trauma Center, Robert Wood Johnson University Hospital has an annual ED census of greater than 90,000 visits.

The department has a well-established, three-year residency program and an Emergency Ultrasound fellowship. The department is seeking physicians who can contribute to our clinical, education and research missions.

Qualified candidates must be ABEM/ABOEM certified/eligible. Salary and benefits are competitive and commensurate with experience. Sub specialty training is desired but not necessary.

For consideration, please send a letter of intent and a curriculum vitae to:

Robert Eisenstein, MD, Chair, Department of Emergency Medicine
Rutgers Robert Wood Johnson Medical School
1 Robert Wood Johnson Place, MEB 104, New Brunswick, NJ 08901
Email: Robert.Eisenstein@rutgers.edu
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SEEKING EMERGENCY DEPARTMENT PHYSICIANS

The busiest ED in North Carolina, and one of the top 15 busiest in the nation, treats 95k adult and 35k pediatric cases annually in its 92 beds. We are currently seeking residency trained BC/BE emergency physicians to work in the 75 bed adult ED. This ED serves a high acuity patient population with 28% annual admission rate. There are over 90 hours of adult physician coverage daily and over 110 hours mid-level coverage daily. It is a Level III Trauma Center with robust hospitalist service, interventional cardiology 24/7, cardiac surgery, neurosurgery, etc. The facility is Chest Pain and Stroke accredited. The EMS system is hospital owned and managed with an award winning paramedic program. Of note, the Pediatric ED is separate and has 17 dedicated beds with an additional 24 hours of physician coverage and 20 hours of mid-level coverage. We welcomed our inaugural class of Emergency Medicine Residents in July 2017. Opportunities exist for both clinical and academic emergency physicians.



EXPECTING TO BE EXCITED AND CHALLENGED?

Come join our team today!

TOP TIER COMPENSATION

The cash compensation package is valued at over \$250/hour, including evening, night, and holiday differentials, as well as a quarterly incentive bonus. We offer a generous sign-on bonus plus moving stipend. The comprehensive benefits package includes Malpractice Insurance Paid; CME Time and Allowance; 403(b) match and 457(b); and health, dental, and other desirable benefits.

THE AREA

Cape Fear Valley Health is located in the thriving and diverse community of Fayetteville, NC which consists of more than 319,000 residents. Fayetteville has received the prestigious All-America City Award three times from the National Civic League.

Known for its many golf courses (Pinehurst is located only 30 minutes away), our central location provides easy access to beautiful beaches to our east and to the majestic Blue Ridge Mountains to our west. Our mild climate, low cost of living, and patriotic spirit makes our location ideal for rising healthcare professionals and families.

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AT ACEP18!**



CAPE FEAR VALLEY HEALTH

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at 910-615-1888

or adowl@capefearvalley.com for additional information.



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Emergency Medicine Administrative/ Leadership Fellowship

The UMass Department of Emergency Medicine is actively recruiting qualified candidates for our Richard V. Aghababian Emergency Medicine Administrative/Leadership Fellowship.

The mission of our fellowship is to train emergency physicians with key leadership and administrative skills to excel as leaders in the delivery of high quality and efficient healthcare, and our program has a track record of placing fellows into EM administrative positions upon graduation.

Fellows have access to extensive resources both within the UMass Medical School as well as the university in general, highlighted by the MBA program at the Isenberg School of Management. The affiliated clinical institution, UMass Memorial Health System, is the dominant, healthcare entity in central Massachusetts with multiple, diverse hospitals and out-pt facilities. A particular strength of our department is that our leadership and faculty are active in multiple leadership positions within the medical school, health system, as well as regional, state and national professional organizations. This affords the fellows exposure to management and leadership learning opportunities well beyond ED operations.

In addition to superior training, our location in the heart of New England offers affordability with easy access to activities to satisfy all interests and lifestyles. Worcester, the second largest city in New England, has excellent museums and restaurants and hosts several minor-league sports teams. The amenities of Boston are only 40 minutes away, and world-class outdoor activities are either right outside your door or easily reached in 1-2 hours.

Fellows will assume limited clinical responsibilities at one or more of our Emergency Departments. Prior to starting, fellows must have completed an ACGME-accredited EM residency program, must be EM board-certified or eligible, and must be eligible for full medical licensure in the Commonwealth of Massachusetts.

For more information, please refer to our website:
umassmed.edu/emed and contact our Fellowship Coordinator,
Jeffrey Abbott at jeffrey.abbott@umassmed.edu, (508) 421-5522.



ST. BARNABAS HOSPITAL DEPARTMENT OF EMERGENCY MEDICINE

FELLOWSHIP IN SOCIAL EMERGENCY MEDICINE

A one-year fellowship designed to train and educate the fellow in the field of Social Emergency Medicine. The fellowship will emphasize research and innovation around focused and systemic interventions promoting health equity along with operational, policy and legislative interventions.

CORE FACULTY POSITIONS

We seek EM faculty dedicated to advancing the specialty and practice of emergency medicine, and contributing to our missions of clinical, educational and research excellence.

St. Barnabas Hospital is a 461-bed safety-net hospital in the Bronx. St. Barnabas Hospital is the principal teaching affiliate of CUNY's School of Medicine, and is also affiliated with Albert Einstein and NYCOM. Our ED provides critical emergency care to over 90,000 patients/year and we are home to a well-established four year EM residency program.

For more information, please contact:
Daniel G. Murphy, MD, MBA, ED Chair
dmurphy@sbhny.org, 718.960.6103

EMERGENCY PHYSICIANS of St. Petersburg, PA

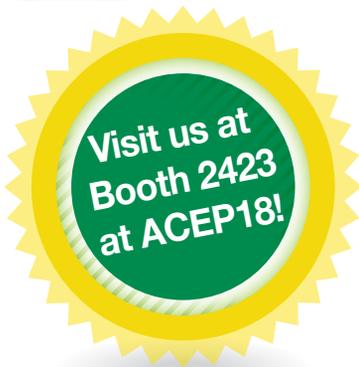
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Seeking Fulltime BC/BE Emergency Physicians
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We offer a comprehensive benefit package including health, dental, vision, LTC, CME allowance, 401K, profit-sharing, along with a partnership track.
Requirements: residency trained, ACLS, ATLS and PALS certified.

For more information, contact
the Emergency Physicians of St. Petersburg, PA at
(727)-553-7300, fax (727)-553-7395
or email: aaepsp360@gmail.com
Our web site is EpspBayfront.com

Health System



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- **Medical Observation Unit with 16 beds**
- **Pediatric ED with 16 beds**
- **Community hospital ED with 21 beds**

EXCELLENT COMPENSATION PACKAGE!

- **Competitive salary with RVU-based incentives, CME, paid vacation, health/life/malpractice, 401k**

Huntsville Hospital is looking for additional coverage for our progressive Emergency Department. We see approximately 150,000 patient visits per year across our 4 different units (Level I Trauma Center, Medical Observation Unit, Pediatric ED at Children's hospital, community hospital in Madison - plus an OB ED staffed by our OBGYN Hospitalist team. Our physicians work an average of 14-15 shifts per month (9-10 hours per shift), allowing for an excellent work/life balance. Teaching opportunities with 3rd/4th year medical students from UAB and Family Medicine and Internal Medicine residents at UAB-Huntsville rotate through our ED.

Qualified candidates include: Emergency Medicine and Family Medicine physicians. Huntsville Hospital is a Level I Trauma Center and the Regional Referral Center for North Alabama and Southern Tennessee. Huntsville Hospital is Alabama's only Top 50 Heart Hospital by Truven Health Analytics and one of America's 50 Best Cardiac Surgery Programs by HealthGrades.

Huntsville is situated in the fastest growing major metropolitan area of Alabama, and with the highest per-capita income in the Southeast, Huntsville is the best place to live, learn, and work. We are a community on the move, rich with values and creative talents. These unique characteristics will certainly provide a place for you and your family to flourish. With a population of 385K, we are a high-tech, family-oriented, multicultural community with excellent schools, dining, and entertainment - all nestled in the foothills of the beautiful Appalachian Mountains.

**For further information, please contact Suzanne LeCroix
at (256) 265-9639 or suzanne.lecroix@hhsys.org**

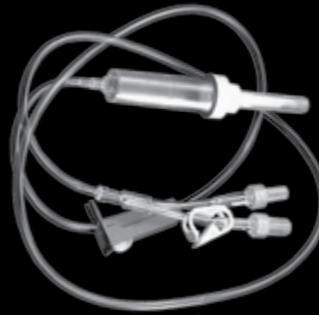


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Board Certified/Eligible Physicians

OakCare Medical Group is seeking qualified emergency medicine physicians to provide coverage at San Leandro and/or Alameda hospitals on a part-time or full-time basis. Day, swing, and evening shifts are available. The combined census is 55,000 with specialty care and level 1 trauma center Highland Hospital nearby for collaboration and support. There may be an opportunity to combine these shifts with additional shifts at Highland hospital for those interested and could potentially include limited teaching opportunities. Come join us in creating the highest quality care for our patients and our community. Indications of interest along with your CV should be sent to Tamika Walker at hr@oakcaremedical.com.



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510-645-1179

For More Information:
Barry Simon, M.D.
Chair, Emergency Medicine
bsimon@alamedahealthsystem.com

RUTGERS

New Jersey Medical School

Academic Emergency Physician Rutgers New Jersey Medical School, Newark, NJ

The Department of Emergency Medicine at Rutgers New Jersey Medical School in Newark, NJ, is recruiting highly qualified, full-time BC/BE Emergency Medicine Faculty at the Assistant or Associate Professor level.

Join a diverse, enthusiastic faculty of academic Emergency Physicians in an expanding and dynamic department committed to scholarship, education, research, and outstanding clinical care. Clinical services are provided at University Hospital in Newark, NJ, a Level I trauma center.

Optimal candidates will have a desire for clinical, academic, or administrative excellence. Subspecialty of other training desired, but anyone with clinical and academic aspirations is strongly encouraged to begin or enhance your career at Rutgers NJMS. The salaries are competitive, the institutions and leadership are very supportive, and the patient population is highly in need of quality healthcare.

Live nearby in beautiful suburban or urban New Jersey or within a short commute from New York City. The medical school is blocks from the New Jersey Institute of Technology and the Rutgers Newark Campus, as well as the rejuvenating downtown Newark area, and is close to Newark Liberty Airport and Newark Penn Station Amtrak.

For more information or to submit a CV/cover letter please contact:

Lewis S. Nelson, MD
Chair, Department of Emergency Medicine
185 South Orange Avenue, MSB 609
Newark, NJ 07103 E-609
Email: Lewis.Nelson@njms.rutgers.edu

Rutgers University is an AA/EEO employer. All applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, citizenship, disability or protected veteran status.

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Amanda L. Klausung, AASPR, Physician Recruiter

Email: ProviderJobs@emhs.org

Phone: (207) 973-5358



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In confidence contact: Mark Ariano, Director
203.295.8310 (D) • 203.451.1247 (M) • mariano@teedco.com



NewYork-Presbyterian

Emergency Medicine Physicians – Full-Time/Part-Time/Per Diem

The **NewYork-Presbyterian/Lawrence Hospital (NYP/LH)** is looking for Board Certified/Eligible Emergency Medicine Physicians to join our team in Westchester County, New York.

AMAZING THINGS ARE HAPPENING HERE

Opportunities are available at NewYork-Presbyterian/Lawrence Hospital (NYP/LH), a 288-bed hospital which has provided superior healthcare to the residents of **Southern Westchester County** and the surrounding communities since 1909. NYP/LH is a designated New York State Stroke Center and is known for excellence in Breast Imaging, Bariatric Surgery, Cardiology and Oncology. NYP/LH provides emergency care to approximately 45,000 individuals/year.

Highlights about our Emergency Medicine Department include the following:

- Provide service to Adults and Pediatrics (15-20% peds)
- Fast Track
- Double coverage
- Full-time, part-time and per diem opportunities available

Bronxville, New York is located in the heart of Southern Westchester County. This area is conveniently located to many main thoroughfares, as well as easy access from NYC via Metro North from Grand Central Terminal. This beautiful suburban neighborhood, with access to the great outdoors and city life, makes it a wonderful place to live and work.

NewYork-Presbyterian Medical Groups is part of the physician division of NewYork-Presbyterian, one of the nation's most comprehensive academic health care delivery systems. NewYork-Presbyterian is affiliated with two renowned medical schools, **Columbia University College of Physicians and Surgeons** and **Weill Cornell Medicine**. In collaboration with **ColumbiaDoctors** and **Weill Cornell Physicians**, NewYork-Presbyterian Medical Groups provide coordinated care delivery throughout the region and access to leading healthcare services and world-renowned specialists.

Please forward your CV to: **Laura Screeney, FASPR**, las9150@nyp.org

NewYork-Presbyterian is an equal opportunity employer.



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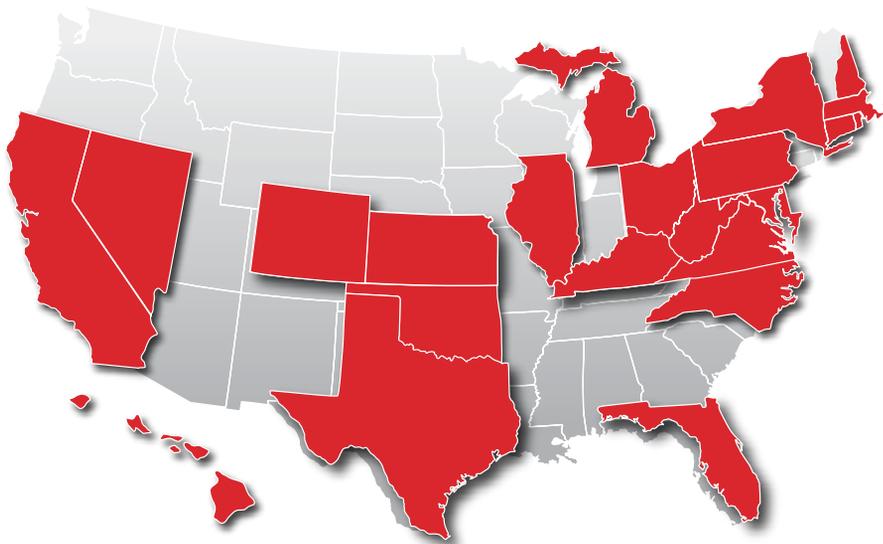
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The Sacramento VA Medical Center is looking for full-time Emergency Medicine physicians. Northern California has a lot to offer to those seeking good weather and an abundance of outdoor activities whether you prefer, beach, mountains, snow, etc. Academic appointments with UC Davis School of Medicine are available and opportunities for teaching and research abound.

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Candidate must be:

- 1) US Citizen
- 2) Board Eligible/Certified in Emergency Medicine, and
- 3) Have full, unrestricted medical license in any state.

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