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The Official Voice of Emergency Medicine

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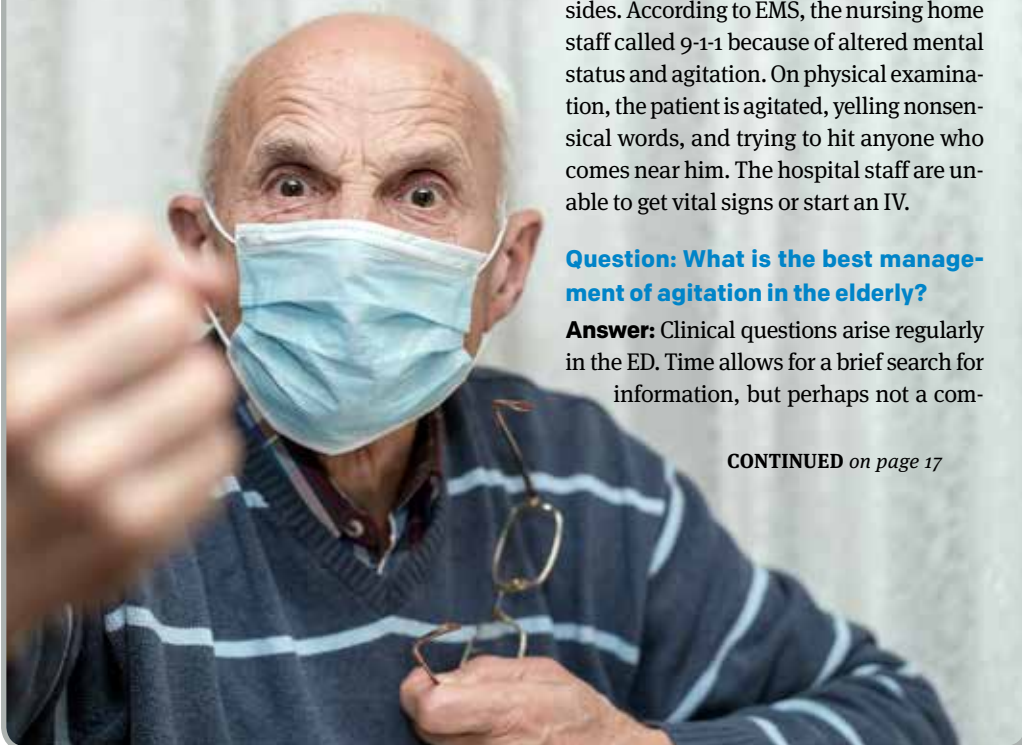
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PROBLEM SOLVERS

Management of Acute Agitation in the Elderly

Problem SolvERs is the inaugural column by ACEP Now Associate Editor Dr. Catherine Marco, answering clinical questions while working at the patient's bedside.

by CATHERINE A. MARCO, MD, FACEP



A 91-year-old man is brought to the emergency department (ED) by emergency medical services (EMS), from the nursing home where he resides. According to EMS, the nursing home staff called 9-1-1 because of altered mental status and agitation. On physical examination, the patient is agitated, yelling nonsensical words, and trying to hit anyone who comes near him. The hospital staff are unable to get vital signs or start an IV.

Question: What is the best management of agitation in the elderly?

Answer: Clinical questions arise regularly in the ED. Time allows for a brief search for information, but perhaps not a com-

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"Emergency!" A TV Series That Transformed Pre-Hospital Care, Turns 50

How fiction became a reality

by RENÉE BACHER

This year marks half a century since the 1972 debut of the television series "Emergency!" In that time, pre-hospital care has become exponentially more effective at saving lives, in part, due to the series's influence.

"The show instilled in the public's mind that paramedic programs needed educational and taxpayer support," says emergency physician Ronald D. Stewart, MD, FACEP, who served as a consultant on the series and is a professor emeritus in emergency medicine at Dalhousie University in Halifax, Nova Scotia. "When budgets came up, the thought of not funding an outreach program like a paramedic system became unacceptable to the public and any legislative body."

According to Dr. Stewart, at the time "Emergency!" made its debut, paramedic programs were in their infancy in the U.S., with only about 12 in major U.S. cities, including Los Angeles. When someone called 9-1-1 in other parts of the country at

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Pediatric Seizure and Status Epilepticus in the ED

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NEWS FROM THE COLLEGE

UPDATES AND ALERTS FROM ACEP



Registration is Open for ACEP22 in San Francisco!

Make plans to join us Oct. 1–4 for the 2022 ACEP Scientific Assembly in the beautiful Bay Area. Take this opportunity to connect with your peers at the world's largest and most prestigious emergency medicine conference. The ACEP Council Meeting is Sept. 29–30, and the ACEP22 educational programming kicks off Oct. 1. The popular featured courses are returning in 2022 with one addition to the lineup: Vonzella Bryant, MD, FACEP, will deliver the new Leon L. Haley, Jr. Lecture.

ACEP is once again offering an at-home version of ACEP22, but it will not be held concurrently with the in-person event. Those who cannot attend in San Francisco can participate in the live-streamed event *ACEP22: Unconventional* a month later, Nov. 2–4.

Save \$100 on ACEP22 registration by using promo code GOLDENCITY before Aug. 25.

Now Accepting ACEP23 Course Proposals

As we start our countdown to ACEP22 in San Francisco, we're already thinking about ACEP23 in Philadelphia! ACEP's Educational Meetings Subcommittee is now accepting course proposals for the 2023 Scientific Assembly. Learn more at acep.org/meetings-events/courseproposal.

Caring for Sickle Cell Disease in the Emergency Department

World Sickle Cell Day is June 19, and it's a good opportunity to explore new resources related to caring for sickle cell disease in the emergency department. ACEP has a point of care tool that outlines communication, triage, history, evaluation, treatment and disposition that is available at acep.org/sickle-cell or by downloading the emPOC app.

On June 16, ACEP and the CDC are partnering to host a panel discussion, "Breaking Down Barriers to ED Care for Sickle Cell Disease." Register for this free webinar at tinyurl.com/2s485829 or find it online after the fact at acep.org/olc.



Suicide Prevention Lifeline Goes Live in July

Starting July 16, 9-8-8 will be the new direct, three-digit line to trained National Suicide Prevention Lifeline counselors, opening the door for millions of Americans to seek the help they need.

When people call or text 9-8-8, they will be connected to trained counselors through the National Suicide Prevention Lifeline's network who are trained to listen and provide support. To better understand how this change affects emergency medicine, watch the on-demand webinar in ACEP's Online Learning Collaborative (acep.org/olc) featuring Emmy Betz, MD, MPH, a leading suicide prevention researcher, John Draper, PhD, Executive Director of the National Suicide Prevention Lifeline, and Tony Ng, MD, chair of the Coalition of Psychiatric Emergencies.



Award Honors Innovations in Suicide Prevention

Every year, ACEP partners with the American Foundation for Suicide Prevention to bestow the Innovation in Suicide Prevention Award. This honor recognizes promising and innovative acute care activities in the area of suicide prevention, that improve patient outcomes and improve lives of patients and/or clinicians. Nominations are being accepted through June 30.

Learn more about past winners and nominate a deserving suicide prevention initiative at www.acep.org/innovation-in-acute-care-suicide-prevention. ☺



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RESIDENCY SPOTLIGHT

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UABEM residents out to lunch for "Thank-A-Resident Day."

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We utilize a collaborative model with trauma surgery in which our residents share the responsibilities of leading traumas, resuscitating patients, and performing procedures. Our critical care experience is one of the best in the country. We have an incredibly sick patient population and catchment area, so we see the sickest of the sick on a daily basis. Residents develop early autonomy in the emergency department by leading pods and running resuscitations.

What is the work-life balance like?

We work eight-hour shifts on the weekdays and 12-hour shifts on the weekends. Time off is a major part of wellness, and our residents receive at least four weeks of vacation per year.

Our residents also participate in wellness activities as part of our mentorship group program. We do group check-ins and individual check-ins. Ultimately, we maintain a healthy work-life balance by listening to the needs of our residents and always being willing to change the things that need changing.

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—Charles A. Khoury, MD, MSHA, residency program director

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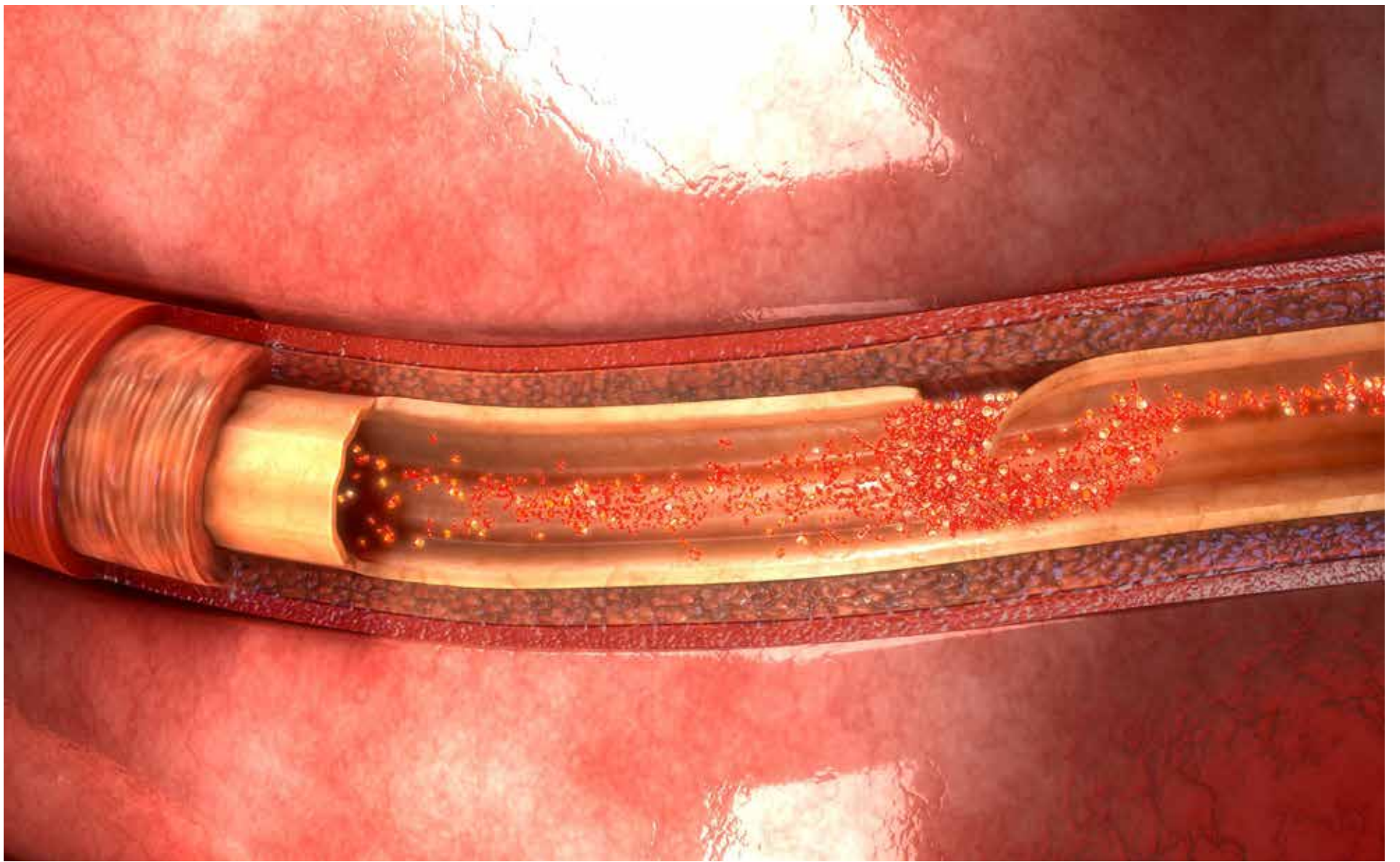
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Depiction of an arterial dissection in the neck.

Strangulation and Arterial Dissection

What to discuss with a radiologist who tries to dissuade you from performing indicated angiography

by GARY GADDIS, MD, PHD, FACEP, FIFEM; WILLIAM M. GREEN, MD, FACEP; RALPH RIVIELLO, MD, MS, FACEP; AND MICHAEL L. WEAVER, MD, FACEP, CDM

A problematic manuscript regarding the “work-up” of strangled patients, authored by Zuberi et al. and published in 2019 by the journal *Emergency Radiology*, has recently come to our attention.¹ This manuscript downplays the risks for traumatic dissection of the arteries of the neck caused by strangulations, which can lead to a cerebrovascular accident (CVA), or “stroke.” If a consultant radiologist cites the findings of Zuberi et al., while attempting to dissuade the emergency physician from obtaining indicated computed tomography angiography (CTA) or magnetic resonance angiography of the head and neck for a strangled patient, our summary could assist the emergency physician to capably refute that radiologist’s assertions and persuade them to perform the indicated testing. Our rationale centers not only upon the science of the matter, but also upon the risk for failing to meet the requirements of the Emergency Medical Treatment and Labor Act (EMTALA) statute regarding the detection and stabilization of an emergency condition.

A strangulation typically occurs when forces are applied circumferentially around or focally to the neck, often by use of the hands and/or forearms, or via a ligature.

Patients who have suffered strangulations that do not cause hyoid fractures or immediate airway compromise typically present to the emergency department (ED) for evaluation and management. (The term “choking” should be reserved for instances in which a cough or gag reflex occurs due to defective swallowing, causing temporary and/or partial blockage of the trachea.)

Emergency physicians are all too aware that many strangulations occur in the setting of domestic violence, and not all strangled patients show obvious initial signs of their injuries.^{2,3} Strangulations can acutely compromise arterial flow to or venous drainage of the brain, resulting in temporarily insufficient cerebral perfusion, which can cause unconsciousness or incontinence. Except for an acute or delayed airway emergency, the “worst-case” scenario for a patient who has been strangled and survived the attack is to have developed an intimal tear, causing an arterial dissection that can lead to a subsequent ischemic cerebrovascular accident (CVA).⁴ Such intimal tears are more likely when strangulation has involved digital compression of a carotid artery or vertebral transverse process. Tears and dissections may also follow “chokeholds” as used in martial arts and in some police-applied restraints, where sudden, forceful cervical twisting and/or stretching has occurred.

An “expert consensus” from the Training

Institute on Strangulation Prevention (TISP) exists regarding which history and physical examination findings suggest a significant risk for an arterial dissection.⁵ The 11 clinically-reasonable high risk criteria cited by the TISP include a transient loss of consciousness while being strangled, visual changes such as “flashing lights” or “tunnel vision,” intraoral, facial, or conjunctival petechiae, contusions or ligature marks to the neck, tenderness to palpation near the carotid artery, incontinence of bowel or bladder, new neurologic symptoms, dyspnea, dysphonia, odynophagia, and/or subcutaneous emphysema.⁵

However, this expert consensus to predict who will not harbor a dissection was not informed by statistical modeling (as today’s clinical prediction tools are).⁶ The risk factors cited by the TISP are qualitative and their relative contributions to prediction of risk for CVA have not been quantified.

Further, an emergency physician’s general obligation under the EMTALA statute is to evaluate the patient with a sufficient index of suspicion toward the detection of any emergency condition that might be present, to diagnose such conditions when they have occurred, and to render or refer elsewhere for appropriate definitive care.⁷ The EMTALA statute does not shield consultant radiologists from financial penalties when their clinical choices contribute toward a viola-

tion. The fact that arterial dissections after strangulation have a low likelihood does not matter. A low likelihood, in a condition with such devastating potential, does not imply that such outcomes have no likelihood.

Therefore, when emergency physicians evaluate strangled patients, one of the principal questions to be addressed, once it is clear that no airway emergency exists, is whether or not they are caring for that rare patient who harbors an arterial dissection and requires timely anticoagulation treatment to prevent an ischemic CVA.

To add clarity to this dilemma, Zuberi et al., prospectively assembled a cohort of 142 patients who endured strangulation and presented for emergency care at a single site over seven years.¹ The *initial* readings of the angiograms obtained for these patients suggested six of the 142 patients harbored a vascular injury. Several of these initial readings were changed after review. Once these *retrospective* reviews of the angiograms were complete, four patients were determined to have a significant vascular injury. This included three with initial “true positive” findings, three with “false positive” findings, and one with an initial “false negative” finding. Unfortunately, the authors then dismissively concluded, “Performing CTA of the neck after acute strangulation injury rarely identifies clinically significant findings, with vascular injuries proving exceedingly rare.”

First, we believe that this conclusion may lead radiologists to under-estimate the degree of need and urgency present when emergency physicians order angiographic testing of strangled patients. The authors should not have downplayed the importance of the relatively few positive tests. Second, Zuberi et al. also failed to note the radiologists' general obligations and risk for financial penalties if they are judged to be in non-compliance with the EMTALA statute. Third, they should have noted not only the non-zero probability for a dissection, but also the discordance between the initial and final reading of the angiograms. This could have led to advocacy for a period of observation that would enable angiograms to be over-read before the patient left the emergency department.

Zuberi et al., also raised concerns about radiation exposure from CTA of the neck, toward justifying a denial of a request for such imaging.¹ We have not found data regarding the lifetime risk for cancer as a consequence of neck CTA, but the lifetime cancer risk of CTA imaging of the head has been estimated as 26 per million patients, or .0026 percent.⁸ In contrast, four significant vascular injuries were observed among the 142 patients studied. Thus, the prevalence of a significant vascular injury was 2.8 percent, which is three orders of magnitude greater than the approximate estimated risk of subsequent death due to radiation exposure. We believe most patients would accept this risk of angiography, because subsequent prevention of a stroke after heparinization would favorably impact their quality of life.

In fairness to the authors, we commend them for their persistence in studying this rare disease. Zuberi et al. required more than seven years to accrue their 142 patients at a single Level 1 trauma center, because relatively few of these patients present each year.

Also, the authors attempted to identify strongly predictive history or physical examination clues toward the diagnosis of vascular injury. However, their predictive efforts were doomed from the start, given the approximately three percent prevalence of vascular injury among patients. Generally, if a highly accurate clinical predictive rule is to be derived, one needs at least 10 patients with the disease for which testing is done per each step or element in the rule.⁹ Thus, if a rule has four predictive variables, one needs at least 40 patients with a dissection to have been included in the study. With a prevalence of dissections in the range of three percent, this would require enrollment of 1,333 strangled patients. If all of the 11 variables in the TISP's guideline were represented in a rule, the authors would have needed to enroll more than 3,600 patients. Clearly, to assemble a sufficient cohort of patients to enable development of a clinical prediction rule would have required many more patients than Zuberi et al., could possibly have enrolled.

While we salute Zuberi et al., for their achievement of assembling their sizable case series, we find fault with the interpretation of their findings. Emergency physicians should not let themselves be persuaded against ordering appropriate angiographic imaging of strangled patients by the authors' relatively low frequency of detection of significant findings.¹ Emergency physicians should gently remind radiologists of their mutual obligations under EMTALA, as well as their ethical duty to the patient, when they press for the provision and performance of appropriate post-strangulation angiographic imaging, even if

the radiologist attempts to dissuade.

Key Takeaway

If you believe your strangled patient deserves angiography to determine whether an arterial dissection is present, order the test in confidence that you are doing the right thing. If the radiologist tries to dissuade you, and especially if they cite Zuberi et al., remind them of the perspectives we have offered and place special focus upon your mutual obligations under the EMTALA statute. ☺

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PEDIATRIC SEIZURE AND STATUS EPILEPTICUS IN THE ED

Reviewing basic principles relating to management of status epilepticus in children

by MOHSEN SAIDINEJAD, MD, MS, MBA, FAAP, FACEP

While many of the causes and types of seizures in children are similar to adults, some differences exist in etiologies, manifestations, and responses to antiepileptics. Many of these differences are accounted for by factors related to the developing brain of a child.¹ For example, certain considerations with respect to seizure are unique to children, such as febrile seizure and factors related to underlying metabolic disease, genetic predisposition, or neurovascular anatomy. Other factors unique to children are trauma (non-accidental) and ingestion. This article is written as a pediatric supplement to a recent *ACEP Now* article entitled, “Tips for Managing Active Seizures in the Emergency Department” by Anton Helman, MD, CCFP(EM), FCPP.

Seizure is one of the most common neurologic emergencies in children.² For a parent, witnessing a child’s seizure can be distressing and therefore a call to 9-1-1 may ensue. Status epilepticus (currently defined as a seizure that lasts more than five minutes, or a series of two or more shorter seizures without return to baseline) is a true medical emergency.³ The

definition of status epilepticus (International League Against Epilepsy) was recently modified to highlight the recent understanding that irreversible neurologic damage occurs faster than previously thought and for the purpose of intervening urgently, the previous duration of 15 minutes was shortened to five minutes. For this reason, refractory seizure, which is associated with irreversible neurologic damage, is defined as convulsive seizure lasting more than 30 minutes.³

Similar to adults, the most common emergency department (ED) presentation of status epilepticus is convulsive type (also known as tonic-clonic type). Seizures lasting more than 30 minutes have been associated with poor outcomes, higher likelihood of complications, and are considered refractory. Children younger than two years old and those with febrile seizures are at greater risk for status epilepticus. Most causes of status epilepticus remain unknown, however, febrile seizure is likely the most common cause of status epilepticus in children six months to five years.^{4,5}

The goal of therapy is to stop seizures as quickly as possible, because the longer the seizure continues the more challenging it becomes

to stop it successfully.⁶ In addition to this, prevention of recurrence is also a desired goal.⁶

Considerations for Pediatric Seizures:⁷

- Duration of seizure
- Type of seizure (convulsive or non-convulsive)
- Preceding intervention (e.g., rectal diazepam administered by parent/caregiver or medication administered by prehospital providers)
- Any prior seizure history
- Presence of fever within the previous 24 hours of the seizure
- Any medical history that increases seizure risk
- Trauma or possible ingestion
- Electrolytes (glucose, calcium, sodium, and magnesium)
- Presence of hypo- or hyperthermia

Attention to potential underlying cause of seizure is an important part of seizure management.⁷ In children, ingestion and trauma (intentional or accidental) also need to be considered. In smaller children, undiagnosed metabolic disease and structural brain abnor-

malities should also be considered.

Pre-Hospital Management of Seizure

Ability to support the airway and administer medications is of critical importance. Therefore, most seizure transport is provided by an advanced life support unit. Pre-hospital personnel have protocols that allow for use of these first-line agents en route to the ED.⁸ Early use of appropriate medication, such as a benzodiazepine, results in the most favorable outcomes.⁹ If quick intravenous access is not possible, a typical dose of benzodiazepine may be given via intramuscular (IM) or intranasal (IN) routes.⁹ A dose of midazolam (Versed) 0.1–0.2 mg/kg IM (maximum dose 4 mg) or IN 0.2 mg/kg (maximum dose 4 mg) can be given prior to ED arrival.^{9,10} The higher intranasal dose is to account for incomplete absorption of the dose through nasal mucosa. Lorazepam (Ativan) and diazepam (Valium) may not be as effective if given IM due to slow onset of action and delay in seizure termination.¹¹

Airway adjunct consideration depends on assessment of the patient airway and may in-

clude supplemental oxygen and placement of oral or nasal airways.

ED Management of Status Epilepticus in Children

First-line agents: A child who continues to seize upon ED arrival, will be given additional doses of benzodiazepine to stop the seizure. The choice of benzodiazepine agent depends on whether an intravenous access is present. Both in pre-hospital and in hospital settings, midazolam is the first choice if IM or IN route is chosen. If an intravenous line is present, lorazepam 0.1 mg/kg is an appropriate alternative and may be slightly preferred to midazolam for its longer duration of action. However, due to depot effect and slower onset of action, lorazepam is less desirable than midazolam when administrated as IM or IN.¹² It is important to note that benzodiazepine doses can be repeated every two to four minutes as needed, but when multiple doses of a benzodiazepine are used, respiratory depression should be anticipated, and it is important to have proper pediatric airway equipment available to use. For this reason, after two doses of benzodiazepine administered in the ED (in addition to dose administered by the pre-hospital personnel or paramedics), if seizure has not stopped, a second-line agent should be used.¹²

Second-line agents: The goal of seizure management with first line agent is to stop seizure within 10 minutes. If seizure still persists beyond this time, a second line agent should be used. In children, the following second line agents have similar efficacy and can be used interchangeably:¹³

- Fosphenytoin 20 mg/kg
 - Valproic acid 40 mg/kg
 - Levetiracetam 60mg/kg
- A recent study suggested that levetiracetam may provide better hemodynamic outcome compared to fosphenytoin in certain situations.¹⁴ Second line agents do not work immediately, so they are considered adjunct therapy and not main stay of seizure therapy. They are, however, very effective in preventing seizure recurrence.¹⁵

While adult studies report cases of cardiac arrhythmias and death from fosphenytoin due to its structural similarity to tricyclic antidepressants (blockade of fast acting sodium channels resulting in prolonged QRS duration and fatal wide complex ventricular tachyarrhythmias), such reports in children are rare.¹⁶

Third-line agents: A variety of medications are considered as third-line agents. They are used for refractory seizures (lasting longer than 30 minutes). The majority of these agents require airway protection. Phenobarbital can be given without airway protection at the lower dose (5 mg/kg), but higher doses (10–20mg/kg) should be given only after the patient has their airway protected.¹⁷ Third-line agents include:¹⁷

- Phenobarbital 5–20 mg/kg
- Propofol 1–5 mg/kg
- Pentobarbital 5–20 mg/kg
- Ketamine 1–1.5 mg/kg
- Ketofol (ketamine 1 mg/kg with propofol 0.5 mg/kg)
- Lacosamide 6–10 mg/kg
- Topiramate (limited data on efficacy)

Burst suppression: If seizures require third-line agents, a burst suppression of 24–48

hours with a continuous infusion of pentobarbital, midazolam, or propofol will be utilized and the patient will be placed on continuous EEG monitoring.^{18, 19}

Special considerations—neonates: First-line agent is midazolam 0.15 mg/kg, after which there is controversy. Phenobarbital 20 mg/kg (50 percent effective) has traditionally been use but other agents may be equally effective (fosphenytoin 20 mg/kg, lidocaine 2mg/kg, or leviteracetam 50 mg/kg).^{20–23} ➔

DR. SAIDINEJAD is professor of clinical emergency medicine & pediatrics at the David Geffen School of Medicine at UCLA.

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ACEP 2022 Leadership & Advocacy Conference

The power of the collective voice of emergency physicians

by L. ANTHONY CIRILLO, MD, FACEP

The annual ACEP Leadership & Advocacy Conference (LAC) was held May 1–3 in Washington, DC. Despite the COVID-19 pandemic still lingering in our lives, more than 300 ACEP members from 42 states came together, both in-person and virtually, to educate and advocate together. LAC is an empowering conference, reminding us that we are not alone in fighting to improve the things that make our professional lives and patient care better. For those of you who haven't ever been to LAC, the conference is a unique blend of both a leadership summit and an advocacy summit touching on the issues that we know are most affecting emergency physicians.

Although the conference officially began on Monday, props again to the ACEP Young Physician Section and EMRA for hosting their annual pre-conference “*Health Policy Primer*” educational program to kick things off. The official Leadership Summit Day included kickoff presentations and discussions on issues that are “top of mind” for many emergency physicians. Powerful talks on “*Burnout: Recognizing It and Addressing It*” and “*#No Silence on ED Violence: Is It Time to Push the Panic Button?*” reminded us just how hard emergency medicine is. These presentations served as a call to action for everyone, especially those in leadership roles, to take an active role in creating a safer and more rewarding practice. These talks were followed by informational talks on “*Physician Collective Action: Does Standing on the Picket Line Cross a Moral Line*” and “*Saying Nope to Expanded Scope: States & Organizations Fighting for Quality Emergency Care.*”

The afternoon of the Leadership Summit was just as amazing as the morning session. Led off by a keynote address by Adm. Rachel L. Levine, MD, U.S. Public Health Service Assistant Secretary for Health at the U.S. Department of Health and Human Services, the rest of the afternoon included presentations on examining the role of policymakers in addressing health care market consolidation, the flawed Medicare Physician Fee Schedule, and lessons learned from recent state fights against downcoding and diagnosis exclusion lists by state Medicaid Programs. Following up on the morning's theme of addressing the personal and professional challenges that face emergency physicians, Senator Tim Kaine (D-VA) highlighted the importance of the recent passage, and signing into law, of the Dr. Lorna Breen Health Care Provider Protection Act, which will provide funding for programs and research to improve the mental health of health care workers.

The advocacy summit on Day 2 provided attendees with an update on the key federal legislative and regulatory issues facing emergency medicine for their Capitol Hill meetings. As with every LAC that ACEP has held, the College develops a set of priority issues and talking points for the Capitol Hill visits. Identifying the “right” issues to focus on dur-



Admiral Rachel L. Levine, MD, U.S. Public Health Service Assistant Secretary for Health—U.S. Department of Health and Human Services, delivers the LAC22 keynote address.



Senator Tim Kaine (D-VA) presents “Lorna Breen Health Care Provider Protection Act: What Comes Next?”

ing a “fly-in” meeting requires a thoughtful and strategic approach in order to increase our likelihood of advocacy success. That strategy is based upon identifying issues that are both important for emergency physicians and that will resonate on Capitol Hill given the current political climate and priorities of Congress and the Administration. Our goal is to remind legislators that we do “the work of the people every day” and that we need their support and protection to be able to continue that work. This year's topics focused on improving the protections and rights of emergency physicians:

- Support for the Workplace Violence Prevention for Health Care and Social Service Workers Act (S.4182)
- Urging introduction of the ER Hero and Patient Safety Act to guarantee due process protections for all emergency physicians
- Calling for hearings to reform the flawed Medicare reimbursement system to ensure fair payments to physicians



R.J. Sontag, MD, shares his personal experience with ED violence with Senator Sherrod Brown's staffers as Ohio ACEP Executive Director Holly Dorr, MBA, CAE, CMP, looks on.

Each year, while those of us who attend LAC get to tell our stories, we also understand that we are representing emergency physicians across the country and telling your stories too. For many of us, being on duty in the emergency department can feel like an isolating experience, and we can forget that we are part of a larger community. Attending LAC changes that. There is an incredible power to sharing our personal experiences and bringing our collective voices together on Capitol Hill to advocate for our fellow physicians, our patients, and our specialty.

So, come next year to LAC and add your voice! In the meantime, join the *911 Grassroots Network* (acep.org/911grassrootsadvocacy) to stay updated and informed on federal and state issues. You can also support ACEP by contributing to NEMPAC as well and help ACEP amplify your voice on the issues that matter most to emergency physicians. 📢

DR. CIRILLO serves on the Board of Directors for ACEP.

“I’m in my advocacy elective [right now] and I have an interest in health policy. Getting a chance to see the process and actually getting to go on Capitol Hill to talk about these issues and how and why they are affecting our specialty was really enlightening. It was a great experience.”

—Marcus Wooten, MD, EM resident and first-time LAC22 attendee from Akron, Ohio



LAC First Timer Reflections

by JACOB ALTHOLZ, MD, PGY-1
UNLV EM RESIDENCY

This year represented the first year I was able to attend the Leadership and Advocacy Conference, the same academic year I began my formal training in emergency medicine as an intern at the University of Nevada, Las Vegas. While I lived in Washington, D.C. previously, it was entirely a different experience to be able to travel and advocate on Capitol Hill.

Hopefully on the tail-end of the pandemic, never has it been more valuable for the specialty of emergency medicine to fiercely advocate; every day was an opportunity to learn and advocate for not only our patients, but our specialty. Yet, most inspiring was the day we all gathered, organized by state, to plan and meet with our representatives and senators on behalf of the profession. Speaking with representatives from multiple regions, we all realized that our challenges were always context-dependent, changing shape and color with the populations we serve. One thing was certain: the need to ensure that we health care workers are protected. This year, the violence we have all witnessed in the ED was front and center on the docket.

Meeting with congressional offices felt simultaneously nerve-racking and invigorating, the importance of the issues we face only multiplying the sincerity with which we all approached our annual chance to drive national change for our profession. It was an honor to represent not only myself, but all emergency physicians, and I am excited at the prospect of being able to do so next year. 📢

ACEP4U: Protecting Emergency Physicians in a Shifting Work Environment

NEW EFFORTS TO ADDRESS CONCERNS AROUND PHYSICIAN AUTONOMY AND CONSOLIDATION

by JORDAN GRANTHAM

Consolidation and corporate investment in medicine are rapidly changing the health care landscape. The past two years of the pandemic have put an increased spotlight on the outsized impact of horizontal consolidation and vertical mergers on emergency physicians and patients.

ACEP has long fought to protect the autonomy of the emergency physician, but we have increased our efforts to address your concerns on consolidation during the last six months. It is within this uncertain environment that ACEP's new strategic plan was developed, and a core strategy of the advocacy pillar is focused on creating awareness around the business of emergency medicine and having difficult discussions about possibilities and protections.

Find more detailed information, including videos and full comment letters related to the following activities, at acep.org/physicianautonomy.

Prioritizing the Physician-Patient Relationship

March 2022: ACEP filed an amicus brief in the *AAEMPG v. Envision* case, upholding the sanctity of a physician's duty to patients and the importance of allowing them to practice medicine without undue pressure from outside forces. Through this filing, ACEP is applying its might on behalf of our nearly 40,000 members in legal efforts to assert the physician's right to autonomy in medical decision-making. The Emergency Medicine Residents' Association (EMRA) also filed a Declaration of Interest in support of the ACEP position.

April 2022: ACEP believes the physician-patient relationship is the moral center of medicine that can never be compromised. On April 6, the Board of Directors reaffirmed this position by approving the ACEP Statement on Private Equity and Corporate Investment in Emergency Medicine (acep.org/statement-private-equity). The core beliefs outlined in the statement reaffirm that, "any practice structure that threatens physician autonomy, the patient physician relationship, or the ability of the physician to place the needs of patients over profits should be opposed," and that, "financial motives should never supersede an emergency physician's autonomy to make bedside decisions in the best interest of the patient."

Raising this Problem to the Government

February 2022: Earlier this year, the Federal Trade Commission (FTC) reaffirmed its commitment to working closely with the Department of Justice (DOJ) to review and update the agencies' merger guidance, particularly around vertical consolidation. ACEP staff spoke to the FTC directly about this issue and was encouraged by them to formally respond to the FTC's Request for Information on Merger Enforcement on behalf of ACEP members.

April 2022: ACEP gathered, analyzed, and combined more than 100 ACEP member responses about the daily impact of consolidation to illustrate patterns as part of its formal comment letter submitted to the FTC on April 20.

ACEP President Gillian Schmitz, MD, FACEP, and ACEP Executive Director Sue Sedory also shared a preview of some of the collected stories during the FTC's "Listening Forum on Firsthand Effects of Mergers and Acquisitions: Health Care" on April 14, 2022.

Advocating for On-the-job Protections

May 2022: ACEP strongly supports legislation under discussion in Congress that would uphold due process protections for physicians. Specifically, this legislation would enable physicians to avoid a mandatory waiver of due process rights, which many are forced to comply with as a condition of group employment. ACEP members were able to directly ask legislators to support this legislation during the 2022 Leadership & Advocacy Conference in early May.



ACEP President Gillian Schmitz, MD, FACEP, shared a preview of some of ACEP member stories about the effects of consolidation during the FTC's "Listening Forum on Firsthand Effects of Mergers and Acquisitions: Health Care" on April 14.

ACEP is leading conversations with Congress and federal agencies make sure that the federal officials keeping a keen eye on physician and insurer consolidation understand emergency physicians' concerns about the impact of consolidation on systemic issues and costs, reimbursement, and patient care.

ACEP has also introduced a resolution to the AMA's House of Delegates calling for the AMA to develop model state legislative language and principles for federal legislation that protect physicians from corporate, workplace, and/or employer retaliation when reporting safety, harassment, or fraud concerns at their places of work.

Pulling the Curtain Back to Increase Awareness

January and February 2022: One of ACEP's roles within the new strategic plan is to provide more education about the business of emergency medicine. To that end, ACEP's weekly regulatory blog (acep.org/regsandeggs) has posted two in-depth articles explaining: 1) recent federal efforts to address health care clinician consolidation; and 2) the increase in health care insurer consolidation.

May 2022: The educational content of ACEP's Leadership and Advocacy Conference (LAC22), hosted in early May, was focused on protecting the individual emergency physician on the job. One of the sessions, "The Great Consolidation: What Role Can Policymakers Play in Ensuring Fairness in Health Care Markets," provided a deeper dive into consolidation.

During that panel discussion, Rohan Pai, deputy assistant director for Mergers IV for Federal Trade Commission Bureau of Competition, talked about the FTC's role with health care

mergers by explaining, "Our main goal is try to prevent harmful mergers from occurring in the first place." Mr. Pai said many troubling mergers often fall below the size threshold for reporting to the FTC, so the agency doesn't hear about them until they are already done.

Mr. Pai also encouraged ACEP members to use the anonymous reporting mechanism on www.ftc.gov to alert the FTC to potentially harmful mergers in their respective communities so the FTC can consider getting involved. He said they take those messages seriously, "Talking to the people who live this day-to-day is how we build these cases."

What's Next?

As we put the new strategic plan into action, your voice is needed. The collective voice of ACEP's 40,000 members is a powerful force for change. The issue of autonomy and consolidation is only one of the battles we are fighting—read more about current advocacy issues in our LAC22 recap on page 8, and learn more at acep.org/advocacy.

Remember, advocating for emergency physicians looks different for everyone. You might submit your personal testimonial about the impacts of consolidation or host a meeting with your state legislators about state licenses and physician mental health concerns. You may respond to ACEP action alerts asking your legislator to support certain legislation or give to the National Emergency Medicine Political Action Committee (acep.org/nempac). Every little bit of member involvement helps ACEP move the needle on critical issues affecting emergency medicine. ➕

BUILDING ACEP'S LONG-TERM ADVOCACY STRATEGY

Each month, ACEP4U will highlight and expand on a specific strategic pillar. This month, we focus on Advocacy.

More than 100 ACEP members were involved in developing ACEP's new strategic plan (acep.org/strategicplan) to guide the College for the next three to five years. Ugo Ezenkwele, MD, FACEP, was part of the planning group that developed the advocacy pillar of the plan.

"A lot of changes we want to see happen in emergency medicine cannot happen if we don't advocate for ourselves where the political seat of power is," explained Dr. Ezenkwele. "I thought it was incredibly important to be able to chart a course, to talk about the issues we want to present to legislators in the next few years." The advocacy portion

of the strategic plan features five key strategies to support its work to fight for your rights across all landscapes and levels:

1. Expand and strengthen the role and impact of state-level advocacy.
2. Standardize advocacy strategies and approach at the federal, state, and workplace level.
3. Streamline advocacy content development and delivery.
4. Identify, test, and adopt new fundraising strategies to support advocacy initiatives.
5. Create awareness around the business of emergency medicine and have difficult discussions about possibilities and protections. ➕

that time, firefighters transported them to the hospital if they had been in an accident, had a myocardial infarction, or were on the verge of giving birth, among other emergencies.

In some parts of the country, towns and cities contracted with funeral homes to do these hospital transports and an employee with a first aid certificate and a hearse would show up, since these vehicles could transport people lying down. Consequently, the pre-hospital care many patients in those early years received en route was little to nothing.

"You pretty much rolled in there with only a cot," says Rick Murray, director of EMS and Disaster Preparedness at ACEP. "Maybe you had some oxygen if you were lucky."

Murray's first job, around the time of the series' debut, was for a hospital based system that had hired the same person from a funeral home that used to provide patient transportation to run the hospital ambulance so there wasn't much difference in the level of care. He recalls this man taking blood pressure cuffs and other medical equipment off the ambulances and telling the EMT's, "Y'all quit playing doctors. Just load them up and drive fast. Quit wasting time taking blood pressures." It was also not uncommon to hear firefighters at that time balk that they were trained to fight fires, not deliver babies.

Firefighters weren't the only ones unhappy with their situation. Dr. Stewart wasn't thrilled that the consultant role for the television show had been thrust upon him. However, the university had a contract to give medical advice to various medical shows at the time and they made this among Dr. Stewart's duties. He had come to the University of Southern California to do a residency in emergency medicine after practicing family medicine at a 14-bed hospital on rural Cape Breton Island in Neil's Harbor, Nova Scotia, where he also made house calls.

Within a year of beginning the residency, Dr. Stewart had become medical director of Los Angeles County's paramedic training institute, which put him at the center of their rapidly developing program. By day he was busy trying to finish his residency and do research. The only time he was available to be in the streets with the film crew was at night.

"I would spend all of my spare time trying to understand what these paramedics needed to know because there were no textbooks at the time. I had to write one myself and it was really very hard to keep up the pace," he said.

Worst of all, in his estimation, was that his consulting role also included answering medical fan mail, a task Dr. Stewart described as terrible.

"I quit doing it when I got one note written in pencil from someone in the Midwest saying, 'I saved my granny from death with that CPR stuff I saw on Emergency! But there was one problem, she kept getting up,'" he says, laughing.

The role did have its upsides, Dr. Stewart would soon learn. One was working with Producer Bob Cinader, a man Dr. Stewart describes as an occasionally brusque but brilliant Hollywood producer who also happened to be crazy about fire engines and loved listening to bagpipe music. "I happen to be a piper," Dr. Stewart says. "So we got along very nicely and ultimately became quite close. We all thought a lot of him."

Cinader, who died in 1982, would take Dr. Stewart to bagpipe concerts and encourage the show's stars, Randy Mantooh, who played Johnny Gage, and Kevin Tighe, who played Roy Desoto, to join them. They all had fun and became friends; Dr. Stewart still keeps in touch with the actors and several others from the series.

Dr. Stewart used to downplay the show, thinking it wasn't really doing anything of value. They couldn't show blood. They couldn't show a patient dying. And at that time, in real life, it wasn't legal for paramedics to run IVs or defibrillate, so in the very early days of the program when a call came in from the dispatcher, the paramedics got on the truck and would have to pick up the coronary care nurse at the hospital to respond to someone having a heart attack. "With that system in the unwitnessed cardiac arrest and without citizen CPR, the survival rate would be zero," Dr. Stewart says. "All of that changed with legislation."

That system didn't last long, however. Bob Cinader influenced one of the county supervisors who became very involved with the program. That supervisor was friends with then California governor Ronald Reagan, who he convinced to pass a bill into law allowing paramedics to perform medical tasks including defibrillation and IV starts. Improvements in legislation meant medications got to patients more quickly and survival rates dramatically improved.

"It became very humbling," Dr. Stewart says, "because I couldn't see how we could affect any change without this happening. I was a very minor player in something that became a very major thing."

Rick Murray credits the series with inspiring him to become a paramedic, saying that watching "Emergency!" made him realize just how unprepared he was as a young volunteer firefighter riding in an ambulance. "When I saw the show, I thought, 'Those paramedics are like mini-doctors. They've got all of the right equipment and training.'"

Murray hoped life could somehow imitate Hollywood in this respect. Ultimately, through his work as a paramedic officer for a fire department, and then working with his state's health department and later with ACEP for 25 years, he had the opportunity to help make that happen. "Emergency!" had inspired him and the timing had been perfect. He says, "I was very fortunate to have been in the right place at the right time in the early years of EMS." ☺

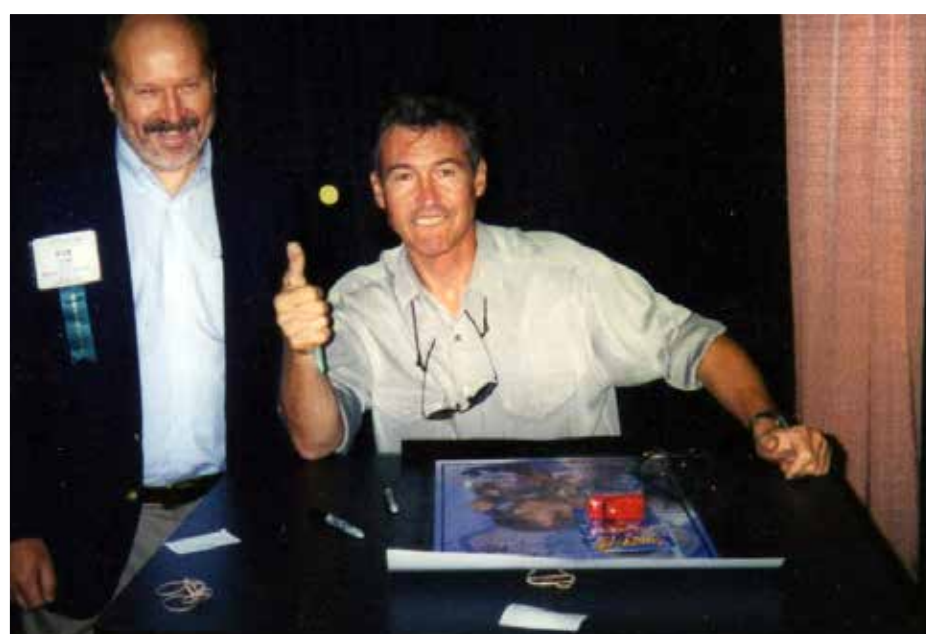
RENÉE BACHER is a freelance medical writer located Baton Rouge, Louisiana.



Rick Murray (left) working as an EMT in 1976 rescuing a child from a car wreck.



Dr. Stewart (in pale blue suit) with Kevin Tighe (in brown jacket) along with the West Virginia Paramedics champions in 1976.

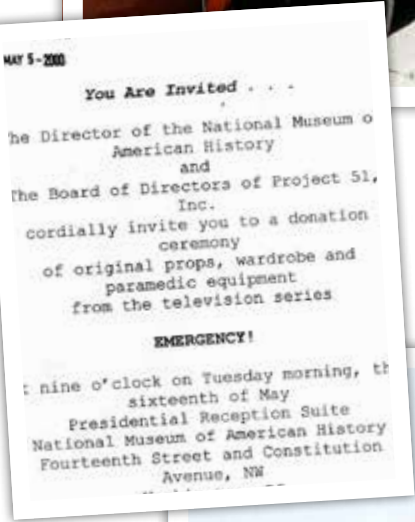


Rick Murray (left) meeting Randolph Mantooh (right) who played Johnny Gage in Emergency! in 2000. Gage was showing Murray how he flipped the caps of the end of the sodium bicarbonate tubes.



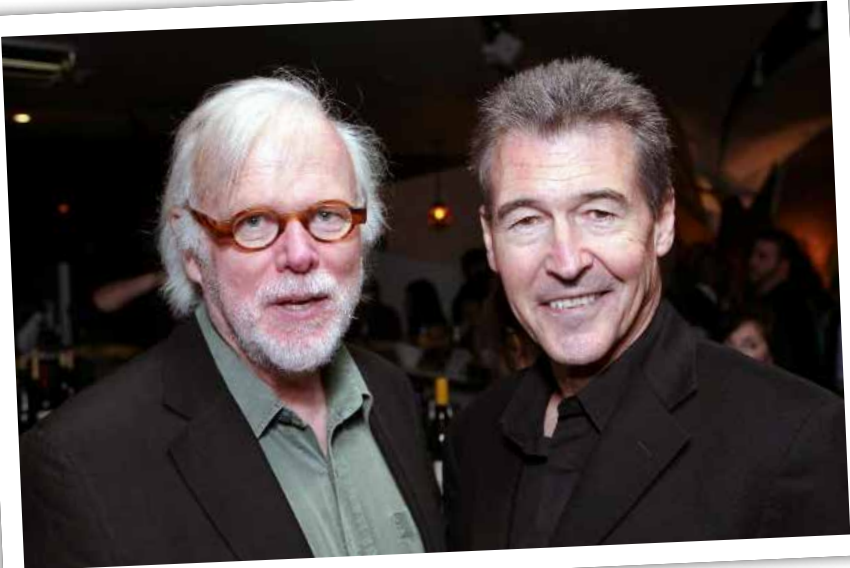
RONALD STEWART

(top) Emergency! medical pioneers including Dr. Stewart at the Smithsonian National Museum of American History.
(left) ACEP invitation to the event at the Smithsonian National Museum of American History.



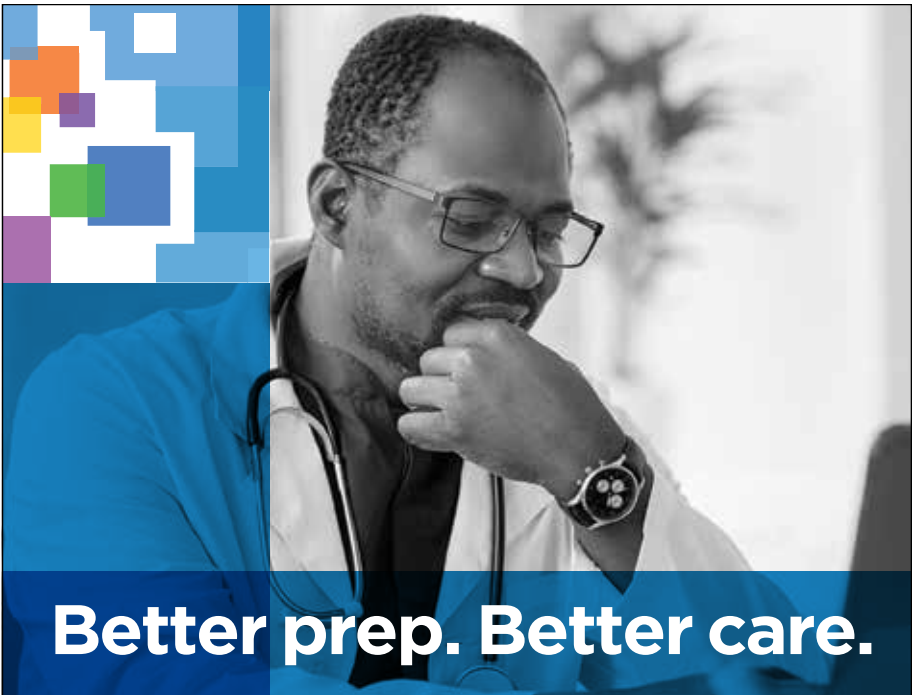
RICK MURRAY

Squad 51 from the show in Washington, D.C., in May 2000 at the ACEP National EMS Week event on the National Mall.



RONALD STEWART

Actors Kevin Tighe (left) and Randy Mantooth (right) in April 2010.



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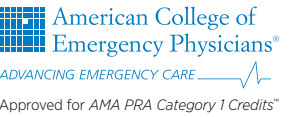
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By the Numbers

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DURING WARM MONTHS

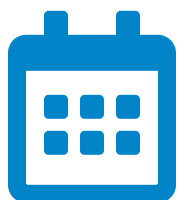
8%↑

Increase in mental health and substance abuse ED visits



CALIFORNIA ASSOCIATED WITH HIGHER RISK OF ED ADMISSIONS FOR HEAT-RELATED ISSUES

WARM SEASON SPANS



MAY-SEPTEMBER



ACROSS U.S.

30%

increase in renal disease visits to ED

Source: JAMA Psychiatry. 2022;79(4):341-349. BMJ 2021;375:e065653



Intensifying Heat Waves Are Causing Mass Casualty Events

Heat stroke deaths are preventable—but hospitals aren't ready

by CECILIA SORESEN, MD, AND MAURA KELLY

During last summer's unprecedented heat wave in the Pacific Northwest—when temperatures soared more than 30 degrees Fahrenheit above average—the region lost a staggering number of lives to the record-obliterating weather. Records of so-called “excess deaths” in the two states hardest hit, Washington and Oregon, show that at least 600 more people than usual died—an extraordinary spike, even amid the pandemic, which suggests that the brutal weather killed far more than the roughly two hundred officially counted to date. In Oregon, the scorcher was the second-worst mass casualty event in the state's history. Adding to the tragedy, death from heat stroke is almost entirely preventable if the condition is quickly identified and rapidly treated, ideally no more than 60 minutes after the onset of symptoms.

Americans may not appreciate just how dangerous heat waves can be, perhaps because, unlike floods and hurricanes, they don't create visual spectacles. But, intense heat is already the deadliest weather event in the U.S.—and at least one study, which found that the risk of death from heat stroke increased here by five to ten percent between 2000 and 2006, suggests that the danger for the U.S. population has been on the rise for at least two decades. Moreover, the threat is poised to intensify in the years ahead. As the planet continues to warm, heat waves will become more common and more severe. Despite all this, hospitals everywhere—not just in the Northwest, but around the country, in both urban and rural areas—aren't adequately preparing for this growing deadly threat.

Who is at Threat?

Even the healthiest among us is at risk for heat stroke—a condition characterized by core temperatures of 104 degrees Fahrenheit or higher, which leads to death when overheated organs fail. The most vulnerable, however, include infants, children under four, those 65 and older, pregnant women, people with chronic conditions (including mental illness), and the obese. Brutal heat can also exacerbate underlying conditions, like cardiovascular and respiratory disease; it can bring on heart attacks, strokes, and so on. Worst of all, it's poised to become a frequent mass casualty event—i.e., to cause so many people to get so sick at once that large numbers of patients, all in need of urgent medical care, will overwhelm hospitals and emergency medical systems.

Indeed, that's what happened throughout the Pacific Northwest during the heat wave. “We're a Level 1 trauma center, staffed to take on pretty much anything we're confronted with, but we were over-stressed,” says Jeremy Hess, MD, MPH, an emergency physician with Harborview Medical Center in Seattle, Washington. “A smaller mass casualty event, like a shooting, happens like a bullet. But this one kept going and going. If we'd experienced another day of heat, we would have been in more serious trouble. Our facilities would not have been able to handle it.” His report sounds almost tame compared to a rapid analysis performed by the Centers for Disease Control and Prevention (CDC), which found that heat-related visits to emergency rooms in the Northwestern states were *69 times higher* during the heat wave than during the same period two years earlier. For this analysis, Northwestern

states include Oregon, Washington, Idaho, and Alaska.

What to Do?

Because the Pacific Northwest is usually temperate, the region was particularly ill-equipped for such severe weather. But around the country, in both urban and rural areas, hospitals and municipalities need to do more to fortify themselves, not only with additional supplies, but education. Local governments should begin by providing better training for emergency responders. 9-1-1 operators should be on the alert during heat waves for callers experiencing symptoms like hot, red skin; rapid heartbeat; headache; dizziness; nausea; confusion; irritability. Heat stroke often resembles other life-threatening conditions, like stroke and sepsis, so responders should also know which groups are most endangered—including those who work outdoors, as in construction or agriculture; military personnel; and anyone without access to air-conditioning. Taking certain drugs—including psychotropics; medications for Parkinson's disease that inhibit perspiration; and prescriptions that interfere with salt and water balance, like diuretics, anticholinergic agents, and beta-blockers—also increases risk.

Anyone who appears to have heat stroke needs to do two things fast and simultaneously: get to a hospital and begin cooling. 9-1-1 operators should advise them so. If someone who has been working outside must wait for an ambulance or car to arrive, they should immedi-

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KILLING ME SOFTLY... WITH NORMAL SALINE?

by RICHARD CUNNINGHAM, MD

The topic of normal saline vs. lactated ringers can spark fierce debate, but are we asking ourselves the wrong question?

An Age-Old Debate

Few topics in the world of resuscitation and critical care generate as much controversy as the discussion over which is the “superior” intravenous fluid: normal saline (NS) or lactated ringer’s (LR). I myself, a budding intensivist and self-professed LR acolyte, have often overzealously argued in favor of my fluid of choice.

The SMART trial in 2018 helped fuel the fire, showing a benefit of balanced solution (Plasma-Lyte or LR) over normal saline in critically ill patients with respect to a composite outcome of death from any cause, new renal-replacement therapy, or persistent renal dysfunction at 30 days.¹ However within the last year two new trials (PLUS and BASICS) have been published that throw water on the results of SMART. Both trials were overwhelmingly negative, revealing no difference between balanced crystalloids and NS in their primary outcomes.^{2,3}

Suboptimal Choices

While there may still be situations which call for one fluid in particular (BASICS showed a clear advantage of normal saline in TBI patients, and much literature points to LR as the fluid of choice in DKA management), I think a more fundamental issue lies beneath this debate and is rarely addressed. While LR is commonly lauded as more physiologic, I think we have to consider that even it is far from “ideal.”

There is in fact no ideal “physiologic” IV fluid available to us. Comparing both NS and LR to physiologic conditions reveals lackluster results: while NS certainly comes out the loser (composed of only supraphysiological concentrations of sodium and chloride), LR compared to serum plasma is actually hypotonic, hyponatremic and hypocalcemic, and contains no magnesium.⁴

Fluid “Resuscitation”: A Misnomer?

With this in mind, perhaps we should ask ourselves if perhaps *all* IV fluids have long been overrated, or at the very least over-utilized. While we reflexively reach for a bag of crystalloid when a patient presents with undifferentiated shock, a basic understanding of physiology would tell us that this would only be effective in cases of *hypovolemic* shock when a patient presents with a fluid deficit, whether that be from GI losses, insensible losses, or poor PO intake. While many critically ill patients will present with some degree of dehydration, more often than not they will require more than IV fluids to resolve the underlying cause of their shock.

While hypovolemic shock from dehydration is appropriately treated with IV fluids, giving crystalloid to patients with hypovolemic shock from *hemorrhage* can be absolutely detrimental. An important trial from 1993 showed that pre-hospital fluids administered to hypotensive patients with penetrating thoracic trauma *increased* mortality compared to



no fluids given, with the group receiving fluids getting just 800 milliliters more than the control on average.⁵ This finding has since been confirmed in numerous studies, and the standard practice to limit crystalloid in favor of early administration of blood in hypotensive trauma patients.⁶ Diluting the little blood hemorrhaging patients have with salt water only worsens their ability to deliver oxygen to tissue and clot off the source of bleeding.

Sepsis is the 10th leading cause of death, and fluid administration has long been a cornerstone of the management of septic patients. The landmark 2001 study by Emanuel Rivers on early goal directed therapy (EGDT) featured fluid resuscitation as a central feature of a bundle of interventions, and patients in the EGDT group received on average almost five liters of fluids in the first six hours of treatment.⁷ EGDT has since been “debunked” (although I think it is important to recognize the attention that the Rivers’s original trial brought toward improving the quality of sepsis care) in several studies.⁸⁻¹⁰ What’s more, fluid overload has consistently been associated with increased mortality in critically ill patients with sepsis.¹¹⁻¹² In light of these revelations, the Surviving Sepsis Campaign in 2021 changed its recommendation to give 30 ml/kg of fluids to sepsis patients with hypoperfusion to a *suggestion*, acknowledging that the evidence for doing so is of low quality.¹³

Emerging literature shows benefit from starting vasopressors early in septic shock.¹⁴⁻¹⁵ This makes physiologic sense. Septic shock is a form of *distributive* shock, not hypovolemic. No amount of fluid will resolve it without first clamping down the leaky blood vessels that result from the systemic inflammatory response triggered by the underlying infection.

Perhaps the most provocative evidence that calls into question the utility of IV fluids is found in the FEAST trial. Published in 2011 in the *New England Journal of Medicine*, the study

compared a 20–40 mL/kg fluid bolus to no bolus in the treatment of critically ill children with signs of impaired perfusion in resource-limited settings in sub-Saharan Africa.¹⁶ Each group received antibiotics, maintenance IV fluids, and supportive care as needed. The primary outcome was mortality at 48 hours.

The study was actually stopped early when the intervention group that received the IV fluid bolus showed an increased mortality of 45 percent. While it is important to recognize the limitations of this study (most of the children presented with malaria, which may predispose the patients to harm from a fluid bolus, and the study was conducted in hospitals without ICU-level capabilities) the results are nonetheless both thought-provoking and unsettling.

Water, Water, Everywhere...

Despite their limitations, IV fluids are here to stay, but the next time you consider another bolus to determine whether or not your patient is “fluid-responsive,” perhaps you should take a step back and ask yourself if they actually instead need blood, vasopressors, or another intervention in the next step of their care. When it comes to fluid “resuscitation,” it turns out that less is indeed more. ➕

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Airway Adjuncts: Solutions to the Difficult Airway

How understanding this important technique doesn't have to be challenging

by JOSEPH TAGLIAFERRO, III, DO, FACEP, AND JONATHAN GLAUSER, MD, FACEP, MBA

As emergency physicians, we deal with a lot of unexpected challenges. Being prepared for any challenge that comes through the door is an attribute that makes us stand out among other medical specialties. This calling is one of the reasons why we as a specialty have earned the public's trust as highlighted by their appreciation during the COVID pandemic. One of the benefits of always being prepared is that the emergency physician will be at ease when it comes time to ask for help or implement a backup plan. As emergency physicians, we are specialists in a variety of fields including airway specialists. Every emergency physician has encountered problematic airways at some point in their career, and every emergency physician can express how they dealt with those difficult airways. Challenging airways are best controlled with the use of a backup plan, or a series of backup plans. How can you be confident in your backup strategy for airway management?

Factoring in Challenges

There are several factors which contribute to a difficult airway. Some of the conditions surrounding the patient's presentation may make an airway problematic, such as trauma, smoke inhalation, soft tissue infection and bleeding disorders, to mention a few. This discussion is a commentary on the case report in the April edition of *Annals of Emergency Medicine*. Few encounters in medicine can be as taxing as the difficult airway in a nine-month-old infant. Intubations in this age group are infrequently required and, of course, intubation success, as with other procedures, requires experience. Infants with trisomy-21 have anatomic variants, as well as the considerations that infants in general have a large tongue and floppy epiglottis. Surgical cricothyrotomy is difficult. Supraglottic airway devices and equipment for airway management in pediatric patients is beyond the scope of this article for now, but can be a topic for another day.^{1,2}

In the case study by Strobel, et al., in the April issue of *Annals*, the anatomy and physiology of the patient presenting with a problematic airway was discussed in detail. One may argue that a pediatric airway qualifies as challenging, but adding the complicating factors of a genetic anomaly, as in Strobel's case report, can increase the complexity of establishing an airway.

Understanding Adjuncts

Certainly, the patient described in Strobel's



case report is exceptional, but it should serve as a reminder to every emergency physician of the need for feeling comfortable with the use of airway adjuncts. Extraglottic airways (EGA) are often used in the pre-hospital setting. Using EGAs can be beneficial since they provide the emergency physician more time while attempting to secure a definitive airway in the patient. The use of cuffed endotracheal tubes has grown more common in the pediatric population, and they are considered a valuable adjunct in the treatment of some of the most difficult airways. The pediatric bougie is a tool with which every emergency physician should be familiar. Strobel, et al., showed how this airway adjunct might be useful in more severe situations. In the Strobel case report, the use of these three airway adjuncts aided the emergency physicians in managing their challenging patients. These airway specialists should be applauded not just for their ease in employing these adjuncts, but also for the overall success of the challenging airways that they confronted.

Simulation as a Method of Understanding

Emergency physicians can utilize a variety of airway adjuncts that are readily available. Some of these will be unique to one's clinical site. If there are airway adjuncts that are not currently accessible at your institution, it would be advantageous not only to one's colleagues, but it would also be beneficial to future patients if your institution could procure and familiarize its staff with these adjuncts. Video laryngoscopy has been more widely available because of technological advancements in recent years. Even though some emergency physicians may not have had formal training in the use of video laryngoscopy, there are several airway courses available to help them improve their skills. Although video laryngoscopy has significant limits when it comes to some patient presentations, it can also assist an emergency physician in managing some exceedingly challenging airways. When it comes to the treatment of problematic airways, the ever-expanding field of simula-

tion can be quite useful. Emergency physicians can practice with airway adjuncts that they may not be accustomed to employed in their clinical practice through the use of simulation. The use of airway adjuncts in simulation provides the ability for real-time feedback without the risk of patient deterioration. Emergency physicians should continually challenge themselves to become more comfortable with the airway adjuncts that are easily available to our practice—such as videolaryngoscopes, EGAs, cuffed pediatric tubes, and the pediatric bougie. There are many tools at our disposal; simulation can help us feel more comfortable utilizing them in times of crisis. ☘

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FACEPs IN THE CROWD

Get to know the Fellows of the American College of Emergency Physicians

ED DESCALLAR, MD, FACEP

Orange Park Hospital, Florida

ACEP Fellow Ed Descallar lives and works near Jacksonville, Florida. He's married to his high school sweetheart and they have two children, Elliot (3) and Shephard (2). In honor of Father's Day, we sat down to talk to him about how becoming a dad has changed his perspective at home and at work.

Q: How have you changed since becoming a dad?

Dr. Descallar: I've become a total softie since I've become a dad. I've probably become a lot more goofy, too, just because the kids are so crazy and they love the goofy side of me. Having kids definitely made me a more empathetic physician, especially to when I'm taking care of kids. Back in the day when it was just me and my wife, it felt a little more difficult to connect with the parent of a sick kid. Now, when you see a kid in the ER, you relate a lot of their problems or their concerns to what you would feel like as a parent.

My kids have enriched my life in the way that they've made me realize that there is more to life than lot of the superficial things that I used to value, like my hobbies. I still love to hang out with my friends or go play a round of golf. But at the end of



Dr. Descallar with his family.

the day, I feel like my children really reframed my perspective and my priorities. I think that's made me a better person.

The only thing that really surprised me about fatherhood is how attached you could become to these human beings. And I always thought that having more than one kid, your love would kind of be divided. But, you just have more love to give to these little humans, and it's kind of indescribable. 🧡

5 Fun Things with Dr. Descallar

- 1. Watching:** My wife and I have been watching *The Office* on repeat for the past six years. My favorite parts are the cold opens at the beginning of each episode.
- 2. Sipping:** Diet Coke or a light beer that you can drink on a boat when it's 90 degrees outside.
- 3. Eating:** I could eat pizza every day for the rest of my life. I never get sick of it.
- 4. Listening to:** I recently went to the Justin Bieber concert here in Jacksonville and I've just been listening to the set list over and over again. It's kind of embarrassing, but I'll own it.
- 5. Filling his free time with:** Golf. I'm not a good golfer by any means, but I'm good enough to have fun. I am a fast golfer—I know I'm horrible, so I don't try to hit a bunch of shots. I just pick up and move on.

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HEAT WAVE | CONTINUED FROM PAGE 12

ately be moved into the coldest possible spot, either shaded or air-conditioned, and cooled using anything at hand, like water from a hose, or fans blowing on damp skin. Ice packs, frozen vegetables, or cold cans of soda are all materials that can help cool—most efficiently if applied to armpits, groin, and neck. If nothing else, simply wiping skin with dampened cloths or clothing until it is cooler to the touch is beneficial. Cooling should continue en route to the hospital, regardless of how the patient is transported; if by ambulance, emergency medical technicians (EMTs) should begin treating the patient right away—with an infusion of cold fluids, for instance—and shouldn't skimp on lights or sirens. EMTs may also need to keep new or additional supplies on hand; they may need revamped guidelines for heat stroke treatment, particularly in areas that haven't historically experienced extreme high temperature.

Next, 9-1-1 operators and EMTs should call ahead to tell emergency departments that heat stroke victims are incoming. Hospitals should establish new alert systems that prioritize patients as soon as they arrive and ensure they're treated promptly and effectively. To that end, emergency care managers can work from an evidence-based protocol that one of us, Dr. Sorensen, has developed with colleagues from the medical schools at Harvard, University of Colorado, and University of Southern California. Preparatory options include establishing "cooling units" stocked with resources; investing in fans and ice machines; and making sure that body bags, which can be used to immerse patients in ice and water, are readily available ahead of heat waves. But education needs to

improve even among those who work in the emergency room. Staffers need to be trained so they can move quickly to bring back heat stroke patients—not only cooling them, but monitoring core temperatures, making sure airways remain open, and so on.

Leaders in emergency medicine need to face up to the new demands our warming world is putting on them. "The heat wave was so far outside of what we thought would happen here," says Hess, who is also the director of the Center for Health and the Global Environment (CHaNGE) at the University of Washington. He worries that next time, scorching heat could hit concurrent with another exceptional disaster—like a "smoke event," earthquake, or even a wildfire. "This is very much the canary in the coalmine. The health system needs to come together by region and think through these extreme events."

As the planet we live on continues to change, the dangers to our health will increase.

Among the many deleterious effects of climate change, the growing air quality disaster that wildfires represent is another urgent, burgeoning problem. Health care needs to ready itself. But most immediately—hospitals need to stop losing lives to the heat. 🧡

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World TravelERs: ETHIOPIA

The winding roads of the Ethiopian highlands.

How one emergency physician reconnects with her profession and her birthplace

by CEDRIC DARK, MD, MPH, FACEP, MEIC

This month, we explore the type of health care system experienced by much of the developing world. Termed the “voluntary system,” other than for some basic primary care, many countries that function this way do not offer comprehensive health care coverage to their citizens who often witness high out-of-pocket costs. Technically speaking, prior to the Affordable Care Act, much of the United States was part of a voluntary system of private health care insurers often only available to people holding a job with good benefits or for individuals purchasing their own plans.

Tsion Firew, MD, MPH, FACEP, is an emergency physician, assistant professor of emergency medicine at Columbia University in New York City, and an advisor to the Ministry of Health for the Federal Democratic Republic of Ethiopia. She has previously written for *ACEP Now* about her work for the World Health Assembly at the World Health Organization (WHO). Our conversation focused on Ethiopia’s health care situation and how their government tackles key issues.

Share a little bit of your background and why you’re so passionate about health care in Ethiopia.



Dr. Firew (middle) demonstrating an ultrasound to medical students.

Dr. Tsion Firew: I interned at WHO when I was a fellow in 2017. We worked on developing emergency care toolkits that could be used at first level entry hospitals in most places around the world. A year later, I joined the Ministries of Ethiopia’s advisory team. One thing we realized at that time was that a resolution on emergency care at WHO-level had not been passed for almost a decade. And that was a very im-

portant distinction because a lot of the medical priorities are set by donor markets. Most philanthropists and a lot of money for global health purposes go toward infectious diseases like tuberculosis (TB), HIV, and malaria, but not so much on health care system strengthening, like emergency care.

We were able to galvanize the support of the executive board committee at WHO to pass a

resolution on emergency care. The resolution passed in 2019 and outlined the needs and the gaps to make emergency care a reality. This victory happened coincidentally right before the pandemic, which as we know, emergency physicians have been at the forefront all over the world.

Ethiopia is the second largest country in

Africa by population with 115 million people. And going back to 1978, there is the Alma-Ata Declaration for Primary Health Care. There's been a focus in trying to get primary care universalized in Ethiopia.

Dr. Firew: This has been the case for the past 20–30 years to make primary care at the center of most of the discussions at the decision table. Emergency care is the other side of the coin of primary care. Because we see acute emergencies in the primary care settings mostly handled inappropriately by physicians who are not able to address many emergencies.

One other tidbit that was interesting to me is when we talk about the split of the Ethiopian population, about 80 percent is rural and only 20 percent is urban. That discrepancy really leads to some disparities in care.

Dr. Firew: Ethiopia is one of the poorest countries in Sub-Saharan Africa. The per capita income is only 850 dollars per year and a lot of people who live in urban areas (20 percent) usually pay out of pocket for their health care, while 80 percent of the population living in rural areas have access to community health services and primary level hospitals. Most of the health care is subsidized by the government to what we call the Community Based Health Insurance (CBHI). People pay very low amount of money per year to participate in CBHI and it's government subsidized for most care. But again, that's for very basic, preventative care and it doesn't cover surgical care and other subspecialty care.

What are some of the difficulties with having such a large proportion of health care being paid for out-of-pocket?

Dr. Firew: One of my first experiences working in Ethiopia as a senior resident was at a hospital called Black Lion Hospital, which is in the capital city, and it's also the hospital where I was born. And there were patients who were being referred from all over the country because it's the only hospital that has all the subspecialty surgical programs. And there are people that have waited for years for elective surgeries. Unfortunately for 80 percent of the population, that's the reality. For other people that live in the urban areas, people are willing to pay out of pocket. They're private hospitals and they're also private groups that you can pay out of pocket and be able to get that surgical care immediately. Many people will wait for knee replacements or hip replacements because in addition to the subspecialty services, it's the materials you're waiting to get imported from outside the country. For some people, waiting for elective surgery might be months to years.

What about things that are hopefully a little less expensive, like medications, as opposed to surgical procedures?

Dr. Firew: Some medications are available widely, and they're also subsidized by the CBHI program, especially for people in the rural areas. They're also restricted in a way, too. For example, there might be only five

medications that are available for a specific disease like hypertension. And if you want to buy other medications outside of that selection, or if your doctor recommends other medications outside of those five medications, you most likely will have to pay out of pocket. There are also a lot of issues with counterfeit medications.

One thing we saw during COVID, especially with the shutdowns, people closing their borders, and when India was suffering from the peak of the pandemic, they stopped exporting most of their medication. And because the medications are not being imported to Ethiopia, there were a lot of shortages that we witnessed all over the country.

Where else have you worked internationally?

Dr. Firew: I've worked clinically in Haiti and in Mosul, Iraq.

Taking your experiences from those three places, comparing it to Columbia University, how would you say they're different? How are they the same?

Dr. Firew: I think the personality of emergency physicians in general, including from our sarcasm, our problem-solving skills, our drive to help people, is very similar. When I worked in Mosul, Iraq, I was at a trauma stabilization point, which is a makeshift hospital in the middle of a war zone. There are missiles and bombs going off. And it's very difficult even to compare that to the stable clinical environment. All that said, there was nothing compared to what I experienced here in New York City during the pandemic. Even working in the richest countries, overnight, can become resource poor, and those skills come very handy in certain times.

Have you actually been a patient in Ethiopia where you can remember what happened? If so, how was that experience?

Dr. Firew: When I was pregnant and traveling in Ethiopia, I was about eight months pregnant and I made sure there was going to be a place that would give me an epidural in case I went into labor. I had to navigate that and there are not a lot of places that offer epidurals and I was very surprised, and only public hospitals and only a few anesthesiologists can administer it. I made sure to contact them, so I was kind of preparing for the worst. But, that's just typical emergency physician attitude in case I went into labor and did not want to go through this naturally. Thankfully, I was back in the U.S. by that time and had a planned birth.

Anything else you'd like to share to the readers about your experiences?

Dr. Firew: It's a little bit of a caveat, but emergency physicians are addicted to coffee and Ethiopia is seen as the birth place of coffee in an area called Kaffa. So, every time you drink coffee, thank an Ethiopian for discovering that for you! ☺



DR. DARK is assistant professor of emergency medicine at Baylor College of Medicine and the medical editor in chief of *ACEP Now*.

PROBLEM SOLVERS | CONTINUED FROM PAGE 1

prehensive review of the literature. How should such on-shift clinical questions be researched?

There are numerous options for answers to clinical questions. Clinical textbooks, such as Tintinalli's *Emergency Medicine: A Comprehensive Study Guide*, or Rosen's *Emergency Medicine*, are valuable resources for studying and answering clinical questions. Search engines may provide more current information. Google hosts more than 3.5 billion searches per day and has a 92 percent share of the global search engine market. Online review sources such as UpToDate are also rapidly accessible. Review of the literature is important, but can be difficult to accomplish in real time in the clinical environment. PubMed, a free search engine maintained by the United States National Library of Medicine at the National Institutes of Health, accesses the MEDLINE database of references and abstracts on life sciences and biomedical topics.

For this clinical question, let's go to PubMed. Multiple searches may be necessary to locate the relevant medical literature. Search terms "agitation" and "elderly" yield 7,257 results, far too many for an emergency physician to peruse while their patient is too agitated to get vital signs. Narrowing the search terms to "agitation," "elderly," and "emergency" in the last five years narrowed the search to 356 articles. Scanning through these results, it is easily recognized that many of these articles refer to music therapy and other nonpharmacologic modalities. An additional search term, to now include "agitation," "elderly," "emergency" and "pharmacologic" is now narrowed to 50 articles.

Articles of interest to the emergency physician include:

An article published by Gottlieb et al. in *Journal of Emergency Medicine* states¹:

"All patients should receive a point-of-care glucose test, with additional testing depending upon the specific patient presentation. Initial management should involve verbal de-escalation techniques, followed by pharmacologic interventions, with physical restraints reserved as a last resort. Pharmacologic options include first-generation antipsychotics (FGAs), second-generation antipsychotics (SGAs), benzodiazepines, and ketamine. Finally, the management of pediatric, pregnant, and elderly patients warrants special consideration...When medications are required, a lower dose should be used, with some experts recommending using no more than half the normal starting dose. Additionally, due to the potential for decreased breakdown and excretion of medications, titration should be slower than in younger patients. Benzodiazepines should be avoided, as their use in the elderly is associated with worse outcomes (e.g., central nervous system depression, respiratory depression, falls) even after a single dose. Although the literature is limited, either FGAs or SGAs are reasonable first-line pharmacologic agents. However, one should be cognizant of the increased potential for QTc prolongation, as many elderly patients are on concomitant medications that may interact with or prolong the QTc interval."

Another article by Mouaffak et al., published in *Expert Opinions in Pharmacotherapy*, states:

"Titration with a lower starting dose is recommended in elderly patients, due to possible decreases in pharmacokinetic clearance, and due to the risk of concomitant diseases and drug interactions. Exposure to some Aps (antipsychotic agents) has been associated with QTc prolongation and arrhythmias, and a small but significant increase in the risk of stroke and mortality with Aps has been seen, particularly in older people with dementia-related psychosis."²

These statements confirm recommendations from the first article.

A third article by Aftab et al., in *Psychiatry Clinics in North America* focuses on the agitated elderly patient.³ Key points from this article include:

- As a result of multiple physiological and pharmacokinetic changes, the elderly are more vulnerable to the side effects of medications and require lower doses of medications and slower rates of titration.
- The geriatric population is a high-risk group for suicide, with more serious intent, fewer warning signs and more lethality. Suicide risk assessment should be part of a standard emergency psychiatric assessment.
 - » Prompt diagnosis and treatment of delirium in emergency settings is essential given the association with worse outcomes such as prolonged hospital stay, risk of cognitive decline, and increased mortality.
 - » Behavioral interventions for agitation in dementia are the first-line measure before pharmacologic interventions. Pharmacologic options with demonstrable efficacy are mostly limited to antipsychotics, the use of which is problematic, as all antipsychotics increase the risk of mortality in dementia.

As a result of this brief literature search, it is evident that the recent literature supports the use of pharmacologic agents for the treatment of agitated elderly patients. Appropriate agents may include risperidone, olanzapine and aripiprazole. Low doses should be initiated. Benzodiazepines should be avoided. Suicidal risk should be assessed. Etiologies of altered mental status should be investigated, including trauma, pain, infection, or medication effect. ☺

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TransGluteal Sciatic Nerve Block

This new nerve block treatment could be a key method for relieving pain in patients with sciatica

by ANDREW J GOLDSMITH, MD, MBA;
JOSEPH BROWN, MD; JEFF HERRALA,
MD; AND ARUN NAGDEV, MD

Sciatica is radicular pain radiating down the buttocks along the course of the sciatic nerve. It is a common cause of low back pain, a complaint responsible for up to 2.7 million or 2.4 percent of annual United States emergency department (ED) visits.^{1,2}

Typically, the ED treatment of sciatica pain is limited to various analgesic regimens. Nonsteroidal anti-inflammatory drugs (NSAIDs) provide superior pain relief when compared to placebo.³ Opioids are commonly used in the treatment for sciatica, however, the long-term potential for misuse and abuse drastically decreases their utility outside of the ED.⁴ In addition, recent data demonstrate that a single dose of opioids in the ED is not superior to alternatives.⁵ With such limited options for managing acute pain, additional modalities are needed.

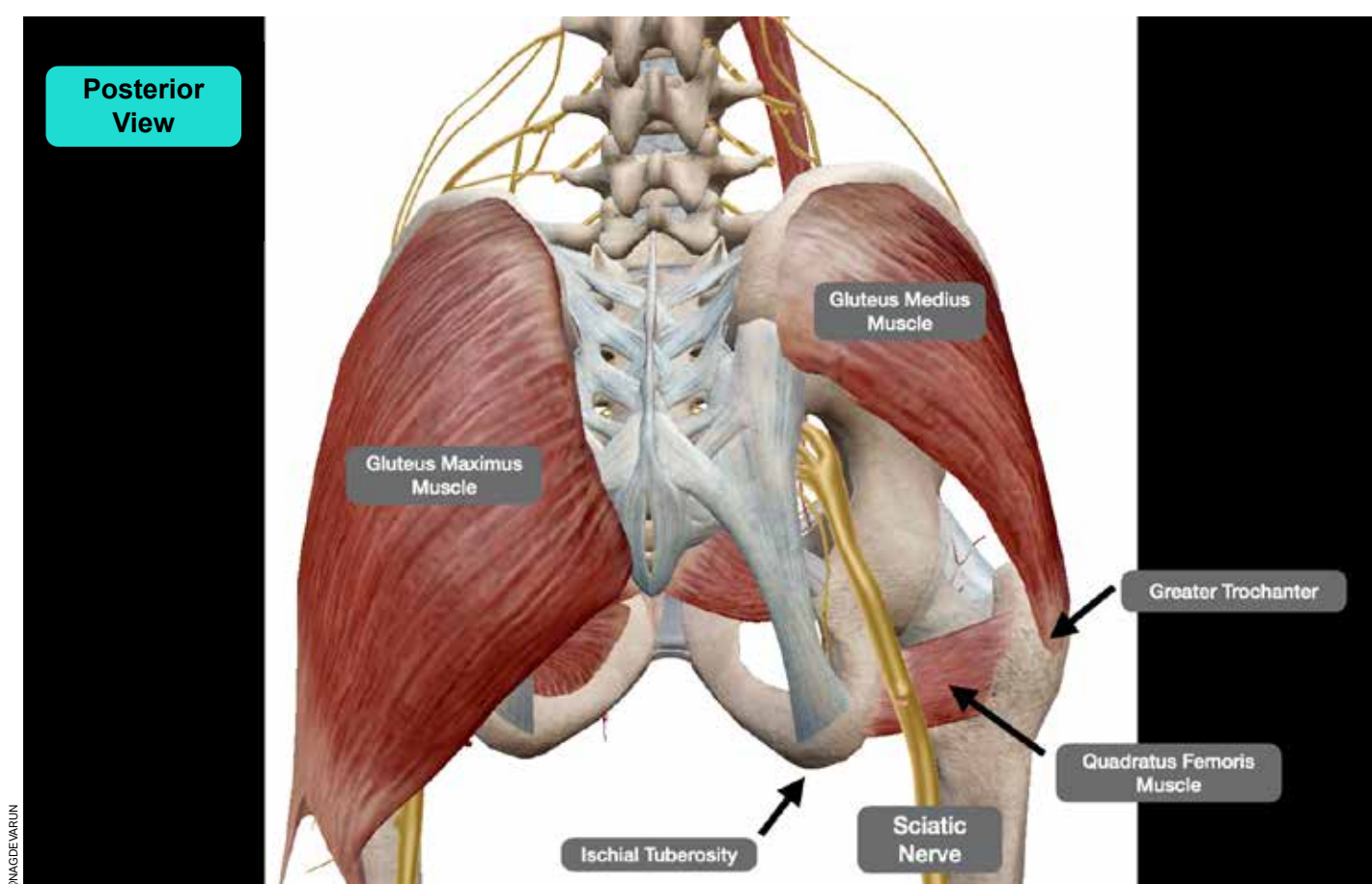
The ultrasound-guided transgluteal sciatic nerve block (TGSNB)—a relatively new block—was first described in 2019 in emergency medicine literature as an analgesic technique for radicular sciatic pain.⁶ The TGSNB targets the sciatic nerve in the proximal leg leading to radicular pain relief. Although commonly used in anesthesia literature for orthopedic and podiatry surgeries, TGSNB utilization was uncommon until a recent case series demonstrated its superior pain relief in acute sciatica.⁶ Given the high volume of patients with sciatica in the ED, the TGSNB offers a highly effective or adjunctive pain treatment modality for many ED patients.

Anatomy and Innervation

The TGSNB targets the sciatic nerve at the level of the greater trochanter. Anatomically, the sciatic nerve is identified inferior to the gluteus maximus muscle as it courses adjacent to the ischial tuberosity (medially) and greater trochanter (laterally) (Picture 1). The sciatic nerve provides sensory innervation to the skin of the lower foot and lower leg. The medial aspect of the lower leg is innervated by the saphenous nerve. The peroneal branch of the sciatic nerve provides motor innervation to the muscles that dorsiflex the foot. As we are providing anesthetic proximally, one potential temporary side effect of the TGSNB is a foot drop.

Supplies

1. Low-frequency curvilinear transducer (5–1 MHz) allows for greater visualization of the sciatic nerve and surrounding landmarks given their depth. In thin patients, and when learning to locate relevant anatomy, a high frequency linear transducer may be used (13–6 MHz).
2. Anesthetic: 10 ml of 0.5 percent bupivacaine (5 mg/mL; maximum 2 mg/kg). Optional: 4–8 mg of dexamethasone may be added to increase half life of the bupi-

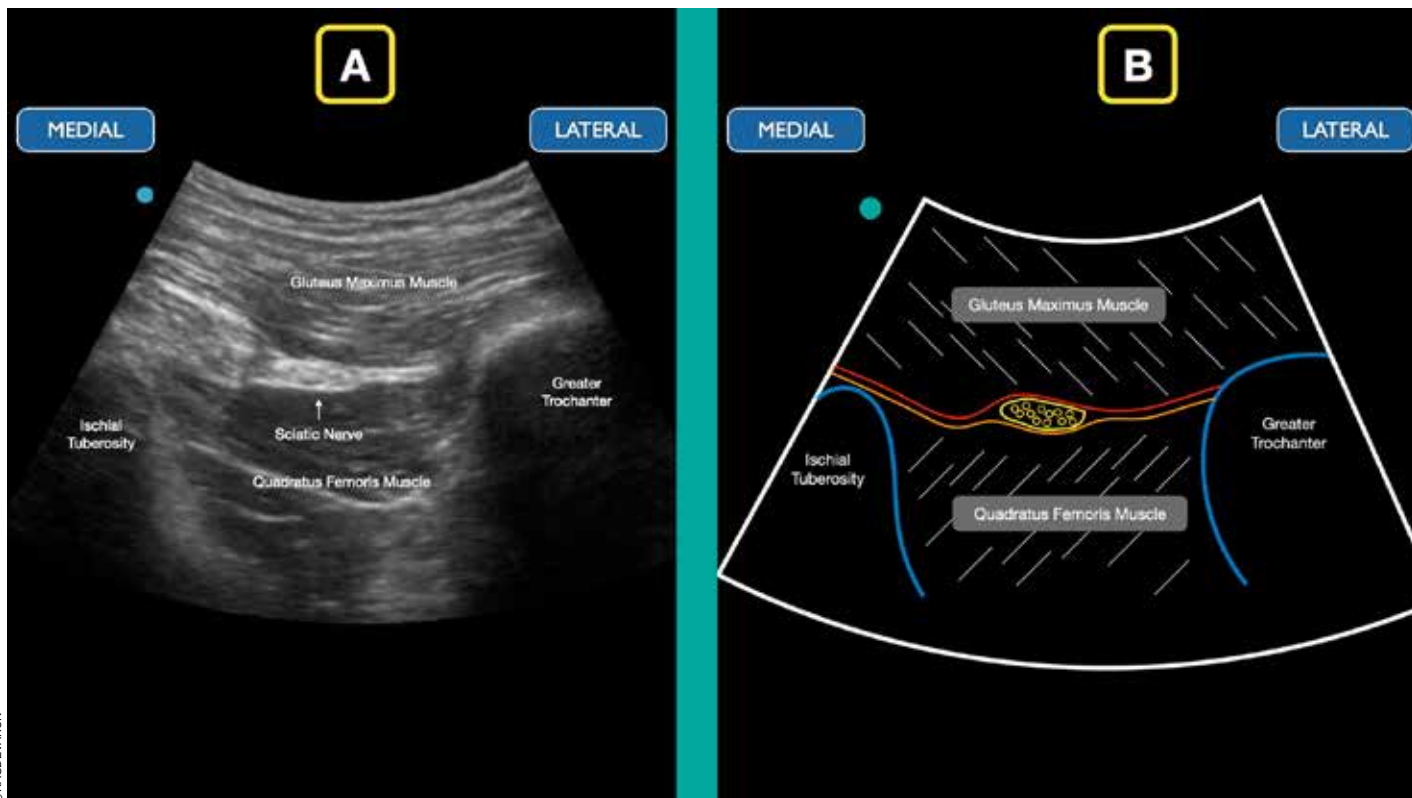


PICTURE 1: Anatomy image from the posterior view with relevant anatomy. On the right side, the gluteus maximus is left intact. On the right, the gluteus maximus has been removed so that the sciatic nerve can be clearly visualized running above the quadratus femoris muscle, and between the great trochanter (lateral) and ischial tuberosity (medial).



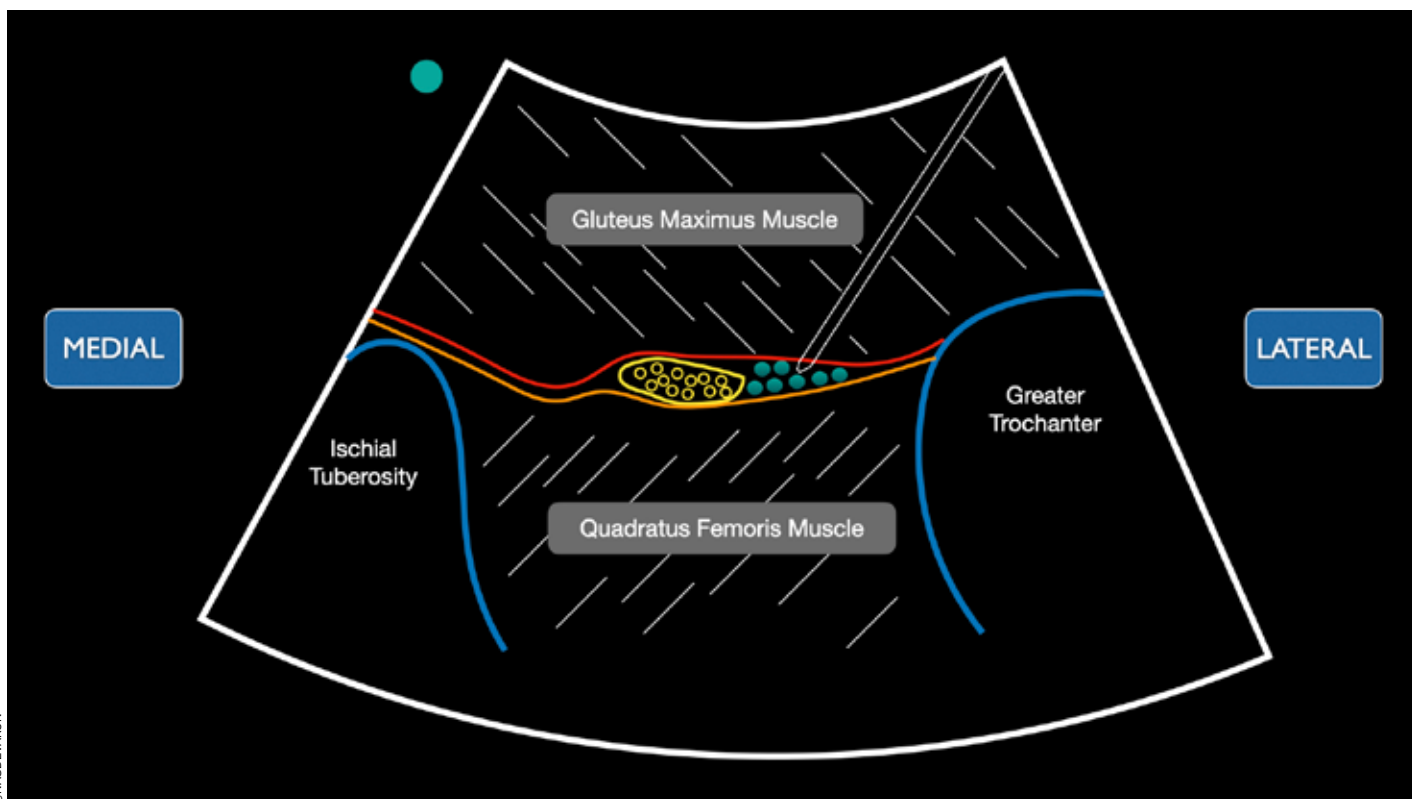
PICTURE 2A: Place the patient in a lateral position, if possible, with mild knee flexion. Note the probe (red oval) with the probe marker (green circle) pointed to the ischial tuberosity (medial).

PICTURE 2B: Representative anatomy when placing the ultrasound transducer in between the greater trochanter and ischial tuberosity. Note the in-plane lateral to medial needle approach in the top image. Also, note the quadratus femoris muscle (blue star). Green circle indicates probe marker.



PICTURE 3A: Ultrasound image for the TGSNB. Note the greater trochanter and ischial tuberosity. The sciatic nerve is located in the fascial planes between the gluteus maximus muscle (superficially) and the quadratus femoris muscle (deeper).

PICTURE 3B: Schematic representation of the ultrasound image.



PICTURE 4: Schematic of an in-plane lateral to medial approach with a blunt block needle. Note that the anesthetic is placed in the fascial plane adjacent to the sciatic nerve. Note the nerve encompasses the yellow circles and the anesthetic is the green/blue circles.

vacaine.

- One 10 cc normal saline flush to hydro-dissect the sciatic nerve away from the gluteus maximus.
- 100 mm 21 gauge blunt-tip block needle or 20–22 gauge Quinke spinal needle (90 mm). Needle visualization for deep target blocks is significantly easier when using echogenic block needles.
- 91 cm or 36 inch tubing (if not using a block needle).
- Chlorhexidine skin prep.
- Transparent dressing (Tegaderm) for the transducer and sterile gel-packets.
- 25–30 g needle for local skin wheal.

Procedure

1. Pre-block

The clinician should be knowledgeable of the signs, symptoms, and treatment of local anesthetic systemic toxicity (LAST) and have 20 percent lipid emulsion therapy readily available for this rare but potentially serious complication. We recommend placing the patient on a monitor.

2. Positioning

The patient's proximal affected leg should be exposed. The patient should be in a lateral decubitus position with the affected side up and the knee flexed at a 90 degree angle. The ultrasound machine should be placed so that the clinician can look directly at the screen as well as the site of needle entry in the same line of sight (Pictures 2A and 2B).

3. Procedure Details

With the patient in the lateral decubitus position, palpate for the greater trochanter laterally and the posterior superior iliac spine medially. A line between the two landmarks will indicate the path of the needle. A curvilinear probe (1–5 MHz) should be placed along this line.

The greater trochanter will be located laterally and the ischial tuberosity should be located medially identified as hyperechoic structures on the screen. In some patients, the ischial tuberosity will be hard to identify. The sciatic nerve will appear as a flattened, round or triangular hyperechoic

structure lying within the fascial plane between the gluteus maximus and quadratus femoris muscles. It will usually be located about 4–6 cm below the skin. (Pictures 3A and 3B)

If having difficulty identifying the sciatic nerve at this level, you can also identify the distal sciatic nerve in the mid to distal posterior thigh and follow the nerve proximally to the level of the ischial tuberosity and greater trochanter. This video explains how to perform an ultrasound-guided distal sciatic nerve block in the popliteal fossa: <https://www.acepnow.com/multimedia/ultrasound-guided-distal-sciatic-nerve-block/>.

4. Skin Wheal

After satisfactory identification of the proximal sciatic nerve, widely prep the skin with chlorhexidine, allow to completely dry, and place 2–3 mL lidocaine skin wheal, 2–3 cm cephalad, or caudad to the transducer. The site can be either cephalad or caudad to the probe as the sciatic nerve can be approached from either direction. After sterile

prep, place a lidocaine skin wheal at the insertion site using a 27 gauge needle.

5. Needle Entry

With the transducer fixed over the targeted nerve, using an in-plane approach, insert a block needle and/or blunt tip needle and advance at approximately 70 degrees from the greater trochanter down toward the sciatic nerve (Picture 4). After the 1–2 cm of insertion, stop further needle advancement and make subtle probe adjustments until the needle is visualized. Continue advancing with in-plane ultrasound guidance to position the needle tip approximately 1–2 cm away from the nerve. Once the needle tip is visualized adjacent to the sciatic nerve, aspirate prior to injecting small aliquots of sterile saline to hydro-dissect the gluteal maximus fascial plane. Anechoic fluid should be seen separating the fascial plane away from the sciatic nerve. (Picture 4) After aspiration to ensure no vascular puncture, small aliquots of anesthetic are first injected deep to the sciatic nerve followed by the medial aspect of the nerve. Afterwards, advance the needle to the far side of the nerve, aspirate to ensure no vascular puncture, and inject small aliquots of anesthetic on the far side then the proximal aspect of the nerve. In our experience, this order of injection helps prevent any obscuring of the nerve of interest in case there is a small amount of air that was not fully expressed from the needle or tubing prior to initiating the procedure. Ensure that the injected anechoic fluid is not placed in the gluteus maximus muscle or into the sciatic nerve itself.

Summary

The TGSNB is a simple, safe block that can provide pain relief to a large number of patients in your ED. Given its effectiveness, this can be a valuable tool for acute multimodal pain control for a condition that usually can be difficult to manage with traditional oral analgesics. The combination of dexamethasone to a long-acting anesthetic may provide longer pain relief and further provide additional time for your patient to get ahead of their pain cycle. 📌

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Addressing Social Needs In and Out of the ED

by VIDYA ESWARAN, MD

The emergency department (ED) has long been described as the, “safety net of the safety net,” providing care to anyone, for anything at any time, including the most vulnerable of populations. Emergency physicians have long seen the impact of social factors such as food scarcity, housing instability, and discrimination (including systemic racism) have on the health and well-being of our patients—issues that are pervasive regardless of one’s location or practice setting.

I disagree with those who assert that addressing social needs is outside the purview of the field of medicine. The COVID-19 pandemic is an extreme, but excellent, example of the interconnections between public policy and public health. As Dr. Rudolph Virchow famously stated, “medicine is a social science,” indicating that physicians cannot practice in a vacuum and ignore the social context of our patients’ (and our own) lives and experiences.

While the first step in creating change is to identify the problem, much more is needed to make a meaningful difference. Much scholarly work has been done identifying social needs among patients in the ED and elsewhere, and multiple pilot programs have been created to identify and address some of these needs in select populations. Be that as it may, numerous gaps remain, especially among ED populations, as described in the 2021 Society for Academic Medicine Consensus Conference which served to identify further research priorities within this arena.

Outside of the academic arena, changes can also be made to ad-

dress these needs. The implementation of the Affordable Care Act in 2010, which incentivized many health care organizations to prioritize ‘value-based care’ and patient outcomes, may have provided some of the impetus for organizational changes. Currently, federal Medicaid rules do not allow for non-medical (i.e., social) expenditures, though this is not the case at the state level, and in January of 2021, the Center for Medicaid and Medicare Services (CMS) issued guidance educating states on how they may use allocations to “support states with designing programs, benefits, and services that can more effectively improve population health, reduce disability, and lower overall health care costs in the Medicaid and CHIP programs by addressing [social determinants of health].”

Of course, for a truly public-health centered approach, one must ensure solutions are evidence-based. The data from pilot studies to date are mixed, with some projects showing improvements in ED utilization and decreased inpatient hospitalizations, while others fail to show significant benefit. Indeed, the article reviewed in a recent Health Policy Journal Club column had similarly mixed results. Does this mean that efforts within health care to address social needs are untenable? I argue no. But rather, we must continue to study the problem and potential solutions (with an eye towards patient-centered outcomes) and encourage policy makers to ease the barriers to change. This will necessarily involve bringing our patients and our communities to the table, as the most important stakeholders in these efforts and as the reason we joined the profession in the first place. As Dr. Halloran mentions in her column, only five percent of health care dollars go towards population health improvement—an area ripe for growth if we are to improve the health and well-being of the patients we serve. 🍌

Care Coordination Decreased Inpatient Hospitalizations by 40%

by DR. DIANA HALLORAN

The population of older adults is expected to double by 2050—and it is anticipated that emergency department visits and hospitalizations among this group will continue to rise. Given our already overburdened health care system, which has become even more strained with the COVID-19 pandemic, it will be pivotal to identify interventions that can reduce the strain on hospitals and health care workers.

A recent article did just that by assessing changes in health care utilization after enrolling older adults in a community care connection program.¹ The program aimed to coordinate health care and social services for older adults to minimize hospitalizations and emergency department visits and to improve health outcomes. Interestingly, the program was associated with 40 percent fewer inpatient hospitalizations within the 90 days after program enrollment but was not associated with fewer ED visits. The authors suspect the absence of reduced ED visits could be due to errors in matching the enrollment group to the comparison adult group, underlying institutional or social factors, or the continued care-seeking behavior of the patients who desired to visit the ED.

Overall this paper is consistent with previous studies showing evidence of decreased hospitalizations upon the addition of social interventions. Managing patients’ medical issues without addressing their social needs ignores the effect of social determinants on health. The joining of health care and social programs, such as meal programs and care coordination, can be fundamental in improving health care systems and patient care overall. However, the data are not straightforward. A systematic review revealed the limited availability of research on emergency department visit reduction programs, and a recent randomized controlled trial regarding assigning health care super-utilizers to a care-transition program failed to reduce readmission rates. The union between health care and social programs remains a complex issue and the previously mentioned research demonstrates the need for additional studies and discussion in this area.

We as emergency physicians are aware of the importance that social needs have on health, yet the health care system itself lags behind. There remains a huge imbalance between national funding for health care and health improvement. Of the nearly four trillion dollars spent on health, 95 percent goes directly to medical care services, while just five percent is put aside for population health improvement. This represents a large area for opportunity to connect social services to health care, which could simultaneously improve patient health and reduce the burden on our health care system. 🍌

¹ Fisher EM, Akiya K, Wells A, Li Y, Peck C, Pagán JA. Aligning social and health care services: The case of Community Care Connections. *Prev Med*. 2021 Feb;143:106350.

TOXICOLOGY Q&A



PHOTO: JASON HACK (OLEANDER PHOTOGRAPHY)

Don't Eat Those Berries!

How a common flowering plant causes death within hours of ingesting its berries

by JASON HACK, MD

The Lantana camara is a striking plant often used in gardens as a focal point. Its tiny flowers are highly aromatic, with four angled stems and leaves that are elongated ovate, rough surfaced with dentate edges. This plant's bundle of vibrant flowers range in color from white, yellow, pink, red, orange or purplish, and often two-toned. When it fruits, they are clustered, shiny, round, and range in color from green (when unripe) to deep blue/black when ripe.

All parts of the plant are potentially toxic, but especially its roots and berries.

Toxin

L. camara contains a variety of toxic chemicals located throughout its structure: primar-

ily toxic pentacyclic triterpenoids known as lantadenes; additionally toxic flavonoids, lantadene A, and icterogenin; taxa and oleanic oil, are found in roots; in leaves and flowers bisabolene, traces of monoterpenes, and sesquiterpenes have been found.¹

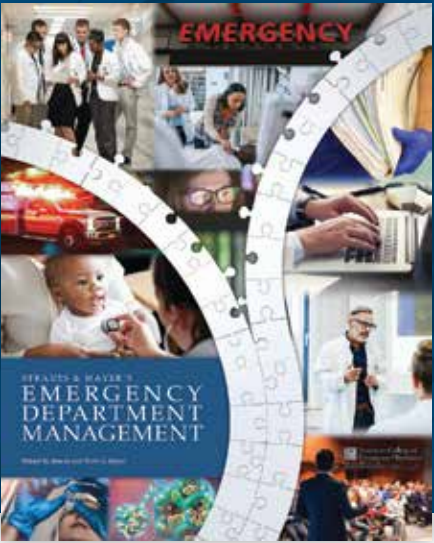
Animal toxicity

The plant is especially toxic to grazing animals and causes a variety of illness and even death when eaten by horses, sheep, goats, and other grazing animals. Vomiting, jaundice, hepatitis, and hematuria may occur. A large dose of the leaves will kill a full-sized animal over the course of several days. While the ripe berries are potentially edible, the unripe green berries can be fatal.

CONTINUED on page 22

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Toxicology Q&A

CONTINUED FROM PAGE 21

Autopsy findings include a necrotic hepatotoxicity.

Human Toxicity

In June 1961, a two-and-a-half-year-old girl from Tampa, Florida, collapsed and died within two hours of becoming ill. Her autopsy indicated she had a large quantity of chewed berries in her small intestine. The parents reported a large lantana bush loaded with fruits she, and three other children, had been eating. The other children were located and one had been experiencing nausea, vomiting, and abdominal pain. His lavage found many green lantana berries, swallowed but not chewed. The two other children were not ill.^{2,3}

Most recent human exposures are found to be mostly young children—generally from ingestion of berries. Less than 10 percent had major effects. The primary symptom was gastrointestinal with nausea and vomiting followed by fever and rash.⁴

Antidote

There is no antidote.

Treatment

In the 17 cases seen in Florida in the early 1960's, the primary treatment was gastrointestinal decontamination and supportive care.

Herbal Use

In South America, a decoction (or tea) from the leaves has been used as an intestinal stimulant for gastric illnesses, an emmenagogue, and diuretic; it has been variably used for rheumatism, colds and fever, hypertension, diarrhea, and even for snake bites (not suggested by the author).⁵

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Academic & Clinical Faculty Opening

The Department of Emergency Medicine at Baylor College of Medicine (BCM) is looking for Faculty who are interested in a career in Academic Emergency Medicine. We are currently hiring faculty of all ranks commensurate with prior experience and seeking applicants who have demonstrated a strong interest and background in a variety of areas (eg. research, simulation, ultrasound, disaster medicine, ems, toxicology, etc...). Clinical opportunities are also available at our affiliated hospitals.

Baylor College of Medicine is located in the world's largest medical center in Houston, Texas. The Baylor Emergency Medicine Residency was established in 2010, and received department status in Jan 2017. Our residency program has grown to 16 residents per year in a 3-year format. We offer a highly competitive academic salary and benefits commensurate to academic level and experience.

Our academic program is based out of [Ben Taub General Hospital](#), [Baylor St. Luke's Medical Center](#), [DeBakey VA Medical Center](#) and [Texas Children's Hospital](#). Ben Taub General Hospital is the largest Level 1 trauma center in southeast Texas with certified stroke and STEMI programs that sees nearly 80,000 emergency visits per year. Baylor St. Luke's Medical Center is home to the Texas Heart Institute and is a tertiary referral center with multiple transplant programs and many high acuity patients. Texas Children's Hospital is consistently ranked as one of the nation's best, largest and most comprehensive specialty care pediatric hospitals. These affiliations, along with the medical school's preeminence in education and research, help to create one of the strongest emergency medicine experiences in the country.

MINIMUM REQUIREMENTS

Education: M.D. degree or equivalent
Experience: Previous experience in Research, Simulation and Toxicology strongly preferred but not required
Licensure: Must be currently boarded or board eligible in Emergency Medicine and eligible for licensure in state of Texas.

Those interested in a position or further information may contact [Dr. Dick Kuo](#) via email dckuo@bcm.edu or by phone at 713-873-2626. Please send a CV and cover letter with your past experience and interests.



HENRY J.N. TAUB
DEPARTMENT OF
EMERGENCY
MEDICINE

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Penn State Health Emergency Medicine

About Us:

Penn State Health is a multi-hospital health system serving patients and communities across 29 counties in central Pennsylvania. The system includes Penn State Health Milton S. Hershey Medical Center, Penn State Children's Hospital, and Penn State Cancer Institute based in Hershey, PA; Penn State Health Holy Spirit Medical Center in Camp Hill, PA; Penn State Health St. Joseph Medical Center in Reading, PA; and more than 2,300 physicians and direct care providers at more than 125 medical office locations. Additionally, the system jointly operates various health care providers, including Penn State Health Rehabilitation Hospital, Hershey Outpatient Surgery Center, Hershey Endoscopy Center, Horizon Home Healthcare and Pennsylvania Psychiatric Institute.

In December 2017, Penn State Health partnered with Highmark Health to facilitate creation of a value-based, community care network in the region. Penn State Health shares an integrated strategic plan and operations with Penn State College of Medicine, the university's medical school.



We foster a collaborative environment rich with diversity, share a passion for patient care, and have a space for those who share our spark of innovative research interests. Our health system is expanding and we have opportunities in both an academic hospital as well community hospital settings.

Benefit highlights include:

- Competitive salary with sign-on bonus
- Comprehensive benefits and retirement package
- Relocation assistance & CME allowance
- Attractive neighborhoods in scenic Central Pennsylvania



PennState Health

FOR MORE INFORMATION PLEASE CONTACT:

Heather Peffley, PHR CPRP - Penn State Health Physician Recruiter
hpeffley@pennstatehealth.psu.edu

Penn State Health is fundamentally committed to the diversity of our faculty and staff. We believe diversity is unapologetically expressing itself through every person's perspectives and lived experiences. We are an equal opportunity and affirmative action employer. All qualified applicants will receive consideration for employment without regard to age, color, disability, gender identity or expression, marital status, national or ethnic origin, political affiliation, race, religion, sex (including pregnancy), sexual orientation, veteran status, and family medical or genetic information.