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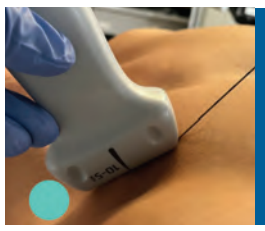

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www.acepnow.com

A Conversation with Dr. Aisha Terry

Enhancing the leadership pipeline; protecting patients and the emergency physician

by CEDRIC DARK, MD, MPH, FACEP

Twice a year, the Medical Editor in Chief of *ACEP Now* sits down with the ACEP President to discuss issues relevant to the College and issues important to emergency physicians. I solicited several of these questions from online emergency-physicians' forums in order to bring the voice of our colleagues directly to the leadership of the College. The accompanying article is an excerpt of the conversation I had with Dr. Aisha Terry.

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ACEP4U: Step Up to Guide the Direction of the College

Be recognized for your contributions

It's nomination season at ACEP, and opportunities are now available for those who want to engage a little more deeply with the College.

Board of Directors Nominations Due March 11

It's been said that a true measure of a leader is knowing when it is time to accept the challenge of leadership. Carefully considering their education, life experiences, and potential will help determine when they are ready to lead.

If this self-assessment results in you wanting to take those next steps, consider submitting a nomination to be part of ACEP's leadership as a member of the national Board of Directors, Council Speaker, or Council Vice Speaker.

Among other factors, the ACEP Nominating Committee will consider activity and in-

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CASE PRESENTATION

A Curious Wound in Chicago

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NEWS FROM THE COLLEGE

UPDATES AND ALERTS FROM ACEP

ACEP

ACEP Leaders Meet with DOJ Antitrust Department

ACEP President Aisha T. Terry, MD, MPH, FACEP, ACEP Executive Director & CEO Susan Sedory, MA, CAE, and Senior Vice President of Advocacy & Practice Affairs Laura Wooster met in December with Jonathan Kanter, the United States Assistant Attorney General for Antitrust and with other key Department of Justice staff to discuss the growing negative impact of insurer consolidation on emergency physicians and the patients who trust us with their care.

This focus on insurer consolidation broadens ACEP's recent advocacy efforts with the Federal Trade Commission on hospital and physician consolidation, non-competes, and corporatization of medicine.

In the meeting, ACEP raised concerns about the impact on clinical decision making and physician autonomy brought about by vertical consolidation from insurers who directly employ physicians. ACEP also discussed the rapidly diminishing leverage that emergency physician groups have during contract negotiations, as insurance companies have acquired increasing market share via consolidation. Discussions also involved implementation of the *No Surprises Act*.

ACEP will continue to work with the DOJ on these and other related issues so emergency physicians can maintain and protect their professional autonomy, thrive in supportive and fair practice environments, and provide high-quality emergency care to their patients.

Be Prepared for All Pediatric Challenges

Whether you want to brush up on your pediatric EM skills or take your dual-boarded training to the next level, the Advanced Pediatric EM Assembly helps you be prepared for any pediatric patient you may treat. Live and in person for the first time in three years, the PEM Assembly is part of this year's ACEP Accelerate, where you can fuel your future with four different, professional, enhancing tracks, including the ED Director's Academy and the Reimbursement and Coding Conferences. Learn more at acep.org/accelerate.

New Point-of-Care Tool on RA Now Available

A rheumatoid arthritis point-of-care tool can help you identify symptoms, treatment and outpatient referrals of a condition you may not always see in the ED. It's the latest resource in ACEP's point-of-care toolset, designed to transform care at the bedside. The specialty's top experts and thought leaders helped develop these algorithm-based online tools for easy access to both common and rare presentations. Download the ACEP app for your devices or use the web-based version online on acep.org/poctools.

Member Benefit: LLSA Prep is FREE

Included with your ACEP membership, this year's Literature Review in Critical Decisions offers brief summaries of select articles on the 2024 Lifelong Learning and Self-Assessment reading lists. Also in ACEP's Maintenance of Certification Center, you'll find quick access to all the articles on the reading lists for EM as well as the subspecialty boards. Discover more at acep.org/MOC.

New Quality Podcast Now Available

Learn about new quality innovations with a variety of EM experts by subscribing to ACEP's newest podcast—Qual-ED: Exploring Quality in Emergency Care. The inaugural episode introduces Quality Improvement leaders Arjun Venkatesh, MD, FACEP, and Kori Zachrison, MD, FACEP, who discuss findings from past years of the E-QUAL project's stroke initiative. Look for "Qual-ED" in your preferred podcast platform.

Inside

RESIDENCY SPOTLIGHT

MERCY ST. VINCENT MEDICAL CENTER

Location: Toledo, OH

Instagram: @cherrystreetem

Year founded: 1974

Number of residents: 42

Program length: 3 years

COURTNEY KEEL, MD

EMS Day mass casualty incident after a simulated plane crash at the Owens Community College Center for Emergency Preparedness.

What Does Your Program Offer That Residents Can't Get Anywhere Else?

One of our former residents described our program as "a community program with county patients but university faculty." While being the tertiary care center of the Mercy system in northwest Ohio, St. V's is the only hospital remaining in downtown Toledo and receives 70 percent of local EMS traffic, ensuring high acuity. In addition to robust simulation and ultrasound experiences, our program has optional concentrations for pre-hospital/EMS, event medicine, and wilderness medicine. Our senior residents may serve as flight physicians on our Mercy Life Flight helicopters as full crew members. Annually our program hosts the Midwest MedWAR (Medical Wilderness Adventure Race). Fun fact: MedWAR was co-founded by one of our faculty in 2001. Finally our program conducts an annual EMS Day with local prehospital agencies during which our residents participate in hazmat and tactical medical training, rope rappelling and rescue, MVC extraction, and culminates in a mass casualty incident.

What Are Some Fun Activities Residents Like to Partake in or Recently Participated In?

Each quarter, instead of weekly didactics, our program leaves the classroom for a "Fifth Wednesday," where residents, faculty, and nurses participate in a fun team building activity. This always starts as lighthearted fun, but of course becomes intensely competitive...we are emergency physicians after all! In recent years we have played wiffleball, softball, ultimate Frisbee, climbing gyms, putt-putt and go karts, an end of summer pool party, ax throwing, pumpkin carving and gingerbread house competitions for the holidays.

How Should Potential Applicants Learn More About Your Program?

https://mercymedicalresidency.org/wp/index.php/emergency-medicine/

volvement in the College, the Council, and component bodies; leadership experience in other organizations or practicing institution; candidate diversity; and specific experiential needs of the organization when considering the slate of candidates.

Members of the Board of Directors serve 3-year terms that begin after the Board meeting following their election. The ACEP Council, among its other responsibilities, elects four members to the Board of Directors each year.

Made up of ACEP's 53 chartered chapters, its sections of membership, the Association of Academic Chairs in Emergency Medicine (AACEM), the Council of Residency Directors in Emergency Medicine (CORD), the Emergency Medicine Residents' Association (EMRA) and the Society for Academic Emergency Medicine (SAEM), the ACEP Council ensures grass-roots involvement in ACEP's democratic decision-making process.

To qualify for a Board position, a candidate must:

- Be highly motivated to serve ACEP and be committed for three years for a Board position;
- Be an ACEP member in good standing with no delinquent dues;
- Show evidence of ACEP involvement in both national and chapter activities (such as current or past chapter officer, current or past national committee leadership, current or past Council membership, or current or past section leadership);
- Show chapter and/or section support for candidacy.

To submit a nomination by March 11 or find out more about the process, visit acep.org/board-nominations.

Leadership Award Nominations Due March 12

ACEP's Awards Program was developed for one reason—to recognize your leadership and excellence.

The program provides an opportunity to recognize members in all career stages and environments for significant professional contributions as well as for service to the College. All members of ACEP are eligible to participate in one or more of the College's award programs. Separate nomination forms must be submitted for each award category.

The deadline to submit nominations is March 12. Find each award's description, criteria and nomination portal at acep.org/leadership-awards.

The 2024 ACEP Leadership Awards include:

- **John G. Wiegenstein Leadership Award:** Must be an active, life, or honorary member of ACEP and a past or current member of the Board of Directors or officer of the Council; must possess personal leadership attributes and serve as a role model for ACEP members; and must have made an outstanding contribution to ACEP by significantly helping to achieve ACEP's purposes and objectives. Recipients of this award are ineligible to receive awards in other categories of the Awards Program.
- **James D. Mills Outstanding Contribution to Emergency Medicine Award:** Must be an active, life, or honorary member of ACEP and have made a significant contribution to emergency medicine through a variety of avenues, such as improved patient-care delivery modes, cost containment, quality-of-care improvements, disaster planning, improved EMS organization, public education, and ACEP committee service. Recipients of this award are ineligible to receive awards in other categories of the Awards Program.
- **John A. Rupke Legacy Award:** Must be a member of ACEP for more than 25 years with sustained contributions in the local, state, or national emergency-medicine communities as a consensus builder, with humanitarianism, and as an advocate for the profession. The member must have also demonstrated exceptional commitment of time and dedication to emergency medicine and to improving the care of emergency patients. Previous recipients of the Wiegenstein or Mills awards are not eligible to receive this award.
- **Colin C. Rorrie, Jr., PhD Award for Excellence in Health Policy:** Must be a person of distinction who has made an outstanding contribution to medical health policy or to the development or support of legislation and/or regulations that enhance access to emergency medicine, shown exemplary performance as an administrator in medicine and health care, or made outstanding contributions to organized medicine.

ACEP

Several ACEP Awards winners and their guests celebrated their honors during a reception at ACEP23 in Philadelphia last year.

- **Award for Outstanding Contribution in Research:** Must be a member of ACEP and have made an outstanding contribution to research in emergency medicine as demonstrated in accomplishments such as outstanding research and publication of original research.
- **Award for Outstanding Contribution in EMS:** Must be a regular member of the College that has made an outstanding contribution of national significance in the area of EMS and/or an outstanding contribution to the development, promotion, maturation or education of EMS on a state or national level with related national significance or application.
- **Council Meritorious Award:** Must be an active, life, or honorary member of ACEP and a past or current Councillor who has served for at least 3 years, and have contributed to the Council through Steering Committee membership, Reference Committee participation, participation on other Council committees, resolution development and debate, longevity as a Councillor, or service as a Council officer.
- **Judith E. Tintinalli Award for Outstanding Contribution in Education:** Must be a member of ACEP and have made an outstanding contribution to academic emergency medicine through areas such as development of teaching tools and resident education.
- **Honorary Membership Award:** Individuals who have made an outstanding contribution to ACEP by significantly helping to achieve one or more of the College's purposes and objectives, or who have served as a role model for ACEP members, with personal attributes such as inspiration.
  - » Candidates for honorary membership cannot be currently eligible for other categories of College membership. Chapter executives are eligible for nomination only after leaving employment from the chapter.
- **Policy Pioneer Award:** Must be a regular member of the College within their first 10 years of practice following residency or fellowship, and have made an outstanding contribution early in their career to medical health policy or administration by: significantly helping to advance a health policy agenda supportive to medicine and medical care; or development or unceasing support of legislation and/or regulations that enhance access to emergency medicine in particular and healthcare in general; or exemplary performance as a physician or non-physician administrator in medicine and health care; or making outstanding contributions to organized medicine. Previous recipients of the Colin C. Rorrie Jr., PhD Award for Excellence in Health Policy are not eligible to receive this award.
- **Pamela P. Bensen Trailblazer Award:** Must be a current member who has made seminal contributions over time to the growth of the College and to the specialty of emergency medicine. Previous recipients of the Wiegenstein, Mills or Rupke Awards are not eligible to receive this award. Recipients of this award are ineligible to receive awards in other categories of the Awards Program.
- **Diane K. Bollman Award:** Must be a current or recent (within the past 12 months) ACEP Chapter executive or Chapter staff member who has made a significant contribution to advancing emergency care and the objectives of an ACEP Chapter and the College.
- **Community Emergency Medicine Excellence Award:** Individuals who have made a significant contribution in advancing emergency care and/or health care within the community in which they practice.
- **Disaster Medical Sciences Award:** Must be a current member who has made outstanding contributions of national/international significance or impact to the field of disaster medicine.
- **Emergency Medicine Wellness Center of Excellence Award:** Presented to an emergency medicine group, department, or clinical site that incorporates wellness and resilience on an institutional level and to use the information gathered in the nominations process to understand more about wellness best practices.
- **Innovative Change in Practice Management Award:** Must be an emergency physician who has developed an innovative process, solution, technology or product to solve a significant problem in the practice of emergency medicine.
- **Public Health Trailblazer Award:** Must be an ACEP member for at least five years and have made a significant contribution in advancing public health care and injury-prevention measures locally, statewide, or nationally.
- **Innovation & Excellence in Behavioral Health & Addiction Medicine Award:** Must be a member who has made a significant contribution in advancing the emergency department care of patients with behavioral health and substance use disorder.
- **Leon L. Haley, Jr. Award for Excellence in Diversity, Inclusion, & Health Equity:** Must be a regular member of the College who has made an outstanding contribution in advancing diversity, inclusion, and health equity by:
  - » Significantly helping to advance diversity, inclusion, and health equity within their community, statewide, or nationally.
  - » Developing or supporting a program that addresses diversity, inclusion, and health equity within the context of emergency medicine or primary or secondary health care within the community.
  - » Performing community outreach regarding diversity, inclusion, and health equity programs, rigorous evaluation, and/or dissemination of effective initiatives or established programs.
- **Lou Graff Award for Excellence in Observation Medicine:** Must be a member for five years and have made a significant contribution to observation medicine.

FACEPs IN THE CROWD

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

MATT ASTIN, MD, FACEP

When attending Mercer University in Macon, Ga., ACEP Fellow Dr. Matt Astin got his best friend to join him on the cheerleading team ... but there was a condition that ultimately put Dr. Astin on center stage. "He said he would try out for the team if I auditioned for the spring musical. Not sure who lost that bet," Dr. Astin joked. "We were cheerleaders for three years and coached Mercer for two. I have been involved with theater for over 25 years now!"

That first show, Dr. Astin stayed behind the scenes as the assistant stage manager, but the acting bug had bitten him hard.

"I first had a 'starring' role in 2002, playing Dr. Frankenfurter in the *Rocky Horror Show*. That was during the first year of medical school," he said. "Things slowed way down after that, until I was asked to play Tevye in *Fiddler on the Roof* at Mercer during residency."

These days, Dr. Astin auditions when his busy emergency-medicine schedule allows. At several theaters in the Macon surrounding area, he has portrayed Fred Barret in *Titanic*, Tateh in *Ragtime* (twice), Daddy Warbucks in *Annie*, Frollo in the *Hunchback of Notre Dame*, Shrek in *Shrek* (twice), and Trunchbull in *Matilda the Musical*.

MATT ASTIN

ACEP fellow Dr. Matt Astin finds joy and fulfillment in musical theater when he is not on shift.

Dr. Astin noted that acting helps him stay balanced as an emergency physician and medical director of the LiveWell clinics with Atrium Health Navicent in Macon, Ga.

"I get to draw on the life experiences of the characters in the show, both the good and bad," he said. "This keeps me grounded, both in and out of the department."

Dr. Astin also works as the team physician both at Mercer University and with the Macon Mayhem hockey team. And while the team-physician role allows him to stay connected to his collegiate athletic memories, it's the life in the theater where he finds "huge parallels" to working in the emergency department.

"It may surprise some, but all emergency physicians have some actor in them," he explained. "No matter what is going on in our lives, we put on the 'costume' and provide the care for our patients, leaving our worlds outside."

5 Fun Things with Dr. Astin

1. **Go-toTreat?** I have a close, personal relationship with Little Debbie. She helped me get through the first couple of years of med school. I am partial to the Swiss Cake Rolls.
2. **Drinking?** Big fan of whiskey, although I don't drink much.
3. **Reading?** I have started a project to go back to first principles. I currently have a reading list of over 2,000 books to read or re-read in order from oldest publication date to newest. I am interested in how ideas have changed or emerged over time. I am currently reading the *Rig Veda*, a collection of Indian hymns from ancient times.
4. **Listening To?** Everything from showtunes to jazz to opera to country to rock to classical to rap.
5. **Guilty Pleasure?** I have been a fan of professional wrestling for over 35 years. I guess it is the actor and athlete in me.

KNOW AN EMERGENCY PHYSICIAN WHO SHOULD BE FEATURED IN "**FACEPs in the Crowd**"? SEND YOUR SUGGESTIONS TO **ACEPNOW@ACEP.ORG.** LEARN HOW TO BECOME A FACEP AT **WWW.ACEP.ORG/FACEPSINTHECROWD.**

ACEP

Surrounded by her extended family and friends, Dr. Aisha Terry started her term as ACEP President at the 2023 Council Meeting in Philadelphia.

Dr. Dark: There are a few big topics that I want to get into today. One is going to be about leadership and mentorship. One is going to be about ownership in emergency medicine. And then of course we're going to circle back around to the boarding crisis. But first, let's start with leadership and mentorship within ACEP. It's one of the things that you wish to focus on during your presidency. What are your plans for ACEP's leadership pipeline?

Dr. Terry: It's certainly near and dear to my heart in terms of, not just leadership, but the leadership pipeline. Leadership is about supply and demand. There's never enough of a supply of leaders for the demand. We're seeing in emergency medicine now more than ever that indeed there is a demand for more leaders. We are facing unprecedented crises in various ways, and we need people on the ground taking care of patients, but also being leaders outside of the clinical setting. My goal for this year, keeping in mind everything that we're facing in terms of workforce challenges, is to really focus on upstream efforts for pipeline enhancement. The leadership pipeline is about seeking out, recruiting, preparing, and retaining leaders,

It's important to start upstream, meaning we have to start with our medical students and residents. One of the things that I hope to do this year is develop a leadership-pipeline portfolio for the College. And the way that I plan to go about this is first and foremost taking our story on the road. One of the things that I think we don't do enough of as emergency physicians is talk about ourselves and how amazing our specialty is in terms of what we do for patients every day. We need to take that story on the road to make sure that our future emergency physicians and medical students are aware of what an amazing specialty emergency medicine is, how we are the quintessential specialty when it comes to health equity, when it comes to the safety net of health care in this country.

We were touted as being heroes during the pandemic. I think we need to ride that story out a little bit more.

Dr. Dark: One thing that our readers want to talk about is the emergency medicine workforce report that came out a couple of years ago. The data were coming from the pre-pandemic phase and I think there's been a lot of changes to the assumptions that go into making predictions. Do you think that it's something that ACEP needs to redo in the post-COVID phase when these assumptions may have changed?

Dr. Terry: We know that the variables have changed for sure. Workforce is about, again, supply and demand. When that original study was done, it was based on variables that have changed. We're seeing more residency programs come into the mix, which of course impacts the formula. We also know that the attrition rate for emergency physicians has changed. That original study was based on there being about a three percent attrition rate. We have looked at the data again in 2022, and the attrition rate is now up to about four to 4.5 percent. And some estimate that the attrition rate could be as high as seven percent.

We know that we're seeing increasing numbers of nurse practitioners and physician assistants practicing in emergency departments alongside physicians. That is another variable that goes into the mix in terms of workforce relative to supply and demand. We actually have talked about taking another look at that workforce data, plugging in the new variables, seeing how it's going to impact the prediction. Even a year ago, the prediction of the amount of surplus in terms of number of emergency physicians had actually decreased by about 65 percent compared to the original predicted surplus.

Dr. Dark: In recent years we've seen several ACEP leaders representative of several minority groups. Just considering recent ACEP presidents, there is representation from women, Asian, and Black communities. What is the College doing moving forward to maintain this kind of focus on diversity and equity efforts, especially considering the national milieu that's changed over the past year?

Dr. Terry: The College actually made diversity, equity, and inclusion a very specific initiative and priority several years back with the development of a Diversity Task Force. And from that task force's efforts, we developed a committee around diversity, equity, and inclusion as well as a section within the College so that we have the assurance that there's perpetuity in terms of this work. It has to be an ongoing commitment to really changing the fabric of the College and the culture of the College relative to a commitment around diversity, equity, and inclusion. One of the key pieces to ensure that we continue to have a diversity of leadership, again, goes back to that pipeline. We have to realize that actually only 39 percent of emergency physicians are women. We also know that about 35 percent of emergency physicians are from minority backgrounds in terms of race and ethnicity. That's all of the non-Caucasian groups. There's definitely some room there for us to enhance the pipeline relative to diversity. When we do that, we will see that shift into ongoing diversity at the leadership level within the College.

Dr. Dark: What can you tell the members about leadership and diversity at that level of the ACEP Board?

Dr. Terry: My fellow Board members are amazing. We are a group of 15 individuals who are incredibly passionate about our specialty, about our College, committed, and we work incredibly hard around the robust agenda that ACEP has. I have the pleasure of working with a Board of Directors who are talented, diverse, from various backgrounds, from various types of professional settings, ranging from academics to private practice to locums to military. And so we have talent ranging from IT [information technology] background to health policy to rural practice, and it's just a delight to be surrounded by such a diverse group of talent who's very passionate about the work. Personally, I would love for the College and really the specialty to get to know us better as a Board of Directors. We are clinicians, we take care of patients, and we also love the boardroom. The main thing I think people need to know is that when we go into that boardroom, when we put on the ACEP hat, when we're representing you as a College, you are the focus, you are the priority.

Dr. Dark: Let me switch gears a little bit. I wanted to talk about ownership in emergency medicine, and I think you mentioned that when you guys are in that boardroom, you're there to work on behalf of the members. A lot of questions that I'm going to be throwing at you next are actually from emergency physicians. And one of the biggest things I think that is of interest to current practicing docs is how does ACEP plan to combat the corporate practice of medicine now, especially after ACEP has its own policies and procedures about this?

Dr. Terry: The corporate practice of medicine has certainly been on our minds a lot, and we are working to not just have a statement around the corporate practice of medicine, but also to live it out through our actions. When you talk about the corporate practice of medicine, that's one category, but then in some ways there's overlap with consolidation, in terms of talking about consolidation of physician groups, and consolidation even of insurers, and then how that folds into, potentially, the corporate practice of medicine. There's a lot of nuance to it. I think it's important that we educate each other around the differences between corporate medicine and consolidation.

Dr. Dark: I think consolidation is a very important concept to remember because we have seen insurance companies consolidating, getting bigger, and getting more leverage. On the flip side, we've seen physician groups consolidating, getting bigger, and trying to get more leverage. You're saying we need to have a little nuance between consolidation and corporate practice. Can you explain that?

Dr. Terry: Corporate practice of medicine really speaks to more of the contractual relationships in terms of how the business is put together and run. Whereas consolidation speaks to the combining or merging of one entity with another. At the end of the day, the corporate practice of medicine should never come at the expense of the patient. It should never result in payment being put over patients. Unfortunately, what we see often is that it comes at the expense of the patient in terms of their outcomes, but it also tends to come at the expense of the emergency physician in terms of how it impacts the workplace environment.

ACEP's focus is around making sure that emergency physicians feel safe in their workplace, that they feel supported in their workplace, that they feel that they're having fair working conditions in order that they can continue to take care of patients in a way that results in improved [patient] outcomes.

Unfortunately, when we have mergers and acquisitions resulting in consolidation there's a lot of trimming in order to create efficiencies. But that trimming cannot come at the expense of quality care for our patients. It cannot come at the expense of poor working conditions for emergency physicians. ACEP is demanding better for emergency physicians.

Dr. Dark: Physicians feel that as efficiencies are created, when certain organizations come in, that people feel like staffing is no longer adequate. How can ACEP ensure that physician staffing is adequate to the volume of patients that are showing up in each department across this country?

Dr. Terry: ACEP is looking to improve the workplace environment for the emergency physician by making sure that we tie adequate staffing to patient outcomes and even quality measures. ACEP is launching an accreditation program in 2024, which will really include several areas of focus. One area is around staffing—ensuring that emergency departments have a standard to follow when it comes to making sure that there are enough people on the ground taking care of patients and linking that to quality outcomes.

Dr. Dark: I think it also goes to say: Do we have enough nurses? Where I work, do we have enough psych techs? Do we have enough ER techs? How can ACEP play a part in making sure that happens as well?

Dr. Terry: One of the key pieces is that ACEP cannot function in a bubble, so it's really important that we continue to nurture relationships with other organizations. ACEP and the Emergency Nurses Association as well as the American Nurses Association intermingle and collaborate all the time. We talk extensively about how we can work together to improve issues such as workforce shortages relative to nursing and techs. The beautiful thing about ACEP is that we do have a pretty large sphere of influence. We've had conversations of late with the American Hospital Association and America's Essential Hospitals to talk about how we can, together, ensure that the environment and the emergency department is adequate in terms of providing quality care based on staffing.

Dr. Dark: I want to talk a little bit about the boarding crisis that we've been experiencing for many years now, that seems to have only worsened recently. What's your plan to address psychiatric boarding?

Dr. Terry: ACEP will continue to fight the boarding crisis. We had a summit around boarding a few months ago in Washington, DC where ACEP pulled together a large group of stakeholders. We sat down, we spent about seven hours or so talking about what is going on with boarding, why are we seeing an increase at an exponential rate? What's different today than a decade ago relative to the boarding crisis, and what are the solutions? How can we address this epidemic that is resulting in, literally, people dying in waiting rooms across the country, resulting in people staying in the emergency department and languishing for months in the emergency department because there's nowhere for them to be admitted to or transferred to? Psychiatric patients are particularly marginalized.

Much of the federal legislative efforts in terms of various bills actually focuses on mental health relative to boarding. And I think that that's a strategic and also, obviously, ethically appropriate approach to really focus on these marginalized groups that need us to advocate on their behalf. There are a handful of bills currently, right now, being discussed, [such as] increasing resources for emergency departments to ensure that there are adequate warm handoffs, and community resources, and outpatient resources to direct our psychiatric patients to. There are grants focusing on making sure the infrastructure is strong relative to facilities for mental health and for psychiatric patients to go to from the emergency department. ACEP is supporting those bills and those efforts legislatively around ending boarding, particularly for patients with psychiatric illness.

We will also continue to have discussions with the entities who we invited to the boarding summit a few months ago.

It's one thing to talk amongst ourselves as emergency physicians about the boarding crisis. It's another thing to talk to the nurses about it. It's another thing to talk to EMS about it, the hospital administrators about it, the CEOs of hospitals about it, and even patient-advocacy groups about it. And all of those individuals were at the table at our boarding summit.

Dr. Dark: When we look at those groups, there's one group that particularly needs to be accountable for this. This is the hospitals and the executives of those hospitals. Because when we think about it, a lot of times some people will mistakenly call this emergency-department boarding. It's not really emergency-department boarding, it is inpatient boarding. What can we do as a specialty to hold those individuals in those hospitals accountable for things like short staffing, but also for staff turnover and for boarding itself?

Dr. Terry: You're absolutely right. I actually prefer to refer to boarding as hospital system overload. It's a problem that manifests itself in the emergency department, but no doubt about it, it's a systems problem and the entire hospital system has to take accountability for it. One way that we hold the hospital accountable is to, again, have discussions with the hospitals and with the CEOs, to understand their angle and also so that they can understand why we care so much. Then we must come together to figure out how to align our incentives in a way that moves the needle. I also think that we need to increase the number of emergency physicians who are CEOs of hospitals; our accreditation program seeks to address this issue by creating standards to include boarding and wait times that the hospital would need to adhere to. The accreditation program that we're rolling out in 2024 will hopefully create the carrot, and some standards that not only apply, certainly to the emergency physician, but to the hospital too.

Dr. Dark: I'm glad to hear that ACEP is pursuing this through its accreditation program. I'm pretty disappointed that CMS got rid of its boarding measure that hospitals had to report on a few years ago, because I think that was one way you could look at one hospital and see who performs better than another. One thing that I do want to touch on: You said hospital system overload, which is an interesting way to phrase it. I feel like that is loosely related to patient dissatisfaction in the hospital, which I feel like blends over into workplace violence. When patients get frustrated, they get tired of being in the ED, they lash out at nurses and eventually lash out at doctors. If there's anything you wanted to recap about what ACEP's doing in regard to workplace safety, I would like to hear about that.

Dr. Terry: Workplace safety is also a huge priority for ACEP and we have participated in multiple efforts over the years to try to improve the workplace environment relative to safety. ACEP did a survey a few years back, which found that there are increasing numbers of instances wherein emergency physicians are being assaulted while in the clinical setting in the emergency department. It is increasing, whether it be verbal assault or physical assault. We definitely know that this is a real problem and it's not isolated in pockets of the country. It is a widespread phenomenon. When we realized that, we decided to be proactive about making sure that our emergency physicians are protected and don't have to go to work feeling fearful. To that end, I personally have actually given a handful of lectures across the country around workplace violence, ensuring that our colleagues and other specialties and other stakeholders are aware of the problem. I think most people who don't work in the emergency department might be surprised to know how, every single day, assaults are happening in the emergency department. ACEP has been championing a couple of key federal pieces of legislation around ensuring that there are channels wherein workplace violence can be reported in a way to ensure consequences to follow. There is legislation that would require OSHA implementing guidelines around reporting workplace violence. There's another piece of legislation called the *SAVES Act*, which would ensure that there are consequences to assault against health care workers and physicians in the emergency department. It's bipartisan, but it also has a carve-out to make sure that patients who may not have the capacity to make good decisions are protected. ACEP has been pushing now for well over a year to get that *SAVES Act* into law. We also know that a lot of the work around workplace violence takes place at the state level. In fact, there are several states across the country who have had pieces of legislation introduced that increase the consequences of assaulting a health care worker from a misdemeanor to a felony and additionally ensuring that there are pieces in place around reporting. One of the things that I've heard across the country is that there is this hesitation to report the assault because there's a sense that nothing will actually be done about it. And so that's another way that ACEP is really pushing to make sure that emergency physicians know that there's no stigma.

Michigan actually just had a huge win legislatively around workplace violence wherein it increased the penalties associated with assault of a health care worker. Virginia ACEP recently had a big win around ensuring that there is protection by having law enforcement present onsite in the emergency department 24/7.

Dr. Dark: I'm glad you mentioned a couple of those states by name because you can find our annual ACEP Now Chapter Roundup by visiting www.acep.org/ChapterAdvocacy.

Dr. Terry, thank you very much for joining us today.

ACEP

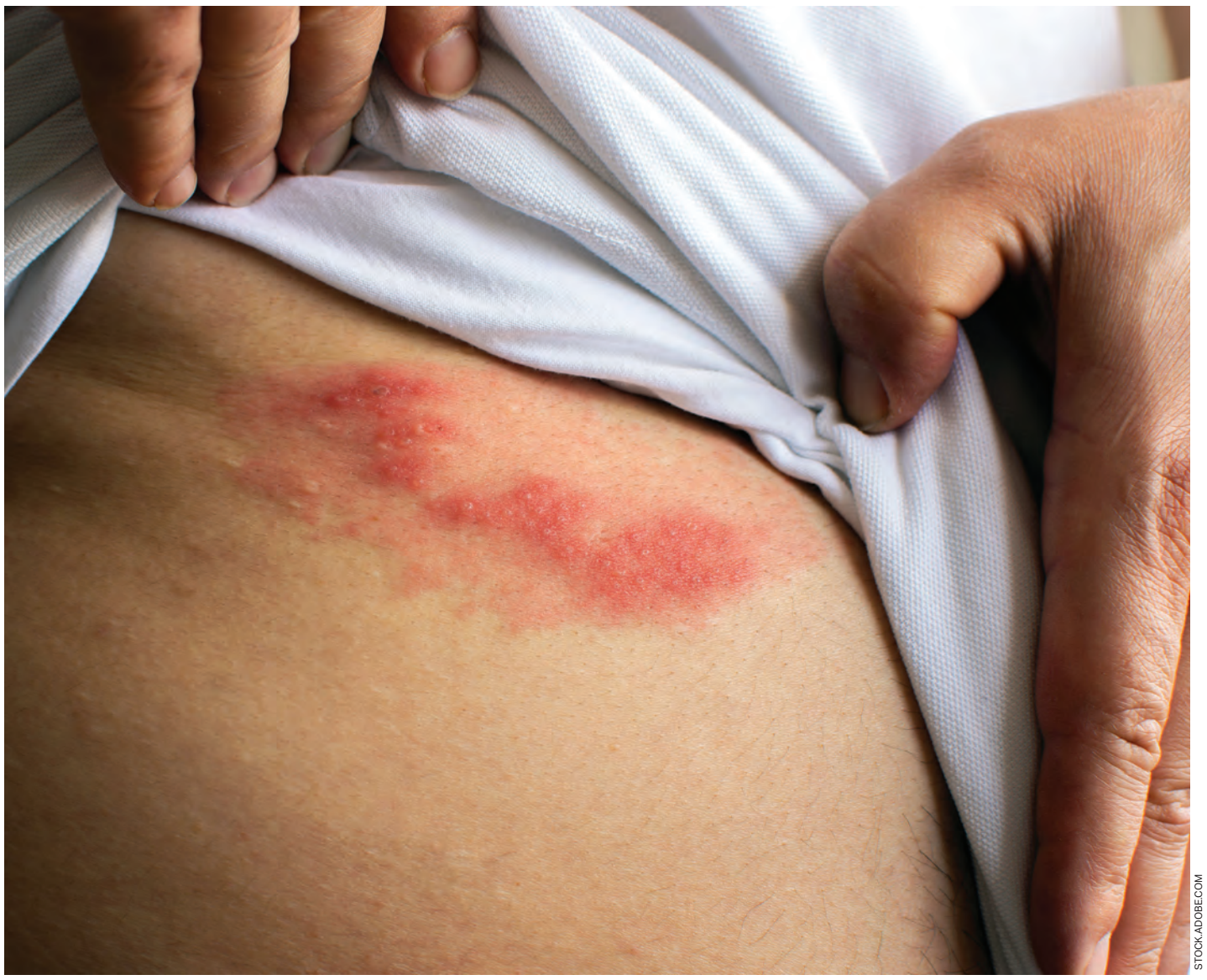
ACEP's 53rd President, Dr. Aisha Terry of Washington, DC, began her one-year term in October 2023.

STORIES SHAPING THE PRACTICE OF EMERGENCY MEDICINE

CASE REPORT

A Sneaky Culprit for Altered Mental Status in Elderly Patients

by SAHIL PANDYA, MD; AND SETH KELLY, MD, FACEP



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A 95-year-old female with a history of stage III chronic kidney disease (CKD), heart failure with reduced ejection fraction (HFrEF), and dementia with baseline orientation only to person and place, presented to the emergency department (ED) for upper extremity myoclonic jerking for one day. Her review of systems upon initial presentation was negative other than for a dry cough. Her physical exam was significant for left lower-quadrant tenderness and upper-extremity myoclonus.

Upon reviewing her past medical history, she was recently started on valacyclovir, 1,000 mg, three times per day for shingles. She had blood laboratory testing done along with a urinalysis (showing only stable CKD), a chest x-ray, and a CT scan of her head and abdomen, which showed no acute abnormalities. She was subsequently discharged to her nursing facility.

Three days later, she presented back to the ED for altered mental status and persistent myoclonus. She had reduced oral intake, was unable to participate in her activities of daily living, and was more aggressive toward staff members at her skilled nursing facility. Her physical exam revealed intermittent agitation and upper extremity myoclonus, but no meningismus.

Diagnosis and Outcome

During her second emergency department visit, an infectious and metabolic workup was performed, demonstrating acute kidney injury (AKI), but otherwise no acute abnormalities. She was admitted to the hospital for AKI and suspected valacyclovir-associated neurotoxicity in the setting of an AKI. Her valacyclovir was discontinued during her hospitalization and her myoclonus resolved. She was discharged at her baseline mental status.

Discussion

Antivirals are the treatment of choice for patients diagnosed with shingles; valacyclovir is often preferred due to its bioavailability and dosing regimen. Valacyclovir shares a similar mechanism of action to acyclovir, another drug of choice in treatment for herpes zoster, and shares a very favorable and similar side effect profile. Nausea and vomiting are reported as the most common side effects with these medications.[1] Rare side effects of valacyclovir include neurotoxicity, nephrotoxicity, psychomotor disturbances, and hepatotoxicity.

These side effects can be linked to the pharmacokinetics of the drug. Valacyclovir is metabolized hepatically and excreted renally. In patients with either hepatic or renal impairment, toxic metabolites can precipitate crystal deposition in the renal tubules leading to acute kidney injury, whereas the accumulation of toxic metabolites in cerebrospinal fluid can lead to neuropsychiatric symptoms.[2,3] Although the incidence of neurotoxicity associated with valacyclovir has not been elucidated, numerous case reports identify a wide array of neuropsychiatric symptoms that can be seen with valacyclovir toxicity, ranging from altered mental status to hallucinations and dysarthria.

Elderly patients are at higher risk of developing valacyclovir-related neurotoxicity due to underlying hepatic or renal impairment. For instance, in one study, 83 percent of cases of valacyclovir neurotoxicity had concomitant acute renal dysfunction.[4] The treatment for valacyclovir toxicity is discontinuation of the medication and in patients with severe renal dysfunction and persistent symptoms, potentially dialysis.[5]

This case highlights an important clinical pearl for clinicians prescribing valacyclovir for shingles. According to the CDC, 30 percent of the population at some point during their lifetime will be diagnosed with shingles, and the emergency department can serve as the first point of contact for these patients.[5] In most cases, shingles can be treated on an outpatient basis, but special consideration should be taken for elderly patients who present to the ED for evaluation of shingles. It is imperative to obtain baseline kidney function tests or review prior renal function tests, as the dosage of valacyclovir is renally adjusted; this can potentially mitigate neurotoxicity along with morbidity and mortality.

Additionally, this case highlights the challenges seen in patients who present with altered mental status. An often overlooked differential diagnosis for altered mental status in elderly patients is drug-induced encephalopathy. With increasing life expectancy and medical advances, elderly patients often have exhaustive medication lists, raising the concern for polypharmacy. One study demonstrated that 65.9 percent of elderly patients had polypharmacy, and 38 percent of elderly patients had major polypharmacy, defined as taking four or more medications concurrently.[6] Additionally, obtaining historical data regarding medication changes and compliance may prove to be a challenge for the emergency physician, therefore making it challenging to identify polypharmacy as the etiology of a patient's altered mental status. It is imperative to utilize pharmacy records and obtain external historical data from rehabilitation or nursing facilities, family members, and caregivers to help elucidate recent medication changes that could be contributing to a patient's altered mental status.

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No Surprises Act: How Did We Get Here?

And what happens next?

by ANDREA BRAULT, MD, MMM, FACEP

The *No Surprises Act* (NSA) is the latest chapter in the ongoing struggle between insurance payers and physicians. But today's challenges result from the compounding laws and regulations that have emboldened payers and steadily shifted the balance of power.

Out-of-Network Balance Billing Practices Positioned Patients at the Center of a Payment Dispute Between Payers and Physicians

Historically, physicians have been able to negotiate in-network contracts with insurance companies to ensure fewer denials, lower patient cost-share, and prompt payments. However, emergency medicine (EM) contracts are unique from those of other medical specialties in that there is no control over patient volume or payer mix, and there is no ability to change staffing hours or services to offset any decreases in payer reimbursement.

These dynamics change the calculus for in-network EM contracts, and in recent years, it has become common for EM physicians to remain out-of-network (OON) when reasonable terms can't be reached.

The common practice in this OON scenario was for the insurance companies to pay the allowed amount, and the guarantor (generally the patient) would owe the remaining amount—a practice known as balance billing.

But, over time, insurance companies started shifting more of the cost onto the cost-sharing amount owed by the patient. The theory was that if patients were aware of the "cost," they would be more thoughtful in seeking care. However, this increase in cost-sharing led to public frustration over the dollar amount of these balance bills.

The *Affordable Care Act* (ACA) went into effect on January 1, 2014, and attempted to address the frustration of high cost-sharing using the greatest-of-three (GOT) payment standard. The expectation was that the GOT standard would ensure that payers couldn't pay an unreasonably low amount for OON care, and patients would be protected from unreasonably high cost-sharing bills. However, the ACA did not include an outright ban on Balance Billing.

Narrow Networks Help "Reduce" Health Care Costs

The ACA helped accelerate the shift to narrow networks as a way to reduce health care costs. However, the unintended consequence of these narrow networks was that more patients were surprised to learn they were OON when seeking unplanned care. And this unexpected lack of coverage eventually led to a rise in *surprise billing*, i.e., when a patient seeks care at an in-network facility and is seen by an OON physician.

This phenomenon led several states to enact bans on surprise billing. However, this patchwork approach by individual states only had a limited effect because most Americans

ACEP

Rep. Larry Bucshon, MD (center, yellow tie), listened to ACEP members' concerns about the NSA at a dinner at the 2023 ACEP Leadership & Advocacy Conference.

are covered under employer-sponsored health plans—many of which are governed by the federal ERISA statute applicable to self-funded insurance plans.

So, pressure started to build for Congress to establish its own federal standard. And a deal was eventually reached after years of negotiations and compromises between insurance payers, physicians, and lawmakers. The *No Surprises Act* (NSA) was signed into law at the end of December 2020.

The NSA helps protect patients from unexpected coverage gaps by ensuring that their cost-sharing amount is the same for OON care as it would otherwise be for in-network care.

To achieve this, the law created the concept of the "recognized amount," which allows insurance payers to calculate the cost-sharing amount for OON care. And to determine the recognized amount, payers must calculate the qualifying payment amount (QPA), the median contracted rate for the service (as of January 31, 2019, adjusted for inflation).

However, payers quickly shifted from using the QPA as a tool to determine the patient cost-sharing amount and instead started using the QPA as the de facto value for the service. This was a subtle nuance, but it would eventually become the Trojan horse in the current struggle between insurance payers and physicians

The NSA Helped Remove Patients From the Middle of These Payment Disputes, but the Regulations Governing This Law Remain Entangled in Debate

Once the NSA became law, the Departments of Labor, Treasury, and Health and Human Services (i.e., the tri-agencies) went into their rulemaking period to draft the framework of rules and regulations that would govern the NSA when it took effect on January 1, 2022.

The first sign of trouble came when Congress published its interim final rule in October 2021, which focused on the independent dispute resolution (IDR) process and included controversial language on how the QPA should be used and calculated.

The interim rule instructed IDR entities to presume that the QPA was the appropriate payment amount for OON services. But this immediately led to backlash from the physician community, who argued that the rule would unfairly tip the scales in favor of the insurance payers. The tri-agencies had disregarded the law's intent, which specifies that all statutory factors should be considered in every case (including the physician's level of training, market share, acuity of the patient, teaching status, good faith efforts, or prior contracted rates).

This disproportionate weight given to the QPA in the interim rule led to the first in a series of lawsuits from the Texas Medical Association (TMA).

- **TMA I** was filed in October 2021; it argued that the interim final rule gave too much weight to the QPA and that nothing in the law stated that arbiters should give added weight to any one factor in their final payment decision. A federal judge ruled in favor of TMA on Feb. 23, 2023, and the tri-agencies agreed to address this language in their final rule.
- **TMA II** was filed in September 2022 in response to the final rule, which again gave disproportionate weight to the QPA by asking arbiters to consider the QPA first and provide a written explanation of any other factors considered outside the QPA. On Feb. 6, 2023, a federal judge again ruled in favor of TMA. It ordered all IDR entities to pause their rulings through mid-March 2023, when new guidance was finally published.
- **TMA III,** filed in November 2022, argued that certain aspects of the QPA calculation allowed insurance companies to artificially deflate its value (e.g., the inclusion of ghost rates or unrelated specialties and services, among other issues). On Aug. 24, 2023, a federal judge ruled in favor of TMA, and the federal IDR process was again temporarily paused. The IDR portal has since re-opened, and HHS has filed an appeal in this case.
- **TMA IV** was filed in January 2023 in response to a sharp increase in IDR administrative fees. Physicians argued that the increase from $50 to $350 would make it cost-prohibitive for some groups to access IDR, especially since batching requirements prevent the efficient bundling of claims (e.g., in emergency medicine, separating claims by type, payer, and service can lead to a high volume of small-dollar batches). On Aug. 3, 2023, a federal judge ruled in favor of TMA and vacated the fee increase as well as part of the batching requirements (that services and items be described by the same service code). However, this decision found only that the rules were passed without following proper procedure. And on Dec. 18, 2023, the tri-agencies issued their revised rules for IDR fees with the proper 30-day notice-and-comment period (as required by statute). The revised fees include an Administrative Fee of $115; and an IDR Entity Fee ranging from $200-$850 for single determinations and $268-$1,173 for batched determinations (up to 25). These new rules went into effect on Jan. 22, 2024.
- Another related lawsuit is the Daniel Haller case, in which a physician argued that the NSA violates certain constitutional rights. However, EDPMA filed an amicus brief that supported neither party in this case, instead expressing concern about how this misinterpretation could affect the viability of existing common-law claims and the scope of IDR. The initial ruling favored HHS, but an appeal is currently underway.

These lawsuits have been an important tool in helping physicians balance the playing field, but they have unfortunately also added to the delays and confusion that have plagued the NSA.

Problematic Changes in Payer Behavior Have Also Intensified the Negative Impact on Physicians, Resulting in an Overwhelming Current of Payment Disputes

When the NSA was established, many physicians believed this new law would have only a limited impact due to its specific focus on OON medical services. But, when the law went into effect, physicians noticed an abrupt change in payer behavior. Many insurance payers lost interest in maintaining in-network status. Some payers sent cancellation letters to physicians in their network, while others walked away from active in-network negotiations altogether.

This was a curious shift in payer behavior, but not surprising when you consider the lower payments, favorable rules, and lack of enforcement that payers could enjoy with OON claims under the NSA.

A recent EDPMA study on payer behavior found that post-NSA OON payments decreased by an average of 32% compared to pre-NSA OON payments for clinically identical servic-

CONTINUED *on page 10*

es. Data also shows that payers routinely fail to comply with QPA disclosure requirements and often ignore claims in the open negotiation period.

These hardball tactics have pushed more physicians into OON status, leading to an avalanche of payment disputes that quickly overwhelmed the IDR system.

The Absence of Regulatory Enforcement Has Resulted in a Pattern of Payer Non-Compliance

In April 2022, regulators anticipated that about 22,000 disputes would be filed under the Federal IDR process. But the tri-agencies reported that more than 490,000 disputes were filed between April 2022 and June 2023 (with about 61% of those disputes remaining unresolved by December 2023).

IDR entities simply can't keep up, and a massive backlog has continued to build as they struggle with the volume and complexity of these payment disputes—especially as regulators have continue to fumble their guidance for the IDR process.

Payer non-compliance also seems to run rampant in the IDR process, with EDPMA data showing that in the NSA's first year, 75 percent of payers failed to make an actionable offer during IDR, while 87 percent of payers failed to pay in accordance with their IDR rulings. These trends were also persistent in a recent report from the Government Accountability Office (GAO), which reported that non-payments were the biggest reason for complaints during their audit period.

The Effect of These NSA Regulations and Payer Non-Compliance is Particularly Harmful to the Practice of Emergency Medicine

Emergency departments are especially impacted by these NSA regulations. Emergency physicians are already adjusting to shrinking Medicare reimbursement and the loss of public health emergency funding, and the growing trend of hospital boarders that has led to fewer available emergency department beds and more patients leaving without being seen by a physician.

Emergency physicians have been feeling the squeeze of shrinking reimbursement. Now, they're also dealing with the threat of insurance payers manipulating the value of their services.

According to the GAO report has, emergency departments are the most common place of service for Federal IDR disputes. And the reality is that all of these issues are starting to reach a breaking point as we continue to erode our nation's health care safety net.

The Physician Community Has Continued to Advocate For Change and Lawmakers Are Starting to Listen and Voice Their Own Concerns

Groups such as ACEP and EDPMA have done a great job of collecting data on payer behavior and mobilizing the physician community to speak out—and lawmakers are now paying attention.

In a subcommittee hearing earlier this year, House Republicans blamed HHS Secretary Xavier Becerra for the lackluster rollout of the NSA.

- "This process is a failure and a failure because of poor planning on HHS," said Rep. Michael Burgess, R-Texas. "... [then] to turn around and blame providers for your department not being prepared for the volume of claims just doesn't square with me."
- Rep. Larry Bucshon, MD, R-Indiana, added, "We recently heard in [IDR] situations that even though providers are winning those cases, we still don't have insurance companies paying after they have lost."
- Rep. Mariannette Miller-Meeks, R-Iowa, also called on Mr. Becerra to address the recent legal setbacks surrounding the IDR process and use of the QPA. "We feel the comments we have gotten back from HHS have been less than satisfactory," she said.

House Democrats have also expressed concern, including ranking member Richard E. Neal, D-MA, who made comments during a recent hearing on the implementation of the NSA. Rep. Neal lamented that the "implementation of this law has strayed from Congress's approach, especially as it relates to the dispute resolution process."

The NSA Was the Product of Years of Bipartisan Legislative Work, but Its Implementation Has Fallen Short of What the Law Envisioned

We've been able to shine a spotlight on this flawed administrative process, but change takes time and persistent effort. Physicians should continue working with groups such as ACEP and EDPMA to push for reasonable initial payments, an effective, independent, dispute resolution, and better enforcement of the law.

We have a unique story to share as physicians, constituents, and health care experts—and we have to be persistent and proactive in sharing those stories with lawmakers.

DR. BRAULT (@DrABrault) is the chairperson of the EDPMA board of directors and serves on the ACEP/EDPA Surprise Medical Billing Task Force Steering Committee.

Antiobesity Medications and Emergency Care: A Practice Update

by CHARLES SANKY, MD, MPH; AND JONATHAN LIN, MD, PHD

On a busy emergency shift, you have a series of patients with atypical presentations. Your first patient, Patient A, is a 38-year-old female with a distant history of anorexia nervosa, presenting with persistent, diffuse, abdominal pain, nausea, intractable vomiting, inability to tolerate oral intake, and fatigue for four days. She experienced a syncopal episode at work today. Her vital signs are within normal limits. Her lab work reveals a new metabolic alkalosis with hyponatremia, hypokalemia, hypochloremia, a lactate of 10.1 mmol/L, and an acute kidney injury with a creatinine of 1.78 mg/dL (from 0.72 mg/dL at baseline).

Patient B, a 62-year-old male with a history of obesity and diabetes, walks in for daily headaches without sudden onset but associated with nausea, generalized weakness, and lightheadedness, worsening over one month. His heart rate and blood pressure are elevated from his baseline. Given the fact that he has not had these headaches before and has diffuse symptoms including weakness, lab work and head imaging are obtained. There were no acute findings on head CT. His lab values demonstrate no anemia, leukocytosis, or electrolyte abnormalities except for an elevated creatinine.

Patient C, a 27-year-old female with a history of epilepsy, taking valproate and endorsing adherence, is then brought in by ambulance for a witnessed seizure. This is her first seizure in six years. She is postictal at the time of your assessment, but when she becomes more alert, your review of systems is pertinent only for her stating she has noticed oily stains on her underwear. She is highly concerned that when she passes stool, she has loose bowel movements, and her stools are surrounded by mucus.

Of note, you learn that all three of these patients recently started medications to lose weight.

The proliferation of medications available to the public for weight loss has resulted in increased prevalence of their use.[1] Many of these medications contain pharmacologic agents that have been used for other indications. Regulatory and pharmaceutical availability barriers have even resulted in changing of such medications while in treatment, incomplete usage, and alternative patterns of administration.[2] As such, the increased popularity of such medications ushers in a new era of challenges and presentations, particularly for the emergency physician.

Each of the aforementioned patients represents chief complaints secondary to the use of antiobesity medications. In each case, a detailed history of what medications were used, dosage, and frequency of use is imperative.

Patient A: Semaglutide

The mechanism of many antiobesity medications relies upon the glucagon-like peptide-1, or GLP-1, molecule, which is, in part, responsible for enhancing the secretion of insulin. Ozempic, Wegovy, and Rybelsus are the brand names of drugs with different formulations of semaglutide. Its major side effects include gastrointestinal symptoms: abdominal pain, constipation, diarrhea, nausea, and vomiting.[3] It has been found to be correlated with acute kidney injury, usually prerenal in the setting of volume contraction, syncope, biliary pathology, and pancreatitis.[4] It is believed that substantial gastrointestinal loss causes chloride and potassium depletion, as well as hypovolemia, acute kidney injury, and renal potassium loss. Patients may consequently present with vague symptoms of weakness and fatigue.

The management for this case included full labs, including a metabolic panel to assess for electrolyte abnormalities, liver function tests to assess for possible hepatic and biliary involvement, lipase to stratify risk for pancreatitis, creatine kinase to assess for potential rhabdomyolysis, urine studies, infusion of potassium chloride, analgesia and symptom control including antiemetics, and careful consideration of intravenous fluids given her hypokalemia, which represents a risk factor for overcorrection of sodium and risk for osmotic demyelination. This patient's syncope is most likely due to metabolic disruptions and fluid-status physiology; nevertheless, assessment of cardiogenic etiologies through an EKG, troponin, and cardiac risk factors should be considered as appropriate.

Similar electrolyte abnormalities can be found in refeeding syndrome, where shifts in fluids, electrolytes, and hormones may cause further deficiencies including hypophosphatemia. Patients with history of anorexia nervosa, chronic alcoholism, uncontrolled diabetes, older age, and chronic malnutrition may be at higher risk.[4] Different agents, even with the same underlying drug, may have different formulations and effects on patients. At times, patients may also be taking other diabetes medications such as sulfonylureas or insulin, which could precipitate worsening persistent hypoglycemia. Semaglutide has a half-life of approximately one week; as such, it is long-acting and requires supportive measures. There have been documented cases of overdose, and of note, there is no known antidote.[5] Supportive care includes dextrose infusion and consideration of reversal agents for other medications used in combination (such as glucagon for insulin and octreotide for sulfonylureas).

Patient A's symptoms improved with intravenous fluids, antiemetics, and over-the-counter analgesia in the acute setting. Similarly to management of intractable nausea and vomiting, labs to assess for metabolic function, renal function, and acute infection should be considered. The differential should include broad infectious etiologies, electrolyte abnormalities such as those secondary to refeeding syndrome, and hyperemesis secondary to etiologies such as cannabinoid use or pregnancy. Management of symptoms is the same for all of these, relying upon fluid resuscitation, antiemetics, and electrolyte repletion. However, if a patient has such side effects of this antiobesity medication, they should discontinue taking it and follow up with their primary care physician promptly for longitudinal management of dosage and tracking of laboratory results to ensure appropriate improvement, or be admitted for this workup if there are persistent lab electrolyte abnormalities and inability to tolerate oral intake.

Patient B: Buproprion-Naltrexone

Patient B stated he has been taking buproprion-naltrexone (Contrave) for symptoms and has been titrating his dosage up to take two tablets, twice daily. Buproprion-naltrexone is a combination of an opioid antagonist and a weak inhibitor of neuronal reuptake of dopamine and norepinephrine. Its mechanism for weight loss is not fully understood, but it is approved for use in chronic weight management.[6] It is contraindicated with concurrent use of bupropion-containing medications or other opioid antagonists, as well as in acute opioid withdrawal, uncontrolled hypertension, eating disorders, and seizure disorders. Buproprion-naltrexone can be associated with nausea, constipation, headache, vomiting, dizziness, insomnia, dry mouth, diarrhea, and renal impairment. It has also been associated with increases in heart rate and blood pressure.[7] Patients are expected to titrate the medication up over time; however, they require guidance on therapeutic ceiling and to ensure they do not continue taking this medication if not efficacious. Patient B's symptoms improved with intravenous fluids, antiemetics, and over-the-counter analgesia in the acute setting. Similarly to the management of other causes of nausea and vomiting, labs to assess for metabolic function, renal function, and acute infection should be considered. Risk stratification of headache, including a full neurological examination to assess central versus peripheral etiologies, and appropriate imaging should also be considered.

Patient B's symptoms improved with intravenous fluids, antiemetics, and over-the-counter analgesia. On follow-up with his primary care physician, titrating his buproprion-naltrexone dose down resulted in normalization of his creatinine and resolution of his symptoms.

Patient C: Orlistat

Oily stool, also known as steatorrhea, is associated with the secretion of lipids in the gastrointestinal tract. The differential includes any intraabdominal process, such as celiac disease, tropical sprue, exocrine pancreatic insufficiency, malabsorption due to small intestinal disease, and bariatric surgery.[8] However, medications can also cause this. Orlistat (Xeical, Alli) is a reversible inhibitor of gastric and pancreatic lipases. It inhibits absorption of dietary fats; thus, they are secreted in the stool and can frequently cause steatorrhea, fecal spotting, and diarrhea.[9] Orlistat can also cause diffuse abdominal pain, anal fissures, hepatotoxicity, and acute kidney injury. It is contraindicated in chronic malabsorption syndromes, cholestasis, and patients with existing absorption issues secondary to prior surgical resection, such as bariatric surgery. This patient had her first seizure in years despite adherence to her valproate for management of her epilepsy. One side effect of this medication is that it can reduce the absorption of antiepileptic medications such as valproate, vigabatrin, and lamotrigine and reduce their plasma concentration, thus putting patients taking these medications at higher risk of seizure.[10] Patients taking orlistat should have regular assessment of their levels of antiepileptic medications and dosing adjustments as needed. It also has the potential to decrease absorption of other medications such as amiodarone, warfarin, levothyroxine, cyclosporine, and antiretroviral medications. Similarly, consideration of subtherapeutic dosing should be considered for patients with relevant history. A high suspicion for toxic and metabolic impacts of orlistat in caring for patients with multiple comorbidities and polypharmacy is needed.

For Patient C's steatorrhea, labs to assess metabolic function, and lipase helps. Her seizure is more concerning and warrants full assessment of possible infectious, toxic, and metabolic etiologies that may be contributing. Obtaining a serum level of the antiepileptic medication may assist in diagnostic certainty. Ultimately, stopping orlistat is the treatment.

Conclusion

Antiobesity medications present a new challenge to emergency medicine. This practice update underscores the importance of controlling symptoms, investigating potential electrolyte abnormalities, toxicity, hypoglycemia, and co-ingestion with other medications, and ensuring close outpatient follow-up. Asking patients about their use of such agents can help us better care for them when they present for acute, unscheduled care.

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By the Numbers

LEISHMANIASIS

SYMPTOMS, SIGNS, AND LAB FINDINGS

- **FEVER**
- **CACHEXIA** or wasting
- **HEPATOSPLENOMEGALY**
  PANCYTOPENIA high total protein level and a low albumin level, hypergammaglobulinemia

WORLDWIDE NEW CASES

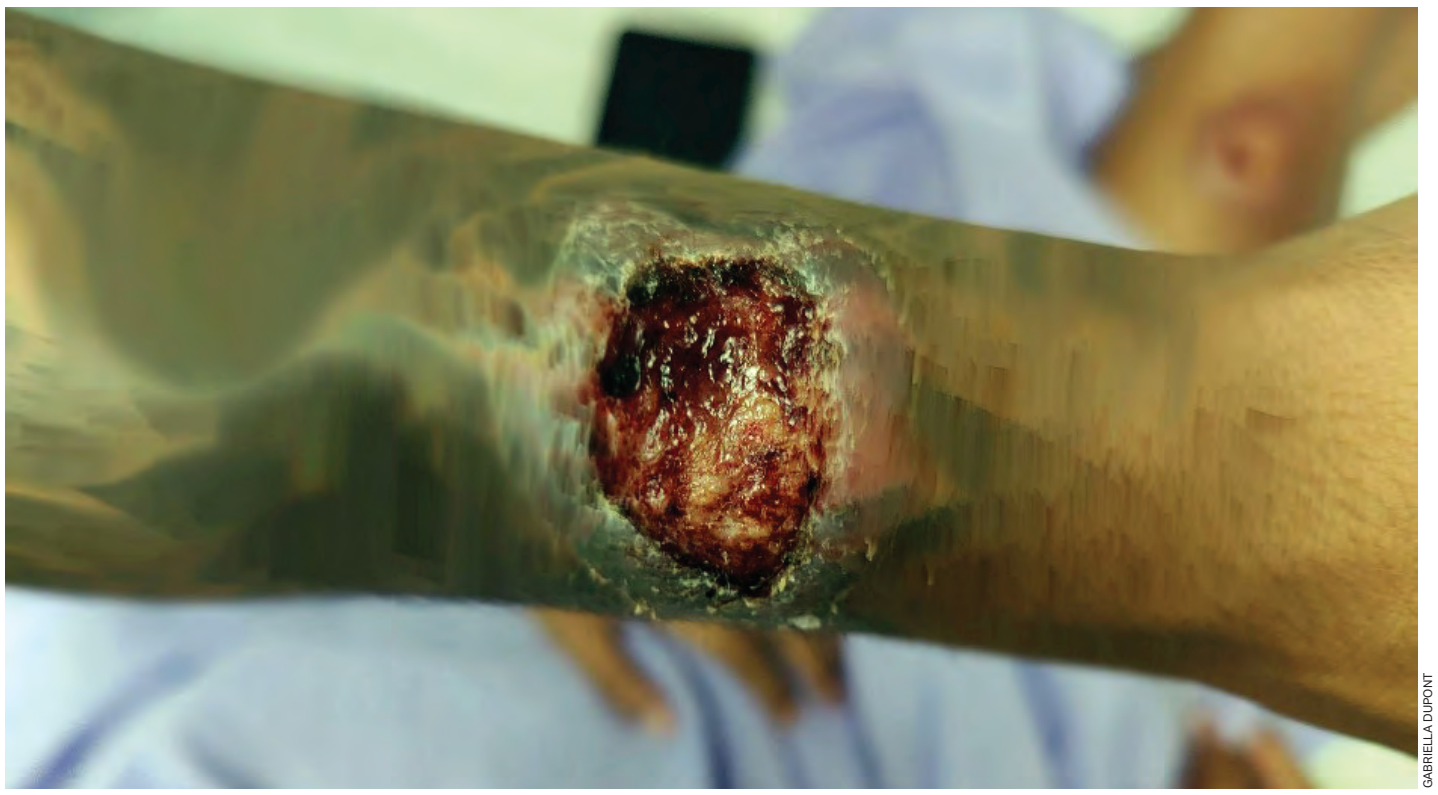
CUTANEOUS LEISHMANIASIS
~700,000 TO 1.2 MILLION

VISCERAL LEISHMANIASIS
<100,000

IN THE WESTERN HEMISPHERE MUCOSAL LEISHMANIASIS CAN BE CAUGHT in Mexico, Central America, South America and the United States of **TEXAS** and **OKLAHOMA.**

TRANSMISSION IS BY SAND FLY VECTOR

Compiled from the Centers for Disease Control.



GABRIELLA DUPONT

FIGURE 1: Right forearm wound at time of third ED visit (tattoos distorted for privacy).

A Case of Cutaneous Leishmaniasis in Chicago

This disease is primarily transmitted through sandflies

by ILA ENGLOF, MD; GABRIELLA DUPONT, DO

A 25-year-old Venezuelan male presented to a Chicago area emergency department (ED) in early November 2023. He had traveled with his family through Panama, Costa Rica, Nicaragua, Honduras, Guatemala, Mexico, and Texas before arriving in Chicago approximately one month prior to his ED visit. He noted spending about five days walking through a jungle, as well as traversing rivers. This was his third presentation to an area ED for the same complaint of a right forearm wound. It was initially treated with trimethoprim/sulfamethoxazole and cephalexin with no improvement. It was slightly painful but not pruritic. On presentation, a 4-cm wound was noted on his right forearm [Figure 1]. His daughter had two similar lesions on her right leg [Figure 2]. He also had multiple nodules along his forearm. The wound had been worsening for the last three weeks despite antibiotic treatment.

There was concern for possible cutaneous leishmaniasis (CL), therefore he was admitted to the hospital for infectious-disease and surgical consultations, as well as to complete a punch biopsy the following day. He was discharged with follow-up at an outpatient wound care and a primary care clinic. Biopsy results were available to the care team 20 days later (after being sent to a Mayo Clinic) with confirmation of diagnosis of CL. At this time, consultation was made to infectious disease specialists, as well as the ED pharmacy team for assistance with treatment options. The patient was uninsured with limited resources, making miltefosine cost prohibitive. Paromomycin cream was not available in any local or regional pharmacies. The components for paromomycin cream are not FDA approved and are sourced from outside the U.S. on a case-by-case basis and sent to a compounding pharmacy in the area on behalf of the patient. The patient was able to receive the paromomycin cream from the compounding pharmacy, and has been following up with wound care. He is noting slow improvement in his wound.

KEY POINTS

- Although not common, endemic levels of leishmaniasis exist in the U.S., especially in Texas and Oklahoma.
- Leishmaniasis is costly and challenging to treat in the U.S.
- Changing migration patterns and climate conditions will influence diagnoses that must be in the ED.

What is Leishmaniasis?

Leishmaniasis is a vector-born protozoal disease transmitted by sand flies, considered to be endemic in 99 countries.[1] Texas and Oklahoma have endemic levels of CL, but there is no endemic level in the northern United States.[2] Globally, cases are most common in the Middle East, North Africa, Central America and northern South America. There may be 700,000 to 1.2 million cases of CL per year globally; however, CL is not a reportable disease to the CDC, so there is no reliable way to track U.S. cases.[3] Historically, most cases diagnosed in the U.S. were related to military travel and deployment, with a few cases related to leisure travel. Leishmaniasis is an obligate intracellular parasite in mammals with an incubation period of weeks to months. CL is a spectrum of cutaneous disease ranging from localized to diffuse which

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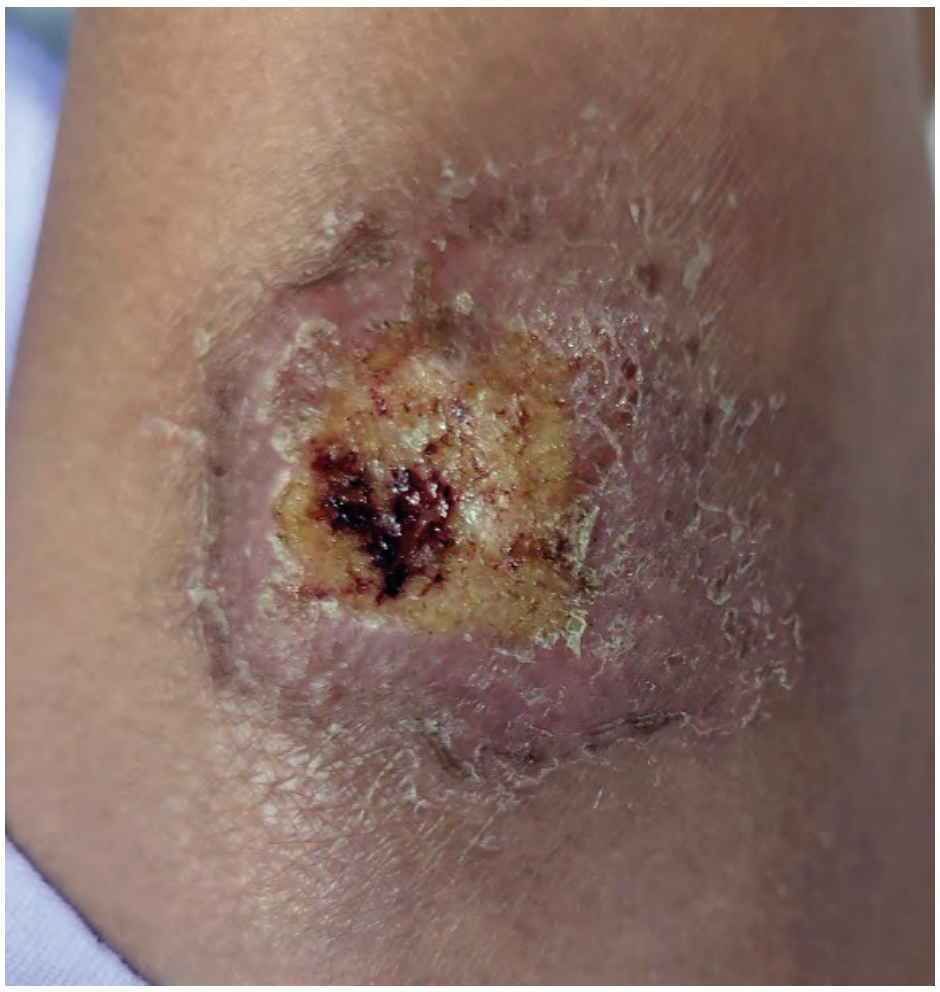
result in ulcers, but no mucosal involvement.[4] Leishmaniasis can also present as mucosal leishmaniasis (ML) and visceral leishmaniasis (VL) with ML being a metastatic sequela of CL years to decades later. VL is generally an acute process, incubating for weeks to months causing fever, weight loss, hepatosplenomegaly, pancytopenia, and an elevated serum protein level.[5]

Conventional treatment for CL involves local topical treatment or systemic treatments. There is one parenteral treatment approved, amphotericin B, which is highly toxic and generally reserved for severe cases of diffuse disease or visceral leishmaniasis. There is one oral treatment that is FDA approved, miltefosine 50 mg three times daily for 28 days. A full course of this medication costs approximately $60,000. There are topical medications, paromomycin and pentavalent antimonial (SbV) compounds, available in other countries, but none has been approved by the FDA.[5] It is possible, although challenging, to get these medications through compounding pharmacies in the U.S.

Discussion

As the refugee crisis continues, and asylum seekers visit emergency departments all over the U.S., physicians will be exposed to pathologies we may have only heard about in medical school. Climate change will also influence the prevalence of CL and other conditions traditionally considered tropical diseases. This is from a combination of human migration patterns and the expansion of climate conditions in which the sand fly vectors can survive.[6] Currently, climate models estimate that 12 million people live in locations in which leishmaniasis is endemic in the U.S. Because of no required tracking or reporting, we have no accurate measure.[7] This case emphasizes the importance of maintaining a wide differential, especially when evaluating asylum seekers who have been exposed to a wide variety of environments and pathogens. Our local infectious disease specialist estimates that the last time a case of CL was seen at this hospital was at least 15 to 20 years ago.



GABRIELLA DUPONT

FIGURE 2: Daughter's wound. Right thigh location.

DR. ENGLOF is current faculty of the Swedish Hospital Emergency Medicine Residency (part of Endeavor Health) in Chicago, and a program coordinator for EMGLEX, an immersive emergency medicine rotation for international physicians.

DR. DUPONT is a second-year emergency medicine resident at Swedish Hospital in Chicago.

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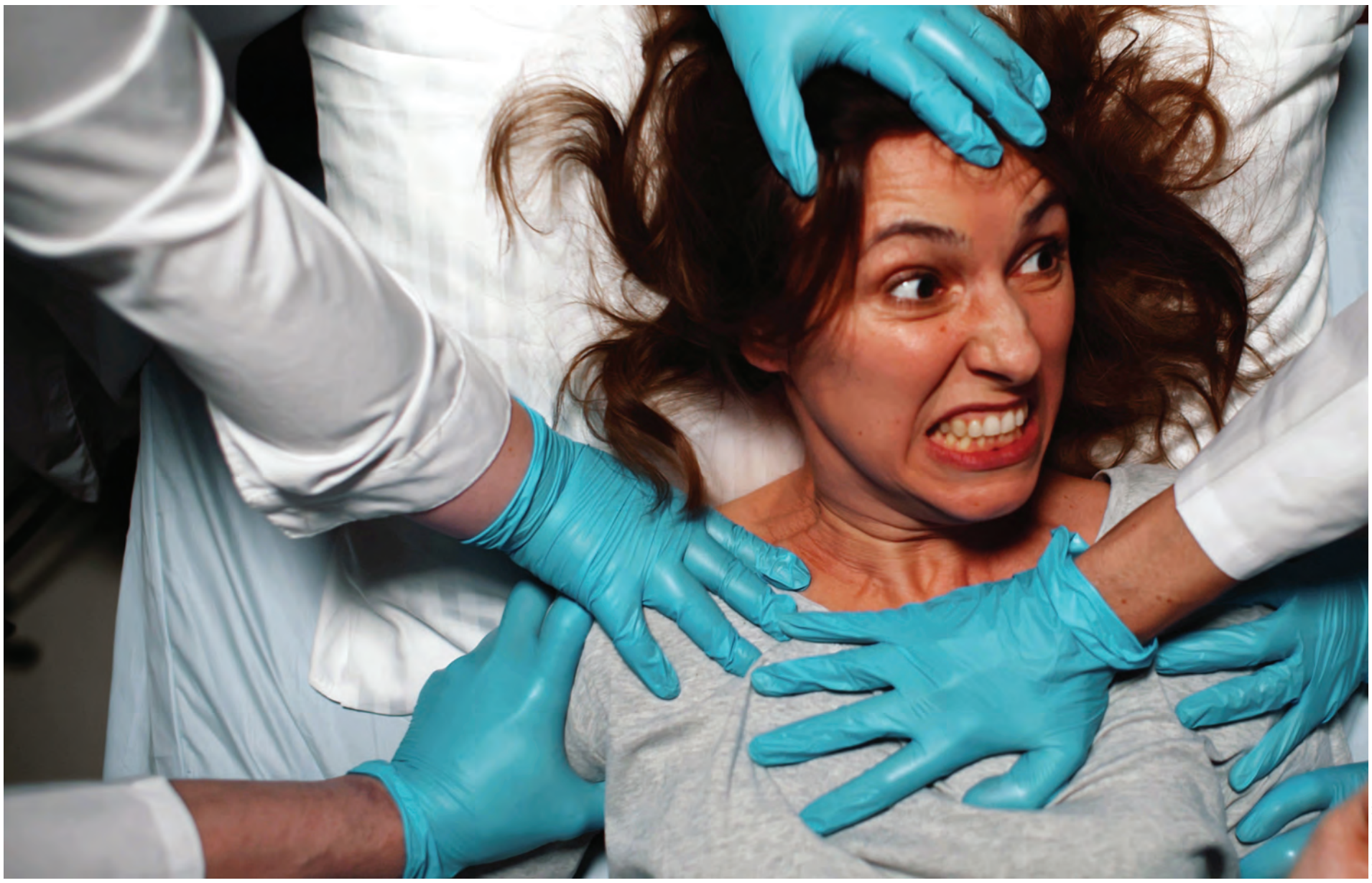

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ACEP Clinical Policy on Severe Agitation

by MOLLY E.W. THIESSEN, MD, FACEP

On October 6, 2023, the ACEP Board of Directors approved a clinical policy developed by the ACEP Clinical Policies Committee on the evaluation and management of adult out-of-hospital or emergency department (ED) patients presenting with severe agitation. This clinical policy has been published in the January 2024 issue of the *Annals of Emergency Medicine*, and can be found on ACEP's website. It will also be included in the ECRI Guidelines Trust, upon its acceptance.

Patients with severe agitation are a consistent, high-risk presentation to the ED. Patients who present with severe agitation often have a critical, life-threatening medical condition that requires urgent treatment. Such patients typically suffer from an acute medical emergency, acute intoxication with sympathomimetics or alcohol, or a psychiatric problem. Verbal de-escalation should be considered as first-line management. Following attempts at verbal de-escalation, oral or sublingual medications should be considered in patients where it is safe to administer them. This clinical policy is intended for the initial treatment of undifferentiated agitation, in which the underlying etiology is unknown, and aims to summarize the current body of literature surrounding the safety and efficacy of parenteral agents used for treatment of severe agitation in the ED.

The critical question was based on feedback from ACEP membership. A systematic review of the evidence was conducted, and the committee made recommendations (Level A, B, or C) based on the strength of evidence available. This clinical policy underwent internal and external review expert review and was available for review by ACEP membership during an open comment period. Responses received were used to refine and enhance the final policy.

Critical Question

Is there a superior parenteral medication or combination of medications for the acute management of adult out-of-hospital or emergency department patients with severe agitation?

Patient Management Recommendations

- **Level A recommendations.** None specified.
- **Level B recommendations.** For more rapid and efficacious treatment of severe agitation in the emergency department, use a combination of droperidol and midazolam or an atypical antipsychotic in combination with midazolam. If a single agent must be administered, use droperidol or an atypical antipsychotic due to the adverse effect profile of midazolam alone.

  For efficacious treatment of severe agitation in the emergency department, use the above agents as described or haloperidol alone or in combination with lorazepam.
- **Level C recommendations.** In situations where safety of the patient, bystanders, or staff is a concern, consider ketamine (intravenous or intramuscular) to rapidly treat severe agitation in the ED (consensus recommendation).

  No recommendations for or against the use of specific agents in the out-of-hospital setting can be made at this time (Consensus recommendation).

  No recommendation for or against the use of specific agents in patients above the age of 65 years can be made at this time (Consensus recommendation).

DR. THIESSEN is an attending physician in the emergency department at Denver Health Medical Center, and an associate professor in the department of emergency medicine at the University of Colorado School of Medicine.

Translation of Classes of Evidence to Recommendation Levels

Based on the strength of evidence for the critical question, the subcommittee drafted the recommendations and supporting text synthesizing the evidence using the following guidelines:

- **Level A recommendations.** Generally accepted principles for patient care that reflect a high degree of scientific certainty (eg, based on evidence from one or more Class of Evidence I or multiple Class of Evidence II studies that demonstrate consistent effects or estimates).
- **Level B recommendations.** Recommendations for patient care that may identify a particular strategy or range of strategies that reflect moderate scientific certainty (eg, based on evidence from one or more Class of Evidence II studies or multiple Class of Evidence III studies that demonstrate consistent effects or estimates).
- **Level C recommendations.** Recommendations for patient care that are based on evidence from Class of Evidence III studies or, in the absence of adequate published literature, based on expert consensus. In instances where consensus recommendations are made, "consensus" is placed in parentheses at the end of the recommendation.

Augmenting Medical Education with Virutal Reality

Virtual reality is the next step in high-fidelity simulation

by ERIN DONATHAN, MPH, FP-C, EMS-IC

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The use of virtual-reality (VR) technology in education is increasing in popularity with students and educators alike. Technological advancements have opened countless doors to innovative, active, and experiential learning opportunities. One of the innovative and impactful areas that this technology can positively affect is emergency medicine. Emergency medicine, a fast-paced, high-risk, ever-evolving field, presents unique and varied challenges to educators.[1] Could virtual reality be the right tool to assist in addressing these challenges?

History of Simulation

In order to train emergency physicians, many educational institutions rely on scenario-based simulations. Simulation can be defined as the imitation of clinical experience, and it has been present in medical education for over 50 years, beginning when Dr. Peter Safar, known as the father of CPR, simulated mouth-to-mouth resuscitation for students by administering a paralytic to stop the breathing of volunteers in the 1950s.[2] Since then a wide variety of simulation-based educational aids have been developed for medical training. These tools range from basic task trainers (intravenous-practice arms and intubation mannequins) to fully immersive, virtual-reality, patient-assessment simulators. Multiple studies have shown that simulation is at least as effective as traditional education.[3-9]

The successful implementation of traditional simulation presents notable challenges. Building realistic backgrounds, obtaining supplies, and training instructors can be time-consuming and expensive.[10] Ensuring consistency in each student's experience across multiple cohorts is challenging. Prioritizing the safety of students and instructors during necessarily dangerous patient simulations without compromising the authenticity of the scenario is challenging.

Virtual-reality simulations allow institutions to provide the exact same scenario consistently between repetitions, students, and cohorts in a safe and realistic manner that is impossible to achieve in a more traditional manner. Students are able to fully and independently immerse themselves in an environment with a patient in which they must rely solely on their individual cognitive process in assessment, diagnosis, and decision making. In order to successfully implement VR simulation, a financial, educational and time commitment is required.

Virtual Reality

Educators around the world have been using virtual reality to effect real results with students and practitioners in impressive and innovative ways. Let's start with a look at VR patient-assessment simulation. Multiple platforms exist for practitioners and students alike to jump into a virtual emergency room, prehospital environment, or ambulance and perform patient assessments, treatments, and transports—all from the comfort of the hospital break room.

VR Patients is one example of this. The VR Patients platform offers clients the opportunity to attempt simulations in both pre- and in-hospital environments using either 3-dimensional (3D) or 2-dimensional modalities. That means that the same scenarios can be attempted on laptops or iPads, or through VR goggles.

One main benefit of this platform is the case-authoring tool available that allows clients the ability to recreate and assign scenarios to users at will, making it an excellent resource for remediation and high-risk patient interaction practice. Having the ability to recreate and alter specific patient interactions for practitioners to learn from mistakes can be invaluable in a well-trained educator's hands.

A recent publication highlighted the use of VR Patients, assessing the efficacy of the tool in comparison to traditional in-person simulation.[11] Researchers, using scenarios from the National Association of Emergency Medical Technicians (NAEMT), created six scenarios in virtual reality. 203 paramedic students from across the United States completed the six scenarios using VR or traditional in-person simulation. The results of this study showed that there was not a statistically significant difference in exam scores between VR and traditional simulation. This suggests that students benefit just as much from the use of VR simulation as from traditional in-person simulation.

Another notable article published in the *Australasian Journal of Educational Technology* highlighted the use of 3D printing as a way to bridge the gap between the virtual and physical educational environments.[12] Students from a paramedic-education distance program were struggling with a lack of opportunities to practice hands-on skills like intubation. In response to this struggle, a 3D printer was used to make representations of a Macintosh laryngoscope blade with handle and Magill forceps. Students were sent one 3D-printed intubation kit, as well as a Color-Cross universal mobile phone VR headset. Using the tools provided, students were able to get hands-on practice while immersed in a virtual environment throughout their distance-education program. Results from this study showed that the students who had access to 3D-printed devices and VR scored higher on key performance indicators. These simulation techniques could easily be translated to physician-learners.

Conclusion

Technological advancements have exponentially increased the opportunities for practitioners, students, and educators. The potential advantages of including virtual, augmented, or mixed reality into training in medical education are limited only by the imagination of the educator.

ERIN DONATHAN is adjunct faculty with the public safety and emergency services institute at Pima Community College in Tucson, Ariz.

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Point/Counterpoint

A Less Than Glowing Interpretation of Urine Fluorescence

by JESSICA SHENOI, MD; MICHAEL E. MULLINS, MD; AND ARI B. FILIP, MD

We disagree with Dr. Hack's recommendation for examining urine under ultraviolet (UV) light for suspected ethylene glycol ingestions.[1] This test is inherently unreliable with poor sensitivity, specificity, and accuracy (49 percent, 75 percent, and 59 percent, respectively).[2] Parsa, *et al.* found 100 percent of pediatric urine specimens fluoresced even in the absence of ethylene glycol. Other common substances, such as multivitamins and vitamin-fortified cereal may cause urine fluorescence.[3] Casavant, *et al.* corroborated that most pediatric urine samples fluoresce under UV light and found considerable interrater variability.[4] The urine containers themselves may contribute to fluorescence.

Parsa, *et al.* also tested different concentrations of sodium fluorescein in lactated Ringer's solution.[3] The minimum sodium fluorescein concentration to fluoresce reliably was 312 ng/mL. They calculated that this would require an ingestion of about 4 L of ethylene glycol in a 50 kg person.

A more useful indirect clue that Dr. Hack omitted is an extremely high apparent lactic acid concentration. Point-of-care (POC) analyzers rapidly measure lactate using lactate oxidase but cannot distinguish lactate from glycolate (the first acid metabolite of ethylene glycol). Several case reports (including one with no urine fluorescence) found apparent lactate concentrations exceeding 15 mmol/L (often exceeding 30 mmol/L.)[6-10] Simultaneous lactate measurement using lactate dehydrogenase typically reveals a "lactate gap".[6-10]

In a case with a clear history of antifreeze ingestion and an osmolal gap, we believe that the unreliable examination of the urine under UV light adds nothing to the diagnosis. If uncertainty remains while awaiting definitive testing, a POC lactate is a better clue.

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DR. MULLINS is a professor of emergency medicine and faculty member of the Medical Toxicology Fellowship at Washington University School of Medicine.

DR. FILIP is the medical director of the Arkansas Poison Center and faculty member in the emergency medicine residency at UAMS.

Many Clues to Catch a Culprit

by JASON HACK, MD, FACEP, FACMT

Drs. Shenoi, Mullins, and Filip may have misread my article about ethylene glycol (EG).[1]

Nowhere in the piece do I strongly recommend that any *one* test be used to make the diagnosis of EG ingestion. Instead, my column discusses multiple clues that can be brought to bear and, in aggregate, help diagnose this life-threatening ingestion in real time.

Although they may have missed the point of the column, they have written a concise review on urinary fluorescence and discussion of lactic acid gap measurements in EG ingestions. Yes, there are real issues with urine analysis, however in our case it was shocking how fluorescent the patient's urine was when exposed to ultraviolet (UV) light. This supported our presumptive diagnosis when combined with other factors.

An apparent 'lactic gap' elevation might be useful in centers that use two types of lactate analysis. The technique leverages a positive cross reaction of glycolate and glyoxylate for lactate using different reagents—an L-lactate oxidase test and an L-lactate dehydrogenase test—to identify a gap.[2] However, as noted by Drs. Filip and Mullins in their own article the ability to "...exploit laboratory artifact in measurement of lactate as a proxy for toxic metabolites...hinges on availability of multiple methods for testing lactate and will occur only after toxic metabolism has occurred."[3]

I agree with their conclusion "In the case with a clear history of antifreeze ingestion and an osmolal gap, the unreliable examination of the urine under UV light adds nothing to the diagnosis." If you know, you know.

To specifically address the concern that I "strongly recommended using UV light from a Wood's lamp to examine the urine for fluorescence," no other light source would work for this purpose. The characteristics of ultraviolet light produces a "glowing" or fluorescence of fluorescein sodium (uranine yellow) by causing an absorption of energy and subsequent release of photons from the dye. In the hospital, the most common source of "black" or UV light is the Wood's lamp. No other light source would cause the desired effect of fluorescence—not blue light, not room light, not light from a mobile phone.

For readers who missed the October 2023 Toxicology Q&A, I presented a real case of an occult significant ethylene glycol ingestion illustrated with photographs of brightly glowing urine when exposed to a Wood's lamp.[1] I then discussed the multiple direct and indirect clues that might assist the bedside doctor in making this difficult, time-sensitive diagnosis. The subtle clues discussed (history, osmol gap, anion gap, acidosis, urine crystals, urine fluorescence, and renal injury) are especially relevant for patient care, as most centers are unable to return an ethylene glycol level in a clinically relevant timeframe.

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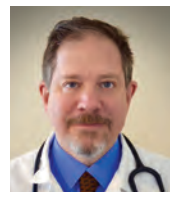

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- 200-word introduction of the patient's presentation, followed by,
- 600 word description of the diagnosis and management of the case including up to three bulleted teaching points,
- 10 reference maximum.

Rare, but not unusual, cases with clinical importance to emergency medicine will be considered. Those with clinical images preferred.

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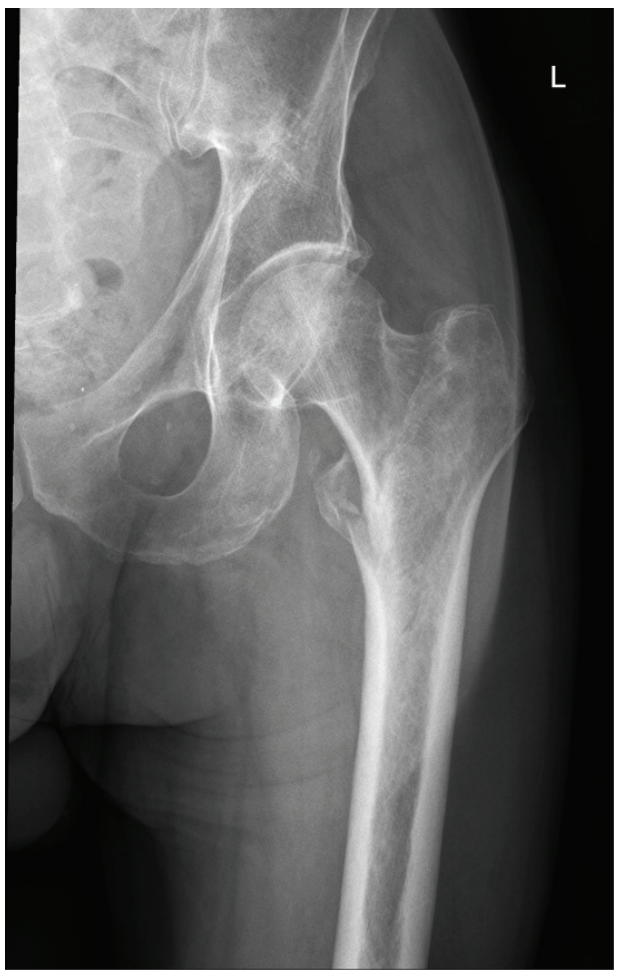
ANSWERING CLINICAL QUESTIONS

PROBLEM SOLVERS

DR. MARCO is professor of emergency medicine at Penn State Health-Milton S. Hershey Medical Center in Hershey, PA, and associate editor of *ACEP Now*.



CATHERINE MARCO

FIGURE 1: Left femur intertrochanteric fracture.

Pain Management for Elderly Patients

How can I treat pain without using opioids?

by CATHERINE A. MARCO, MD, FACEP

A 77-year-old man presented to the emergency department (ED) with hip pain following a fall. On ED presentation, he was experiencing 10 out of 10 pain level. Physical examination was notable for left lower extremity with foreshortening and external rotation. A radiograph is shown (see figure 1).

Problem

How should his pain be managed?

The risks of opioid medications, especially in the elderly, has been well described.[1–4] Emergency physicians commonly prescribe opioid pain medications, and there is significant variability among prescribing patterns.[5] A recent study found that 10 percent of opioid pain prescriptions are associated with indicators of inappropriate prescribing, and 42 percent may be misused or diverted.[1] Alternatives to opioid pain management may include non-opioid systemic agents, such as acetaminophen, nonsteroidal anti-inflammatory agents, ketamine, steroids, or local or regional anesthesia.

In the January issue of *Annals of Emergency Medicine*, Merz-Herrara, et al., published a study, "Safety and Pain Reduction in Emergency Practitioner Ultrasound-Guided Nerve Blocks: A One-Year Retrospective Study."[1] The au-

CONTINUED *on page 20*

Table 1

COMMON NERVE BLOCKS
Femoral nerve/fascia iliaca
Serratus anterior
Erector spinae
Sciatic nerve
Interscalene
Supraclavicular brachial plexus
PENG
Popliteal
Median
Ulnar
Radial
RAPTIR
Greater occipital nerve
Posterior tibial

EMERGENCY IMAGE QUIZ *with* VISUAL DX

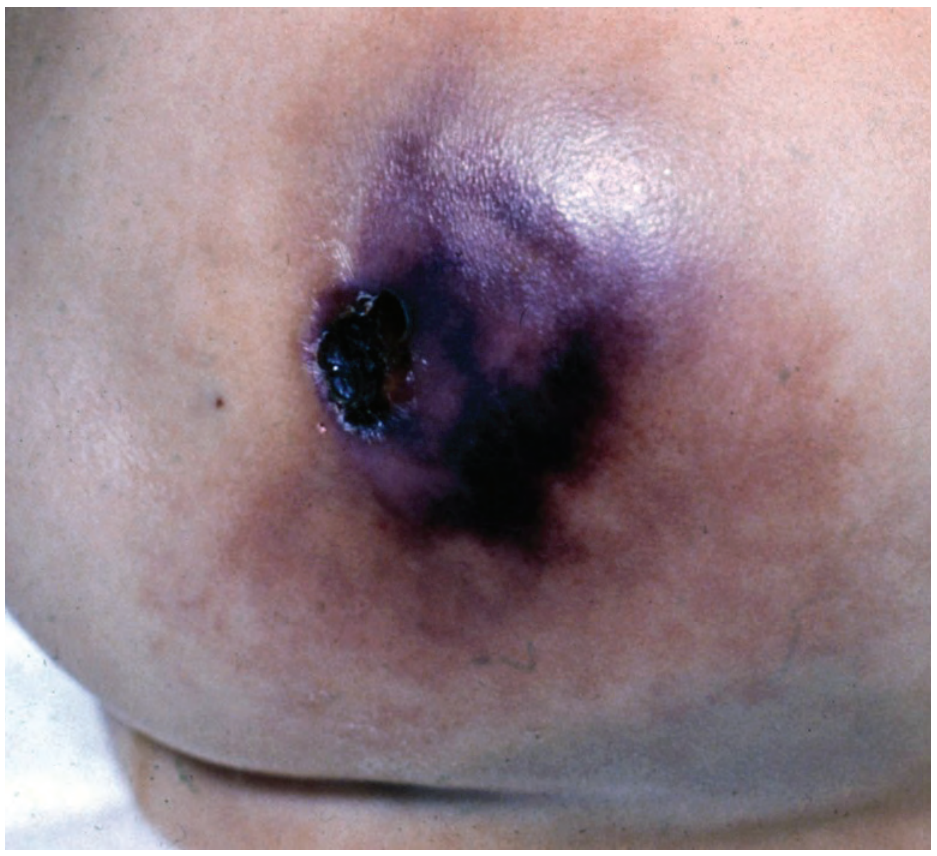


IMAGE USED WITH PERMISSION FROM VISUALDX

Question: A 42-year-old man presents with a painful spot on his buttock. What is the diagnosis?

a. Cellulitis
b. Necrotizing fasciitis
c. Myositis
d. Pilonidal cyst

ANSWER *on page 21*

ONE MORE REASON NOT TO ORDER AN X-RAY

SOUND ADVICE

DR. ASHWORTH is a resident physician at Highland Hospital Alameda Health System in Oakland, Calif.

DR. LIND is an attending physician at Highland Hospital Alameda Health System in Oakland, Calif.

DR. MARTIN is director of the emergency ultrasound fellowship at Highland Hospital Alameda Health System in Oakland, Calif.

DR. NAGDEV is director for the emergency ultrasound division at Highland Hospital Alameda Health System in Oakland, Calif.

Ultrasound-Guided Clavipectoral Block

A simple technique for analgesia in clavicle fractures

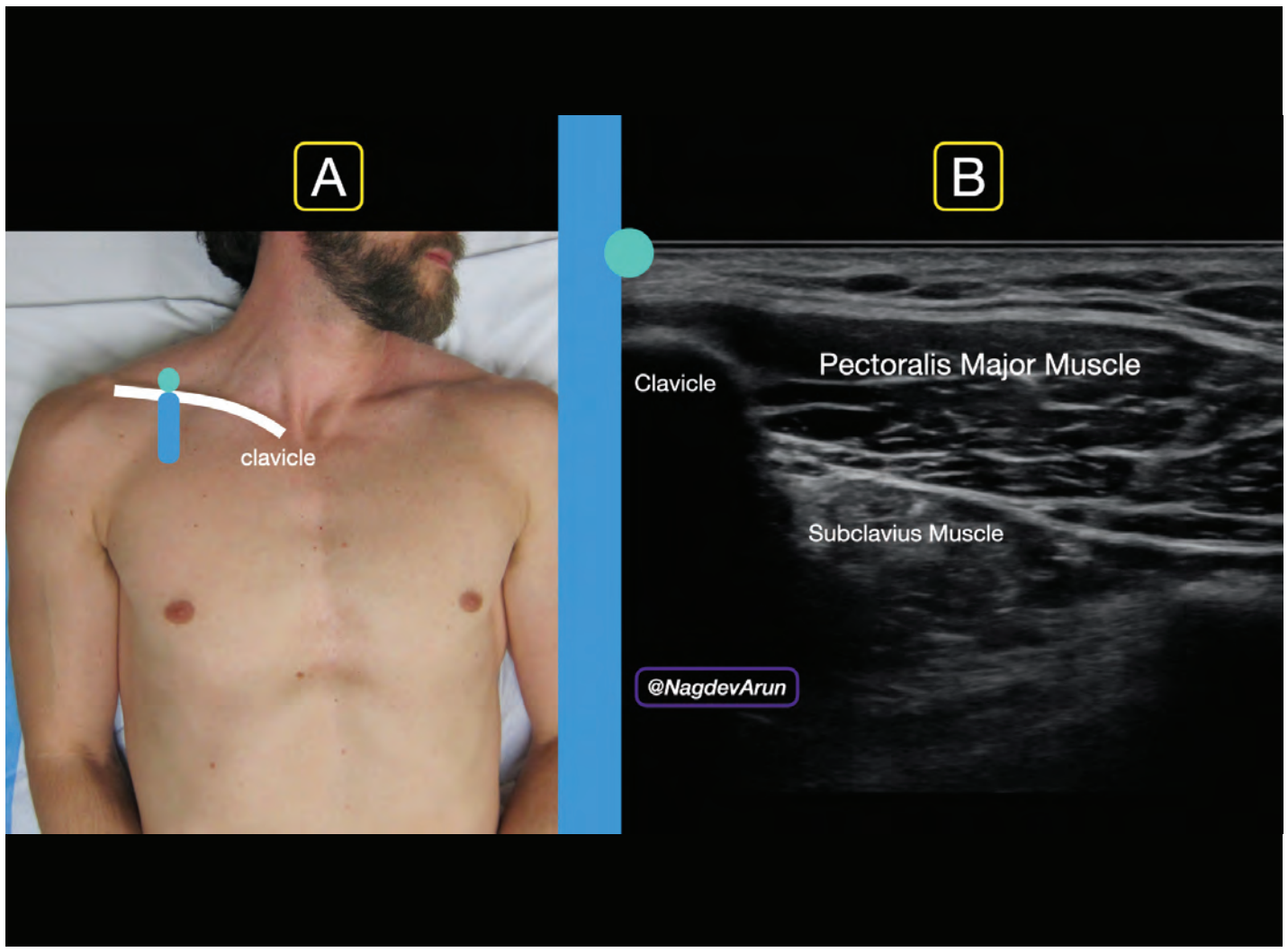
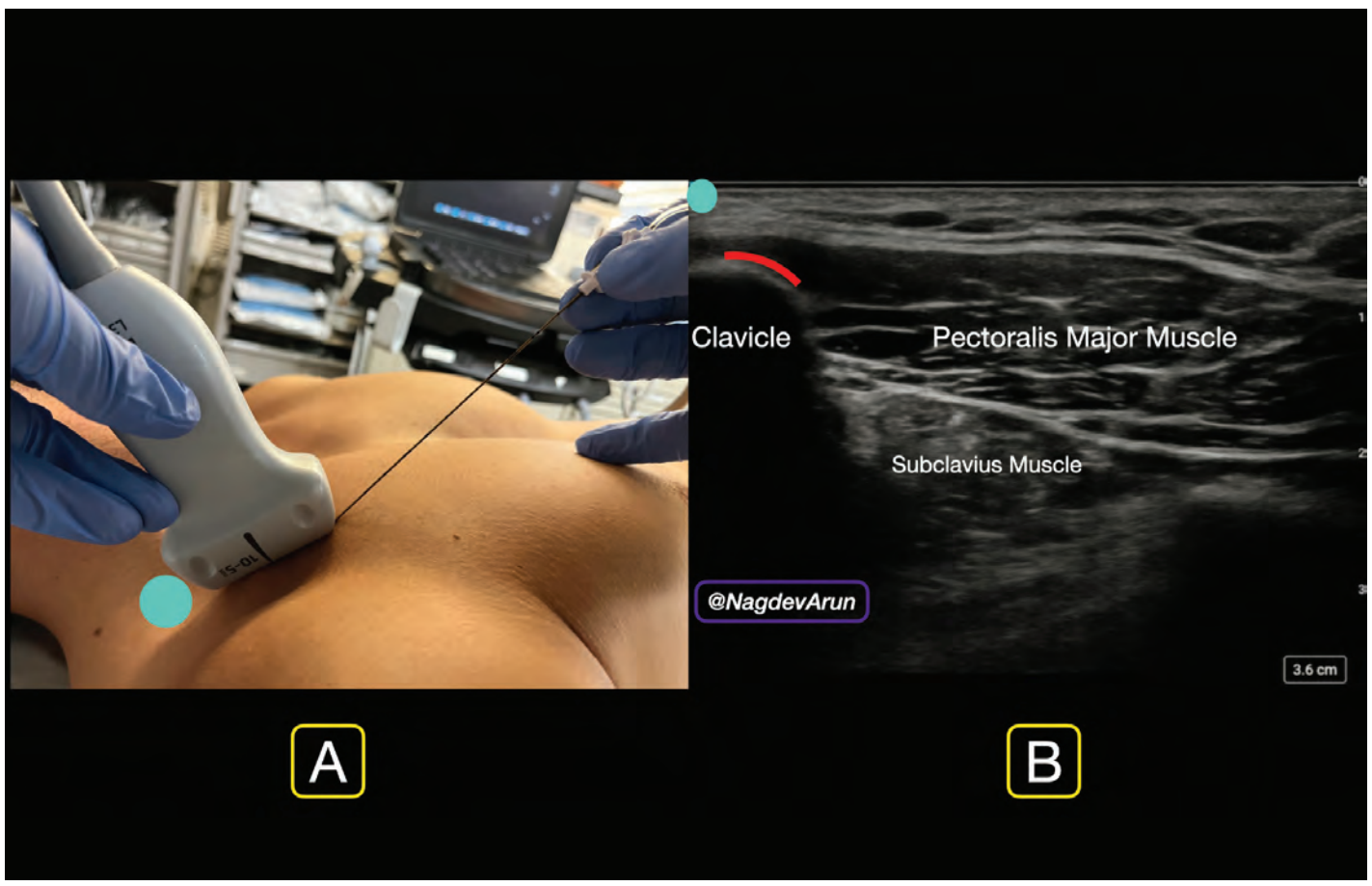


FIGURE 1A: Ultrasound probe should be placed at the clavicle with the probe marker facing cephalad (toward the head).
FIGURE 1B: Ultrasound image with labeled relevant anatomy.



PHOTOS: ARUN NAGDEV

FIGURE 2A: Ultrasound probe placed in a sagittal plane with the probe marker cephalad, in-plane needle technique.
FIGURE 2B: The goal is to visualize the needle tip until it touches the clavicle (red line).

by HENRY ASHWORTH, MD; KAREN LIND, MD; DAVID MARTIN, MD; ARUN NAGDEV, MD

The clavicle is one of the most commonly fractured bones in the human body. Every year, approximately 332,000 people in the United States suffer from a clavicular fracture.[1,2] In the emergency department (ED), the focus of treatment is pain control and immobilization unless there is a clear indication for surgery, such as open fractures, skin tenting, or neurovascular compromise.[1,2] The mainstay of pain control in the ED has been either oral or intravenous non-steroidal anti-inflammatory drugs (NSAIDs) or opioids.[2] However, in our experience these agents commonly do not offer optimal pain control in the acute setting, leading to repeat dosing and, often, prolonged ED stays.

The ultrasound-guided clavipectoral plane block (CPB) is a newly described technique in the emergency medicine literature.[3] The CPB is a simplified technique that can be easily integrated into clinical care by visualizing the deposition of anesthetic in the fascial plane around the clavicle.[3,4] While the CPB was first described in the perioperative setting, it may be even more impactful in the ED setting after an acute injury.[4-6]

1. **Anatomy** The clavicle is enwrapped by the clavipectoral fascia, which extends inferiorly from the clavicle, deep to the pectoralis major and superficial to the subclavius muscles. The innervation of the clavicle is poorly understood partly due to anatomical variations.[7] The CPB circumvents this issue by directly blocking the terminal sensory nerve endings that innervate the clavicle.[3]
2. **Ultrasound Survey Scan** The clinician should note the fracture site (either via palpable landmark or ultrasound visualization). The initial survey scan should be either just lateral or medial to this site.

The anatomy for the CPB is visualized by placing a linear transducer in a cranial-caudal direction at the midclavicular line with the probe marker towards the patient's head (Figure 1A). In this position, the pectoralis major and subclavius muscle are located just below the clavicle (Figure 1A). The goal of this simple block is to place anesthetic gently under the fascial plane that defines the border of the pectoralis muscle and the clavicle (Figure 2A, 2B). In our experience, placing anesthetic near the top of the clavicle will separate this potential space and allow for optimal fracture analgesia.

Once the relevant anatomy is located, place a small skin wheal (2 to 3 ccs of anesthetic) at the inferior aspect of the transducer. Along with marking the entry point for the block, this will provide analgesic for the block.

3. **Supplies and Anesthetic** The CPB block uses similar equipment as other ultrasound guided nerve blocks:
   - » An ultrasound system with a high-frequency 15-6 MHz or 10-5 MHz linear transducer on musculoskeletal or soft-tissue setting
   - » A blunt-tipped needle: preferably a 20- or 21-gauge regional-block needle
   - » Appropriately sized syringe to draw local anesthetic; we recommend 20 mL
   - » 10 mL sterile saline flushes for hydrodissection
   - » Transparent adhesive ultrasound probe cover (Tegaderm™ or similar)
   - » Antiseptic (e.g., alcohol, povidone-iodine, chlorhexidine)
   - » Sterile ultrasound gel

     If available, we recommend using ropivacaine (a concentration of 0.25 percent or less) as it has a longer half-life and a better safety profile than bupivacaine. Weight-based dosing should always be used to prevent local anesthetic systemic toxicity.
4. **Performing Procedure**

Setup

Before performing the block, make sure the patient has consented, has intravenous access and is placed on a cardiac monitor.

The patient should be in a supine position. The ultrasound system should be placed so that the operator is able to visualize the point of needle entry, as well as the ultrasound screen in the same line of sight. We commonly place the ultrasound system contralateral to the clavicle that will be blocked (based on what is comfortable for the physician) (Figure 3).

Using an in-plane needle approach, enter the skin wheal with a block needle. Visualize the needle tip advancing through the pectoralis major to the inferior aspect of the clavicle (Figure 4A). Ensure continuous needle visualization until the block needle meets the clavicle; resistance may be felt as it goes through the clavipectoral fascia and touches the ostium of the clavicle. We recommend placing the needle at the 12 to 2 o'clock position of the clavicle (Figure 4B). Gently inject 1 to 2 cc of anesthetic to hydrodissect the clavipectoral fascia from the clavicle. The goal is to use the anechoic anesthetic to lift the pectoralis muscle away from the clavicle. This can be visualized with real-time ultrasound guidance. Once the clinician opens this potential space, gently place 3- to 5-cc aliquots, aspirating in between to ensure lack of inadvertent vascular puncture.

Optional

For simplicity and efficiency we recommend a multimodal pain strategy with a single injection site (either medial or lateral to the fracture site) and oral or intravenous medications. Clinicians who have additional time to perform the block can divide the anesthetic dosing and inject medial or lateral to the fracture site.[8]

For all ultrasound-guided nerve blocks, we recommend placing documentation both in the EHR and as a small skin marking with a surgical pen on the patient. The cardiac monitor should be left on the patient for 30 minutes after the block to assess for local anesthetic systemic toxicity.

Conclusion

Clavicular fractures are common injuries in the ED. The CPB offers a novel technique that can be part of a multimodal pathway along with other agents (NSAIDs, acetaminophen, opioids, etc.) for the ED clinician. Our technique allows a rapid and simplified technique that can provide optimal pain control for patients with clavicle fractures.

Special thanks to our model Justin Bosley, MD.

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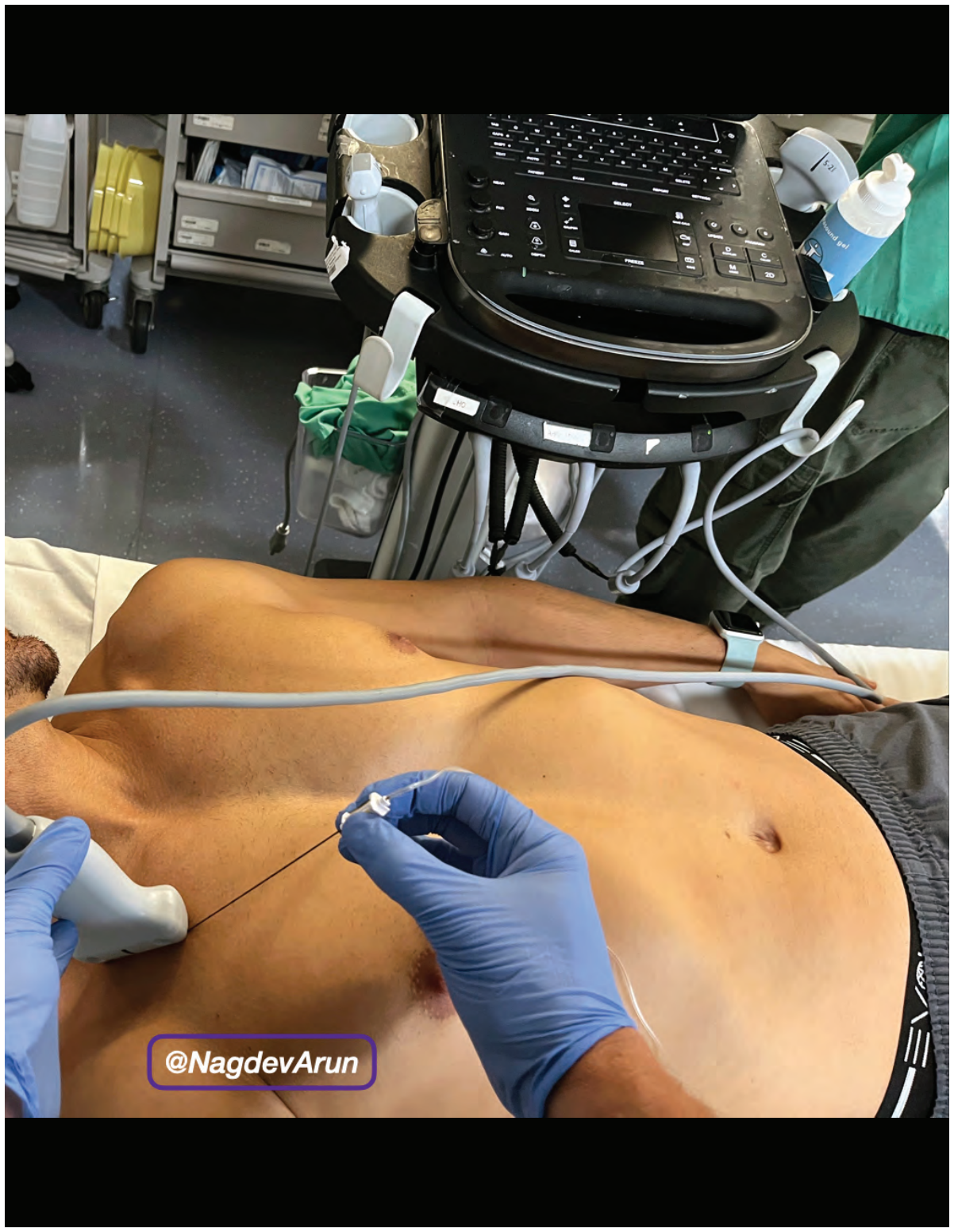
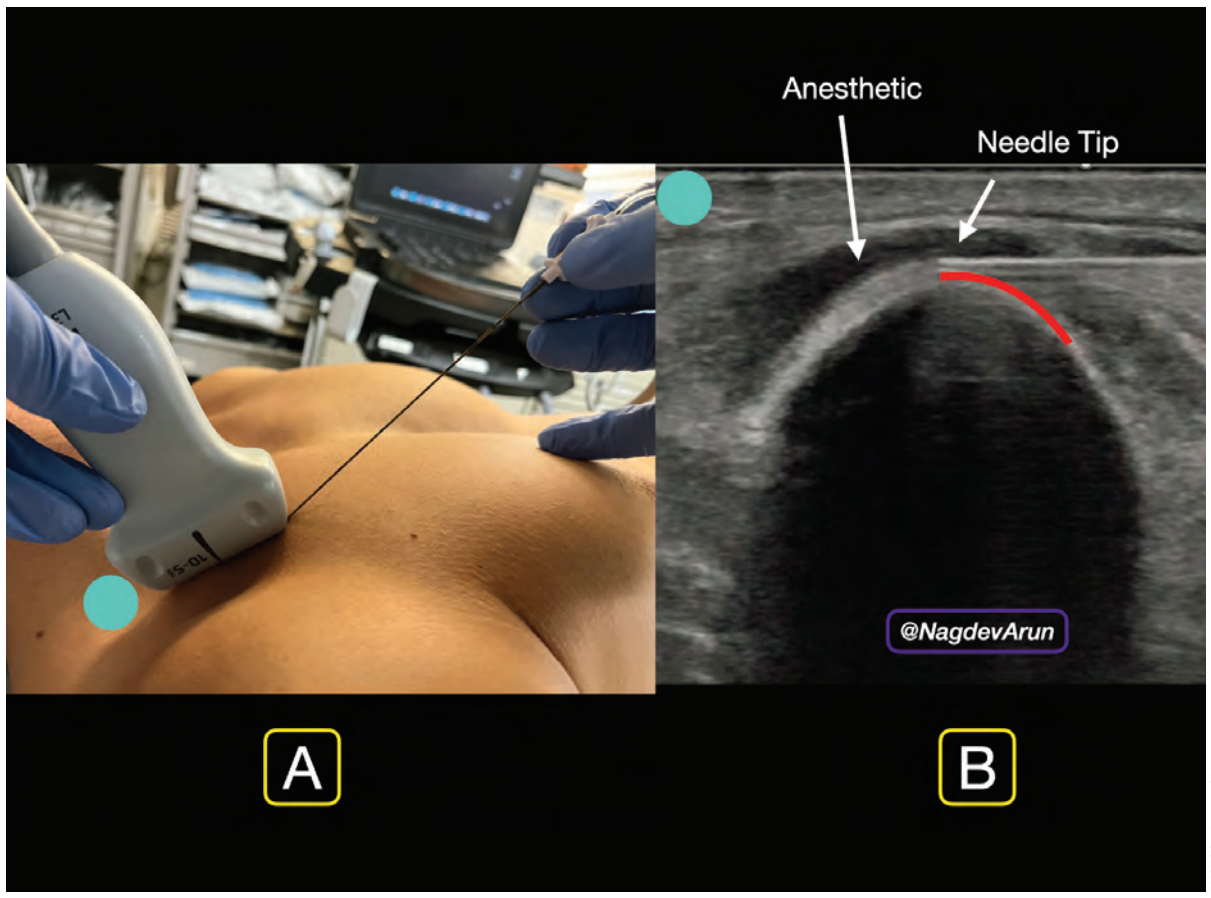


FIGURE 3: The ultrasound system screen needs to be in clear line of sight so that the clinician can see both needle and ultrasound image.



PHOTOS: ARUN NAGDEV

FIGURE 4A: In-plane needle entry.
FIGURE 4B: Needle tip visualized clearly with anesthetic deposited under the clavipectoral fascia.

thors describe a retrospective study of 420 patients who received ultrasound guided nerve blocks. Among 420 patients, only one patient experienced a complication, an arterial puncture which was recognized through syringe aspiration and without further sequelae). Of the 261 patients with preblock and postblock pain scores, there was significant improvement in postblock pain scores. The pain scores decreased from 7.4 (mean) to 2.8 (mean).

Case Resolution

This study reaffirms the safety and efficacy of ultrasound nerve blocks. This patient may benefit from an ultrasound guided femoral nerve block (fascia iliaca), which may eliminate or reduce the need for opioid medication and its potential adverse effects.

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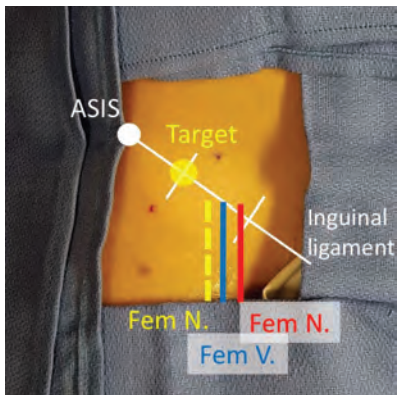
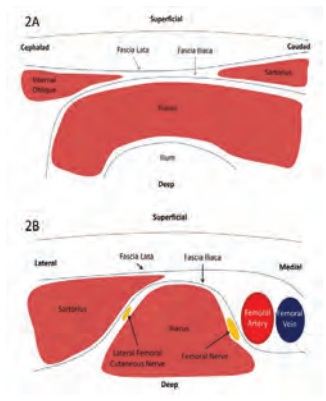
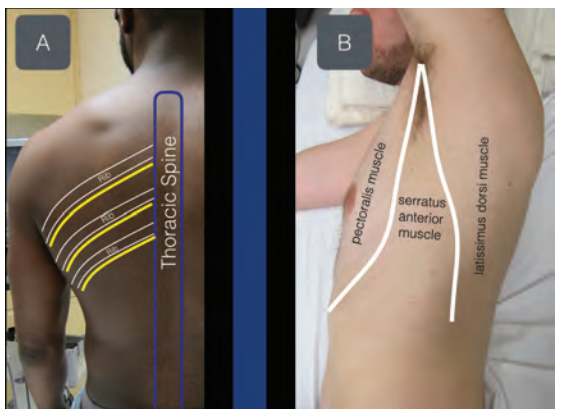
LEARN MORE

The most common nerve blocks in this study are shown in Table 1. Nearly half of the blocks performed are among the three most common, for treating hip or thoracic injuries. We have published how to perform these blocks previously at *ACEP Now* in Sound Advice, the column managed by Arun Nagdev, MD. See below:

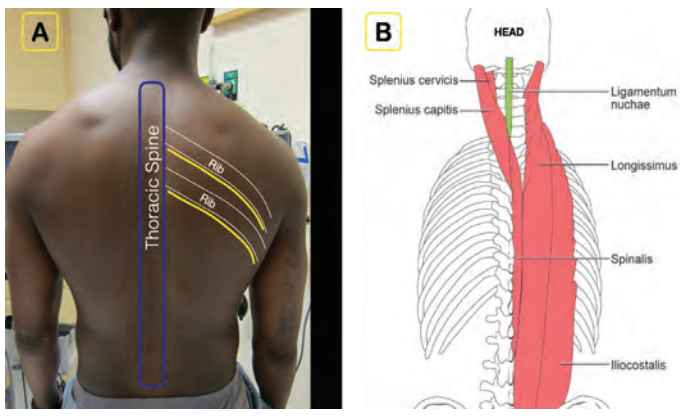




FASCIA ILIACA
https://www.acepnow.com/article/control-hip-fracture-pain-without-opioids-using-ultrasound-guided-fascia-iliaca-compartment-block/



SERRATUS ANTERIOR
https://www.acepnow.com/article/ultrasound-guided-serratus-anterior-plane-block-can-help-avoid-opioid-use-patients-rib-fractures/



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ERECTOR SPINAE
https://www.acepnow.com/article/how-to-perform-an-erector-spinae-plane-block/

CLASSIFIEDS

EMERGENCY IMAGE QUIZ | CONTINUED FROM PAGE 17

Answer

The correct answer is necrotizing fasciitis (b).

Necrotizing fasciitis is a deep and often devastating bacterial infection that tracks along fascial planes and expands well beyond any outward cutaneous signs of infection. Necrotizing fasciitis can occur without a clear portal of entry, although predisposing risk factors include major penetrating trauma (e.g., crush injury, deep penetrating wound), minor nonpenetrating trauma (e.g., muscle strain, sprain, or contusion), and breaches in the skin and mucosa (e.g., lacerations, vesicles, injection drug use, episiotomies, and other surgical wounds).

Vibrio cholera is associated with necrotizing fasciitis infections in cirrhotic patients with exposure to ingestion of raw oysters and with exposure of lacerations to salt water. *Aeromonas hydrophila* is part of the Vibrionaceae family and can cause necrotizing fasciitis in both immunocompromised and immunocompetent patients. Unlike *V. vulnificus* sepsis, where exposure is usually to seawater, in *A. hydrophila,* infection, contact with brackish water, soil, wood, or dirty ditches is typically the common exposure. Infections can follow any trauma, fracture, or injury where there was exposure to fresh water. Patients with necrotizing fasciitis are acutely ill. They are often thought to have an infection that is not responding to standard antibiotic therapy. There is commonly a paucity of cutaneous findings in the early course of the disease. Pain is out of proportion to physical findings. There may be associated skin necrosis and bullae formation. While necrotizing fasciitis most commonly involves the lower extremities, other sites may also be involved. Signs of systemic illness such as fever, lethargy, hypotension, and tachycardia are present; these may progress to multi-organ failure.

Reference

1. VisualDx.com.

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THE END OF THE RAINBOW

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The Truth About Index Funds

by JAMES M. DAHLE, MD, FACEP

Question

My financial advisor says he can beat index funds. I also read an article saying that index funds are worse than Marxism. Why should I invest in index funds if they're ruining the economy and are so easy to beat anyway?

Answer

There are many lies told about index funds, usually by people and companies who profit from pushing investors into alternative methods of investing, such as actively managed mutual funds or whole life insurance. Most of the lies are easily refuted using prominent and publicly available data. Others are nonsensical and silly. In the end, the informed investor generally concludes, with a nod to Winston Churchill, that index funds are the worst way to invest except for all of the other ways.

One of the most prominent lies is that it is easy to beat the market and the index funds that faithfully track its return. The data refuting this lie are extremely robust. Consider the SPIVA Scorecard published twice a year by Standard and Poors. It demonstrates that over a 20-year time period, fewer than one out of 10 actively managed mutual funds beats the market. We're not just talking about the big U.S. stocks like Exxon and Amazon, either. In every type of publicly traded investment including U.S. stocks, international stocks, small stocks, growth stocks, value stocks, real estate investment trusts, and every type of bond, the low-cost index funds trounce similar actively managed funds. They do so in bull markets and bear markets. In fact, many of the actively managed funds don't even finish the race. In the most recent scorecard, over the last 20 years, two-thirds of the mutual funds were doing so poorly that they were closed or merged into another fund. This data doesn't even include the effect of investment-related taxes. Index funds are notoriously tax-efficient and, when investing outside of tax-protected retirement accounts, this provides a further advantage to index funds.

If the full-time, highly educated, Wall Street professionals running actively managed mutual funds can't beat the index with a dedicated, highly trained team of analysts and the best computers money can buy, what hope do you have? Or your "financial guy" who was selling cars two years ago? I don't want to say the answer is zero percent, but it certainly rounds there.

The data for hedge funds isn't much better. Warren Buffett famously bet hedge fund manager Ted Seides that the S&P 500 Index Fund could beat a diversified portfolio of hedge funds over 10 years. Despite the Global Financial Crisis of 2008 occurring at the beginning of the bet, the index fund trounced the hedge funds. Before the bet was even over, Mr. Seides conceded defeat. He was behind a cumulative 85 percent to 22 percent in year nine of the bet. While in some ways it was an apples-to-oranges comparison, it certainly did not demonstrate that hedge funds have better returns than just buying all of the stocks using an index fund.

Speaking of apples and oranges, another favorite trick of those trying to "prove" that active management works is to compare the returns of a portfolio of small cap stocks or value stocks to an index composed of large or growth stocks. Unsophisticated investors might not be able to see through these techniques since they have never heard of an index beyond the Dow Jones or S&P 500. Or maybe they point to somebody like Warren Buffett, who has an exceptional, multi-decade record of beating the market, and say, "See! Warren Buffett beat the market, so it can't be that hard." It's a big step from saying Buffett beat the market

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to your brother-in-law trained in insurance sales being able to do it. Statistically, sheer random chance should have produced a lot more "Warren Buffetts" than currently exist.

Others warn that index funds have become so popular that they are certain to cause an apocalyptic market meltdown. Indeed, something between 15 percent and 40 percent of the money invested in the stock market is invested via index funds (both traditional mutual funds and exchange traded funds or ETFs). In 2022, for the first time ever, there was more money invested in index mutual funds than actively managed mutual funds. It seems that most retail investors and their advisors may be getting the message. However, some people worry, or at least have a vested interest in getting retail investors to worry, that all that money being blindly invested in index funds will somehow result in some sort of deflating market bubble or other cataclysm. The market is perfectly capable of pricing its securities even with almost all of its money invested passively. Only a tiny fraction of the daily trading on the market is done by the "buy and hold" index funds who buy blindly anyway. The rest of it is done by active managers and traders trying to eke out a bit of extra return. That is plenty of analysis and competitive pricing to ensure markets remain efficient enough that investing passively is still the right move. Those who try to convince you otherwise usually have a serious conflict of interest.

Evidence-based investors have no choice but to conclude that, barring possession of a crystal ball, low-cost, broadly diversified, index funds are the best way to invest in stocks. These funds are tax-efficient, avoid style drift, and eliminate manager risk. While they will be just as volatile as the stock market, in the long run they will guarantee you market returns. If you couple market returns with a physician income and a moderate savings rate, you should be able to accomplish all of your reasonable financial goals, and that's what the one-player game of investing is all about.

I'm looking forward to seeing as many of you as possible at the ACEP Scientific Assembly this year in Las Vegas. I'll be giving a talk aimed at graduating residents and new attendings on Monday morning, but ACEP is also sponsoring an all-day workshop on Saturday before the conference starts. More details on that soon, but if you're not confident in your current financial plan, come to ACEP24 and we'll help you build one that you can be confident will allow you to reach your goals.

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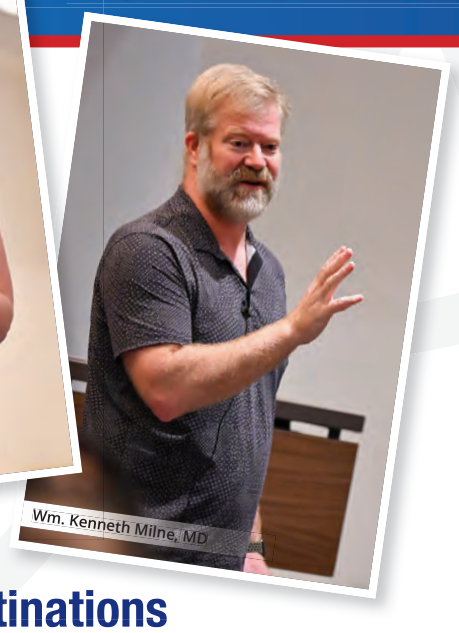
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