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The Official Voice of Emergency Medicine

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## EM CASES

### The Challenges of Posterior Circulation Ischemic Stroke

by ANTON HELMAN, MD, CCFP(EM),  
FCFP

When compared to anterior circulation ischemic stroke, the presentation of posterior circulation ischemic stroke (PCIS) is often less obvious, owing to the anatomical and functional complexity of the posterior circulation brain territory. Patients with PCIS may present with vague dizziness, difficulty walking, nausea, or headache without any lateralizing symptoms.<sup>1</sup> This



may lead to delays in time-sensitive treatment. Even though PCIS accounts for 15 to 20 percent of all stroke events, it

is three times more commonly missed in emergency departments (EDs) compared to anterior strokes with up to 10 percent being missed on the first ED visit.<sup>2,3</sup> Yet, systematic reviews suggest that outcomes with intravenous thrombolysis are at least as good as with anterior circulation strokes with a lower risk of intracranial hemorrhage, while

## Dr. Aisha Terry Chosen 2022 ACEP President-Elect

ACEP Council also elected four  
Board members

On Thursday, Sept. 29 in San Francisco, Aisha T. Terry, MD, MPH, FACEP, from Washington, D.C., was elected ACEP's new president-elect. Dr. Terry will serve one year as president-elect before becoming ACEP president during ACEP23 in Philadelphia. She was first elected to the Board in 2017 and served as vice president of the Board in 2021–22.

It's an historic moment for ACEP; Dr. Terry will become ACEP's first Black president.

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The ACEP Council's newly elected and re-elected Board members Kristin McCabe-Kline, MD, FACEP, Jeffrey M. Goodloe, MD, FACEP, Ryan Stanton, MD, FACEP, and Gabe Kelen, MD, FRCP(C), FACEP.

## ACEP22 | CONTINUED FROM PAGE 1

Dr. Terry is an associate professor of emergency medicine and health policy at the George Washington University School of Medicine and Milken Institute School of Public Health in Washington, DC. She is the senior advisor to the George Washington University Department of Emergency Medicine Health Policy Fellowship and chief executive officer of the Minority Women in Science Foundation (MWSF), a non-profit organization that empowers the dreams of future leaders with interest in science careers. She received her undergraduate degree from Duke University, her medical degree from the University of North Carolina at Chapel Hill School of Medicine, her emergency medicine residency training from the University of Maryland, and her Master of Public Health from the Columbia University Mailman School of Public Health.

The Council also elected four members to three-year terms on ACEP's Board of Directors.

Jeffrey M. Goodloe, MD, FACEP, (incumbent) is professor of emergency medicine, EMS section chief, and director of the Oklahoma Center for Prehospital and Disaster Medicine in the Department of Emergency Medicine at the University of Oklahoma School of Community Medicine. He works clinically at Hillcrest Medical Center Emergency Center in Tulsa, Oklahoma and serves as chief medical officer for the EMS System for Metropolitan Oklahoma City and Tulsa. He is the medical director and a tactical emergency physician for the Oklahoma Highway Patrol. Dr. Goodloe received his medical degree from the University of Texas Health Science Center at San Antonio and completed an emergency medicine residency at Methodist Hospital of Indiana/Indiana University School of Medicine. He subsequently served as the inaugural EMS fellow at the University of Texas Southwestern Medical Center at Dallas.

Gabe Kelen, MD, FRCP(C), FACEP, (incumbent) is the current chair of the Department of Emergency Medicine at Johns Hopkins University in Baltimore. Dr. Kelen is director of the Johns Hopkins Office of Critical Event Preparedness and Response. He is also a professor of anesthesiology and critical care and health policy and management. Dr. Kelen has extensive experience with public health and

infectious disease with a focus on emerging infections. He is a former president of the Society for Academic Emergency Medicine, Association of Academic Chairs of Emergency Medicine and was elected to the National Academies of Science. Dr. Kelen received his medical degree and completed his residency with the University of Toronto and completed an emergency medicine residency at the Johns Hopkins University School of Medicine.

Kristin McCabe-Kline, MD, FACEP, is vice president and chief medical information officer, AdventHealth Central Florida Division, and EMS medical director, Flagler County/City of Palm Coast/City of Flagler Beach. She is the co-founder and chief medical officer of WaterSafe, a nonprofit organization dedicated to drowning prevention and water safety. She previously served as vice president of an independent democratic physician group serving patients across the Central Florida Division North Region of AdventHealth. She is an ACEP Councillor, member of the Council Steering Committee, and served two terms as president of the Florida College of Emergency Physicians. Dr. McCabe-Kline received a medical degree from the University of Texas Health Science Center at San Antonio and completed an emergency medicine residency at Advocate Christ Medical Center in Oak Lawn, Illinois.

Ryan Stanton, MD, FACEP, (incumbent) is an emergency physician with Central Emergency Physicians in Kentucky. Dr. Stanton is the EMS medical director for Lexington-Fayette Urban County, and medical director for the AMR/NASCAR safety team and other EMS agencies. Dr. Stanton is a chief medical contributor for Fox 56 News and creator/host of the ACEP Frontline podcast. He is a past president of the Kentucky Chapter of ACEP. Dr. Stanton has a medical degree from James H. Quillen College of Medicine and completed his residency in emergency medicine at the University of Kentucky.

On Monday, Oct. 3, ACEP's Board of Directors elected its officers for the coming year. L. Anthony Cirillo, MD, FACEP, is the new Chair of the Board. John T. Finnell, MD, FACEP, FACMI, is the new Vice President, and James L. Shoemaker, Jr., MD, FACEP, is the new Secretary/Treasurer. ☪

# THE BREAK ROOM



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## The Death of Diphenhydramine

I too would never bury Benadryl. I well remember our collective professional relief when the Phenergan-Reglan-Benadryl cocktail freed us from having to use narcotics for migraines...and it had about a 99 percent success rate. The Benadryl probably prevented dystonic reactions, and if it caused drowsiness, well, yes, that helps greatly to break the cycle of a migraine. As a migraineur, I used this on myself (not on duty of course) and just don't believe this is any less safe than any of the other formulations mentioned.

—Louise B. Andrew, MD, JD

## Firearms and Emergency Department Safety

Hospitals have always been “firearm free zones.” It is illegal to carry a firearm in the hospital—and the ED is part of the hospital. This ACEP policy seems redundant, and unfortunately

accomplishes nothing. Evil people have never cared whether there is a sign on the door asking them not to bring weapons. This policy only makes it more difficult for emergency physicians to carry a sidearm, if they feel their welfare could be at risk in a rough ED.

—Mike Magoon, MD, FACEP

## I Spent Three Months in Northern Ethiopia with MSF. I Will Never Be the Same.



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# HAVE AN IDEA?

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To be considered for publication, send an outline of your case presentation to Medical Editor in Chief Cedric Dark, MD, MPH, FACEP, with the following:

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### Submit a Letter to the Editor

*ACEP Now* welcomes letters to the editor. Letters should be 250 words or less, may be edited for length and style, and are published online and/or in print at the editorial team's discretion. Submit your letter including your name, title, organization, and contact information to Editor Danielle Galian, MPS.

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# MANAGEMENT OF ACUTE AGITATION IN CHILDREN

An overview of de-escalation techniques for your youngest patients

by ASHLEY FOSTER, MD; JOYCE LI, MD, MPH; AND JENNIFER HOFFMANN, MD ON BEHALF OF THE EMERGENCY MEDICAL SERVICES FOR CHILDREN INNOVATION AND IMPROVEMENT CENTER

Acute agitation in children in the emergency department (ED) can be hazardous and distressing to patients, families and the ED team.<sup>1,2</sup> Over 79 pediatric deaths have been attributed to restraint-related events in the U.S.<sup>3,4,5</sup> It is important for the care of acute agitation to be safe, proactive, effective and patient-centered to ensure the well-being of the child, caregivers and ED staff. The federally funded Emergency Medical Services for Children Innovation and Improvement Center (EIIC) has partnered with experts from ACEP to develop and collate resources into a comprehensive Pediatric Education and Advocacy Kit (PEAK) on agitation.<sup>6</sup> In this article, we will review the initial approach and management of acute agitation in children.

## Initial Assessment

**Ensuring safety:** The first step in the management of agitation is to ensure the safety of the

patient, caregiver(s), and ED staff. Belongings should be removed, and when safe to do so the patient should be changed into a gown to confirm there are no items or substances on the patient that might cause harm. A checklist may assist in ensuring the removal of items.<sup>7</sup> When available, the patient should be placed in a designated area dedicated to the treatment of patients with behavioral conditions, also known as a safe room.<sup>8</sup> An appropriate level of observation should be initiated, including trained observers or security if needed.

**Identification of etiology:** Next, a focused history and physical examination to determine the etiology of the child's agitation and any underlying risk factors is important. Potential etiologies include delirium, defined as a waxing and waning mental status associated with an underlying medical problem (i.e., metabolic, neurologic, traumatic, hypoxic, or infectious), substance ingestion or inhalation (intoxication, poisoning, or withdrawal), or acute underlying mental or behavioral condition (bipolar disorder, schizophrenia or psychosis). In addition, conditions that cause pain may lead to agitation, particularly among

patients with autism spectrum disorder, communication disorders and/or developmental delay. For these patients, a careful history and examination may reveal causes of pain such as acute otitis media, pharyngitis, dental abscess, urinary tract infection, or constipation. Treating these underlying issues may address the agitation.

## Initial Approach to the Child with Agitation

**Verbal de-escalation:** Early use of verbal de-escalation techniques can be an effective means of resolving agitation swiftly. It is important to respect the patient's personal space and maintain a calm behavior, facial expression, and posture (Figure 1). When possible, offer the child choices and positively reward cooperation. Additionally, consider a child's developmental level and preferred means of communication, and provide instructions one step at a time (allowing the child time to process the information and respond). Triggers for agitation and successful de-escalation strategies should be recorded and communicated between team members during care transi-

tions and can be assessed on initial intake of the patient.

**Environmental modification:** These strategies include dimming lights, reducing noise, removing potentially dangerous equipment, and minimizing staff presence when safe to do so (Figure 1).

**Calming interventions:** Consider using distraction with activities and breathing exercises appropriate for age and development.<sup>7</sup> Children with autism spectrum disorder may benefit from soothing sensory items and visuals for communication.

## Further Management

**Pharmacologic treatment:** Pharmacologic treatment may be indicated to manage severe agitation when verbal de-escalation fails or when patient or staff safety is at risk. In children, current practice is based on limited available research, extrapolation from the adult literature, and the consensus of experts.<sup>1,2</sup> Several medication classes are available for managing agitation in children, including antihistamines, benzodiazepines, and antipsychotics.<sup>2</sup> The primary pharmaco-

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<b>MARCH 31 - APRIL 3</b>  <b>Advanced Pediatric Emergency Medicine Assembly</b> <b>New York, NY</b>	<b>MAY 1-3</b>  <b>Leadership &amp; Advocacy Conference</b> <b>Washington, DC</b>	<b>OCTOBER 9-12</b>  <b>Scientific Assembly PHILADELPHIA, PA 2023</b> <b>Philadelphia, PA</b>
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## De-escalation Tips for Pediatric Agitation



Manage the Environment	Use Behavior De-escalation Techniques	Use Calming Interventions
<ul style="list-style-type: none"> <li>Remove dangerous objects and equipment</li> <li>Monitor patient in a safe space with dimmed lights, minimize noise</li> <li>Decrease sources of stress, stimulation, including family or caregivers as required to reduce patient triggers</li> <li>Avoid overuse of medications, physical restraints, and security personnel</li> </ul>	<ul style="list-style-type: none"> <li>Respect personal space</li> <li>Listen to patient and caregiver</li> <li>Keep neutral tone and body language</li> <li>Establish concise verbal contact</li> <li>Avoid provocative actions and words</li> <li>Identify wants and feelings</li> <li>Offer choices and optimism</li> <li>Reward cooperation</li> </ul>	<ul style="list-style-type: none"> <li>Listen to patient, validate distress</li> <li>Address needs (e.g., food or drink)</li> <li>Use distraction (e.g., safe activity, food, warm blanket)</li> <li>Explain what to expect in ED, next steps, provide updates</li> <li>Debrief patient and care team</li> </ul>

**Remember that long hair, jewelry, necklaces, stethoscopes, and ID badges hanging around your neck can be a potential safety risk when interacting with an agitated patient.**

The EMSC Innovation and Improvement Center is supported by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) as part of an award (U07MC37471) totaling \$3M with 0 percent financed with nongovernmental sources. The contents are those of the author(s) and do not necessarily represent the official views of, nor an endorsement, by HRSA, HHS or the U.S. Government.



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Figure 1. De-escalation checklist for pediatric agitation.

logic consideration should be based on etiology and severity of the child's agitation.<sup>2</sup> If the patient has an existing scheduled home medication that is effective, the physician may consider administering the medication earlier than scheduled.

**Use of physical restraint:** Physical restraints should be applied as a last resort when needed to ensure the safety of the patient or staff. The preferred patient position for physical restraint is supine without pressure placed on the patient's head or neck.<sup>4</sup> Frequent reassessments should be performed to monitor the patient's alertness, respiratory status, circulation, and level of agitation. Physical restraints should be removed as soon as it is safe to do so. It is important for physicians to acquaint themselves with regulatory requirements and jurisdiction-specific laws associated with the application of physical restraints in their area.<sup>1</sup>

### Conclusion

Acute agitation in a child in the ED can be a potentially dangerous experience for the child, caregiver(s), and ED staff. Priorities for agitation care in the ED include the establishment of safety, assessment of the etiology of the agitation episode, utilization of effective de-escalation techniques, selection of medication when indicated, and monitoring after an episode of agitation. Visit <https://bit.ly/PEAKAgitation> to access the EICC PEAK, which includes a variety of resource types and formats, from bottom-line recommendations and learning modules to podcasts and webinars. All resources are free and open access.

### References

- Hoffmann JA, Pergjika A, Konicek CE, Reynolds SL. Pharmacologic management of acute agitation in youth in the emergency department. *Pediatr Emerg*

Care. 2021;37(8):417-422.

- Gerson R, Malas N, Feuer V, Silver G, Prasad R, Mroczowski M. Pediatric best practices for evaluation and treatment of agitated patients (BETA) guidelines for management of acute agitation in children and adolescents in the emergency department: consensus statement of the American Association for Emergency Psychiatry. *West J Emerg Med.* 2019;20(2):409-418.
- Weiss EM. Deadly restraint: A Hartford Courant investigative report. *Hartford Courant.* October 11, 1998: A1.
- Chun TH, Katz ER, Duffy SJ, Gerson RS. Challenges of managing pediatric mental health crises in the emergency department. *Child and Adolescent Psychiatric Clinics of North America.* 2015;24(1):21-40.
- Nunno MA, McCabe LA, Izzo CV, Smith EG, Sellers DE, Holden MJ. A 26-year study of restraint fatalities among children and adolescents in the United States: A failure of organizational structures and processes. *Child and Youth Care Forum.* 2022;51:661-680.
- EMSC Innovation and Improvement Center. Pediatric emergency & advocacy kits (PEAK). EICC website. <https://emscimprovement.center/education-and-resources/peak/pediatric-agitation>. Updated August, 2022. Accessed October 6, 2022.
- EMSC Innovation and Improvement Center. New England Regional Behavioral Health Toolkit. EICC website. <https://emscimprovement.center/state-organizations/new-england/new-england-behavioral-health-toolkit>. Accessed October 6, 2022.
- The Joint Commission. Ligature and/or suicide risk reduction - emergency department - safe rooms (designated spaces): FAQ. The Joint Commission website. <https://www.jointcommission.org/standards/standard-faqs/hospital-and-hospital-clinics/national-patient-safety-goals-npsg/000002196/>. Published June 27, 2018. Updated February 1, 2022. Accessed October 6, 2022.

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# ACEP4U: Making it Easier to Find Your Crew

MEMBER INTEREST GROUPS ARE HERE TO HELP CONNECT YOU WITH FELLOW ENTHUSIASTS ACROSS A RANGE OF TOPICS

by JORDAN GRANTHAM

**A**CEP's new strategic plan strives to make it simpler to find and feel connected to your corner of the bigger ACEP community. We understand that the College has a lot of members spanning all locations, ages, backgrounds and interests, so it can be hard to meet new people or get plugged in. We want to make that easier.

ACEP offers a number of ways you can get involved, from committees and sections to the 911 Advocacy network. But those groups involve a certain level of commitment, and they don't cover every interest of our members. That's why we're adding a new way to meet people and build your ACEP community: Member Interest Groups (MIG).

These new interest groups can be organized around any particular hobby, interest, or topic/issue. The startup process is quick, and there is no cost for members to join the groups. Much of the discussion will take place online in dedicated engagED forums, but interest group leaders are also encouraged to organize get-togethers in person during ACEP events or virtually throughout the year.

You might be thinking, what's the difference between ACEP's sections and member interest group? For starters, sections have a formal structure and expectations. It takes considerable time and effort to establish a new section, which must be approved by the ACEP Board of Directors. Once established, ACEP sections receive formal funding, must submit regular reports and updates, and are assigned specific Board and staff liaisons to support their efforts. Sections also elect a representative for the ACEP Council, so they have an opportunity to weigh in on College policies and strategy.

By contrast, member interest groups are more casual. MIGs can be spun up very quickly, and any ACEP member in good standing can join as many interest groups as they want without added cost. It's even possible that some interest groups that are related to the clinical or administrative practice of EM may grow into full-fledged sections over time. If you've thought about joining a section but aren't sure where to begin, joining one or more of these new interest groups could be a great way to get started.

The first member interest group to be formally established is focused on members at or approaching clinical retirement. Led by former ACEP President Mark Rosenberg, DO, FACEP, and former ACEP Chair of the Board Stephen Anderson, MD, FACEP, this MIG was created to share resources and build a network of physicians nearing the end of their careers who would like to continue to advance ACEP and the profession. The group leaders want it to be a place where longtime ACEP members help share their knowledge and personal experience with EM physicians at earlier career stages.

"ACEP's new strategic plan is purposeful-



The At or Approaching Clinical Retirement group was able to meet for the first time during ACEP22 in San Francisco.

ly member-focused, with a goal to be the organization *all* members, at every stage of their career, look to for meaning, passion, and solutions," Dr. Anderson said. "It seemed there was a wealth of experience and knowledge in this [at or nearing retirement] group that was going untapped. The potential members not only can mentor a younger set, but as their mantra goes, they can remain relevant. Plus, our group has shared decades in the same orbit, truly desired its own forum to solve its own unique challenges."

Dr. Anderson said that ACEP members near retirement are facing a variety of lifestyle questions as they start to move on from the emergency department. From finances to alternative jobs, health issues, travel and hobbies, there is much for the group to discuss as they seek to find purpose in this new phase of their career

and life. The group was able to meet for the first time during ACEP22 in San Francisco.

In addition to the new At or Approaching Clinical Retirement group, another interest group was recently established for travel enthusiasts to share their favorite destinations, itineraries, restaurants, and more.

These MIGs are just getting started, but other ideas are already circulating. Are you interested in entrepreneurship or non-traditional career paths? We're working on a group for you. Is there an appetite for a group dedicated to balancing EM and parenthood? On the hobby level, ideas are swirling for bourbon aficionados, cyclists, and more.

Do you have a hobby or issue you'd want to chat with your peers about? Consider starting your own member interest group. Learn more at [engaged.acep.org/migs](https://engaged.acep.org/migs).

## How to Start a Member Interest Group (MIG)

1. Review the ACEP Member Interest Group Policy at [engaged.acep.org/migs](https://engaged.acep.org/migs).
2. Check for duplication. New groups need to cover topics and interests that are not yet covered by existing MIGs, sections, committees, chapters, or membership categories.
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**JORDAN GRANTHAM** is senior content manager at ACEP.

## FIND YOUR CONNECTIONS TO THE ACEP COMMUNITY

*Each month, ACEP4U will highlight and expand on a specific pillar of ACEP's new strategic plan. This month, we focus on Member Engagement & Trust.*

**M**ore than 100 ACEP members were involved in developing ACEP's new strategic plan ([acep.org/strategic-plan](https://acep.org/strategic-plan)) to guide the College for the next three to five years. John Corker, MD, FACEP, was one of the members who helped develop the strategies for the Member Engagement & Trust pillar. As immediate past chair of the Young Physicians Section, he thinks it is important to make it as easy as possible

for members to connect with one another and feel invested in the work of the College.

"For the long-term sustainability and success of our organization, there's no more critical component than membership engagement and communication. Our members have to be aware, on board with, and feel invested in what we're doing as an organization," said Dr. Corker.

The Member Engagement & Trust portion of the strategic plan features five key strategies to ensure the thoughtful acquisition and management of resources:

1. Leverage personalization and issue/interest-based engagement to facilitate connections and passive volunteering that's transparent, respectful, and personally meaningful.
2. Create new leadership development programs that are more accessible, inclusive and impactful within ACEP and beyond.
3. Re-imagine bridge from candidate to regular membership.
4. Develop recognition and rewards to honor all levels of engagement.
5. Measure and showcase the diversity and character of ACEP leaders and members. ➕

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\*Topics listed with an asterisk (\*) are 90-minute faculty panel discussions; all other topics are 30 minutes.

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# Airway Choices in Emergency Medicine

Incorporating video-assisted flexible endoscopic intubation (VAFEI) into your updated airway management strategy

by REUBEN J. STRAYER, MD, FRCPC, FAAEM, AND NICHOLAS CAPUTO, MD, MSC, FACEP, FAAEM, MAJ (MC, USAR)

Airway technology has advanced rapidly in recent years and many emergency departments (EDs) now stock video laryngoscopes with hot-swappable disposable blades, second-generation laryngeal masks that are easier to place and designed to transmit an endotracheal tube, and single-use flexible endoscopes that bring the capabilities of conventional fiber-optic bronchoscopes to emergency settings. These advances introduce novel airway management options that are not yet widely utilized.<sup>1</sup> One particularly powerful example is the use of a flexible endoscope to facilitate tube delivery after the larynx has been exposed using a video laryngoscope. We call this video-assisted flexible endoscopic intubation VAFEI, pronounced “vaffy.”

## The VAFEI Procedure

### Preparation

- Preoxygenate and hemodynamically optimize the patient as time and physiology allow.
- If fully awake approach is undertaken, patient should be pretreated with antisiala-

gogue and diligent topicalization of local anesthesia.

- Equipment list:
  - Intubating flexible endoscope (FE) preloaded with endotracheal tube
  - Video laryngoscope (VL) blade (hyperangulated geometry particularly advantageous but standard-geometry blade also effective)
  - Topical anesthetics (e.g., four percent lidocaine via atomizer) if non-paralyzed approach
  - Usual intubation and difficult airway equipment (e.g., suction, capnography, supraglottic device, cricthyrotomy materials)
- Positioning (Figure 1)
  - VL operator stands at the head of the bed behind the patient’s left shoulder.
  - FE operator stands at the head of the bed behind the patient’s head.
  - Patient should be positioned in semi-fowler position.
  - Screens (single split-screen is ideal) positioned over the patient’s bed in front of operators.

### Airway pharmacology

- If rapid sequence intubation (RSI) is un-



Figure 1: The VL operator stands at the head of the bed behind the patient’s left shoulder.

dertaken, simultaneously administer sedative and paralytic agent.

- If non-paralyzed ketamine-only approach is undertaken, administer dissociative dose or titrated sub-dissociative doses of ketamine until patient is adequately induced.
- Application of atomized lidocaine to the larynx blunts cough and gag reflexes and

reduces the chance of vocal cord spasm during ketamine-only approaches.

- When induced, VL operator performs laryngoscopy as usual to obtain adequate view (or, if difficult anatomy prevents adequate view, obtain best possible view). The VL operator, maintaining laryngoscope position with left hand, readies suction in right hand, in preparation for flexible endoscopy.

Table 1: VAFEI Case Series

CASE SUMMARY	REASON FOR VAFEI	OUTCOME & COMMENT
49M presented with progressive lip and tongue swelling	Angioedema with predicted anatomic difficulty	1st attempt with SGVL, inadequate view. Second attempt with VAFEI using HAVL, successful in 45 seconds.
63F with COPD presented with respiratory failure	Rapid deoxygenation when not on high-flow supplemental oxygen	VAFEI with breathing intubation technique. Given aliquots of fentanyl followed by dissociative dose ketamine, with NC running at 15 LPM during procedure.
58M with base of tongue cancer presented with severe lethargy later determined to be the result of hepatic encephalopathy	Predicted anatomic difficulty for oral mass	RSI utilizing VAFEI, which allowed for maneuvering around friable mass in tight space to prevent/minimize the risk of oral bleeding.
44M with asthma presented with respiratory failure resulting from COVID-19 pneumonia	Rapid deoxygenation when not on high-flow supplemental oxygen	RSI; First attempt with HAVL stylet failed. LMA placed for reoxygenation, then VAFEI/HAVL used for second attempt successfully.
72F with CHF presented with respiratory failure resulting from COVID-19 pneumonia	Rapid deoxygenation when not on high-flow supplemental oxygen	RSI with VAFEI, successful on first attempt.
56M with cirrhosis presented with UGIB	After RSI, failed multiple attempts by HAVL using conventional stylet	Four HAVL attempts (two by junior resident, one by senior resident, one by attending) failed for difficult anatomy and fluids in airway, resulting in significant arytenoid edema. Reoxygenation with LMA, large bore suction placed and VAFEI successfully performed with suction in place.
37M with traumatic brain injury after fall from height, GCS 3	Predicted anatomic difficulty with cervical spine immobilization collar in place	RSI with VAFEI, successful on first attempt.
0F with CAD and SLE presented with pneumonia, sepsis, and respiratory failure	Rapid deoxygenation when not on high-flow supplemental oxygen	RSI, VAFEI successful on first attempt.
32M with alcoholism, cirrhosis, variceal bleeding and ITP	Predicted anatomic difficulty and concern for fluids in airway	RSI, VAFEI successful on first attempt with large bore suction catheter in place.
62F with COPD and AF presented with COVID-19 pneumonia	Rapid deoxygenation when not on high-flow supplemental oxygen	RSI utilizing VAFEI, HFNC in place throughout intubation.
48F with severe DKA requiring multiple prior intubations and resulting tracheal stenosis, partial tracheal resection and re-anastomosis, presented in severe DKA with respiratory failure	Rapid deoxygenation when not on high-flow supplemental oxygen as well as high concern for difficult anatomy	RSI utilizing VAFEI, HFNC in place throughout intubation.

- Once VL operator obtains their view, the FE operator looks into the mouth, places the scope in the patient's mouth, and advances to the end of the blade under direct visualization. The FE operator looks at the VL screen to guide the FE to the vocal cords.
- If performing an awake/breathing intubation, vocal cords may be anesthetized with four percent lidocaine via the utility port on the bronchoscope or using a mucosal atomization device.
- The FE operator then advances the FE through the cords, either under guidance of the VL screen or, if VL screen view is inadequate, using the FE screen (see Video 1 and Video 2 on our website).
- The FE operator advances the scope beyond the vocal cords until the carina is visualized.
- The FE operator or assistant railroads the preloaded endotracheal tube (ETT) beyond the vocal cords until the tip is seen on the FE screen.
- The FE operator withdraws the scope, visualizing the tip of the ETT just proximal to the carina to confirm proper positioning.
- The ETT is then attached to a bag valve mask (BVM) or ventilator circuit with waveform capnography to confirm gas exchange.

### Pearls and Pitfalls

VAFEI is a simple procedure that can become complex if rushed. The right speed is slower than one's instincts. Use suction liberally. If the airway is soiled, the VL operator must assertively suction fluids.

Preload the endotracheal tube with the tube's natural curvature in the conventional orientation, with the bevel facing to the left.

Contemporary VL and FE scopes are heated to reduce the likelihood of fogging, but fogging may still occur and is improved by the use of defogging ointment, if available. Alternatively, if fogging of the endoscope occurs, gently press the tip of the scope against the patient's mucosa to defog. If obstructive anatomy impedes advancing the flexible endoscope, the ETT itself can be used as a conduit; i.e., advance the tube beyond the FE until passage is clear to cords, then advance the scope through the tube and then through the cords. When advancing the tube, if there is a hold-up at the arytenoids, withdraw the tube slightly, then rotate the tube counterclockwise as you advance (*left at the larynx, right at the rings* for hold-up).<sup>2</sup> The VL must be held in place for the entire FE procedure, including as the ETT is railroaded over the scope. Maintaining VL position distracts obstructive tissues and allows visual confirmation of procedural steps.

A convenience sample of 10 patients intubated using the VAFEI technique is described in Table 1.

### Discussion

VAFEI has been described in operating room-based literature, including a randomized controlled trial that demonstrated benefit versus usual video laryngoscopy across a series of outcomes.<sup>3,4,5</sup> An emergency department-based case report described the technique with a channeled video laryngoscope, but it has received little attention as an intubation strategy in emergency medicine.<sup>6</sup> VAFEI takes advantage of the strengths of each modality to address the weaknesses of the other. Though any blade shape can be used, VAFEI is particularly well-suited for use with hyper-angulated VL (HAVL), as steeply curved blades provide

an optimal view of the glottis, but intubation failures and delays with HAVL are often attributable to difficulty maneuvering a styletted ETT to the glottis and then through the cords, down the trachea.<sup>7-10</sup> The flexible endoscope overcomes tube delivery difficulties commonly encountered during HAVL as the operator "drives" the scope around the primary and secondary airway curves that confound immobile styles.<sup>11</sup>

The use of a video laryngoscope facilitates flexible endoscopy and addresses key barriers to the use of FE in emergency settings. Most importantly, the laryngoscope clears a path through the mouth for the endoscope, allowing it to be manually inserted to the glottic inlet. This obviates the need to navigate the nose and nasopharynx, and reduces the difficulty in steering around the tongue and other oral structures. From an operator skills perspective, VAFEI can be likened to a bougie technique rather than a conventional flexible endoscopic intubation technique.

Unlike traditional awake flexible endoscopy, VAFEI can be performed very rapidly, which allows the procedure to be incorporated into an RSI-based paralyzed approach. RSI maximizes the likelihood of first pass success and for decades has been used in the majority of emergency department intubations.<sup>12,13,14,15</sup>

VAFEI can be used as part of a topically anesthetized awake approach, however achieving sufficient local anesthesia that an awake patient will tolerate laryngoscopy requires more time than is available in many emergency intubation cases and is enabled by specialized equipment (e.g., atomizers, concentrated lidocaine) that may not be available.

VAFEI can also be incorporated into a ketamine-only strategy that attempts to take advantage of the safety benefit of ATI by maintaining spontaneous respirations while overcoming the challenges in executing effective topicalization, by using enough ketamine that the patient will tolerate laryngoscopy and tracheal intubation.<sup>16</sup> The use of atomized lidocaine about the posterior oropharynx and glottis is still recommended, if feasible, to attenuate airway reflexes and laryngospasm that may impede tube delivery even in dissociated patients.

The primary drawback of the VAFEI technique is that it requires two operators: one to perform video laryngoscopy and one to advance the flexible endoscope. However, both operators need not be physicians, and in fact one operator can perform VAFEI by first completing laryngoscopy and then handing off the VL to an assistant positioned to the operator's left, behind the patient. VAFEI requires that both VL and FE devices be available and ready, which is a barrier in many departments; however, the emergence of single-use, disposable VL blades and endoscopes allows wider adoption of this technology in emergency settings. Operation of the flexible endoscope in VAFEI does not require the same degree of skill as is needed to perform conventional flexible endoscopic intubation, but does require familiarity with the device and its basic functions, which can easily be acquired in a simulation training session.

### Conclusion

VAFEI is a powerful intubation technique that takes advantage of the strengths of video laryngoscopy and flexible endoscopy while diminishing their drawbacks.<sup>17</sup> It can be incorporated into approaches that preserve spontaneous ventilation and performed quickly enough to be used with paralysis and rapid sequence intubation. Because most anatomically difficult airways are unpredicted, it is

essential that airway management strategies plan for first-attempt failure.<sup>18,19,20</sup> **+**

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**DR. CAPUTO** is associate chief of the Department of Emergency Medicine at NYC H+H/Lincoln Medical Center in the South Bronx.

### References

1. Berkow LC, Morey TE, Urdaneta F. The technology of video laryngoscopy. *Anesthesia & Analgesia*. 2018;126(5):1527-1534.
2. Ho AM, Ho AK, Mizubuti GB. Tracheal intubation: The proof is in the bevel. *J Emerg Med*. 2018;55(6):821-826.
3. Lenhardt R, Burkhart MT, Brock GN, Kanchi-Kandadai S, Sharma R, Akça O. Is video laryngoscope-assisted flexible tracheoscopy intubation feasible for patients with predicted difficult airway? A prospective, randomized clinical trial. *Anesth Analg*. 2014;118(6):1259-65.
4. Driver BE, Prekker ME, Reardon RF, Fantegrossi A, Walls RM, Brown CA III. Comparing emergency department first-attempt intubation success with standard-geometry and hyperangulated video laryngoscopes. *Ann Emerg Med*. 2020;76(3):332-338.
5. Ahmad IN, Ali NE, Liming BJ. Direct laryngoscopy assisted fiberoptic intubation: A novel technique for the pediatric airway. *Int J Pediatr Otorhinolaryngol*. 2020;137:110232.
6. Sowers N, Kovacs G. Use of a flexible intubating scope in combination with a channeled video laryngoscope for managing a difficult airway in the emergency department. *J Emerg Med*. 2016;50(2):315-9.
7. Aziz MF, Healy D, Kheterpal S, Fu RF, Dillman D, Brambrink AM. Routine clinical practice effectiveness of the Glidescope in difficult airway management: an analysis of 2,004 Glidescope intubations, complications, and failures from two institutions. *Anesthesiology*. 2011 Jan;114(1):34-41.
8. Gu Y, Robert J, Kovacs G, et al. A deliberately restricted laryngeal view with the GlideScope® video laryngoscope is associated with faster and easier tracheal intubation when compared with a full glottic view: a randomized clinical trial. *Can J Anaesth*. 2016;63(8):928-37.
9. Kelly FE, Cook TM. Seeing is believing: Getting the best out of videolaryngoscopy. *Br J Anaesth*. 2016;117 Suppl 1:i9-i13. doi: 10.1093/bja/aew052.
10. Greenland KB, Edwards MJ, Hutton NJ, Challis VJ, Irwin MG, Sleigh JW. Changes in airway configuration with different head and neck positions using magnetic resonance imaging of normal airways: a new concept with possible clinical applications. *Br J Anaesth*. 2010;105:683-90.
11. Levitan R, Heitz J, Sweeney M, Cooper R. The complexities of tracheal intubation with direct laryngoscopy and alternative intubation devices. *Ann Emerg Med*. 2010;57:240-7.
12. Li J, Murphy-Lavoie H, Bugas C, Martinez J, Preston C. Complications of emergency intubation with and without paralysis. *Am J Emerg Med*. 1999;17(2):141-3. doi: 10.1016/s0735-6757(99)90046-3.
13. Bouska R, Sakles J, Stolz U, Mosier J. Rapid sequence intubation compared to sedation only for out-of-or intubations using video laryngoscopy. *The Journal of Emergency Medicine*. 2014;46(2):279.
14. Walls RM, Brown, CA III, Bair AE, Pallin DJ, NEAR III Investigators. Emergency airway management: a multi-center report of 8937 emergency department intubations. *J Emerg Med*. 2011;41:347-354.
15. Brown CA III, Bair AE, Pallin DJ, Walls RM, NEAR III Investigators. Techniques, success, and adverse events of emergency department adult intubations. *Ann Emerg Med*. 2015;65:363-370.
16. Merelman AH, Perlmutter MC, Strayer RJ. Alternatives to rapid sequence intubation: contemporary airway management with ketamine. *West J Emerg Med*. 2019;20(3):466-471.
17. Riegel AK, Winterhalter M. Combining videolaryngoscopy with fiber-optic orotracheal intubation for inclusion in the nonemergency pathway of the difficult airway algorithm. *A A Pract*. 2019;12(1):28-29.
18. Nørskov AK, Rosenstock CV, Wetterslev J, Astrup G, Afshari A, Lundström LH. Diagnostic accuracy of anesthesiologists' prediction of difficult airway management in daily clinical practice: a cohort study of 188 064 patients registered in the Danish Anaesthesia Database. *Anaesthesia*. 2015;70(3):272-81. doi: 10.1111/anae.12955.
19. Hayden E, Pallin D, Wilcox S, et al. Emergency department adult fiberoptic intubations: incidence, indications, and implications for training. *Acad Emerg Med*. 2018;25(11):1263-7.
20. Mazzinari G, Rovira L, Henao L, et al. Effect of dynamic versus stylet-guided intubation on first-attempt success in difficult airways undergoing glidescope laryngoscopy: a randomized controlled trial. *Anesth Analg*. 2019;128(6):1264-1271.

# Critical decisions

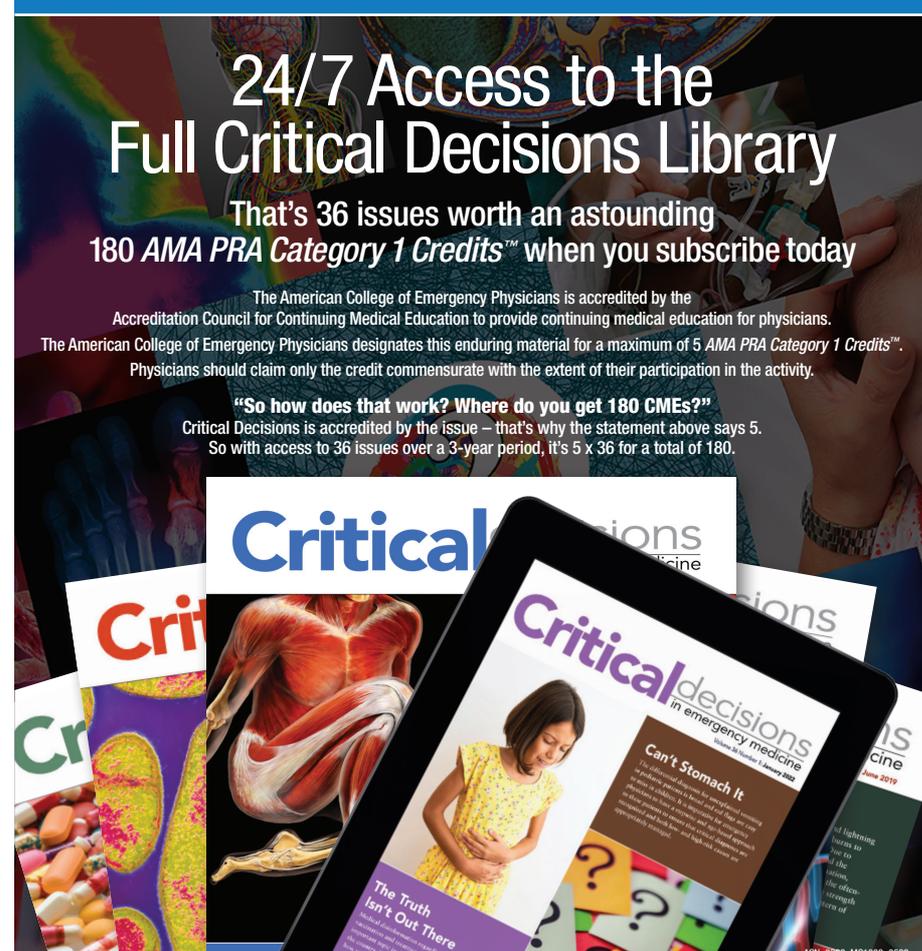
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# Dealing with Difficult Patients

Changing our perception of the situation may help in dealing with stress

by JOAN NAIDORF, DO

**W**e wrote such beautiful essays and personal statements on our medical school and residency applications. But, over time, our mission to heal and justly distribute the bounty of our medical skills somehow devolved into mocking patients in the breakroom and roasting them mercilessly in online closed social media forums. We resent many of the patients for coming to the emergency department and we blame them for their illness or injuries. Then we justify those thoughts and beliefs by saying that everybody thinks and vents to each other in this way.

We define patients as “difficult” when they do not hew to the imagined rule book we have created for “good” patients. I have written that, “... good patients are actually people who reflect what the physician views in herself as desirable characteristics. Treatment of these patients leads to congenial, effective, mutually rewarding interactions.”

The patients and their families who don’t follow the rules get labeled as “difficult.” Interacting with them makes the physician feel uncomfortable, inadequate, or frustrated. Those sour interactions follow us home, drive us to the breakroom for a glazed doughnut or send us home at the end of our day to a few glasses of wine. We scan our email for alternate job offerings and dream about our escape route from clinical medicine. What can be done about these burdensome interactions with difficult patients?

The first thing to realize—and this might be the hardest—is that the problem lies with you. Passing judgement on what makes a good patient and believing non-compliers are “difficult” are some of the most toxic and unhelpful thoughts you can have. And those thoughts are entirely optional. You can set them aside and find more useful and accepting thoughts about even your most challenging patients.

## How Can Any of Us Change Our Very Negative Thoughts and Beliefs?

Primarily, we must realize that we have a negativity bias. This is a very human tendency that probably developed when our cavemen ancestors had to scan the horizon for constant threats. Our brains go naturally to find what might be dangerous or going wrong. In medical school and residency, we are subconsciously taught to mock and degrade our patients by judgmentally speaking about drunks and druggies and labeling our patients as diabetics and sicklers. We frame our physician groupthink as “the truth.” Everybody talks this way so we don’t even consciously hear how terrible it sounds. It becomes habit.

The feelings physicians have about patients are useful clues that we have about how we are thinking and invariably, find their way into the results we obtain. Psychiatrist James Groves,



MD, writes about this issue in his landmark article, “Taking Care of the Hateful Patient.” He writes, “Emotional reactions to patients cannot simply be wished away, nor is it good medicine to pretend that they do not exist...When the patient creates feelings in the doctor that are disowned or denied, errors in diagnosis and treatment are more likely to occur.”

If we could somehow manage the negative thoughts that come up, not only will we feel better in our day-to-day practice, but we will also get better results with individual patients. Can we find some middle ground with demanding patients or family members so that we can build a mutually agreeable plan? Could you be wrong about the specific approach you set out to address the patient’s problem? What else is true about this human being lying before me with a high blood alcohol level? Is he a veteran? Is he someone’s son? Can I remember that getting checked out in the emergency department is the best place for him and not the bottom of some ditch?

If I can think of that person as someone’s son, I can generate much more compassion for the fellow. I have two sons and if one of

them showed up in the emergency department, I would want him treated with empathy and given the benefit of the doubt. When I empathize with the mother of my patient, I look more closely for occult injuries, clean him up, and make sure he has a ride home. When I do the medical evaluation to rule out subdural hematoma, I accept that as part of my job as an emergency physician. I accept reality and I appreciate that my staff and I did everything that we are supposed to do for a human in that condition.

When we become aware of our frustration or anger, we can pause before overreacting or mirroring hostility. Our patients have the autonomy to question or to reject any of our suggestions or treatment plans. We can remember that our patients have their own fears, beliefs, limitations, and obligations that affect their ability to comply with the plan. Their thoughts, feelings, and actions have nothing to do with your ability or judgment as a physician.

When encountering challenging people, we can train ourselves to ask better questions. We can find better solutions by taking responsibility for our thoughts, feelings, and actions

during the encounters. We can only do that by believing in our own training and feeling confident in our beneficent actions towards our patients.

Recognize that anger and frustration are normal and unavoidable human emotions that patients, nurses, and physicians have in the emergency department. Nothing has gone wrong here. Thinking that something has gone wrong or it shouldn’t be this way only makes us miserable. We can learn how to respond more effectively to intense emotions; we can’t eliminate them. Most of our patient interactions are lovely and mutually rewarding. Look for something good in them. Armed with more insight into the behavior patterns of our most difficult patients, perhaps we can actually change our negative perceptions of them. +

## References

1. Groves JE. Taking care of the hateful patient. *N Engl J Med*. 1978;298(16):883-887.

**DR. NAIDORF** is an emergency physician, speaker, and author based in Alexandria, VA. She trained at Albert Einstein Medical Center in Philadelphia and is board-certified in EM. Her book *Changing How we Think About Difficult Patients: A Guide for Physicians and Healthcare Professionals* was published in January 2022 with the American Association for Physician Leadership.



“A New Spin” is the personal perspective of the author and does not represent an official position of *ACEP Now* or ACEP.

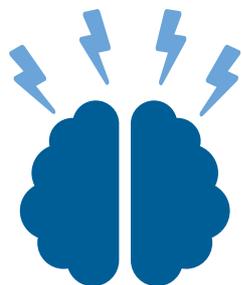
# By the Numbers

## Physician Burnout

IN 2021

# 62.8%

of physicians had at least one manifestation of burnout



## EMERGENCY PHYSICIANS

# 22%

reported symptoms of stress consistent with PTSD

## FEELING DISTANT OR CUT OFF FROM OTHER PEOPLE



2.27 out of 4

## TROUBLE FALLING OR STAYING ASLEEP



2.13 out of 4

## HAVING STRONG NEGATIVE BELIEFS ABOUT ONESELF, OTHER PEOPLE, OR THE WORLD



1.98 out of 4

WORKPLACE STRESS HIGHEST among physicians UNDER AGE 50, or those with LESS THAN 10 YEARS OF EXPERIENCE.

Marco CA, Larkin GL, Feeser VR, et al. Post-traumatic stress and stress disorders during the COVID-19 pandemic: Survey of emergency physicians. *Journal Amer Coll Emerg Phys Open*. 2020 Nov 2;1(6):1594-1601.

Shanafelt TD, West CP, Dyrbye LN, et al. Changes in burnout and satisfaction with work-life integration in physicians during the first 2 years of the COVID-19 pandemic. *Mayo Clin Proc*. 2022;S0025-6196(22)00515-8.



Figure 1: Lateral incisor replaced within 1 hour of avulsion.



Figure 2: Follow-up over a year after the original injury.

# A Novel Technique to Treat a Dental Avulsion

## It's "knot" easy to secure a loose tooth

by CEDRIC DARK, MD, MPH, FACEP, JASON BROCK, DDS, AND ZACH MIKSANEK, MD

### Case Summary

A 32-year-old male presented after a fall from standing. He had a right lateral incisor (tooth number 7) avulsion and presented with his tooth in hand. It had not been stored in any liquid media prior to arrival at the emergency department. Emergency department (ED) staff placed the tooth in milk until evaluation by the treating physician. The tooth was then reapproximated by placing it back into the socket and two 2-0 silk sutures were tied around neighboring teeth to anchor the tooth (Figure 1). The patient was discharged with a course of antibiotics and dental referral.

### Discussion

Avulsed permanent teeth are a true dental emergency and represent up to 11 percent of all cases of dental trauma.<sup>1</sup> The International Association of Dental Traumatology recommends immediate first aid in the setting of an avulsed permanent tooth. This includes handling the avulsed tooth by the crown only (to avoid touching the root and to minimize contamination), washing in cold running water to remove loose debris, and immediate reimplantation, if possible, in a conscious patient.<sup>2</sup> Otherwise, the guidelines recommend placement in a suitable solution to prevent drying of the root of the tooth. In order of decreasing preference, the guidelines recom-

mend milk, Hanks, Balanced Salt Solution, saliva (have the patient spit into a clean container), or saline. Water is not recommended but is better than leaving the tooth to air dry. Dry time should be less than 60 minutes to prevent loss of viability of periodontal ligament cells.

After the patient comes to the ED, the physician can attempt reimplantation and flexible splinting to secure the tooth until definitive dental care can be obtained. Local anesthesia may be needed to facilitate reimplantation. In a study of three different methods—periodontal pack, wire, and bondable reinforcement ribbon—to secure an avulsed tooth in the emergency department, dentists preferred the bondable reinforcement ribbon technique for optimal long-term outcomes.<sup>3</sup> Alternative methods, including using tissue adhesive bonded to the pliable metal from a nonbreather mask, or nylon fishing wire bonded with composite materials, have also been described.<sup>4,5</sup>

After splinting, the physician should verify the normal position of the re-implanted tooth both clinically and radiographically. A flexible splint should remain in place for up to two weeks. Update tetanus protection in the ED, if necessary. Prescribe the patient a course of oral antibiotics and use a chlorhexidine (0.1 percent) mouth rinse twice a day for one week. Patients should also be advised to avoid participation in contact sports, to consume a soft diet for up to two weeks, and to brush teeth with a soft toothbrush after meals.

In this case, which describes using silk suture to secure an avulsed tooth in the emergency department, we offer another method to provide flexible splinting with good long-term outcomes in the setting of dental trauma. This patient had successful re-implantation on follow-up over a year after the original injury (Figure 2). 📌

### References

- Bustamante-Hernández N, Amengual-Lorenzo J, Fernández-Estevan L, Zubizarreta-Macho A, Martinho da Costa CG, Agustín-Panadero R. What can we do with a dental avulsion? A multidisciplinary clinical protocol. *J Clin Exp Dent*. 2020;12(10):e991-e998.
- Fouad AF, Abbott PV, Tsilingaridis G, et al. International Association of Dental Traumatology guidelines for the management of traumatic dental injuries: 2. Avulsion of permanent teeth. *Dent Traumatol*. 2020;36(4):331-342.
- McIntosh MS, Konzelmann J, Smith J, et al. Stabilization and treatment of dental avulsions and fractures by emergency physicians using just-in-time training. *Ann Emerg Med*. 2009;54(4):585-92.
- Rosenberg H, Rosenberg H, Hickey M. Emergency management of a traumatic tooth avulsion. *Ann Emerg Med*. 2011;57(4):375-7.
- Kahler B, Hu JY, Marriot-Smith CS, Heithersay GS. Splinting of teeth following trauma: a review and a new splinting recommendation. *Aust Dent J*. 2016;61 Suppl 1:59-73.

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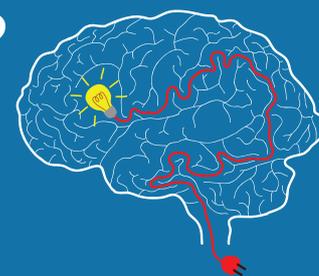
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# What's Your Risk of Getting COVID-19 by Providing Emergency Care?

by DAVID A. TALAN, MD, AND NICK MOHR, MD MS

Early in the COVID-19 pandemic, emergency physicians and nurses became critically needed to address the ensuing patient care crisis, but they were also scared of the effects of exposure to the virus on them and their families. Many suffered anxiety, depression, and even symptoms of PTSD.<sup>1</sup> Senior staff, at greater risk for severe outcomes, considered early retirement. We knew of colleagues who had died. The U.S. Centers for Disease Control and Prevention (CDC) made recommendations for personal protective equipment (PPE) based on the experience with SARS-CoV and influenza, but it became clear that aerosol transmission occurred and many emergency department (EDs) had shortages of N95 masks and other PPE. Even after vaccination was introduced, waning antibody titers and immune evasion of new variants continued to exact a toll on our frontline workforce. Perhaps worst was not knowing the actual risk of providing emergency care.

A recently published article describes the first prospective surveillance to determine the risk of contracting COVID-19 by doctors and nurses providing emergency care.<sup>2</sup> This project was conducted during the height of the pandemic and before vaccinations, May to December 2020, at 20 U.S. academic emergency departments. Approximately 1,600 doctors, nurses, and other staff were followed with weekly surveys and serial SARS-CoV-2 surveillance with PCR and serology tests—30,000 person-weeks of surveillance, including over 4,400 intubations—to determine the attributable risk of acquiring COVID-19 through direct patient care by comparing infection rates between clinical and nonclinical ED staff.

The authors found that availability and use of PPE consistent with CDC recommendations was excellent. Most important and reassuring, PPE worked! The overall risk of infection was very low—4.5 percent got a new COVID-19 infection over 20 weeks, approximately 20 per 10,000 person-weeks. That equates to one infection for a single person after working 10 years. Over 40 percent of those staff who were infected never developed symptoms.

But while the overall risk was low, does caring for patients increase our risk, particularly for those who routinely spend prolonged time in rooms or who do aerosolizing procedures, like CPR and endotracheal intubations?

No additional risk associated with doctors providing direct care was found, however, nurses had almost twice the risk compared to non-patient care staff. And while double the small risk is reassuring, this raises the question of whether nurses and others who spend prolonged time in patient rooms could be more safely protected.

Intubating COVID-19 infected patients was also associated with increased risk of acquiring COVID-19. But again, intubations were uncommon and only 7.5 percent of patients who were intubated were found to be SARS-CoV-2 infected, so intubating while wearing appropriate PPE only contributed



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minimally to personal risk.

The overwhelming risk to emergency staff was, surprisingly, community COVID-19 exposures, particularly at home, where there was 16-fold increased risk of subsequent infection. Further, those staff who did not use masks during life outside the ED when infections were prevalent were at additional risk.

The bottom line, the CDC's PPE recommendations worked to protect U.S. emergency health care workers during the early phase of a deadly global contagion. Vaccination has taken some edge off our anxieties, but should infections and severe outcomes surge again, careful adherence to PPE recommendations and routine N95 mask use should be considered. Just as most motor vehicle collisions occur close to home, health care workers must remain vigilant when disease activity increases in their communities for this current and any future pandemics. 📌

## References

1. Rodriguez RM, Montoy JC, Hoth KF, Talan DA, Harland KK, Tem Eyck P, Mower W, Krishnadasan A, Santibanez S, Mohr N. Symptoms of anxiety, burnout, and PTSD and the mitigation effect of serologic testing in emergency department personnel during the COVID-19 pandemic. *Ann Emerg Med.* 2021;78:35-43.
2. Mohr MN, Krishnadasan A, Harland KK, Eyck PT, Mower W, Schradang WA, Montoy JC, McDonald LC, Kuttly PK, Hesse E, Santibanez S, Weissman DN, Slev P, Talan DA for the Project COVERED Emergency Department Network. Emergency department personnel patient care-related COVID-19 risk. *PLOS ONE.* 2022 (in press).

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**Grantee Spotlight:  
Nicholas Mohr, MD**

Received a two-year, \$150,000 EMF Fellowship Grant to support “Utilization, Costs, and Outcomes of Inter-Hospital Transfer of Rural Patients with Severe Sepsis and Septic Shock”

“Since my funding from EMF, I have published several dozen papers on rural

*emergency care and sepsis care specifically, and we had a center funded at our institution focused on rural telehealth. I have mentored several PhD students and faculty members focused on rural emergency care, and we continue to expand our network of real emergency departments. We now work with a telemedicine program at work that includes 200 rural hospitals, and I have collaborators and mentees in six other academic institutions similarly focused on rural care. My work through EMF clearly started this trajectory and was absolutely essential to my work in this area.”*



**Grantee Spotlight:  
Kristin Woody Scott, MD, MPhil, PhD**

Received a one-year, \$5,000 EMF/SAEMF Medical Student Research Grant to support “Assessing Financial Risk Among Uninsured Patients Seeking Emergency Medical Care”

*“My hope is that this research can help spur discussions on ways to improve the system to ensure that no one is lacking adequate financial risk protection when seeking needed emergency care. Capturing the magnitude of the problem through rigorous empirical work is one step to informing evidence-based policy solutions that allows us to maintain the ED as a place that is for everyone, any time, anywhere, and regardless of ability to pay. The EMF grant experience has been a phenomenal mechanism for trying to advance this work.”*+

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# A New Snakebite Center Provides Care Patients Desperately Need

In Alabama, two emergency physicians have started a clinic to give patients follow-up treatment

by MAURA KELLY

Emergency physician William Rushton, MD, used to lie awake at night, worrying about his snakebite patients. People rarely die from envenomations these days thanks to a new, safer generation of antivenins that came on the U.S. market in 2007—made of human-derived rather than horse-derived antibodies.<sup>1</sup> An estimated 7,000–8,000 people are bitten per year by venomous snakes in the United States, though only about five of them die, according to CDC data. But somewhere between 10 and 44 percent of bite victims have lasting difficulties like loss of muscle control or part of a finger, and Dr. Rushton's patients from the emergency department (ED) at the University of Alabama at Birmingham (UAB) Hospital often contacted him after release about such problems.<sup>1</sup>

So many patients returned to UAB with swollen or discolored limbs that Rushton began to require all of them to send him pictures of their extremities three days out—the best system he could come up with even though, as he says, “It was incredibly inefficient.” Rushton—an associate professor of emergency medicine (EM) and pediatrics at UAB Hospital—was agonizing a few years ago over how to help a patient with a badly blistering wound when his colleague Dag Shapshak, MD, peered over his shoulder at the patient's pictures. “Looks kinda like a leg I would see in my clinic,” said Dr. Shapshak, another associate professor of EM at UAB, who also helps lead UAB's Comprehensive Wound Care Clinic. The encounter got the two physicians talking not only about that specific patient, but also about how they could better help all bite victims—a long conversation that culminated in 2021, when they launched UAB's Comprehensive Snakebite Program, the first of its kind in the country. The new center not only provides

initial resuscitation but something more difficult to find: comprehensive follow-up care for snakebites that, Dr. Rushton said, goes “beyond the brick and mortar of the ED.”

Alabama sees about 250 snakebites a year, and as medical director of the state's Poison Information Center, Dr. Rushton consults on nearly every one of them—at least one or two a day during the warmer months. In the past, patients often struggled to find any clinician willing to see them after they left the ED. Primary care physicians aren't typically trained in treating snakebites and were therefore largely unwilling to take on any responsibility for them. Therefore, Dr. Rushton's patients—suffering from swollen limbs, decreased range of motion, or persistent or rebound coagulopathy—sometimes drove as much as four or five hours back to UAB to see him for further help. That was hard on patients and on Dr. Rushton's ED, which wasn't set up for such treatment at the time—though, as Shapshak quickly saw, his wound clinic was. Bite victims needed post-discharge services that dovetailed neatly with those Dr. Shapshak was already providing—localized wound care, treatment for swelling, lab monitoring to ensure proper clotting, and referrals to physical therapy. Obvious as the overlap may seem now, it was obscured for a long time by the gap between the typical snakebite patient and the typical wound clinic patient: The former tend to be young, healthy, and active, between the ages of five and 30; the latter about 80 years old, suffering complications from diabetes or cancer. As Dr. Shapshak said, “The know-how was in our field. What's novel is that we [were] able to connect the dots.”

Everyone at UAB seems to be connecting the dots lately when it comes to snake bites. Dr. Rushton recounted, “At our children's hospital, pediatric burn dressings are used to reduce

pain, and the burn nurses came to me and said, ‘Could we use these dressings to reduce snakebite pain?’ That's worked amazing[ly] well and helped us reduce pediatric opiate use.” It's not only the burn nurses who've gotten in on the game. “Our physical therapists have written order sets to get people up and moving around quickly,” Dr. Rushton noted. His team also includes ED pharmacists who help coordinate antivenin treatment. “This is very much a multidisciplinary project,” said Dr. Rushton.

These days, Alabamians with bites no longer struggle to find follow-up care. UAB's center offers it not only to those they see bedside, but also to anyone who calls the state's Poison Information Center. “It's a resource for the entire state,” Dr. Rushton reported. “This year we took two people from Georgia too,” he said. Moreover, now that primary care doctors can rely on the UAB center to guide them through follow-up treatment, they're more willing to take on snakebite patients—and Dr. Rushton and Dr. Shapshak are proud they have empowered their non-emergency medicine colleagues.

Emergency physician Sean Bush, MD, president of the North American Society of Toxicology, applauds UAB's work. “Follow-up care is a challenge,” said Dr. Bush, an envenomation expert, “Snakebite is an uncommon emergency in most places, so it's helpful to have people and places with a lot of knowledge and experience managing difficult cases.”

UAB's new model may inspire colleagues in other states where venomous snakebites are common to start centers of their own—in the Southeast and Southwest especially. “The positive response to the center at UAB—people come to the clinic who are so appreciative of the care—shows that there is a need,” said Anne-Michelle Ruha, chair of the Department

of Medical Toxicology at Banner-University Medical Center in Phoenix. “Alabama is setting a good example that others can follow.” Dr. Bush agreed: “Other states and academic medical centers where snakebites are common could definitely benefit from UAB's approach.”

UAB is also contributing to the academic conversation. In 2021, they published an article looking at novel ways to screen for coagulopathy.<sup>2</sup> They're collecting data on how patients heal, particularly with regard to persistent wounds. And in March, Drs. Rushton and Shapshak published a letter in *The New England Journal of Medicine* stating, “Our experience suggests that management [for snakebites] should embrace a multifaceted approach that includes post-hospitalization therapies targeted to the treatment of persistent venom effects.”

What's in this for patients is obvious and Dr. Rushton benefits, too. “I sleep better,” he said. “I'm not waking up at 3 a.m. anymore, thinking: Is that blood blister on that six-year-old's hand going to get so big that he'll be the exception, the patient who will lose blood flow? I don't worry about those things nearly as much anymore.” 📍

## References

1. The National Institute for Occupational Safety and Health. Venomous snakes. Centers for Disease Control and Prevention website. <https://www.cdc.gov/niosh/topics/snakes/default.html>. Updated June 28, 2021. Accessed October 9, 2022.
2. Rushton W, Rivera J, Brown J, Kurz M, Arnold J. Utilization of thromboelastograms in management of *Crotalus adamanteus* envenomation. *Clin Toxicol (Phila)*. 2021;59(3):256-9.

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# ED Patient Challenges to Come

## What will happen in the coming years?

by JAMES AUGUSTINE, MD, FACEP

The Centers for Disease Control and Prevention (CDC) statistical survey of emergency department (ED) visits for 2019 was released in April 2022.<sup>1</sup> The analysis of this survey performed by the Emergency Department Benchmarking Alliance (EDBA) is meshed with ED performance data to provide insights that advance the industry and prepare ED leaders for patient needs in upcoming years.

The CDC data is the oldest consistent data source for the U.S., but estimates of total ED visits remain different between the national data sources. For 2019, the CDC found 151 million ED visits, while the National Emergency Department Inventory found 159.9 million ED visits, and the American Heart Association estimated that there were 143.4 million visits. Some of the difference in these totals are explained by the different numbers of EDs that are counted in the surveys.<sup>2</sup> The National Emergency Department Inventory survey is the most comprehensive. ED visit estimates for the last five years are compiled in Table 1.

ED visits have increased from 36.9 visits per 100 population in 1995 to 46.6 per 100 population in 2019. The highest utilization rate of emergency services per population is visits by homeless persons, then visits by nursing home residents, then visits by infants under age one.

The ED population is aging, in line with the demographics of the country. Persons aged 75 and over had 66 visits per 100 population in 2019. In line with aging U.S. demographics, EDs need to prepare for larger numbers of senior patients. Older patients require more time and more diagnostics and treatment. Since they are admitted to the hospital more often, they spend more time in the ED as boarders. Those planning new or renovating old EDs should account for these shifting demographics, specifically planning bed capacity and staffing for longer lengths of stay.

The CDC survey confirms the higher acuity trend that has been reported in EDBA studies. There are more high-acuity visits, senior patients, ambulance arrivals, diagnostic tests, and patients with mental health issues. Injury visits continue to shrink, and now represent 27 percent of visits. The biggest increase in injuries occurs in the elderly.

There is an ongoing increase in the use of diagnostic tools in the ED, especially ECGs, CT scans, MRIs, and ultrasounds.

Consistent with the adage that the ED is the “front door to the hospital,” there is continuing growth in the percentage of overall hospital admissions presenting through the ED. The EDBA data survey finds that 69 percent of hospital inpatients are processed through the ED.

Payer mix in 2019 trended in line with numbers from prior years. This is the fifth year that Medicaid and CHIP accounted for the largest expected source of payment—40.9 percent of ED visits. Next was private insurance (at 29.4 percent of ED visits), Medicare (19.8 percent), and no insurance (8.3 percent). Table 2 reflects the trend in the payer mix over the last five years of CDC data collection. For most EDs, Medicare and Medicaid will make up at least 50 percent of the payer mix. The most frequent payer type for patients admitted to the hospital through the ED was Medicare (44 percent) followed by private insurance (31 percent), Medicaid/CHIP or other state-based program (26 percent), and no insurance (five percent).<sup>+</sup>

### References

- Cairns C, Kang K, Santo L. National hospital ambulatory medical care survey: 2019 emergency department summary tables. Centers for Disease Control and Prevention website. [www.cdc.gov/nchs/data/nhamcs/web\\_tables/2019-nhamcs-ed-web-tables-508.pdf](http://www.cdc.gov/nchs/data/nhamcs/web_tables/2019-nhamcs-ed-web-tables-508.pdf). Updated July 29, 2022. Accessed October 9, 2022.
- Augustine, James J. ED usage trends before COVID-19. *ACEP NOW*. 2020;39(5):21.

**Table 1: Estimated ED Visits, 2015–19**

YEAR	CDC NHAMCS ESTIMATED VISITS (M)	NEDI-USA VISITS (M)	AHA TOTAL EMERGENCY VISITS (M)	AHA HOSPITALS REPORTING ED VISITS # HOSPITALS	NEDI-USA # ED'S
2015	137	151.7	141.5	4551	5281
2016	146	156	142.6	4553	5381
2017	139	159.5	144.8	4678	5417
2018	130	158.8	143.5	4577	5533
2019	151	159.9	143.4	4549	5591

Abbreviations: CDC NHAMCS: Centers for Disease Control and Prevention National Hospital Ambulatory Medical Care Survey, NEDI-USA: the National Emergency Department Inventory, AHA: American Heart Association, ED: Emergency Department, M: Million.

**Table 2: Payer Mix of ED Visits from CDC NHAMCS Survey, 2014–19**

PAYER	2019 (%)	2018 (%)	2017 (%)	2016 (%)	2015 (%)	2014 (%)
Commercial Insurance	29.4	30.8	31.2	32	34.3	35
Medicaid, CHIP	37.2	37.2	40.3	38	34.8	35
Medicare	19.8	19.3	18.5	18	17.7	18
Medicare & Medicaid	3.7	4.1	3.6	4	3.6	3
No Insurance	8.3	8.5	8	8	9.8	12
Worker's Insurance	0.7	0.7	0.9	1	0.9	1
Other	3.8	3.4	4.4	4	4	3
Unknown	13.5	13	9.8	11	10.8	8

Abbreviations: CHIP: Children's Health Insurance Program

### KEY POINTS FROM THE CDC SURVEY DATA

- There is a long-term trend that U.S. EDs are seeing at least two percent more visits per year. Although that trend was interrupted in 2020 due to the pandemic, it appears that EDs in 2022 are back on the long-term volume growth line, with more ED visits likely in 2023.
- More patient visits are related to medical illnesses than injuries.
- More patient visits are by the elderly and more patients arrive by EMS.
- The CDC estimates that 3.1 percent of ED visits were non-urgent, with the highest rates of these visits for patients under age 15.
- A growing number of ED visits result in the patient being seen by APPs (Advanced Practice Practitioners, i.e., Physician Assistants and Nurse Practitioners). In total, 45.4 million visits included services by APPs (30 percent of all ED patient visits), and 44 percent of those patients were not also seen by a physician.
- The CDC estimates that 6.2 percent of ED patients were there for a follow-up visit and about 3.2 percent of patients had been seen in the ED in the last 72 hours.
- There are growing numbers of patient visits related to primary mental health and substance use issues. In about 2.4 million visits, a mental health physician saw the patient in the ED, and in about 1.8 million ED visits the result was admission to the mental health unit of a hospital. There is no doubt that both an increasing number and an increasing percentage of patients being seen in 2022 have primary issues related to mental health or substance use.



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## EM CASES | CONTINUED FROM PAGE 1

endovascular therapy mortality outcomes are comparable.<sup>4-6</sup> It is therefore incumbent upon the EM physician to make their best effort to identify patients with posterior circulation stroke in a timely manner so that those who fulfill criteria for emergency treatment such as endovascular therapy or intravenous thrombolysis can be optimized to improve outcomes. I outline some key clinical clues to help identify patients with posterior circulation stroke.

### Understanding the Anatomy

An understanding of the vascular anatomy can help recall the symptoms of posterior circulation stroke. The vertebral arteries, cerebellar arteries, and posterior cerebral arteries supply the brainstem, cerebellum, and occipital lobes. Brainstem deficits include unilateral limb weakness, sensory loss, cranial nerve palsies, and altered level of awareness (including locked-in syndrome). Cerebellar features include vertigo, truncal, limb ataxia, and nystagmus. Occipital lobe features include visual field deficits.

The most common symptoms of PCIS based on registry data are dizziness (47 percent), unilateral weakness (41 percent), dysarthria (31 percent), gait ataxia (31 percent), headache (28 percent), nausea and vomiting (27 percent), and nystagmus (24 percent).<sup>1</sup> One easy way to remember the clinical features of PCIS is the “Dangerous Ds” memory aid: diplopia, dysarthria, dysphagia, dysdiadochokinesia, dysmetria, dystaxia, and dysphonia. While observational data suggest that isolated vertigo is rare in patients with PCIS, it may be that clinical assessment is simply not thorough enough to detect additional clinical findings.<sup>7</sup> A detailed history and physical are imperative,

paying close attention to three things: risk factors, cranial nerve dysfunction, and gait.

First, risk factor assessment: A key risk factor for PCIS is atrial fibrillation, especially in patients who are not anticoagulated for stroke prevention. In fact, a cardioembolic cause (predominantly as a result of atrial fibrillation) is the most common etiology of PCIS, ahead of atherosclerosis and arterial dissection.<sup>8</sup> Traditional cardiovascular risk factors should also be taken into account. Unusual neck pain that lacks features of musculoskeletal injury, especially if it presents after recent head or neck trauma, should raise the suspicion for a vertebral artery dissection, especially in young adults with any PCIS symptoms.

The second aspect of clinical assessment that is important is the cranial nerve exam, including a focused eye exam. Four of the “Dangerous Ds” to keep in mind as part of the cranial nerve exam are diplopia, dysarthria, dysphagia, and dysphonia. Ptosis may indicate Horner’s Syndrome which, in one study, had the highest predictive value for a diagnosis of PCIS.<sup>9</sup> Visual fields should be scrutinized for any deficits and extra-ocular movements (EOMs) should be assessed for the possibility of locked-in syndrome. This is a rare presentation of basilar artery occlusion that paralyzes all peripheral motor function except those that control EOMs. In patients who present after a sudden collapse with persistent loss of consciousness and paraplegia with no clear alternative cause, locked-in syndrome should be considered, and EOMs assessed for sparing. Patients with locked-in syndrome may also have hemodynamic instability and cardiac dysrhythmias secondary to massive catecholamine surge associated with massive brain

insult. Suffice to say that a focused eye exam may reveal a finding that increases one’s suspicion of PCIS in a patient with an otherwise benign clinical presentation for stroke.

The third aspect of clinical assessment that is important in assessing for PCIS is gait. It is imperative to walk test dizzy patients to assess for truncal ataxia. One clinical pearl is that the vertigo in patients with PCIS tends to be less severe than that in peripheral causes of vertigo, while the ataxia in patients with PCIS tends to be more severe than in patients with a peripheral cause of vertigo. Do not let mild vertigo symptoms sway you away from a diagnosis of PCIS.

While much has been written about the bedside head-impulse nystagmus test-of-skew (HINTS) exam for ruling in a central cause of vertigo, observational data suggests that EM physicians are very poor at performing this exam, so that the test is not sufficiently accurate to rule out PCIS and may falsely reassure clinicians that PCIS is not present.<sup>10</sup> Despite a meta-analysis suggesting a 15-fold increased risk for PCIS in patients with a positive HINTS tests, in this author’s opinion the HINTS exam should not be relied on to help make emergency treatment decisions for patients who present with PCIS symptoms.<sup>11</sup>

Next time you are faced with a patient who presents with the chief complaint of dizziness, consider PCIS in your differential diagnosis and be sure to assess for risk factors, cranial nerve abnormalities (including a focused eye exam), and gait. If there are one or more worrisome features, consider speaking to your local stroke neurologist for consideration of intravenous thrombolysis or endovascular therapy as per your local protocol.

*A special thanks to Dr. Katie Lin for her ex-*

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### References

1. Caplan LR, Wityk RJ, et al. New England medical center posterior circulation registry. *Ann Neurol*. 2004;56:389-98.
2. Forster A, Gass A, Kern R, et al. Thrombolysis in posterior circulation stroke: stroke subtypes and patterns, complications, and outcome. *Cerebrovasc Dis*. 2011;32:349-53.
3. Hoyer C, Szabo K. Pitfalls in the diagnosis of posterior circulation stroke in the ED setting. *Front Neurol*. 2021;12:682827. doi: 10.3389/fneur.2021.682827.
4. Lee S, Han J, Jung I, Jung J. Do thrombolysis outcomes differ between anterior circulation stroke and posterior circulation stroke? A systematic review and meta-analysis. *Int J of Stroke*. 2020;15(8):849-57.
5. Liu X, Dai Q, Ye R, et al. Endovascular treatment versus standard medical treatment for vertebrobasilar artery occlusion (BEST): an open-label, randomised controlled trial. *Lancet Neurol*. 2020;19:115-122.
6. Langezaal L, van der Hoeven E, Mont’Alverne F, et al. Endovascular therapy for stroke due to basilar-artery occlusion. *N Engl J Med*. 2021;384:1910-1920.
7. Kim JS, Lee H. Vertigo due to posterior circulation stroke. *Semin Neurol*. 2013;33(3):179-84.
8. Noh A, Remke J, Ruland S. Ischemic posterior circulation stroke: a review of anatomy, clinical presentations, diagnosis, and current management. *Front Neurol*. 2014;5:30.
9. Tao WD, Liu M, Fisher M, et al. Posterior versus anterior circulation infarction: how different are the neurological deficits? *Stroke*. 2012;43(8):2060-5.
10. Ohle R, Montpellier RA, Marchadier V, et al. Can emergency physicians accurately rule out a central cause of vertigo using the HINTS examination? A systematic review and meta-analysis. *Acad Emerg Med*. 2020;27(9):887-896.
11. Krishnan K, Bassilious K, Eriksen E, et al. Posterior circulation stroke diagnosis using HINTS in patients presenting with acute vestibular syndrome: A systematic review. *Eur Stroke J*. 2019;4(3):233-239.

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## THE END OF THE RAINBOW



**DR. DAHLE** blogs at <https://www.whitecoatinvestor.com> and is a best-selling author and podcaster. He is not a licensed financial adviser, accountant, or attorney and recommends you consult with your own advisers prior to acting on any information you read here.

# 3 Big Tax Deductions for Doctors

Navigating tax season as an emergency physician

by JAMES M. DAHLE, MD, FACEP

**Question:** I feel like I'm paying more in tax than most of the other doctors I know. What am I doing wrong?

**Answer:** As a general rule, paying more in tax is a good thing because it means you are making more money. While earning more does result in a higher tax bill, it also generally results in having more money even after paying taxes. Remember that only a relatively small portion of your earnings is taxed at your marginal tax rate (tax bracket), so being bumped into a higher bracket does not result in all of your earnings being taxed at that new higher rate.

Almost all doctors think they pay too much in tax and most of them are right. However, the way to significantly lower taxes is not to find some tricky, hard-to-find deduction or hire the right person to prepare your taxes. The main way is to live your financial life differently: save more, get married, have children, buy a house, start a business, give to charity, hold your investments longer, etc.

There are three tax deductions that generally outpace the others for physicians. If you would like to pay less in tax, be aware of all of these and maximize them as much as possible.

### #1: Tax-Deferred Retirement Accounts

The first deduction is using tax-deferred retirement accounts. These come in a wide variety of flavors including 401(k), 403(b), 457(b), 401(a), defined benefit/cash balance plans, solo 401(k), SIMPLE IRA, SEP-IRA, and even traditional IRA. All of them work similarly. Any money contributed into the plan by you or your employer this year is money deducted from your income before your tax bill is calculated on the remaining income. For example, if you earn \$300,000 and put \$20,000 into your 401(k), you will only pay tax on \$280,000. If you are single with no other significant deductions, that \$20,000 contribution will reduce your federal tax bill by \$7,500 (and potentially your state tax bill as well). Imagine that you could put \$50,000 or even \$100,000 into tax-deferred retirement accounts. You could reduce your tax burden by tens of thousands of dollars this year, plus you would be in much better shape for retirement. The up-front tax deduction is not the only way a tax-deferred retirement contribution saves you tax money. That money also grows in a tax-protected way, meaning you do not have to pay any taxes on dividends or capital gains as you invest in the account between contribution and withdrawal. At withdrawal, all of the money in the account is taxed at ordinary income rates, but you use it to "fill the tax brackets" as you go. For most doctors, they will get a tax deduction of 24–37 percent on contributions and then pay 10–22 percent on withdrawals as they fill the various lower tax brackets with that income.



That's a winning combination. Maxing out your retirement accounts also provides significant asset protection and facilitates your estate planning.

### #2: Health Care Expenses

The second large deduction for physicians is health care expenses. I'm not talking about the medical and dental expenses itemized deduction on Schedule A. Since that is subject to a floor of 7.5 percent of income, few doctors will ever be able to claim that. I'm talking about paying for all of your health care expenses with pre-tax dollars. If you are an independent contractor or partner, you can deduct the entire cost of your health insurance premiums. This is a more favorable, above-the-line deduction that you currently take on Schedule 1 of Form 1040, right next to the self-employed retirement plan contributions. You get to buy your health insurance with pre-tax dollars. If you're in the highest federal tax bracket and spend \$1,500 a month on health insurance for your family, that deduction is worth \$6,660 to you in saved federal taxes alone. But wait, there's more! If your only health insurance plan is a High

Deductible Health Plan (HDHP), you can also contribute \$3,650 (\$7,300 for a family) to a Health Savings Account (HSA). That money can then be used to pay your deductibles, co-pays, or uncovered expenses with pre-tax money. That knocks another \$2,701 off your tax bill. If you don't spend it all, you can roll it over to the next year and even invest it for decades until you spend it in retirement. It grows tax-protected, just like your 401(k), and as long as it is spent on health care (including Medicare premiums), it comes out completely tax-free.

If you are an employee, you don't get a tax break on health insurance premiums paid. You're probably not paying the whole premium, though, and your employer is able to buy your health insurance for you using pre-tax dollars, presumably saving enough in taxes to give you a raise!

### #3: Standard Deduction

The final large deduction that physicians should know about is the standard deduction. That's right, the one you get just for having a pulse. For 2022, the standard deduction is \$12,950 or \$25,900 married filing jointly

(MFJ). You don't have to do a thing to get it. So, if you are married and make \$300,000, you don't pay taxes on the last \$25,900 of that income, saving you \$6,216 in taxes. It's possible you have enough itemized deductions to save even more. The three main itemized deductions are state income and property taxes up to \$10,000 total, charitable contributions, and mortgage interest. If the three of those add up to more than \$12,950 (\$25,900 MFJ), you can save even more. Imagine that you were married and earned \$500,000, paid \$10,000 in state income taxes, donated \$50,000 to charity, and paid another \$40,000 in mortgage interest. That is \$100,000 worth of itemized deductions. You just knocked \$100,000 off your taxable income and \$35,000 off your tax bill. Are you going to come out ahead financially paying state income taxes, giving lots of money away, and buying a fancy house? Of course not. But if you're going to do those things anyway, you might as well get a tax break for it.

Physicians are high earners with great potential to build wealth. Understanding how the tax system works will facilitate that process. ☺



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

# Rectal Examination in the Trauma Bay

Is it time to sunset this antiquated procedure?

by CATHERINE A. MARCO, MD, FACEP

## Case

A 38-year-old man presents after a 15-foot fall from a ladder. He notes right chest pain and dyspnea. Vital signs are: blood pressure, 110/78; heart rate, 140; respiratory rate, 36; oxygen saturation, 91 percent on 10L non-rebreather mask. He is in moderate respiratory distress and severe pain with any movement. Lung examination reveals decreased breath sounds on the right. The emergency medicine team manages the airway, which is intact on initial assessment. The trauma team rolls him to his side, and, without any explanation, performs a digital rectal examination. The patient yells out, "Ahh, stop!" A chest radiograph reveals multiple fractured ribs on the right with a moderate hemothorax. As the trauma team sets up to perform a chest tube, the patient refuses, and states, "I don't want any tubes!"

## Question

This case raises an important question about the clinical value of a digital rectal examination (DRE) in the setting of trauma. Rectal examinations have been a longstanding tradition in the physical examination of the trauma patient. Many institutions and experts continue to recommend the routine performance of a rectal examination. The traditional teaching is that a DRE should be performed to assess for the presence of blood, and to assess the prostate for possible evidence of urethral injury. However, after decades of experience, I cannot recall a single case where the findings of a rectal examination changed management or were helpful in any way. Nearly all patients with severe trauma will receive CT scans of the head, neck, chest, abdomen, and pelvis. What does the literature say about this question?

An initial literature search on PubMed for the last five years using terms "digital rectal examination" and "trauma" yielded 15 results, none of which address the sensitivity or specificity of this physical examination test. Expanding the search criteria to include articles from the past 10 years yielded several relevant abstracts. One specific article appears related to our clinical question: Ahl et al found that among 253 multisystem trauma patients, 160 had a documented digital rectal examination, with abnormal findings in 48 percent. Subsequent management was not altered in any case due to rectal examination findings. The authors conclude that "DRE in trauma settings has low sensitivity and does not change subsequent management."<sup>1</sup>

A study by Porter et al found that among 423 trauma patients, in only five cases (1.2 percent), did the rectal examination influence therapeutic decision making. The authors



conclude that there is a higher probability of findings influencing management among patients with penetrating injuries in proximity to the lower GI tract, possible spinal cord damage, or severe pelvic fractures.<sup>2</sup>

It has been taught for many years that a rectal examination should be done to assess a high-riding prostate as possible evidence of urethral injury. However, a 2009 study by Ball et al demonstrated that the rectal examination has a sensitivity of only two percent for detecting urethral injury. The authors conclude that the rectal examination "appears to be insensitive for detecting blunt urethral injuries."<sup>3</sup>

Following an abstract, PubMed provides a section of "related articles." Using this function, you may also find several published articles that question the clinical utility of the rectal examination. A study by Schlamovitz et al in 2007 studied 213 pediatric trauma patients and concluded that the digital rectal examination, "has poor sensitivity for the diagnosis of spinal cord, bowel, rectal, bony pelvis, and urethral injuries. Our findings suggest that the DRE should not be routinely used in pediatric trauma patients."<sup>4</sup>

Another study of 1,401 ED trauma patients found that, "the digital rectal examination has poor sensitivity for the diagnosis of spinal cord, bowel, rectal, bony pelvis, and urethral injuries."<sup>5</sup>

A 2006 study by Guldner et al included 1,032 adult patients with blunt trauma who had a DRE. The sensitivity, specificity, positive predictive value, and negative predictive value were 50, 93, 27, and 97 percent, respectively. The authors conclude, "The DRE is insensitive to spinal cord injury and has a poor positive predictive value."<sup>6</sup>

## Conclusions

The literature includes several important studies that demonstrate the low sensitivity of the DRE in the setting of trauma. In this case, the trauma of the digital rectal examination was exacerbated by the lack of communication about the reasons, expectations, and description of the examination. This may have contributed to the patient's distrust of the medical team and reluctance to consent to a chest tube.

In summary, a digital rectal examination has limited clinical value in the setting of trauma

without specific rectal trauma. If clinically indicated, clear communication with the patient about its importance and expectations will enhance trust in the physician-patient relationship. ⊕

## References

- Ahl R, Riddez L, Mohseni S. Digital rectal examination for initial assessment of the multi-injured patient: Can we depend on it? *Ann Med Surg (Lond)*. 2016;9:77-81. doi: 10.1016/j.amsu.2016.07.006.
- Porter JM, Ursic CM. Digital rectal examination for trauma: does every patient need one? *Am Surg*. 2001;67(5):438-41. PMID: 11379644.
- Ball CG, Jafri SM, Kirkpatrick AW, et al. Traumatic urethral injuries: does the digital rectal examination really help us? *Injury*. 2009;40(9):984-6.
- Shlamovitz GZ, Mower WR, Bergman J. Lack of evidence to support routine digital rectal examination in pediatric trauma patients. *Pediatr Emerg Care*. 2007;23(8):537-43.
- Shlamovitz GZ, Mower WR, Bergman J, et al. Poor test characteristics for the digital rectal examination in trauma patients. *Ann Emerg Med*. 2007;50(1):25-33.33.e1.
- Guldner GT, Brzenski AB. The sensitivity and specificity of the digital rectal examination for detecting spinal cord injury in adult patients with blunt trauma. *Am J Emerg Med*. 2006;24(1):113-7.

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## FORENSIC FACTS

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**DR. RIVIELLO** is chair and professor of emergency medicine at the University of Texas Health Science Center at San Antonio.

# Forensic Photography

When your patient is the crime scene

**NOTE:** The photos below are meant to demonstrate ideal forensic photography and are not from this case.

by RALPH J. RIVIELLO, MD, MS, FACEP,  
AND HEATHER V. ROZZI, MD, FACEP



**Figure 1:** Strangulation bruises on the neck.

**Figure 2:** Closer look at neck bruises.



**Figure 3:** Correct sizing is needed when photographing bruising on the neck.



### Case

A 22-year-old male is brought to the emergency department (ED) with a gunshot wound to the thigh. His vital signs are stable. There is only one wound, and the bullet is palpable under the skin. The wound is surrounded with soot. How should you document the injury prior to removing the bullet and providing wound care?

When law enforcement is investigating a crime, forensic photography is an important part of the investigation. Forensic photographs enable all investigators and prosecutors involved to view the crime scene as it is in that moment of time, but what happens when your patient's body is the crime scene? Victims of violence frequently present for emergency medical care prior to meeting with investigators. Interventions such as debridement and basic wound care may destroy evidence and alter the appearance of wounds; as injuries heal, their appearance changes. Photographs taken in the emergency department provide investigators with the opportunity to see injuries as they originally appeared. Photographs of injuries such as bruises, lacerations, bite wounds, and firearm injuries can be crucial to the successful prosecution of violent crimes. Photographs should be taken before medical intervention if the patient's condition permits.

CONTINUED on page 21

### KEY POINTS

- Forensic photography is an important tool in the medical-legal care of victims of violence in the ED.
- There are several reasonably priced, easy to use camera options to develop a forensic photography protocol for the ED.
- Personal cell phones should only be used in conjunction with your hospital's EMR that directly uploads into the patient record and does not save the image on the phone.
- Photos should never be deleted or manipulated.
- When photographing an injury, a minimum of four photos should be obtained: Orienting, mid-range, and close-up with and without reference scale.



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# Stories from the Ukrainian War: How Doctors and Refugees are Surviving

by SOPHIA GÖRGENS, MD, SVETLANA ZAKHARCHENKO, MD, AND TANYA BUCIERKA, MD

Svetlana Zakharchenko, DO, an emergency physician in New Jersey, left Ukraine for the United States 30 years ago—the closest she can get now to her old homeland is a camp in Poland at the border to Ukraine. The medical tent where Dr. Zakharchenko volunteers prominently sits at the front of the refugee camp with a sign welcoming the tired Ukrainians: “We treat anyone and everyone.”

Four months into the Russian invasion of Ukraine and the ongoing war as a volunteer in the refugee camps of neighboring Poland, Dr. Zakharchenko takes blood pressure, listens to lungs, treats immediate medical needs, and refills what medications she can from the donated supplies. After returning to the U.S., she sat down to document her experiences.

“What can you do?” she wrote, “When your patient tells you what hurts the most isn’t their chest or the bruise on their arm—when a patient tells you, ‘My soul hurts.’”

Take 16-year-old Vanya. Dr. Zakharchenko wrote:

“When Mariupol, his home city, came under attack, everyone thought the fighting would be brief and that the war would soon end—no one predicted what actually happened, with the city now destroyed and lying in rubble.

“The Russian military controlled all entry and exit points. Day after day, the bombing and fighting intensified, but when his mother still refused to leave, Vanya left without her. There were three waves of people leaving Mariupol. The first wave was mostly children, and they were allowed to pass. The second wave was stripped and searched, their belongings confiscated, but they, too, were allowed to pass. The third wave was shot. It took Vanya a week to reach Poland on foot, and in the freezing February nights, many of the other refugees died along the road. Now he’s stuck in limbo, waiting in the refugee camp without knowing what comes next.”

Dr. Zakharchenko spoke with each patient she treated, and the stories all echo with tragedy—one woman in particular, Angelina, stands out. Dr. Zakharchenko writes:

“When the bombing started in Kharkiv, Angelina tried hard to maintain a sense of normalcy. Even as hospitals were shut down and whole neighborhoods disappeared in a pile of stones, caved in roofs, and cratered streets, Angelina and her husband went on a walk every day. At night, they were kept from sleeping by the constant shelling and rapid gunfire, tactics used by the Russians to instill fear in the civilians. There were power outages and food shortages, and people died at home from treatable conditions because the ambulances couldn’t reach them. Angelina and her husband persevered through all of it, but when a bomb fell so close to them that their daughter was almost lifted out of the stroller, they knew they had to leave.”

Across the border and in the heart of Ukraine, the refugee situation is no better. School gymnasiums and classrooms, monasteries, fitness studios, and other storefronts have all been reappropriated to house the ever-growing number of refugees fleeing eastern Ukraine for the relative safety of western Ukraine. Tanya Bucierka, DO, an emergency physician from Oregon with deep Ukrainian roots, has made the perilous journey across the border by bus twice already, with plans for a third trip this fall.

“It’s a lot of primary care, but more than headache cures or blood pressure medications, many of the patients just want someone to hear their stories,” Dr. Bucierka said. “They may be resilient, but they’re still traumatized.”

She remembers meeting Petro, a Russian-speaking refugee who lived in Luhansk in eastern Ukraine. A hacking, wet cough interrupted him whenever he tried to speak—after spending a month underground in a bomb shelter, hardly ever venturing



Ultrasound machines used on patients with severe pain.



Ukrainian physicians practice ultrasound skills using donated Butterfly devices during MedGlobal’s POCUS training in Ukraine.

above ground, his untreated respiratory symptoms sounded suspiciously like pneumonia. When Petro and his wife Anna finally fled Luhansk, they had to dig their car out of the debris, finding that everything was covered in ashes. Anna, who had similar symptoms, minimized it as a simple chest cold and at first refused the medication offered.

“The soldiers on the frontlines need it more than us. Send it to them,” she said, apologizing for speaking in Russian. She and Petro are Ukrainian but don’t speak the language—it never seemed important before, but now they are taking a free class, trying desperately to learn. The war forced them from eastern to western Ukraine, but no matter how much the fighting intensifies, they are determined to flee no further. “This is our home.”

When Dr. Bucierka is not braving the road in a car heaped full of donated medical supplies to make rounds among the refugees, she can be found in the local medical university’s simulation lab, where she teaches point of care ultrasound to a group of Ukrainian doctors while in another classroom her surgical colleague demonstrates trauma surgery techniques on pig cadavers. Before the war, many civilian physicians had limited experience with trauma medicine. The Ukrainian emergency physicians learn eFAST, cardiac, ocular, and musculoskeletal ultrasound exams, cramming years of knowledge into a few



Ukrainian refugees are examined by physician volunteers in Poland.

short days so that they can return to the frontlines, bringing the new techniques—and the new donated ultrasound machines—with them.

At the end of the day, one of the Ukrainian doctors pulled Dr. Bucierka to the side. “This is the first time that war hasn’t been on my mind,” she said. “The first time that I’m enjoying medicine again with my friends and colleagues. Thank you.”

During their trips, both Dr. Zakharchenko and Dr. Bucierka have come to understand that medicine is as much an art as a science. What many of the Ukrainians need isn’t only food, shelter, medicine, or even skills—they also need someone to listen.

Ruminating on this, Dr. Zakharchenko wrote, “There is no perfect way to respond to disaster and war. There is no perfect way to address suffering, except to be present for those in need. What was once unthinkable has become a reality for millions of Ukrainians.” At the border, both Dr. Zakharchenko and Dr. Bucierka encountered stories of incredible loss—but also stories of resilience, hope, and courage. “We cannot heal all wounds,” Dr. Zakharchenko noted, “but sometimes listening and carrying those stories with us—both the good and the bad—is a first step toward peace.” ☺

## Equipment

There is a broad spectrum of photographic equipment available, ranging from smartphone cameras to professional-grade single-lens reflex cameras. Digital cameras used for forensic photography should have features including macro (close-up) mode and image stabilization. Ideally, emergency departments should have cameras specifically for medical and forensic photography, thus eliminating privacy concerns present if cell phone cameras are used. If using dedicated cameras, protocols should be in place for HIPAA-compliant storage of images.

The lighting in patient care areas is generally sufficient for basic forensic photography, but the camera's flash and additional lighting should be utilized if lighting is poor. Fluorescent light may distort the appearance of color in photographs; if available, a color scale should appear in at least one photograph. Off-camera flashes or ring lights may improve detail, particularly when in macro mode.

The widespread adoption of electronic medical records (EMRs), many of which have available smartphone apps, means that most emergency physicians can place photographs directly into the medical record. Cameras on personal phones should not be utilized for forensic photography unless the EMR app places the photo into the medical record without storing it to the phone's memory. While most smartphones do not have features desirable

### RESOURCES FOR FURTHER READING

- Zercie KB, Penders P. Photography in Forensic Nursing. In: Hammer RM, Moynihan B, Pagliaro EM, eds. *Forensic nursing: A handbook for practice*. Boston, MA: Jones & Bartlett Learning. 2013:483-498.
- Green WM, Schulman E. Forensic Photography. In: Riviello, RJ ed. *Manual of Forensic Emergency Medicine*. Sudbury, MA: Jones and Bartlett Publishers. 2010:44-53.

for forensic photography such as macro mode, they are still able to capture images adequate for investigation and prosecution if a few basic principles are followed.

### Basic Principles

As forensic photographs may be used in court, it is important to show that the photographed injuries were sustained by the patient in question. This may be done by including patient identifiers in the photographs or by "bookending" the series of photographs with patient identifiers. Forensic images, once taken, should not be altered, and no image should be deleted.

The goal of forensic photography is to provide a clear and accurate depiction of the patient's injuries. The background of the photographs should be as uncluttered as possible and provide good contrast with the body part

being photographed. The blue or green surgical drapes available in most emergency departments are ideal for this purpose.

Each injury should be photographed from varying distances. An orienting photo shot from a distance should show the injury in relation to anatomic landmarks; it should be clear from this photo where on the patient's body the injury is located. A mid-range photo taken closer to the injury provides further detail of the injury and ideally includes an anatomic landmark. Close-up photos should be taken of each injury to show further details. These should be taken with and without a reference scale. While an American Board of Forensic Odontology scale is commonly used, any common object of standard size can be used if this scale is not available (i.e., a coin or ruler). The reference scale should be in the same plane as the injury, and the camera should be perpen-

dicular to the injury and the scale.

### Legal Issues

While many ED general consent forms do include consent for medical photography, forensic photography requires separate consent from that obtained for medical treatment. The consent form should clearly state the intended use of the photographs and if they are able to be released to a law enforcement agency or district attorney's office.

Depending upon how the images are stored, investigators may be required to obtain a subpoena or an authorization for release of medical records. These protocols should be established with the hospital's medical records department.

### Case Resolution

As the patient is stable, you have time to properly document the gunshot wound. In your chart, you describe the wound, including its size, shape, and location with respect to anatomic landmarks. You also document the presence of soot around the wound. Using the EMR app on your smartphone, you obtain photographs of the wound, including orientation, mid-range, and close-up shots; you also obtain a photo of the wound with a measuring scale. You then remove the bullet with plastic forceps and package it for law enforcement, and provide wound care. +

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# Penn State Health Emergency Medicine

## About Us:

Penn State Health is a multi-hospital health system serving patients and communities across central Pennsylvania. We are the only medical facility in Pennsylvania to be accredited as a Level I pediatric trauma center and Level I adult trauma center. The system includes Penn State Health Milton S. Hershey Medical Center, Penn State Health Children’s Hospital, and Penn State Cancer Institute based in Hershey, Pa.; Penn State Health Hampden Medical Center in Enola, Pa.; Penn State Health Holy Spirit Medical Center in Camp Hill, Pa.; Penn State Health St. Joseph Medical Center in Reading, Pa.; Penn State Health Lancaster Pediatric Center in Lancaster, Pa.; Penn State Health Lancaster Medical Center (opening fall 2022); and more than 3,000 physicians and direct care providers at more than 126 outpatient practices in 94 locations. Additionally, the system jointly operates various health care providers, including Penn State Health Rehabilitation Hospital, Hershey Outpatient Surgery Center, Hershey Endoscopy Center, Horizon Home Healthcare and the Pennsylvania Psychiatric Institute.



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

## Benefit highlights include:

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



**PennState Health**

## FOR MORE INFORMATION PLEASE CONTACT:

Heather Peffley, PHR CPRP - Penn State Health Lead Physician Recruiter  
[hpeffley@pennstatehealth.psu.edu](mailto:hpeffley@pennstatehealth.psu.edu)

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

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**Tina Latimer, MD, MBA, MPH**  
Richmond, VA  
Johns Hopkins University Residency (2009)  
President— North Division

“When my former group joined USACS in 2022 I didn't know what to expect. But I have been truly impressed by the commitment to always do right by our patients and our people. Decisions are always evaluated based on whether patients will benefit or whether our people will benefit. Profit and growth are never part of the equation. Those two things are the byproduct of consistently doing the right thing. Joining USACS was right for my group for that reason.”



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