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ACEP Now

The Official Voice of Emergency Medicine

2022 APEX AWARDS FOR PUBLICATION EXCELLENCE

DECEMBER 2022 Volume 41 Number 12 FACEBOOK/ACEPFAN INSTAGRAM/ACEPNATION TWITTER/ACEPNOW ACEPNOW.COM

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FIND IT ONLINE
For more clinical stories and practice trends, plus commentary and opinion pieces, go to:
www.acepnow.com

CHRIS KANG

Catching Up with ACEP President Dr. Chris Kang

THE FUTURE OF EMERGENCY MEDICINE

Every year, *ACEP Now* interviews ACEP's President. This year, Dr. Chris Kang, the first Asian American to hold the position, sat with our Medical Editor-in-Chief Cedric Dark, MD, MPH, FACEP, on Veteran's Day to discuss important issues pertaining to the practice of emergency medicine.

Happy Veteran's Day to you, sir.

Dr. Kang: Well, thank you very much. I appreciate the sentiment and appreciate obviously the service of all our members who have served honorably in the armed forces.

Maybe you could tell us a little bit about your day job at Madigan Army Medical Center.

Dr. Kang: [Madigan] was my last active-duty assignment, and afterwards, obviously, I fell in love with both the people as well as the mission. And when my service obligation

CONTINUED *on page 9*

ACEP4U: The Power of Your Stories

ACEP is sounding the alarm on the boarding crisis, and your stories are the soundtrack

by JORDAN GRANTHAM

For emergency physicians, boarding and crowding isn't a new problem. But in the past several months, you've made it clear things have worsened. Multiple factors converged, building a groundswell with the potential to drown emergency departments (ED) across the country. This longtime problem was now escalating rapidly. ACEP staffers heard the sense of urgency in your voices: You were once again on the front lines, only this time the front line felt more like teetering on a tightrope, dangerously close to a tipping point.

The past 20 years of advocacy efforts on boarding have shown ACEP's advocacy team that all the data in the world hasn't moved the needle on the issue. Boarding

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Patients' Best Friends
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Common Complications of Short Bowel Syndrome (SBS):

Kishore R. Iyer, MBBS, FRCS, FACS
Professor of Surgery & Pediatrics
Icahn School of Medicine at Mount Sinai
Director, Intestinal Rehab & Transplant Program
Mount Sinai Hospital
New York, NY

Alyssa Burnham, PA-C
Senior Physician Assistant
Recanati Miller Transplantation Institute
Mount Sinai Hospital
New York, NY

What is SBS and what complications may lead to urgent care or emergency room (ER) visits?

SBS is characterized by the inability to absorb sufficient nutrients, typically due to surgical resection or congenital defects. Management of SBS, and its complications, often depend on the extent of **functional and anatomic impairment**.

Type I: End-Jejunostomy

- Fluid and electrolyte abnormalities due to increased fluid losses
- Diarrhea, malabsorption, macro- and micronutrient deficiencies are common
- High risk of dehydration, hypotension, and renal failure

Type II: Jejunocolonic anastomosis

- Weight loss is common due to diarrhea and severe malnutrition
- Dehydration and long-term sodium/ magnesium depletion are less common than with end-jejunostomy
- Renal stones and gallstones occur in ~25% and ~45% of patients, respectively

Type III: Jejunoileal anastomosis

- Intestinal transit generally normalizes over time
- Malnutrition and dehydration least likely
- Specialized nutritional therapy rarely needed for extended periods

If a patient who has undergone a significant intestinal resection, or has a known history of SBS/intestinal failure, presents in an urgent care/ER setting, be sure to consider these common complications:

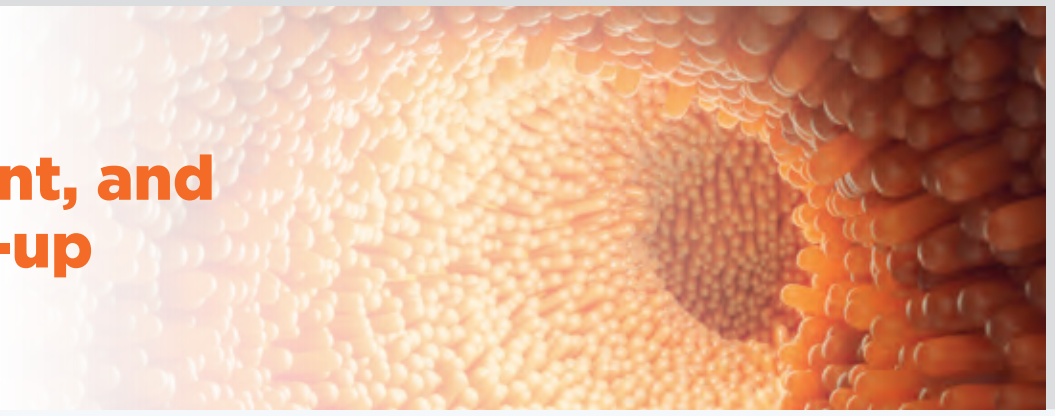
Complications Related to SBS

- Diarrhea and dehydration
- Malnutrition
- Electrolyte, vitamin, and mineral deficiencies
- Kidney stones/gallstones
- Renal dysfunction
- D-lactic acidosis
- Bowel obstruction
- Stomal dysfunction

Complications Related to Parenteral Nutrition (PN)/Venous Access

- Intestinal failure-associated liver disease (IFALD)
- Metabolic bone disease
- Iron-deficiency anemia
- Catheter-related blood stream infections (CRBSI)
- Exit-site infection
- Catheter tunnel infection
- Catheter occlusion, displacement and breakage
- Catheter-related thrombosis

Recognition, Management, and Multidisciplinary Follow-up



What can you do to reduce the patient's likelihood of repeated urgent care/ER visits?

Educate the patient. For example, if a patient presents with dehydration, provide tips for optimizing hydration and using oral rehydration solutions. If a patient has required urgent care for PN-/catheter-related complications, talk to them about catheter care and suggest they talk to their care team about the possibility of PN weaning.

Have the patient follow-up with their multidisciplinary care team. But what if the patient does not have access to specialized multidisciplinary SBS care? Consider the patient's complications and refer appropriately. Who can help the patient with PN weaning? Dietary and nutrition support? Catheter care? Maybe there is no established team, but you can refer patients to a variety of clinicians with skills and experience in intestinal failure and PN management.

Examples of Multidisciplinary Care Team Members in Management of SBS

Surgery:
Initial resection, maximal preservation of small bowel and colon, measurement of the remaining small bowel and colon, additional procedures that may be needed

Nursing:
Delivery of care and patient education

Gastroenterology:
Preoperative workup and ongoing management

Dietitians:
Tailoring of individualized nutritional support

Psychologists/Social Workers:
Assist patients/caregivers with anxiety, depression, home care, etc

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NEWS FROM THE COLLEGE

UPDATES AND ALERTS FROM ACEP

Members Elected to National Academy of Medicine

Multiple ACEP members were among the newly elected members of the National Academy of Medicine (NAM). According to the announcement, "election to the Academy is considered one of the highest honors in the fields of health and medicine." Congratulations to Opeolu Makanju Adeoye, MD, FACEP; Yvette Calderon, MD, MS, FACEP; Marie-Carmelle Elie, MD, FACEP, FCCM; and Megan L. Ranney, MD, MPH, FACEP, on receiving this prestigious honor. Learn more about their specific roles and achievements at acep.org/2022NAM.

ACEP's Pediatric EM Section Shares New Resources

ACEP's Pediatric Emergency Medicine (PEM) section has updated its website at acep.org/pediatrics to include its recent educational webinars on topics including "Weird Baby Stuff: Managing Brief Resolved Unexplained Events" with Dr. Joel Tieder, MD, MPH; "Management of the Well-Appearing Febrile Young Infant: Integrating the AAP Guideline into Practice" with Paul Aronson, MD, Corrie McDaniel, DO, and Nathan Kuppermann, MD, FACEP; and the popular PEM Fellowship webinar series on application and interview processes.

New Clinical Policy Addresses Acute Heart Failure Syndromes

ACEP's Clinical Policy Committee revised its 2007 clinical policy "Critical Issues in the Evaluation and Management of Adult Patients Presenting to the Emergency Department with Acute Heart Failure Syndromes," to reflect current practices. It provides evidence-based recommendations related to diagnostic accuracy of point-of-care ultrasound, administration of diuretics, vasodilator therapy with high-dose nitroglycerin, and potential outpatient discharge considerations. View the new policy at acep.org/clinicalpolicies.

Watch Webinar on Role of PAs and NPs in the ED

ACEP's Democratic Group Practice Section hosted a distinguished panel to present a webinar covering the best practices for democratic groups to follow when using physician assistants (PAs) and nurse practitioners (NPs) in their emergency departments (EDs). Topics covered included ACEP's policy on the role of PAs/NPs in the ED, economic considerations, department workflow, and how shared visits work. View the webinar at acep.org/webinar-changing-roles.

AAWEP Recognizes Annual Award Winners

The American Association for Women Emergency Physicians (AAWEP) named its annual award winners. These honorees are recognized by the section for their work to support progress and innovation in emergency medicine.

- **Emergency Department Director of the Year:** Kanthi Kiran, MD
- **Outstanding Mentor:** Annalee Baker, MD, FACEP
- **Rising Star:** Monica Saxena, MD, JD
- **Resident Rocks It!:** Vivian Tam, MD

Young Physicians Discuss Childcare Challenges and Solutions

ACEP's Young Physicians Section hosted a panel discussion about finding childcare options that work with the unique scheduling needs of the emergency physician lifestyle. Four emergency physician parents, including dual-physician families and a single parent, talked about their experiences utilizing au pairs, at-home daycares, nannies, and more. View the webinar and its related resources at acep.org/childcare-solutions.

Member Benefit Spotlight: TripPlanet

TripPlanet is an invite-only platform that gives ACEP members access to deeply discounted airfare and hotel rates. Members can receive up to a 60 percent discount when compared to other online travel sites. We're talking about worldwide access to over 500 airlines, over 900,000 hotels, and over 50 car rental agencies. Learn more at acep.org/tripplanet or use the QR code below.

RESIDENCY SPOTLIGHT

EMERGENCY MEDICINE RESIDENCY AT SARASOTA MEMORIAL HOSPITAL

Instagram: @ EM_FSU
Location: Sarasota, Florida
Year founded: 2019
Number of residents: 27 (9 each class)
Program length: 3 years

What does your program offer that residents can't get anywhere else?

Our residents are proud to be at a community-based hospital that *truly* values what it means to be a part of a community. Most recently, our community was struck by one of the largest and strongest hurricanes to affect the State of Florida. Our area was hit particularly hard and we had the opportunity to see our staff, residents, and our entire hospital system step up and reach out to help. Our PGY-3 residents voluntarily stayed behind—missing out on ACEP22 in San Francisco—in order to work at the hospital during the storm and then to help in the aftermath. They spent weeks helping with hurricane clean-up, taking extra shifts to manage the huge influx of patients, and organizing food and fund drives to support our staff and EMS services. The love and self-sacrifice they showed exemplifies the culture of our entire hospital system.

Probably the most important asset to our residents is our faculty. Both our core and clinical faculty consistently provide supportive feedback, encouragement, and oversight that is unparalleled. Every day, each faculty member demonstrates that they want their residents to graduate with the best education possible and with all the experience they need to be successful. Faculty care about our residents personally and spend time getting to know each one.


DR. HANNAH CIANCI
Pajama spirit day during our orientation month!

Besides the community culture of our program, the diverse population and wide coverage footprint ensures that our residents are aptly trained in all areas of emergency medicine. Our hospital system primarily serves patients from Sarasota, Manatee, De Soto, and Charlotte counties, and we frequently receive transfers from other areas, which add to our already large catchment area. The hospital houses an exceptionally credentialed team including two board-certified toxicologists, as well as board-certified ultrasound, pediatric, and EMS physicians on faculty. Due to our exposure to an older population, we see and treat many high-acuity cases with multiple comorbid conditions. We see over 100,000 patients per year at our main hospital alone, giving us a high volume of diverse experience. We see over 30,000 pediatric patients per year and are grateful for our partnership with the local pediatric hospital, Johns Hopkins All Children's Hospital, where our residents rotate.

What is the work-life balance like?

Our residency work-life balance is of utmost importance in our program. Our hours decrease each year in our program to ensure that we have time to get more involved in outside activities, join hospital committees, or moonlight. Some of the other quality-of-life offerings include competitive salary, bonuses based on local cost of living, a generous moving stipend, and a yearly educational stipend. To enhance work-life balance and promote wellness, we do not require our intern class to work any night shifts in the emergency department, though they have the opportunity if they would like to. All residents have access to Dragon dictation to help with documentation efficiency. We also offer monthly wellness and social outings for residents and free food on shift in hospital cafés. Of course, we live on the Gulf Coast of Florida, which means we have the ocean available to us at all times! Many of our residents kayak, go on beach trips, scuba dive, deep sea fish, and do other aquatic sports! Our program director also invites all residents to a skiing getaway each spring. This past year, some of our attendings brought our residents on a boating trip in the Gulf, where we spent hours swimming and hanging out on the sandbar!

How should potential applicants learn more about your program?

Please visit our Instagram @ EM_FSU for more information! Feel free to message us there with any questions and we'll be happy to respond as soon as possible!

—Hannah Cianci, DO, and Emily Wheeler, MD

and crowding in the ED has been a problem that is too broad, too multifactorial, too overwhelming for policymakers to address.

Your voices have gotten ACEP leadership to think, "as the collective voice for emergency physicians, how could we raise the red flag on this issue in a way that would get legislators to hear and feel your new desperation surrounding this old problem?"

It was time to let your own stories do the talking.

Story Collection

In late October, ACEP put out a call asking for members to anonymously submit their "most severe and egregious boarding stories." The submissions immediately poured in, quickly tallying more than 100 in the first week. Your testimonials painted a grim picture of the heartbreaking reality for many EDs across the country.

As ACEP's advocacy team read through all the submissions, certain themes emerged:

- Boarding is causing patients to experience preventable harm—even death.
- Many patients, even those who need to be admitted, are being treated in the waiting room without ever reaching a bed in the ED.
- Pediatric patients and patients with mental health emergencies are disproportionately affected.
- When physicians and other members of the care team feel they can't provide quality care, professional burnout increases.
- Staffing shortages, especially within nursing, are making the boarding problem worse.
- Economic realities incentivize hospitals to prioritize staffing and space for more lucrative surgery patients over other admissions.

Imploring the White House

ACEP constructed a letter to the White House that outlined the severity of the situation in your own words. In the nine-page letter, ACEP called on the White House to host a summit to gather all relevant stakeholders in one place to start seeking collaborative solutions.

Prior to sending, ACEP circulated the letter among its diverse and influential network to get an additional 34 organizations to sign on, adding even more weight behind the message.

"Sign-on letters are important because they show that a much larger constituency than just ACEP is alarmed by the recent increase in ED boarding and crowding," explained Laura Wooster, MPH, ACEP's senior vice president for advocacy and practice affairs. "We included patient groups in our outreach to help personalize this issue beyond the health care team—*anyone* needing emergency care can be impacted."

This letter isn't the first time the Biden Administration has heard from ACEP about the boarding issue in recent months. Back in mid-October, ACEP President Christopher Kang, MD, FACEP, represented the College during a White House roundtable discussion in preparation for the coming winter surge of COVID-19. Dr. Kang explained that ED boarding and overcrowding must not be overlooked because it impacts everything—access, wait times, delays in care, staffing shortages, burnout, and the inability to discharge patients from hospital.

He called on the administration to convene a summit on the boarding issue, planting the seed for ACEP to reiterate that specific ask in its advocacy letter.

In addition to the White House, the letter was also sent to Department of Health & Human Services (HHS) Secretary Xavier Becerra and the Department of Homeland Security Secretary Alejandro Mayorkas. How does boarding affect homeland security? The current boarding situation is a major preparedness risk—if overwhelmed EDs are struggling to address the needs of patients right now, what would happen if faced with a mass casualty event or natural disaster?

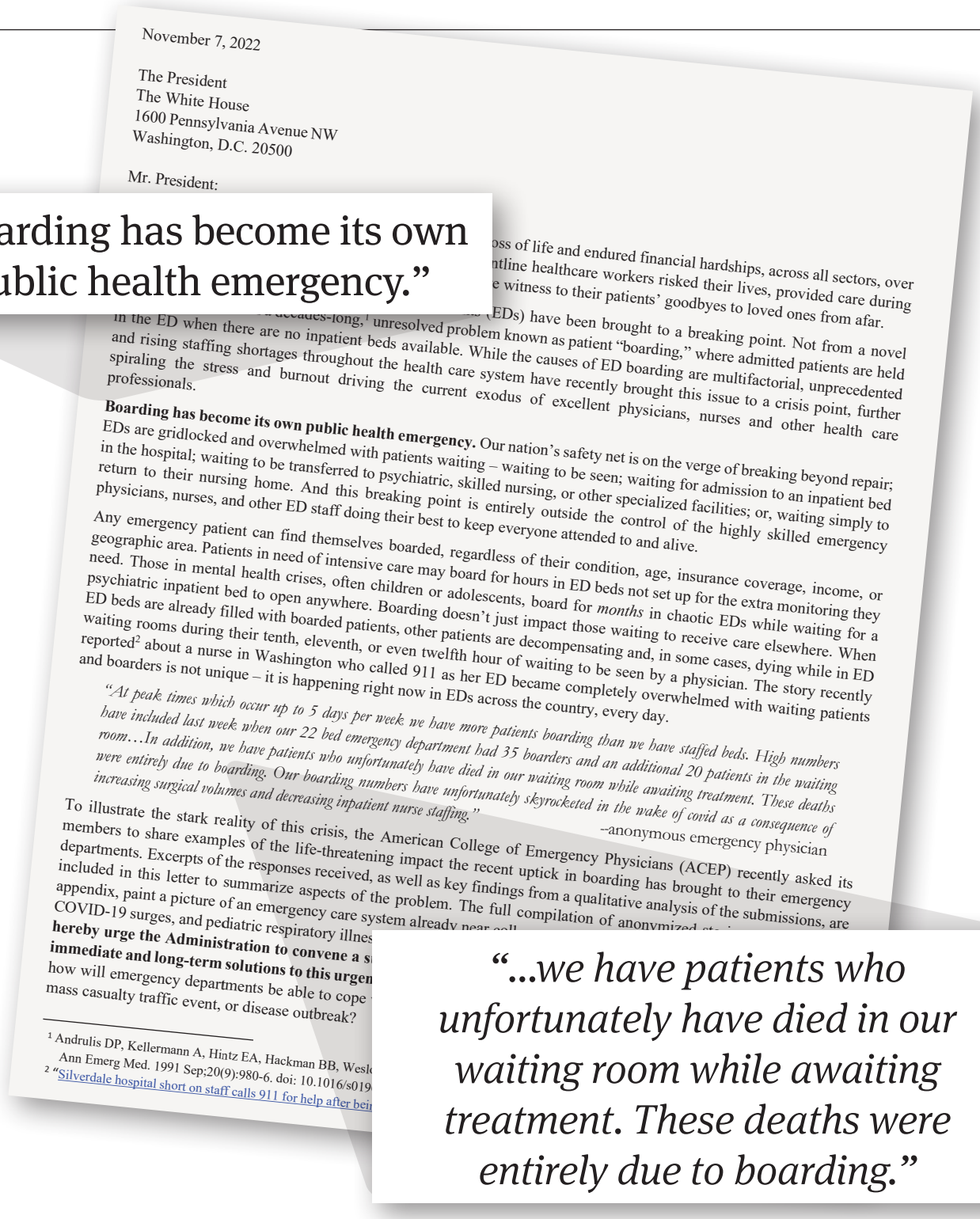
Despite competing with the noise of midterm elections, your stories were heard and prompted immediate response from federal officials. "The response to the letter has been strong," said Ms. Wooster. "It's clear that policymakers had no idea the situation was this bad."

Within days of receiving the letter, HHS hosted a meeting with ACEP, the American Hospital Association, and the Association of American Medical Colleges to discuss the issue and possible next steps.

Raising Public Awareness

While the advocacy team was working on the letter, ACEP's communications team was building a public awareness campaign to draw more attention to the problem. As soon as ACEP's letter was sent to the White House, we also launched a new public-advocacy campaign. Centered around a sobering digital storybook housing more than 100 member stories from the front lines of the boarding crisis, the public and the media took notice.

- In addition to a press release, articles related to boarding/crowding have had mentions in more than 550 publications. *As of December 1.*
- On Twitter, our thread about the letter and boarding stories was our best-performing post in the past year with 464,923 impressions and 20,833 engagements, attracting attention from a wide swath of medical professionals, government officials, and journalists. *As of December 1.*
- Our boarding LinkedIn post was also the biggest of the past year with 64,420 impressions and 4,827 engagements. *As of December 1.*
- Our Facebook post has had 13,914 impressions and 2,391 engagements so far, and our Instagram stories about boarding were also widely liked and viewed in the 24 hours they were up. *As of December 1.*
- ACEP's digital storybook of your boarding stories received almost 10,000 page views in its first month. *As of December 1.*



November 7, 2022

The President
The White House
1600 Pennsylvania Avenue NW
Washington, D.C. 20500

Mr. President:

…oss of life and endured financial hardships, across all sectors, over …ntline healthcare workers risked their lives, provided care during …e witness to their patients' goodbyes to loved ones from afar.

…EDs) have been brought to a breaking point. Not from a novel …decades-long,[1] unresolved problem known as patient "boarding," where admitted patients are held in the ED when there are no inpatient beds available. While the causes of ED boarding are multifactorial, unprecedented and rising staffing shortages throughout the health care system have recently brought this issue to a crisis point, further spiraling the stress and burnout driving the current exodus of excellent physicians, nurses and other health care professionals.

Boarding has become its own public health emergency. Our nation's safety net is on the verge of breaking beyond repair; EDs are gridlocked and overwhelmed with patients waiting – waiting to be seen; waiting for admission to an inpatient bed in the hospital; waiting to be transferred to psychiatric, skilled nursing, or other specialized facilities; or, waiting simply to return to their nursing home. And this breaking point is entirely outside the control of the highly skilled emergency physicians, nurses, and other ED staff doing their best to keep everyone attended to and alive.

Any emergency patient can find themselves boarded, regardless of their condition, age, insurance coverage, income, or geographic area. Patients in need of intensive care may board for hours in ED beds not set up for the extra monitoring they need. Those in mental health crises, often children or adolescents, board for *months* in chaotic EDs while waiting for a psychiatric inpatient bed to open anywhere. Boarding doesn't just impact those waiting to receive care elsewhere. When ED beds are already filled with boarded patients, other patients are decompensating and, in some cases, dying while in ED waiting rooms during their tenth, eleventh, or even twelfth hour of waiting to be seen by a physician. The story recently reported[2] about a nurse in Washington who called 911 as her ED became completely overwhelmed with waiting patients and boarders is not unique – it is happening right now in EDs across the country, every day.

"At peak times which occur up to 5 days per week we have more patients boarding than we have staffed beds. High numbers have included last week when our 22 bed emergency department had 35 boarders and an additional 20 patients in the waiting room…In addition, we have patients who unfortunately have died in our waiting room while awaiting treatment. These deaths were entirely due to boarding. Our boarding numbers have unfortunately skyrocketed in the wake of covid as a consequence of increasing surgical volumes and decreasing inpatient nurse staffing."
–anonymous emergency physician

To illustrate the stark reality of this crisis, the American College of Emergency Physicians (ACEP) recently asked its members to share examples of the life-threatening impact the recent uptick in boarding has brought to their emergency departments. Excerpts of the responses received, as well as key findings from a qualitative analysis of the submissions, are included in this letter to summarize aspects of the problem. The full compilation of anonymized st… appendix, paint a picture of an emergency care system already near co… COVID-19 surges, and pediatric respiratory illnes…
hereby urge the Administration to convene a s…
immediate and long-term solutions to this urgen…
how will emergency departments be able to cope …
mass casualty traffic event, or disease outbreak?

[1] Andrulis DP, Kellermann A, Hintz EA, Hackman BB, Wesl…
Ann Emerg Med. 1991 Sep;20(9):980-6. doi: 10.1016/s019…
[2] "Silverdale hospital short on staff calls 911 for help after bei…

"Boarding has become its own public health emergency."

"…we have patients who unfortunately have died in our waiting room while awaiting treatment. These deaths were entirely due to boarding."

State-Level Advocacy

The work is happening at the state level, too. ACEP shared the letter to the White House with the National Governors Association and is working with chapters to adapt the letter to be sent to state leaders.

ACEP is continuing to collect your boarding stories in hopes of having stories from every state to bolster ongoing state advocacy efforts. Share your experience at acep.org/boarding.

Next Steps

The letter and launch of the public awareness campaign is just the beginning of ACEP's efforts to address the boarding crisis. Dr. Kang is forming a task force on boarding to help develop concrete solutions for ACEP to bring to policymakers. The midterm elections bring a new group of members of Congress who ACEP will need to educate on the issue.

Visit acep.org/boarding to find helpful resources and the latest news on boarding advocacy efforts.

JORDAN GRANTHAM is senior content manager at ACEP.

Fitz-Hugh Curtis Syndrome in a Male with HIV

Is this a rare complication or simply underrecognized?

by JUSTIN RESENDES, DO; ABHILASHA BORUAH, MS4; AND RAFI ISRAELI, MD

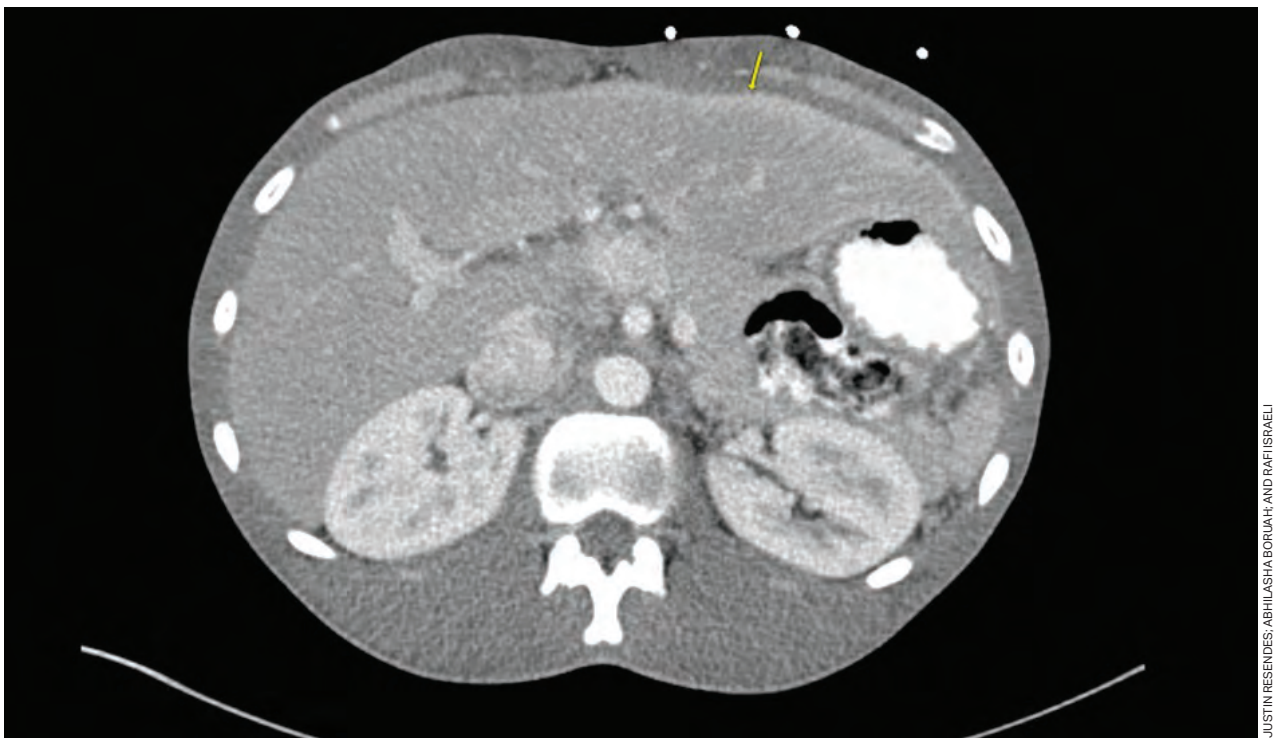
Portions of this study have been presented as a poster abstract at the Case Western Reserve University 2021 by Martha L. Lepow MD, and Irwin H. Lepow, MD, PhD, during the Virtual Medical Student Research Day.

Case

A 26-year-old male with a past medical history of human immunodeficiency virus (HIV) (CD_4 count of 981) and hepatitis C virus infections presented to the emergency department for abdominal pain. His pain started six days prior, originally located in the lower left quadrant. The pain was described as cramping and worsened with having a bowel movement. The patient also noted intermittent fevers and chills.

He had been seen two days prior to our emergency department visit at an outside hospital. The previous work-up included a computed tomography (CT) scan of the abdomen and pelvis, which showed perirectal inflammation concerning for proctitis. Rectal swabs for gonorrhea and chlamydia were performed; however, results were still pending. Labs revealed a mild transaminitis (alanine transaminase (ALT) 53, aspartate transaminase (AST) 43). Otherwise, complete blood count (CBC), basic metabolic panel (BMP), and lipase levels were within normal limits. The patient was treated with an intramuscular dose of ceftriaxone 250 mg and prescribed seven days of doxycycline, which he had been taking as prescribed.

In our emergency department (ED), blood pressure was 115/67, pulse 65, temperature 98.3 F, respiratory rate 16, SpO_2 99 percent. Physical exam was significant for lower left quadrant abdominal tenderness without peritoneal signs. The patient also had a new right upper quadrant (RUQ) abdominal tenderness. BMP, CBC, and lipase were within normal limits. LFTs showed improving AST of 41 and ALT of 37. Due to the acute worsening of his abdominal pain and new RUQ abdominal pain on exam, a CT scan of the abdomen and pelvis was ordered. CT scan confirmed known rectal wall thickening concerning for proctitis. However, new findings included liver surface enhancement concerning for perihepatitis (see Image 1). Given the high likelihood of gonorrhea or chlamydial origin of his proctitis, there was concern that this may be Fitz-Hugh-Curtis Syndrome (FHCS). Rectal swabs were again performed. Intravenous (IV) Cefoxitin and Doxycycline were administered. The patient was admitted to the hospital, where his pain improved. Rectal cultures were positive for *Chlamydia trachomatis*. An infectious disease physician was consulted and recommended a 21-day course of doxycycline. The patient was discharged two days later.



JUSTIN RESENDES; ABHILASHA BORUAH; AND RAFI ISRAELI

IMAGE 1: Liver surface enhancement concerning for perihepatitis.

Pathophysiology

FHCS, also known as perihepatitis, is a rare complication of chronic pelvic inflammatory disease (PID). It is characterized by inflammation of the liver capsule and surrounding peritoneum with "violin-string" adhesion formation. FHCS is usually found in sexually active women between 15–30, with incidence ranging from four to 14 percent in individuals with PID. The condition was first reported in the English language in 1930 by Dr. Curtis, who noted extensive adhesions between the anterior surface of the liver and anterior abdominal wall in a female patient presenting with gonococcal salpingitis.[1] In 1934, Dr. Fitz-Hugh reported similar cases in which three women presented with RUQ abdominal pain due to acute gonococcal peritonitis that showed liver capsule adhesions.[2] Although *Neisseria gonorrhoeae* was initially thought to be the primary cause of FHCS, *Chlamydia trachomatis* has also been shown to be a frequent causative agent.[3] Infectious agents associated with PID are thought to be disseminated either through direct spread from reproductive organs to the peritoneal cavity, hematogenous spread, or lymphatic spread. Some studies have also hypothesized that FHCS may be the result of an exaggerated immune response to *C. trachomatis* due to increased serum titers of antichlamydial immunoglobulin G antibodies.[4]

FHCS commonly presents with RUQ abdominal pain that can be pleuritic. It can be associated with fever, nausea, vomiting, headache, and overall malaise. In some cases, a friction rub may be auscultated along the right anterior costal margin. Liver enzyme levels and white blood cell counts are usually normal or slightly elevated, while erythrocyte sedimentation rate and c-reactive protein are often elevated.[4] Since the clinical presentation of FHCS can mimic many other diseases localized to the RUQ, it is often mistaken for processes such as cholecystitis, hepatitis, acute pyelonephritis, or liver abscess. CT scan may show increased perihepatic enhancement or capsular thickening. However, direct visualization of perihepatic adhesions through laparoscopy is the only way to definitively diagnose. FHCS in men is exceedingly rare and possibly underrecognized.

Discussion

There is a paucity of case reports of FHCS occurring in men. It is unknown if this is due to a lower prevalence of this complication, or just underrecognized. Case reports in men show a range of primary infections that led to FHCS. Urethritis, proctitis, and orchitis/epididymitis have been reported as initial pathologies prior to the formal diagnosis of FHCS.[5,6,8,9] Given that there is no direct extension into the peritoneal cavity from these primary sites, unlike with direct extension from fallopian tubes in women, it is thought that hematogenous or lymphatic spread is responsible for the syndrome in men.[8] Causative microorganisms are similar to those that affect women. Chlamydia and gonorrhea appear to be the most common organisms isolated in reported cases.[5,6,8] Although definitive diagnosis is through direct visualization through laparoscopy, if there is a clinical concern, contrast-enhanced CT scan of the abdomen and pelvis is considered first-line imaging.[9] Management of this disorder in men has not been thoroughly investigated. Antibiotic therapy should be pathogen directed, but when a pathogen is unknown and the patient requires admission, empiric therapy is warranted. We opted to treat as we would for PID in women—namely intravenous cefoxitin or cefotetan with doxycycline. With chlamydial sources, 21 days of doxycycline appears to be appropriate antibiotic management to treat this condition.[8] However, when antibiotic management fails, direct lysis of adhesions via laparoscopy may be indicated for definitive therapy if symptoms continue.[10]

FHCS should be considered in any man who presents with worsening right upper quadrant abdominal pain or pleuritic right lower chest pain with recent or current symptoms of sexually transmitted disease such as urethritis, orchitis/epididymitis, or proctitis. Serologic testing for gonorrhea and chlamydia should be promptly performed and CT scan of the abdomen and pelvis can be utilized if clinical concern exists. Antibiotics with coverage against chlamydia and gonorrhea should be promptly initiated if a specific microorganism has yet to be identified. Patients should be informed that, if their abdominal pain does not improve with antibiotics alone, surgical intervention may be necessary.

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CREATIVE CAREERS

Exploring unique career options for emergency physicians

DARA KASS, MD

Region II Director, U.S. Department of Health and Human Services

Dara Kass, MD, has always been a change agent. Early in her career, she became a passionate advocate for women in emergency medicine and started FemInEM, a membership organization that provides resources and community to support women working in emergency medicine. She worked clinically and taught residents and medical students while conducting research on gender equity issues. Her instinct to advocate for the most vulnerable drew her into advocacy work, and she soon realized that emergency physicians have the training and skills to make an impact on access to care beyond the emergency department (ED).

That same desire to make things better led to her current role as Region 2 director of the U.S. Department of Health and Human Services, an area that includes New York, New Jersey, U.S. territories in the Caribbean, and several federally recognized Tribal Nations. The 10 HHS regional directors are politically appointed by the Presidential administration to liaise with state and local leaders and elected officials to make sure the new federal policies and procedures are communicated to stakeholders in a way that is reflective of their needs.

Getting appointed to the role was a long process. Dr. Kass submitted a general application through the transitions website for the Biden administration and looked through the "United States Government Policy and Supporting Positions," commonly known as the Plum Book, a meaty document published online after each presidential election. Although there is no direct application process for political appointments, it was helpful for her to parse the over 4,000 federal positions in the executive branches of the Federal Government to understand which role might fit her qualifications.

DR. DARA KASS

Dr. Kass was proactive, utilizing the personal connections she built through her advocacy efforts to personally express her interest in available roles. She also collected numerous letters of support from elected officials and community leaders to support her application. Dr. Kass received her first call about the job in February 2021 and went through a comprehensive interview process, eventually getting the job in November of that same year.

In her role, Dr. Kass has a seat at the table on critical public health conversations happening at the highest level–the implementation of the 9-8-8 national suicide hotline, expanding care for substance and opioid abuse, lessons learned from COVID and monkeypox vaccination programs—and she said her experience in emergency medicine allows her to, "really lean into a lot of my lived experiences and come up-to-date quickly."

The challenge is that the Federal Government has such a broad scope, it can't be as nimble as an emergency physician working with urgency in the ED. That's been an adjustment for Dr. Kass. "Every problem can't be solved right away, and there are things the Federal Government can do and things the Federal Government can't do is a lesson that I am learning every day," she explained. "I'm learning a lot in that way of where the actual change happens," Dr. Kass said. "I'm having a great time partnering with state and local jurisdictions on making sure that the care they deliver is optimized by whatever resources the Federal Government has to offer."

Dr. Kass had to sacrifice practicing clinically when she took the role because of federal ethics considerations, and she has really missed being at the bedside. She recently got permission to volunteer with Veterans Affairs hospitals for a couple of hours per month so that she can work with patients again.

Her favorite part about the role is the way she can connect the dots to help accelerate change. When she took the job in November 2021 during a COVID surge, that took the form of making sure federal resources for vaccination and testing were reaching state and local governments as quickly as possible. With the new 9-8-8 national suicide hotline, it's connecting federal support with the local call centers and community activists who need implementation support. Regarding reproductive health care access, it's about making sure that people know the stance and statements from the administration and what it means for the care they deliver.

"Being able to communicate with larger groups of people, being able to connect and congregate people, is a big part of this job," Dr. Kass said. "Those are the parts that I just love the most."

DR. KANG | CONTINUED FROM PAGE 1

was over, because of my love with the facilities, the people, as well as the residency program, they asked me to stay on as a civilian, and I've had the privilege of staying on there ever since.

Let's get down to ACEP business now. How are you going to ensure that ACEP is making sure that emergency physicians retain their role as leaders in emergency departments around the country?

Dr. Kang: I think it's remembering our primary mission and the reason for our organization is to represent emergency physicians. And I want to thank Dr. Schmitz (ACEP's immediate past president) for her leadership over the past year. One of the things that I think has come out well from that is we have had interactions and communications with our colleagues, we've had discussions with employers as well as residency programs about where we think we are right now and where we need to go next.

One of the things that has come out of it is to make sure and continue to emphasize that emergency physicians are the leaders of the emergency care team, and I don't think anyone disputes that. Where we start to get into a little trouble is different environments, different settings, and then different expectations from all of the professions. How can we make sure that we all have the same mission? If we remember that commonality, I believe that in time we can continue to make sure that emergency physicians continue to be the leaders, and, as a result, ensure a better quality of care for our patients and better career satisfaction for our members.

As candidate for President a few years ago, we asked about the emergency physician workforce. Now that you are the President, how will you ensure that business interests do not supersede patient care and that the needs of patients and emergency physicians take priority?

Dr. Kang: I think you've seen that manifested, both as what most of the candidates have said over the past several years, but also in the messaging that we've seen from the College. With recent events this past summer, the patient-physician relationship, that is, the relationship with our patients at the bedside always comes foremost. One of the things that we've heard from many members is concern that somewhere along the way, business interests, whether it's on the individual, on the local, or on the macro level, may impede that relationship or interfere with it. The physician-patient relationship must continue to be sacrosanct.

Second, we need to have discussions when and where we believe that there is a direct impact on our ability to establish rapport, evaluate, treat, and disposition our patients at the bedside. That migrates into many other issues, whether it's actual clinical decisions, business decisions, and staffing decisions. As long as we remember what our primary mission is as an organization and remember the patient physician relationship we'll continue to mitigate those effects.

How do you plan on challenging the monopolization of health care services?

Dr. Kang: I think there are two reasons monopolization becomes a concern. One of them is we have seen consolidation in every aspect of health care as economies of scale, as people try to find better ways and sometimes cheaper ways of doing things. And we've seen that not just with employers, but also with entire health care systems, and even sometimes some of our physician groups. First and foremost, we must recognize those direct as well as potentially insidious effects of this trend.

The second one is vertical integration among a lot of health care organizations and, in particular, insurers. Although I'm still learning about it and talking with some of our experts, some insurers now actually serve as their own complete health care networks. How does that impact patient care but also our practices and our careers over time? And so I want to make sure that we continue to take a look at both of those, because they are among the challenges right now to the current well-being of our physician community as well as career satisfaction.

How do you think emergency medicine will transform itself over the next five to 10 years?

Dr. Kang: I wish I could give you a good answer, except I'm optimistic. As we've all known over the last three years, the COVID-19 pandemic has had profound influences, probably accelerated or revealed a lot of cracks in the health care system. And whether there will be fundamental changes demanded by the public, by legislators, or by the health care community, moving forward will be an interesting time. But if we all identify our commonality on what we do best and how we can better become the coordinators of all of acute unscheduled care, and then have better relationships with the coordinators of inpatient care, our hospitalists, I

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think that we can go ahead and say that we are going to be on the right trajectory for a better future for our specialty.

Second, emergency medicine must promote what we do best and then find new innovative ways of to deliver that care. Whether it's telehealth, whether it's improved team dynamics, whether it's different employment models, I think that our members are always innovative, always seeking how they can deliver their care and exercise their skill sets better, and I'm optimistic that when you find those opportunities and support them, in the end, the cream will rise to the top.

You just mentioned team dynamics. What do you think is the best way that we can incorporate and also train physicians to work alongside emergency physicians in the emergency department?

Dr. Kang: First and foremost, we need to recognize and make sure that everybody agrees that we are the leaders, and with leadership comes responsibility. And that is, we can just say, "Well, they're part of the team. How can we help others improve both their skill sets, but also make sure that they complement the overall team mission?"

Part of it is their education and training. Many programs do have some curricula that exposes and educates and affords the opportunity to have patient care and learn how to deliver patient care better in the emergency environment. But we also know that there are a lot of training programs that unfortunately don't always have sufficient patient care, much less experience in the emergency care setting. If they're going to function in the emergency department, like almost every other profession there, including our nursing colleagues, there is a special skill set that requires education, training, and onboarding to make sure that we can all deliver optimal emergency care.

> "I've heard stories in the Southeast where we have patients who are boarding the ED for over 180 days. And now just yesterday, I learned in the Midwest there's a patient that's over 230 days. How is that right for the patient? How is that right for their families? And how is that right for the ED?" —Dr. Kang

Second, we need to be respectful for each other. We are going to have disagreements; but as long as we recognize the team dynamic and also respect each of the professions in that we all have the same mission, I believe most of our differences actually will fade away.

Last year, we did a special issue in May during Mental Health Month focusing on some issues as they pertain to emergency physicians. What do you want ACEP members to know about mental health?

Dr. Kang: I think it comes down to both our patients and ourselves. That's why I'd like to advocate and prioritize mental health over this next year or maybe even two years. We know every day when you show up at work, mental health of our patients is a critical issue, not only in the volumes that we see, but sometimes the severity, whether it's violence, despondency, or delirium.

Secondly, we are all impacted by the boarding of mental health patients when the entire system doesn't have the inpatient or outpatient resources to help us. I've heard stories in the Southeast where we have patients who are boarding the ED for over 180 days. And today, I learned in the Midwest there's a patient that's over 230 days. How is that right for the patient? How is that right for their families? And how is that right for the ED? Which then transitions to what do we do for ourselves? And part of it is reducing the stigma, recognizing the burden, the privilege that we've had over the last several years, continuing to work and show up daily throughout the pandemic; and now we're being asked to do even more with less—not only resources, but respect.

With the Lorna Breen Act, with recognition that we are sometimes heroes, but we're also human, how can we make sure that our members know that they're heard? As we've seen recent campaigns with ED violence, now we're going to press forward with boarding and then press forward on mental health. Again, I want to reinforce it's not just patients; it's also for ourselves.

I hope to catch up in Philadelphia at ACEP 2023. I hear you're a foodie. So, are you going to Gino's or Pat's for your cheese steak?

Dr. Kang: Three things. One, Pat's versus Gino's: I've heard the controversy. I know that there are loyalists. Believe it or not, DiNic's Pork & Beef sandwich actually is comparable. Second of all, for cheese whiz, the right time, the right setting, does fill a need and it can be delicious. And then third, in terms of being a foodie, I just like to find people who create things and then try to enjoy and see what vision they have. And most times, the experience is not only with the food, but also meeting them in person.

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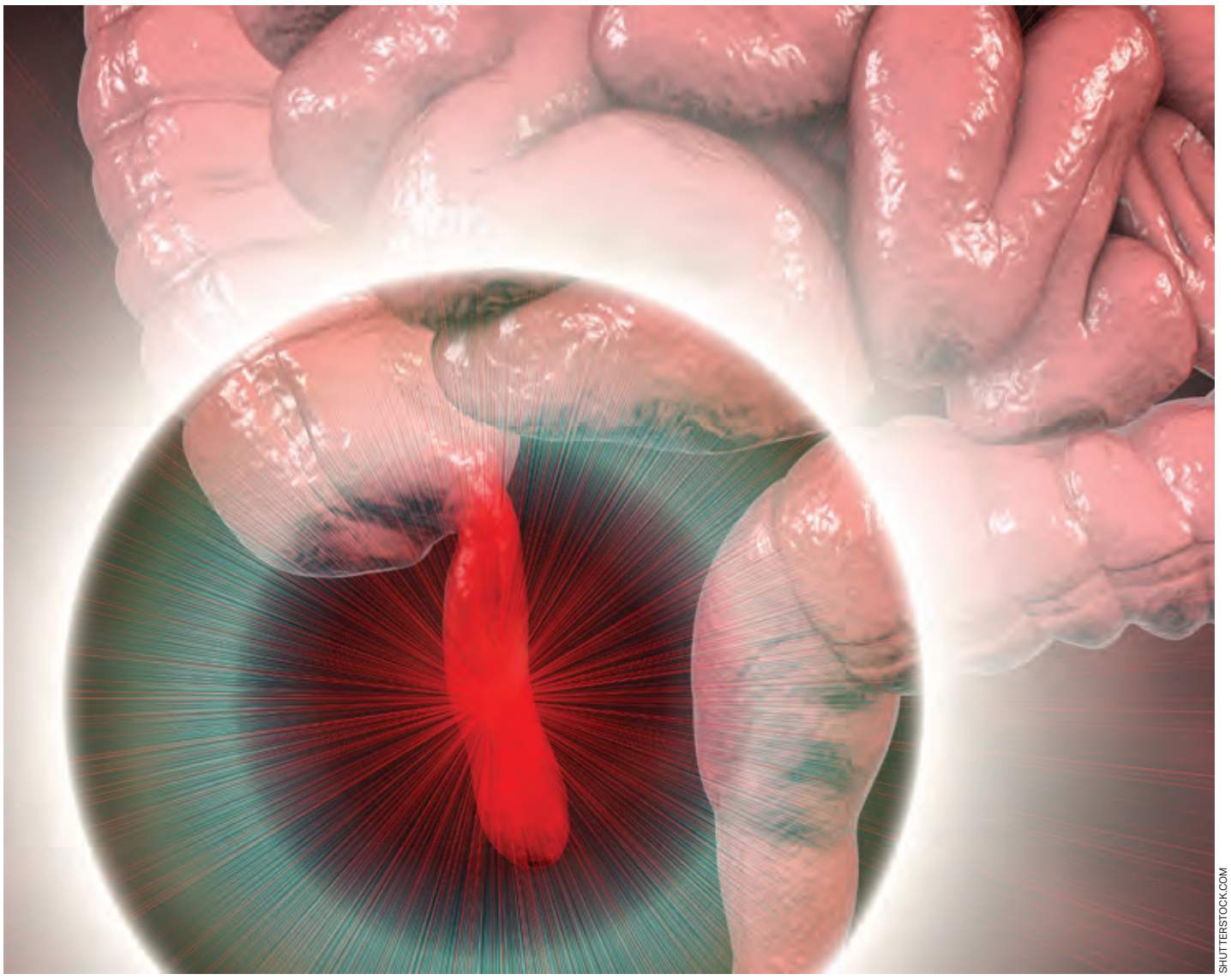
Antibiotics and Appendicitis in the ED

Will emergency physicians discharge appendicitis patients on antibiotics now that it's been shown safe?

by DAVID A. TALAN, MD



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In 2020, following publication of the Comparison of Outcomes of Antibiotic Drugs and Appendectomy (CODA) trial, the largest randomized controlled trial of antibiotics versus urgent appendectomy for uncomplicated appendicitis (i.e., localized, no abscess or diffuse peritonitis), the American College of Surgeons issued guidelines stating that high-quality evidence existed supporting that most patients with appendicitis can be treated non-operatively, with antibiotics, rating this as a first-line alternative to surgery.[1,2] One unique aspect of the CODA trial was that patients randomized to antibiotics—following receipt of initial parenteral antibiotics—could be discharged from the emergency department (ED) for outpatient management on oral antibiotics if they met stability criteria and the patient and their doctor were comfortable with this plan.

In July, we published the results of a secondary analysis of the CODA trial comparing outcomes among 335 participants getting outpatient care and 391 who were hospitalized, which supported the safety of outpatient management.[3] Through seven days, outpatient care tended to be associated with fewer serious adverse events (0.9 versus 1.3 per 100; no deaths occurred) and appendectomies (9.9 percent versus 14.1 percent) than in-hospital care, even when adjusted for illness severity factors. Those discharged from the ED had no more return visits and missed one day less of work, at 2.6 days (the CODA trial found nine disability days with routine appendectomy).[1]

Avoiding hospitalization and surgery leads to better patient convenience, productivity, and substantially reduced direct medical and patient out-of-pocket costs. But, considering that appendicitis has been an easy automatic hospital admission and the legacy of the now disproven appendix-burst-kill-you narrative, will emergency physicians feel comfortable discharging an appendicitis patient like we routinely do for acute diverticulitis (not getting into whether that needs antibiotics or not)? I see some barriers:

1. **Surgeon says "No"—**Not so surprisingly, doing surgery is still popular among surgeons. However, surveys show most people would prefer to avoid surgery even if the appendicitis recurrence rate was as high as 60 percent.[4] Excluding elective appendectomies, probably the chance of a true recurrence is about 20 percent and only through about one year, and retreatment with antibiotics is effective.[5] Although it's our patient in the ED, we're not quite at a place yet where a surgeon would not be consulted, and it's nice to stay on good terms with the medical staff who bring the most money into the medical center. However, more surgeons are coming around to offering this approach, especially after hours or on the weekend.
2. **I Could Be Sued—**Evidence and guidelines from U.S. and international surgical societies back up the medical decision making to use antibiotics only for acute appendicitis, but let's face it, it's hard to shake off 120 years of a disease being viewed as a ticking time bomb requiring emergency surgery. Interestingly, rupture is observed at operation less frequently among those treated with antibiotics. Operations more extensive than a routine appendectomy are not required more frequently among those getting antibiotics. And surgeons who do not at least offer nonoperative treatment are now at medical-legal risk should a patient have a surgical complication.
3. **It's Easier to Admit the Patient—**Perhaps you can recall the halcyon days when hospital admission from the ED was easy. Now, hospitals are overfilled and staffing is in short supply, and ED beds are cannibalized by boarders. Yes, you have to observe the patient, control their pain and nausea, and give them at least a dose of ertapenem or ceftriaxone and high-dose metronidazole (1,500 mg) before discharging on cefdinir and metronidazole for seven to 10 days. On the other hand, this can all happen while you are awaiting labs and imaging findings, and running things by your surgeon friend, which you have to do anyway. And no specialist is a better judge of "sick/not sick" and of who can go home than emergency physicians.
4. **Who Follows Up?—**Having treated many appendicitis patients as outpatients myself, both through research studies and in the course of regular care, I've found the usual discharge instructions, like you'd give diverticulitis patients (come back if worse), and a follow-up telephone call at 24–48 hours is sufficient. Patients who respond do so within 48 hours, otherwise they should return for reevaluation. But who does it? At one hospital I worked, we have a nurse telephone follow-up service. Sometimes the surgeon on call will have their office call or have a follow-up appointment made. And other times, the patient's general physician is contacted, and some are now familiar and comfortable with this treatment approach.

Treatments That Work?

Is the outpatient antibiotic treatment of appendicitis a "paradigm shift"?[6] I suspect it will be more drift than shift. Patients in the ED are our patients first. We educate them about their diagnosis, but now can also introduce them to two safe treatment options with different advantages. Surgery—a permanent solution requiring general anesthesia, laparoscopic surgery, one day in the hospital, and at least a week's recovery. Antibiotics—most patients will avoid surgery altogether and get on their feet days sooner, at less cost but with a chance of recurrence. This new study shows that most appendicitis patients will be stable enough to be discharged from the ED and cure their case of appendicitis while comfortably at home.

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Pros & Pitfalls

THOUGHTS ON TELEHEALTH

The Case for Expanding Emergency Telehealth Services

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by **ADITI U. JOSHI, MD, MSC, FACEP**

Telehealth and tel-emergency care isn't new, not in its purest definition of using technology to connect two people for a medical encounter. While it already existed in aerospace, military, and rural areas, it has become more widespread due to the COVID-19 pandemic.

Almost everyone has now had experience with this modality, including its use in emergency care. However, not all are convinced that this is something that we should be doing. In a decade working in this space, there is little I haven't heard about the cons of using telehealth. I will not claim that telehealth is good for everything: there will *always* be a need for in-person emergency care. However, technology has been part of almost all other parts of our lives. Recognizing and planning for its utility in emergency medicine is a more efficient use of time. Telehealth does have some broad advantage—namely access, efficiency, and potential costs.

In terms of access, it removes the geography requirements to see patients where they are, whether at home, on an ambulance, at another hospital, or in rural areas. It allows for specialist consultations for our colleagues in rural areas where there are fewer specialists available. Research in tele-stroke has demonstrated that there is less time to tissue plasminogen activator (tPA) and decreased morbidity with clinician-to-clinician telehealth use.[1] This access to specialists also brings a type of continuing medical education (CME), as one must be there during the virtual consultation and witness the specialist working, which improves outcomes and efficiency.

It also increases access for patient populations that may have a hard time leaving home, whether it is due to caregiving, disability, or having childcare responsibilities. Emergency physicians appreciate that these limitations lead to a delay in seeking care from the traditional brick and mortar of health care facilities. With telehealth, patients can at least get a visit to determine if they need to see a physician in-person or if they can safely follow up later. The utility is huge—we can educate, see, train, and be part of a collaborative team from a distance.

Telehealth also has the potential to improve efficiency and decrease costs as a triage measure to ensure all patients are at the right level of care. Tele-triage programs have been used to triage and begin a workup within EDs already; this can potentially be extended to triaging at home, with EMS, home care facilities, and other

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Emergency Telehealth Creates Reimbursement Challenges

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by **JAMES L. SHOEMAKER, JR., MD, FACEP, AND DAVID A. MCKENZIE, CAE**

The expanded use of telehealth services from the emergency department (ED) during the public health emergency (PHE) has proven to be an efficient and effective way to expand access to patients who might not otherwise have been able to safely or timely obtain that level of care during the COVID-19 pandemic. ACEP sees the use of telehealth as one avenue to step outside the four walls of the ED to expand the breadth of our specialty and deliverables to our patients. This falls firmly within ACEP's strategic plan.

U.S. Centers for Medicare & Medicaid Services (CMS) has covered telehealth services from the ED using ED E/M CPT levels 99281–99285 during the PHE, but may not continue to do so, at least at the higher intensity levels of ED E/M services described by CPT codes 99284 and 99285. It's important to note that CMS reimbursement for levels 99281–85 is the same for in-person and remote visits, as CMS rules do not allow for rate changes based on these differences. These relative value unit (RVU) valuations are the building blocks for health care insurers, and they also cannot alter them. It's the parity in these codes for reimbursement that makes the reimbursement for telehealth a complex and multifaceted issue.

ACEP has successfully argued—and CMS has agreed—that upper-level ED services (99284–85) are more intense than those furnished in an office-based setting. Emergency physicians are usually caring for many patients simultaneously, instituting care and medical decision making for multiple patients many times per hour. As a result, the RVUs and resulting payments are higher for ED services provided in the ED setting. It is essential that ACEP be able to continue to emphasize the *intensity* of our ED services, or we'll have to face a grim reality of time-based compensation that would negatively impact our revenue. Emergency medicine is an outlier in our RVU valuation because our levels are intensity-based rather than time-based because there isn't a good way to accurately record time for a physician juggling multiple patients in the chaotic environment of the ED.

CMS is on record as believing the higher intensity of upper-level ED services (99284–5) do not lend themselves to being furnished via telehealth. This makes it difficult for ACEP to advocate for parity in payments for ED services furnished via telehealth with those for in-person services af-

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Does Telehealth Amplify Social and Economic Inequality?

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by **AHRA CHO, MD, MBA, AND TONY BAI, MD**

The COVID-19 pandemic provided a nidus for growth in telehealth. Through necessity and adaptation, primary care physicians and certain specialties embraced the contactless convenience of virtual appointments with patients in need. While there is no question technology will continue to enrich the practice of medicine, there are many issues that need to be addressed in order to make telehealth safe and effective for both patients and physicians. These shortcomings are particularly evident in the application to emergency medicine.

Possibly the most concerning aspect of telehealth as it relates to our specialty is social and economic inequality. While advocates argue that telehealth would expand access to care by allowing patients increased flexibility in interfacing with clinicians, particularly patients in rural areas without constant access to care, there is genuine concern that underserved populations will be functionally impeded from accessing this service.[3] This can happen both at the system and individual patient level as telehealth relies on the existing infrastructure of participants in question.

From a health systems level, telehealth systems will depend on robust information technology (IT) systems and consistent staffing. These factors put rural hospitals caring for the underserved at a disadvantage, as they are more likely to suffer deficiencies of both. Under-resourced hospital systems already struggle with high volumes of underinsured patients and lack of access to resources, including physicians and ancillary staff. Without significant increases in funding, the decision to invest in telehealth systems will require health care expenditures to be drastically reduced in other areas, particularly in-person health services and preventative care, exacerbating the access issues in already struggling communities.

At the patient level, the success of telehealth and its flexibility will depend on the patients' baseline level of digital literacy, as well as consistent access to a computer, internet, data services, and time. These resources are not guaranteed with underserved populations and risk further alienating low-income patients. While access and use of technology, cellular phones, and wireless services seem ubiquitous particularly in urban areas, the Pew center estimates that up to 16 percent of Americans are not digitally literate, with this rate much higher among Black and Hispanic adults, and roughly a quarter of adults with household incomes below $30,000 annually don't own a smartphone.[4] Given that the poverty rates for Black and Hispanic Americans are more than double that of non-Hispanic whites, plus the education gap that already exists along income levels, telehealth services risk disproportionately benefiting a narrow demographic while hurting low-income patients, particularly from minority backgrounds.

Even setting aside the issue of social justice, it is unclear if telemedicine can offer patients high quality care. Physicians spend years in training learning

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Joshi.jpg


Shoemaker.jpg


McKenzie.jpg


Cho.jpg


Bai.jpg

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Is There a Doctor On Board?

How to prepare for in-flight emergencies

by SOPHIA GÖRGENS, MD, AND AMY FAITH HO, MD

You are 40,000 feet in the air, flying across the Atlantic Ocean when the intercom crackles to life and you hear the words you've dreaded ever since graduating medical school: "Is there a doctor on board?"

After showing the flight attendant your credentials, you meet the passenger: a 53-year-old man with difficulty breathing and a rash. The patient is audibly wheezing. The flight attendant hands you a medical bag, but you can't hear anything with the disposable stethoscope over the turbulence. The rash on his arms and chest appears to be urticaria, and his tongue and lips are mildly swollen. Anaphylaxis, you decide, but what can you do? You peer skeptically at the emergency medical kit, which suddenly seems much smaller than you want. What medicines are even in there?

The Situation

In-flight emergencies occur in about one in 604 flights, with complaints most commonly ranging from syncope (37 percent of in-flight emergencies) to respiratory issues (12 percent), vomiting (six percent), and cardiac complaints (eight percent).[1,2] When an emergency physician or nurse isn't available, flight staff are trained in basic life support and can often avail themselves of an on-the-ground medical communications center with real-time advice.[1,2,3] Whether or not on-board medical help is available, one in 14 flights with medical emergencies is diverted from their original destination to the nearest airport in the vicinity of appropriate medical facilities.[1,2]

The Emergency Medical Kit

The Federal Aviation Administration (FAA) requires every major commercial airplane to carry an Automated External Defibrillator (AED) and a standard medical kit (see Table 1).[3] The guidelines for this medical kit have not been updated since 2006, though in 2019 the Aerospace Medical Association was tasked by the FAA with producing a list of recommended (though not required) updates (see Table 2).[3,4] Many airlines have chosen to supplement the kit with additional supplies or medicines. While this does provide some much-needed fortification to the core FAA kit, it does result in variation between airlines, so a medical volunteer during an in-flight emergency may not be familiar with the available supplies. Of note, FAA exemption number 10690, which has been in effect since 2013 and was recently extended, allows airlines to not immediately update their kits with atropine, dextrose, epinephrine, and/or lidocaine under special shortage considerations.[5] This means that medical kits may not always include these life-saving and previously mandated medications. Similarly, these medications may be expired as there is no strict enforcement on checking expiration dates of medications. When assisting in an in-flight medical emergency and finding yourself short of epinephrine or other medication, it's worth having the flight attendant ask passengers, as combined they often carry a cornucopia of personal pharmaceuticals or personal medical equipment.

TABLE 1: FAA mandated medical kit contents[3]

SUPPLIES	MEDICATIONS
Sphygmomanometer, stethoscope	Analgesic, non-narcotic, tablets, 325 mg
Airways, oropharyngeal (3 sizes)	Antihistamine tablets, 25 mg
Self-inflating manual resuscitation device (3 sizes)	Antihistamine injectable, 50 mg
CPR mask (3 sizes)	Atropine, 0.5 mg, 5 cc
Alcohol sponges, gloves	Aspirin tablets, 325 mg
Adhesive tape, tape scissors	Bronchodilator
Tourniquet	Dextrose, 50 percent/50 cc injectable
Saline solution, 500 cc	Epinephrine 1:1000, 1 cc, injectable
Needles (18 ga., 20 ga., 22 ga.)	Epinephrine 1:10,000, 2 cc, injectable
Syringes (5 cc, 10 cc)	Lidocaine, 5 cc, 20 mg/mL, injectable
IV Admin Set: Tubing with 2 Y connectors	Nitroglycerin tablets, 0.4 mg

TABLE 2: The 2019 Aerospace Medical Association list of recommended updates[4]

OLD REQUIREMENT	UPDATED RECOMMENDATION
Sphygmomanometer	Electronic Sphygmomanometer
Oropharyngeal airway	Supraglottic airway
Epinephrine 1:1000	Autoinjectors epinephrine
Antihistamine	Also pediatric formulated antihistamines
None	Antipsychotic drug (i.e., haloperidol)
Analgesic/antipyretic	Also pediatric formulated analgesic/antipyretic
None	Major analgesic (i.e., opioid)
None	Anticonvulsant (i.e., benzodiazepine)
None	Antiemetic (i.e., ondansetron)
None	Bronchial dilator inhaler with spacer
None	Antidiarrheal (i.e., loperamide)
None	Opioid antagonist (i.e., naloxone)

Legal Considerations

On flights within the United States, as a health care professional, you are protected under Good Samaritan laws, meaning that you are not required to assist and if you choose to do so, you are protected from lawsuits (barring gross negligence or willful misconduct).[6] This was codified under the Federal Aviation Medical Assistance Act of 1998 and applies to non-U.S. carriers as well.[6] However, on international flights, rules and regulations are different and often differ to the country in which the airlines are based or sometimes which countries' airspace an aircraft is at the time of an event. It's important to note that some countries, such as Australia, *require* physicians to help.

Case Resolution

Since there's no EpiPen auto-injector in the medical kit, you painstakingly draw up the epinephrine into a syringe and inject it into the patient's thigh. The patient rapidly improves, and after observing him for a little longer, you return to your seat. As a reward, the flight attendant brings you a handful of extra snacks, including a bag of salted cashews. You cringe a little as you wonder: *Who else on this flight has an allergy to nuts?*

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TELEHEALTH EXPANSION

DR. JOSHI'S PERSPECTIVE, CONTINUED FROM PAGE 12

places that funnel into the ED.[2] Tele-triage can help alleviate some of the burden on EDs, especially when patients could be seen in an outpatient setting. For patients who have already had an ED workup, newer programs are using telehealth for virtual observation units, keeping ED and hospital beds open and allowing patients to recover in their home. As we see better personal health and monitoring devices, this care model has the potential to grow. The burden on EDs has only grown, and one solution is to use tele-emergency care more efficiently to decrease this only growing issue.

There is, of course, work to be done to be able to realize the full potential of tele-emergency care. There must be quality standards, workflows, thoughtful design, and program planning. We also require a comprehensive training and education program that needs to begin in undergraduate medical education (UME) to ensure we have a new generation of physicians who understand how their future practice is going to be affected. Reimbursement must also be codified and kept in law for this practice to be financially feasible.

Much of this is happening. CMS has extended its regulations consistently since the pandemic. The AAMC has set standards for what is required for telehealth education. There are courses to improve digital physical exam and empathy skills. Within EM, ACEP has an active telehealth section that works on advocating and working with other organizations to define and understand the needs of EM physicians in this future practice. Every year more research, programs, and colleagues become involved in telehealth, attesting attests to its expanding worth and utility.

It may seem overwhelming that telehealth will increase the scope of emergency medicine. However, emergency physicians are no strangers to change or innovation. This specialty has always been involved in the community as the front door of the hospital and the connection to all the front-line services. Emergency physicians are innovators, educators, advocates, leaders, researchers, as well as clinicians. All we must do is recognize this as our future practice and incorporate technology and telehealth safely and effectively within emergency medicine.

Is Your Chart Feeling Bloated?

THE IMPACT OF NOTE BLOAT ON THE EMERGENCY DEPARTMENT

by NICHOLAS GENES, MD, PHD; MARK BAKER, MD; AND HEATHER HEATON, MD, MS

That well-known but medically complex patient is back in your emergency department (ED). He was seen by your colleague last week and had a big workup, so you pull up her clinical note in the electronic health record (EHR) to review her previous assessment and plan. But, to get to those pearls of information, you've got to sift through endless labs and radiology reports, imported meds, and past history. The outpatient workup has continued as well, so it's not quite clear what data in last week's ED note is current. Just as you're making progress, your nurse flags you over to see a different patient.

Medical notes have become plagued with unnecessary information, making them difficult to read, and costing valuable time and attention. "Note bloat" is a distinctly American phenomenon, and occurs across specialties, but longer notes—full of imported results and other data—affect emergency physicians when concise, relevant clinical communication is optimal to make quick decisions on patients with whom we do not have an established relationship. Emergency physicians are often on the receiving end of bloated notes from consultants, or prior discharge summaries—and we also participate in their creation.

Note bloat is multifactorial, but has been aided and abetted by the proliferation of EHRs, which make it easy to import past history, medication lists (often outdated), vital signs, lab results, radiology interpretations, boilerplate phrases, and other elements of a patient's care into a note via content-importing technology (CIT). This is often done out of the mistaken belief that complete data is necessary or appropriate for billing and coding or to mitigate malpractice risk. However, these superfluous details add little value and make notes harder to parse in the ED.

In January 2023, we will see landmark changes to E/M coding rules (see the article: https://www.acepnow.com/article/2023-documentation-guideline-changes-for-ed-e-m-codes-99281-99285/) from the Centers for Medicare and Medicaid Services (CMS). With these changes, emergency physicians should revisit appropriate documentation–what's needed for accurately capturing our patient care and medical decision-making and what's unnecessary and detrimental to clinical communication. A more judicious use of EHR importing capabilities, and use of tools that support linking and prompt summaries should help us make the most of the 2023 coding changes. If physicians do this right, notes will become more useful and readable, without hurting reimbursement or increasing liability.

In recent months members of ACEP's Health Information Technology Committee, Reimbursement Committee, Coding and Nomenclature Advisory Committee, and Medical-Legal Committee joined forces to author a white paper on this topic, Addressing Note Bloat: Solutions for Effective Clinical Documentation. The authors describe best practices to minimize note bloat and improve clinical communication.

Key Highlights:

Recommendations for individual emergency physicians, nurse practitioners, and physician assistants:

- A concise, clinically pertinent summary of prior records is sufficient to meet coding requirements for medical decision-making. Importing large volumes of documentation from prior records is not additive and contributes to note bloat.
- A concise summary or discussion of results of labs and or radiology tests ordered and/or reviewed by the emergency physician or NP/PA is sufficient to support coding requirements for medical decision-making. Pulling extensive amounts of lab results or complete radiology reports into a note is not additive compared to a concise summary.
- While attestation language depends on the type of note, the type of supervision, and federal, state, and institutional rules, in general, a succinct statement indicating the presence and role of the attending physician in the patient's care is adequate for attestation. A separate documentation of history, exam findings, medical decision-making or other elements of the supervisee's note is redundant and potentially discrepant, opening the chart to confusion among readers.
- Recommendations for ED leadership and hospital-based information technology (IT) departments:
- Emergency physicians and NP/PAs should be instructed on the utility, risks, and expectations of CIT. EHR tools facilitating the import of content from results or chart elements can, if used indiscriminately, contribute to note bloat without improving reimbursement or reducing medicolegal risk.
- Clinical informaticists and institutional IT departments should play a major role in developing approved, system-wide documentation templates and appropriate CIT, reviewing the quality of templates and CIT already in use, and instructing emergency physicians and NPs/PAs on responsible use. In addition to personalized feedback to emergency clinicians on the quality of their documentation, EHR reports should expand to include CIT usage. Department-endorsed standardized note templates and in-line clinical decision support on appropriate documentation should be employed to guide EM clinicians on structuring their clinical notes.
- Note content derived from CIT (such as macros, dotphrases or copy/paste) should be easily identifiable in clinical notes, to support review and validation by the note authors, and let readers understand where CIT was employed.

The sweeping, once-in-a-generation reforms to E/M coding rules planned for January 1, 2023 use medical decision-making (MDM) instead of elements from history of present illness, review of systems, and physical exam to determine the level of service.

Medical decision-making largely depends on the complexity of the patient's presentation, risk to the patient, and thought processes related to testing and interventions considered or performed. You might be tempted to meet the MDM criteria by importing data into the note, like past medical history, medications, lab, and imaging tests ordered and reviewed. Don't do it! Those elements are (or should be) visible to clinicians and coders in other areas of the chart. Importing all this data into the note itself will change medical decision-making from a useful distillation of a clinician's thinking, into a litany of items available elsewhere.

Clinical documentation has evolved considerably over the years, reflecting the influence of technology and various health care stakeholders. Physician notes have evolved from short and succinct handwritten (but often illegible) prose to pages of electronic drivel. Modern ED documentation should concisely describe clinical presentations and communicate medical decision making without sacrificing reimbursement or increasing liability. With the new E/M coding changes upon us, it's incumbent on ED leadership, hospital IT, and billing and coding staff to work together to make our notes clear and uncluttered.

When that complicated patient returns to your ED starting in January, newer ED notes are a lot easier to read. There's no more scrolling through countless rows of computer-generated prose about review of systems and exam. Your department has worked with IT and billing and coding to curtail the wholesale import of past history and results, because coders can find that info elsewhere. The MDM section is clear and succinct, only listing pertinent positives and material relevant to clinical communication for today's ED visit.

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TELEHEALTH CHALLENGES | DRS. SHOEMAKER AND McKENZIE'S PERSPECTIVES, CONTINUED FROM PAGE 12

ter the PHE ends. If we argue to CMS that upper-level ED visits are not too intense for telehealth use, we risk lowering the future values of all ED services. Parity would not be advantageous should that occur. CMS and the members of the RBRVS committee that set RVU valuation at the RUC would certainly question our rationale for parity when telehealth visits seldom, if ever, have the complexity of a dozen patients and varying acuities coupled with the continual interruptions of the ED setting.

The ACEP CPT team has worked for years to get the ED E/M codes (99281-99285) added to Appendix P of the CPT code set, meaning they could be paid when furnished via telehealth. So far, those attempts have been unsuccessful because ED codes are considered more intense than office visits. Further attempts could upend the valuations we have successfully defended and increased over the past two decades.

There is clearly a need for telehealth delivery in and from a variety of geographic locations, but careful considerations need to be made if we should include 99284 and 99285 in the telehealth codes for reimbursement. These two codes represent most ED services provided in any setting, and we cannot jeopardize a possible reduction in value, especially when there are so many other potential cuts to ED payments on the horizon. This becomes even more essential as the documentation guidelines change in January 2023 and we find a new distribution of ED codes submitted for reimbursement. Many ED visits may "level up" based on those changes, and 99284 may become the most important code in our family to preserve and protect.

We must acknowledge that telehealth service is not exactly comparable to in-person visits. There is no boarding or unanticipated influx of patients with telehealth. The individual patient may be similar, but the environmental circumstances are different. There is some concern of established telehealth entities siphoning off the well-reimbursing patients, making the economics of delivering in-person care more tenuous. Similarly, expansion could lead to a single emergency physician supervising multiple non-physician clinicians in various locations in ways that could radically alter the emergency medicine workforce.

Lastly, the facility fee for a telehealth visit does not incur the same direct expenses as an in-person visit. The current construct of payments for the originating site (where the patient is) and distant site (where the emergency physician is) needs to be explored for fair payment of resources used in the in-person versus telehealth visit. The practice expense component of telehealth services must be the subject of considerable cost effectiveness research.

There is no easy answer to telehealth reimbursement, and ACEP's RUC and CPT teams will need to continually assess risk and benefit of our strategies to benefit the whole of our specialty and our patients.

Patients' Best Friends: Therapy Dogs in the ED

How utilizing "man's best friend" can help comfort those in the ED

by MAURA KELLY

Since time immemorial—or at least the 1956 publication of "Old Yeller"—stories about remarkable dogs who save humans from death have abounded. But stories about remarkable dogs who help patients in need of emergency medical attention? Those have been less common—except for Lassie—until now. They're getting out thanks to a new PLOS One study about the powerful effects of therapy dogs in the emergency department (ED).[1]

COOK CHILDREN'S MEDICAL CENTER

The therapy dogs at Cook Children's Medical Center in Fort Worth, Texas, help reduce anxiety for patients who do not have parents or other support people with them while being cared for in the emergency department.

ROYAL UNIVERSITY HOSPITAL

Murphy visits with a patient at Royal University Hospital.

ROYAL UNIVERSITY HOSPITAL

This "Quincy card" was handed out to patients who met the dog in Cleveland, Ohio.

Therapy Dogs Deliver the Data

Consider the tale of Murphy, a 10-year-old English springer spaniel who does the rounds throughout Saskatoon, Saskatchewan, Canada. Not long ago, Murphy was visiting the ED at Saskatoon's Royal University Hospital when he and his handler learned that a retired farmer, agitated after waiting two days for a bed, needed sedation. Murphy got the farmer's permission to hop up onto his stretcher with him—and as the farmer stroked Murphy's head, he told the spaniel about all the different dogs who had lived on his farm. "The man's family was there, and they were crying," says James Stempien, MD, co-author of the PLOS study, who is also provincial head of emergency medicine for the Saskatchewan Health Authority and University of Saskatchewan, in Saskatoon. After about fifteen minutes of communing with Murphy, the farmer told Dr. Stempien he'd be able to wait calmly a while longer without drugs; thanks to Murphy, he was plenty calm.

Though therapy dogs seem to be the exception rather than the rule in EDs, hospitals that use them find that they significantly benefit people being triaged: Canine companions reduced pain scores by more than half for 43 percent of patients, anxiety by more than half for 48 percent, and feelings of depression by more than half for 46 percent, as the PLOS paper reports. Similarly, a 2012 study in the *Western Journal of Emergency Medicine*, which looked at therapy dogs in the EDs at University Hospitals Cleveland Medical Center and at its Rainbow Babies and Children's Hospital in Cleveland, Ohio, found that 93 percent of patients and 95 percent of staff approved of therapy dogs.[2]

Health and Hygiene

If the dogs are so clearly beneficial, then why aren't they more common? Possibly because hospital administrators focus on risks rather than benefits, Dr. Stempien suggests. Certainly, the decision makers at Royal University Hospital initially resisted his proposal to use canine comforters in the ED, citing concerns that the animals might be dirty or badly behaved—though Dr. Stempien explained that therapy dogs are groomed before they enter the hospital; and only amicable, unflappable pets make the cut. Dr. Stempien also had to assure the hospital that any patients who were nervous around dogs wouldn't have to interact with them: "If there was any anxiety on the patients' part, the therapy dog team would respect that and wouldn't go near them," he says. Eventually, Dr. Stempien got the go-ahead—and plaudits ensued. "Once therapy dogs became a common occurrence in the ER, everyone understood their value," he says.

Of course, COVID changed the workplace for therapy dogs, too: They were banned from EDs while the pandemic raged, out of concern their handlers could spread or catch COVID. But the Saskatoon EDs have slowly begun to re-open their doggie doors. American EDs with similar programs, initially feeling equally cautious, have nonetheless found ways to allow the dogs to resume their work supporting staff. At six of the seven hospitals operated by Atlantic Health System in northern New Jersey, ED team members can relax with therapy dogs in a central location—off-unit in a lounge, or outdoors in a picnic area. "We even schedule office hours so that our team can come to them in a designated location during their break to decompress," says Ashley L. Flannery, DO, associate director of pediatric emergency medicine at Atlantic's Goryeb Children's Hospital in Morristown, N.J.

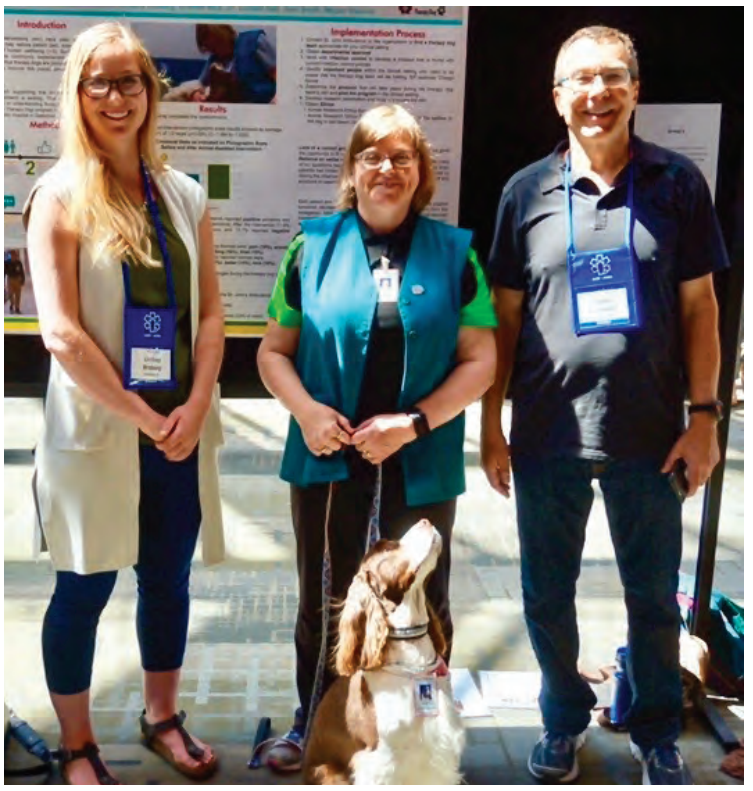
At Cook Children's Medical Center in Fort Worth, Texas, therapy dogs are also focusing on ED staff for the moment. One of the physicians at Cook Children's, Jamye Coffman, MD, medical director of the child advocacy, resources, and evaluation team, is also the handler for Kitty, her golden retriever, who started at Cook Children's in 2015. "Kitty has gone to the ED to help patients who, for whatever reason, don't have a parent or support person to reduce their anxiety," says Dr. Coffman. "But primarily we've taken Kitty over for staff support after a particularly emotionally traumatic event. She also stops in the triage area pretty much every morning just to say hi. And any time we walk by, one nurse always calls out, 'Kitty, I love you!'"

A Better Work Environment

Indeed, the canine teams may be as important for ED employees as for patients. "The amount of stress that the staff is under, particularly right now with COVID, staffing shortages, boarding issues, and overall societal angst, makes the ED a very challenging work environment," says Jeffrey Lubin, MD, MPH, co-author of the 2012 study, now a professor of emergency medicine and public health sciences at Penn State College of Medicine in Hershey, Pa. "Taking a break for a minute to pet a dog really can reset and refocus you. I saw that in Cleveland and I've seen it in Hershey, too." Dr. Lubin's new ED in Pennsylvania has welcomed back therapy dogs, post-COVID-19,

COOK CHILDREN'S MEDICAL CENTER

Dr. Jamye Coffman, medical director of the Child Advocacy, Resources, and Evaluation Team at Cook Children's Medical Center in Fort Worth, Texas, and therapy dog Kitty often work with ED staff after caring for traumatic cases.



ROYAL UNIVERSITY HOSPITAL

Dr. James Stempien (R) and Jane Smith (center) with Murphy and colleague Dr. Lindsey Broberg at a 2017 medical conference in Whistler, BC, where they presented earlier research about therapy dogs.

although his old ED at University Hospitals Cleveland Medical Center is limiting their use to ED staff. Dr. Lubin started the Cleveland program, where he moonlighted as the handler for his Labrador retriever, Quincy. The sweet-tempered black lab was particularly helpful with a frightened four-year-old. The boy refused to hold still for a computed tomography scan—until Quincy obeyed a command to lie down and stay put. Then the boy exclaimed, "If Quincy can lie still like that, I can too!"

Still not convinced of the power of therapy dogs? Check out "Murphy Mondays," a 2018 children's book written by the spaniel's handler, Jane Smith, in which she describes their Monday visits to the ED at Royal University Hospital.[3] As Smith explains, "In every ED we visit, the staff lights up. So many patients, doctors, nurses, and staff tell me Murphy has made their day."

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TOXICOLOGY Q&A

PHOTO: JASON HACK (OLEANDER PHOTOGRAPHY)

The Pinwheel of Poison

by JASON HACK, MD

Question: Nicknamed sorcerer's violet, fairy's paintbrush, and fiore di morte (*flower of death* in Italian), and often included as "something blue" for brides, which Madagascar-native plan was initially investigated in the 1950s for the treatment of diabetes?

ANSWER *on page 18*

TELEHEALTH INEQUALITY

DRS. BAI & CHO'S PERSPECTIVES, CONTINUED FROM PAGE 13

how to hone their clinical gestalt by observing patients in person and differentiating between sick and healthy patients. For instance, on oral boards, physicians are rewarded points for asking in the first 30 seconds what the patient looks, feels, and smells like, in recognition of the key information that comes from assessing the patient in real time. In telemedicine, with the loss of the softer aspects of patient encounters such as body language and non-verbal cues, a key factor in the clinician's history and assessment will be lost. Even if systems can find ways to collect information to address this deficit, the concern on how to complete the medical workup, with simple orders such as EKGs, imaging, or even administering crucial medications cannot be ignored. For telehealth systems to be effective, they must be limited to patients with low acuity, urgent care level complaints who don't need further workup, or be within a larger health care system that would allow patients quick transfer for in-person evaluations. In the current health ecosystem, where health literacy and health care access levels vary across geographic and income levels, it is unclear if telehealth systems will be useful for a majority of ED patients who will need further evaluation in person.

Lastly, while cost savings are often touted as a reason for expansion of telehealth programs, it is unclear if services would indeed lower costs. Theoretically, the expansion of telehealth programs could prevent unnecessary ED visits by freeing up scarce resources and allowing physicians to focus on critical illnesses, but it is also possible that telehealth could increase costs due to high costs of implementation and supplier-induced demand driving greater patient utilization. Successful implementation and maintenance of telemedicine depend on pre-existing technology infrastructure, including working IT systems, internet access, and staffing. The costs associated with necessary investments, maintenance, as well as hours of clinical time necessary (and possibly lost) in staff training and upkeep of standards of practice, may be significant. Furthermore, telehealth systems may simply lower the barrier for patients to seek care for visits and lead to greater inefficiencies. For instance, the rise of urgent care centers focusing on lower-acuity visits have not reduced health care costs or ED volumes. As many of our patients do not know how to appropriately self-triage or the appropriate time to seek care, telehealth systems may simply attract patients from urgent care visits, or even raise ED volumes by encouraging patients who would've never sought care at all to seek care, leading to a situation where patients are evaluated three times: in telehealth, the ED, and in their primary care offices, further overburdening an already strained system.

As exciting as it is to embrace new technologies and continue to push the frontiers of health care delivery, clinicians and health care systems need to consider emergency telehealth's possible pitfalls in order to better design an equitable and safe telehealth system for both patients and clinicians.

Toxicology Q&A Answer

QUESTION ON PAGE 17

Answer: Periwinkle, or Madagascar periwinkle (Catharanthus rosea), is a tropical perennial that was brought to Europe in 1757 as an ornamental plant. It grows well in temperate climates—zones 9–11 in the U.S.

The large-lobed, 50-cent coin sized flowers have colors that vary from white to 'periwinkle' blue, to deep pinks, to vibrant reds. The flowers are nicely contrasted by the deep green leaves that jut out of supporting stalks that can reach two feet tall.

Introduction

There are some amazing stories of serendipity in medicine—many are widely known (e.g., breadcrumbs in the Petri dish leading to penicillin). This plant is a contender for a top spot, deserving of a retelling.

The Madagascar periwinkle was initially investigated in the 1950s for the treatment of diabetes.[1] When it was administered it did decrease glucosuria, but also increased blood glucose levels. During its investigation into the treatment of diabetes, researchers injected extract of periwinkle into rats; they reliably died of Pseudomonas septicemia in five to seven days. On autopsy, the rats had multiple abscesses in the liver, kidneys, and other organs. In this particular lab, the unexpected findings were notable because this is what the laboratory had been seeing in rats that were undergoing large dose steroid exposures in another study. When the scientists looked closer, they found that periwinkle extracts resulted in a severe decline in white blood cell count, granulocytopenia, and profoundly depressed bone marrow. Further investigation led to the isolation of the compounds vincristine and vinblastine.[2]

Toxin/Contribution to Medicine

Vincristine and vinblastine differ by only one carbonyl group—in an aldehyde in the former, and in a methyl group in the latter. In 1961, the Food and Drug Administration approved vincristine as a chemotherapeutic agent for the treatment of Hodgkin's disease. In 1963 vinblastine, was isolated and approved for the treatment of childhood leukemia. This beautiful, yet poisonous, tropical plant, is responsible for saving millions from cancer.[3]

Other Uses

- In Cuba and in Puerto Rico, an infusion of flowers together with a few drops of ethanol added was used as an eyewash for infants.
- In Latin America, the leaf tea has been used as a gargle for sore throat and laryngitis.
- In India, the fresh juice squeezed from the leaves was used for wasp stings.
- In Vietnam, herbalists use the leaf and stem tea as a treatment for everything from menstrual difficulties to malaria.
- In Asian cultures, South Africa and Caribbean islands, periwinkle tea was useful as a folk cure for diabetes.

PHOTO: JASON HACK (OLEANDER PHOTOGRAPHY)

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EM LITERATURE OF NOTE

PEARLS FROM THE MEDICAL LITERATURE

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There Are Only Four Effective Interventions in Emergency Medicine

Medical practice has an inglorious track record of being very wrong

by RYAN RADECKI, MD, MS

Every generation of emergency physicians can tell a whiplash-inducing story of a medical reversal from their training, whether it be measuring pulmonary artery wedge pressures, the rise and fall of drotrecogin alfa, early goal-directed therapy for sepsis, or high-dose steroids for spinal cord trauma. Many of these therapies were diffused widely across practice before falling out of favor, and while each individual instance offers specific lessons, the larger question must be: why does this keep happening?

The answer is, unfortunately, obvious, and subsequently disheartening for the future of emergency medicine (EM). There is a foundational issue with the quality of the evidence that informs clinical practice. We have seen recent articles in the *Annals of Emergency Medicine* describing trials in EM as "fragile," but a new study evaluates the evidence base in its totality.[1]

Producing what the authors term an "umbrella review," this study sought out the top level of the evidence-based medicine pyramid for EM: systematic reviews and meta-analyses.[2] The authors identified 431 eligible meta-analyses in EM in their search, comprised of 3,129 individual studies, the majority of which were randomized controlled trials. The authors rigorously evaluated each meta-analysis to determine whether there were sources of potential systematic bias affecting the reliability of the outcomes measured.

First, each meta-analysis was evaluated for signs of publication bias. Publication bias colors the evidence base as consequence of suppression of a subset of trial results. This may happen as an inadvertent effect of academic publishing, as null results may be less appealing to medical journals and have a lower likelihood of acceptance. However, publication bias may also relate to an intentional discarding of negative results by those with professional or financial conflicts of interest. In either instance, the use techniques such as funnel plots and Egger's regression may reveal signs of potential bias. *Continued online*.

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PUTTING RESEARCH TO WORK FOR YOU

PRACTICE CHANGERS

DR. WESTAFER (@LWestafer) is assistant professor of emergency medicine and emergency medicine research fellowship director at the University of Massachusetts Medical School–Baystate and co-host of FOAMcast.

The Guidelines Finally Catch Up

New STEMI activation criteria

by LAUREN WESTAFER, DO, MPH, MS, FACEP

"Time is myocardium." Emergency, prehospital, and regional systems have been built around this slogan and are designed to get patients with acute myocardial infarctions, specifically ST-elevation myocardial infarctions (STEMIs), early reperfusion therapy. The American College of Cardiology (ACC) has now caught up with the addition of four "STEMI equivalents," meaning many more patients should receive cardiac catherization or other means of reperfusion based on more subtle electrocardiogram (ECG) changes.

How did we get here?

The 2013 American Heart Association (AHA) 2013 guidelines defined STEMI in a rudimentary fashion. Patients with the clinical syndrome fitting with acute coronary syndrome (ACS) must also have at least one of the following (in the absence of left ventricular hypertrophy or left bundle-branch block [LBBB]) on ECG:

1. New ST elevation at the J point in at least 2 contiguous leads of ≥2 mm in men or ≥1.5 mm in women in leads V2–V3
2. ≥1 mm (0.1 mV) in other contiguous chest leads or the limb leads[1]

At that time, the guidelines referred to proposed criteria for recognizing ischemia in the presence of an LBBB but did not endorse the Sgarbossa criteria.

Some have argued for years, however, that the STEMI versus non-STEMI dichotomy should be abandoned in favor of targeting occlusion myocardial infarctions (OMIs) for reperfusion therapy, some of which may not meet the ECG definition of STEMI.[2,3,4] The most recent consensus statement from the ACC nudges towards recognizing OMI by recommending that four "STEMI equivalents" be treated according to routine STEMI protocols. In fact, the statement highlights the importance of this shift by stating, "the application of STEMI ECG criteria on a standard 12-lead ECG alone will miss a significant minority of patients who have acute coronary occlusion."[5] While the guidelines don't replace "STEMI" with an inclusive term for those who would benefit from emergent reperfusion therapy, they take a step towards emphasizing that time *is* myocardium by including ECG patterns indicating early coronary occlusion.

Activate the cath lab or reperfusion treatment for these four ECG patterns

Patients who should be managed as a STEMI and receive early reperfusion therapy are those with traditional STEMI as well as those with one of the following STEMI equivalents: posterior STEMI, LBBB with Sgarbossa or Smith-modified Sgarbossa criteria, DeWinter sign, or hyperacute T waves. The first two STEMI equivalents are unsurprising and have probably triggered cardiac catheterization lab activations across the United States for years. However, the latter STEMI equivalents have only more recently gained recognition.

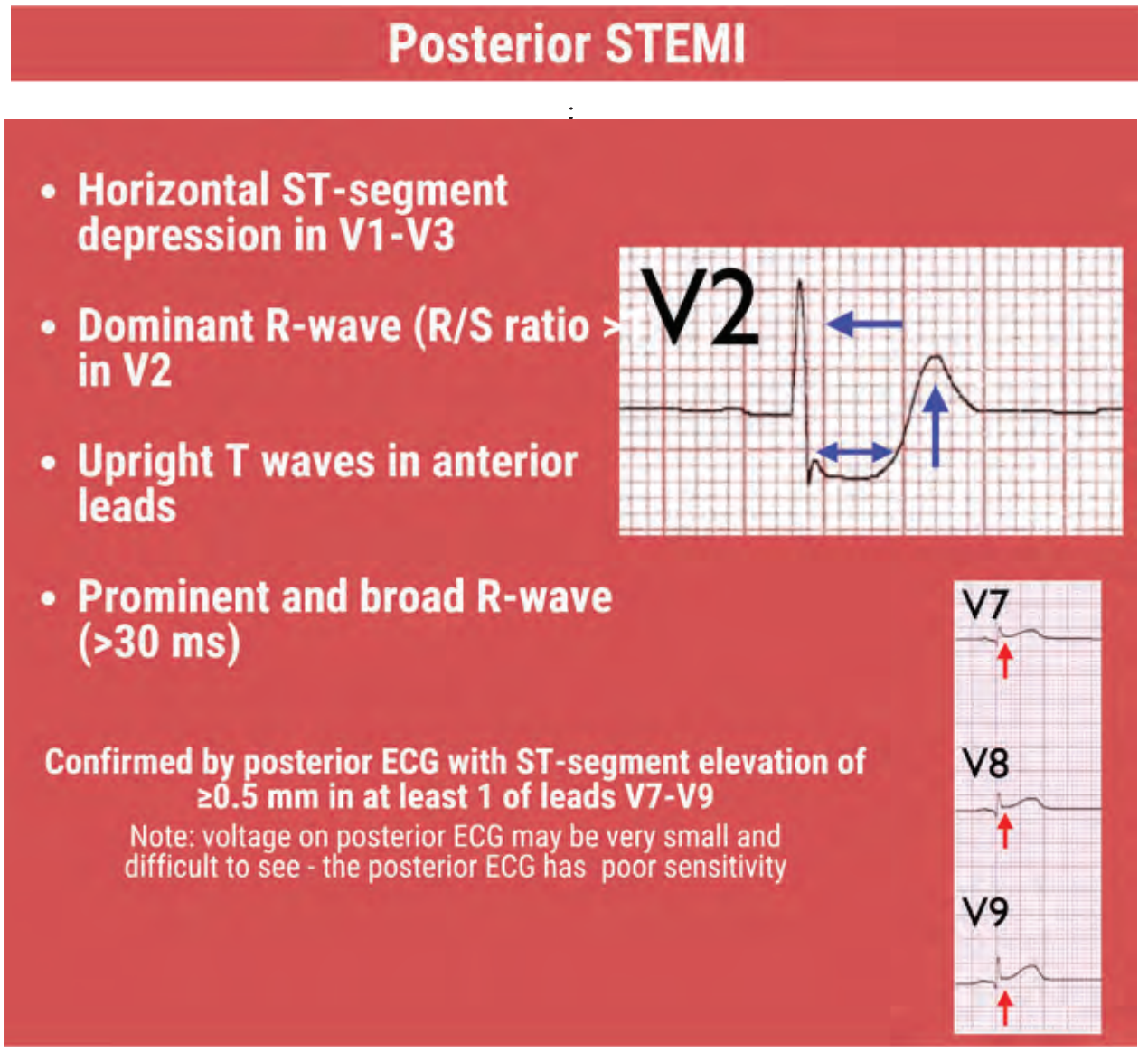

FIGURE 1

Posterior STEMI (see Figure 1)—Although isolated posterior STEMIs are rare, emergent reperfusion for patients with posterior STEMI is intuitive and hopefully routine practice. Only now, however, is this ECG pattern officially recognized as a STEMI equivalent. No standard ECG leads overlie the posterior wall of the heart, so ischemia in this territory appears as

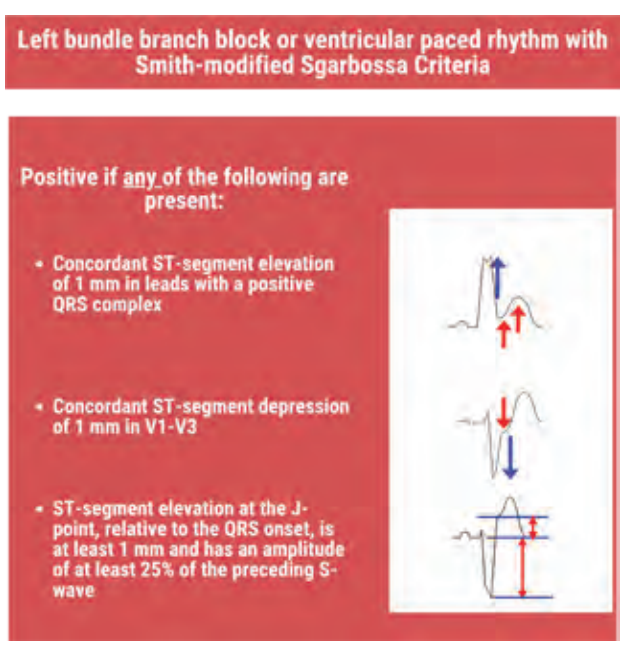

FIGURE 2

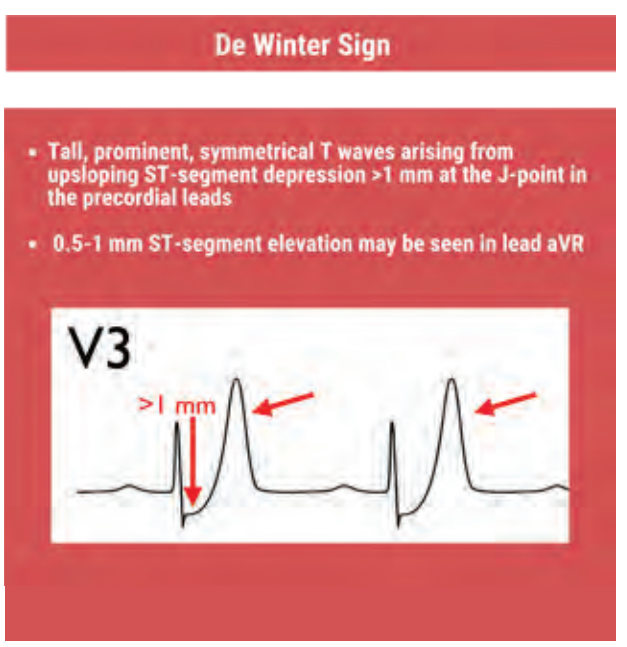

FIGURE 3

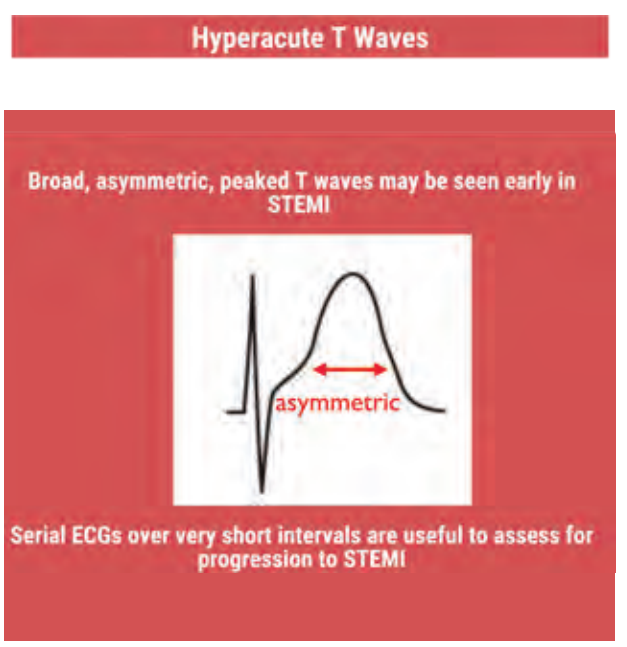

FIGURE 4

FIGURES BY LAUREN WESTAFER

ST-segment depression in leads V1-V4. Criteria include:

- Horizontal ST-segment depression in leads V1-V3, a dominant R wave (R/S ratio >1) in lead V2
- Upright T waves in anterior leads
- A prominent and broad R-wave >30 ms

A posterior ECG with ST-segment elevation in leads V7-V9 may confirm posterior STEMI; however, absence of ≥0.5 mm of elevation in these leads is imperfect and, if an ECG meets other criteria for posterior STEMI, should be treated as such.[6]

LBBB or ventricular paced rhythm (VPR) with Sgarbossa or Smith-modified Sgarbossa criteria (see Figure 2)— The presence of an LBBB or VPR distorts the ST segments without necessarily indicating ischemia. Nearly two decades ago, the Sgarbossa criteria were published, allowing clinicians to diagnose ischemia in the presence of LBBB.[7,8] Smith et al., further modified the Sgarbossa criteria to improve sensitivity and specificity for occlusion amenable to reperfusion.[8,9] The ACC consensus statement states that patients with a LBBB or VPR who have ECG changes meeting Sgarbossa or Smith-modified Sgarbossa criteria should be treated as a "STEMI."[5] Although the consensus statement does not recommend one criterion over the other, the Smith-modified Sgarbossa criteria boasts somewhat better diagnostic ability and may be easier to use since there is no need to score points.[9]

de Winter Sign (see Figure 3)—Although described in two percent of cases of anterior myocardial infarction, the tall, symmetrical T waves in precordial leads arising from upsloping ST-segment depression, bearing the eponym of de Winter's sign, were only described 14 years ago.[11] This pattern is indicative of proximal left anterior descending artery occlusion.

- Tall, prominent, symmetrical T waves arising from upsloping ST-segment depression >1 mm at the J-point in the precordial leads
- Slight (0.5-1 mm) ST-segment elevation may be seen in lead aVR

Hyperacute T waves (see Figure 4)—For the past five years, the European Society of Cardiology guidelines has recommended patients with hyperacute T waves and a clinical suspicion of myocardial ischemia receive emergent reperfusion therapy.[10] Hyperacute T waves often represent early signs of occlusion, preceding ST elevation. Specifically, hyperacute T waves are large, relative to the QRS, have a wide base with a rounded peak, and can be associated with other signs of ischemia. These T waves can be tricky to identify as there are several causes of peaked T waves, and are the likeliest of the new STEMI equivalents to cause the most anxiety for emergency clinicians.

- Broad, asymmetric, peaked T waves may be seen early in STEMI and often evolve into STEMI on serial ECGs

Which ischemic findings don't make the cut?

Several other ECG findings of acute and subacute ischemia exist. The ACC consensus statement recognizes that ischemia may appear in other forms on ECGs, including Wellen's syndrome, ischemic T wave inversion or ST-segment depression, and ST-segment elevation in lead aVR with multilead ST-depression. In a minority of these cases, OMI may be present.[5] At this time, they recommend that patients with these ischemic ECG patterns be managed according to the 2014 AHA guidelines for the management of non-ST segment ACS.[12] In other cases where the ECG may have ischemic findings not meeting previously named criteria, the document recommends serial ECGs, emergent echocardiogram, and/or emergent cardiology consultation.

What now?

Unfortunately, critical changes in guidelines often lack robust implementation plans to ensure that the frontline clinician can quickly integrate the guidelines into practice. Although the ACC consensus statement unequivocally recommends that patients with one of these four STEMI equivalents be treated as a STEMI, institutional and systemic barriers exist. As prehospital systems, hospital systems, and catherization lab teams work to respond to these new criteria, it is critical that emergency physicians integrate these criteria into clinical practice immediately because, after all, time is myocardium.

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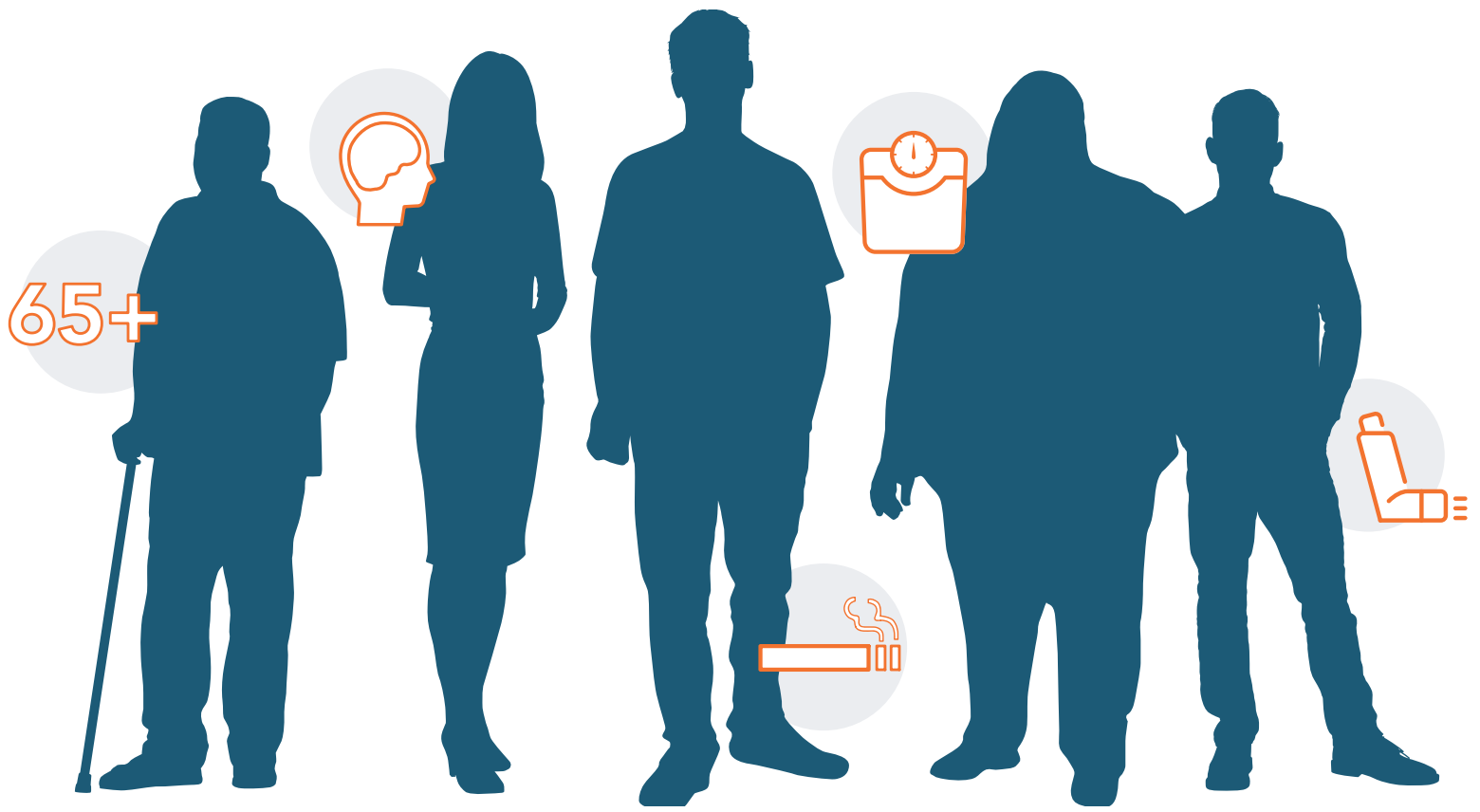

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