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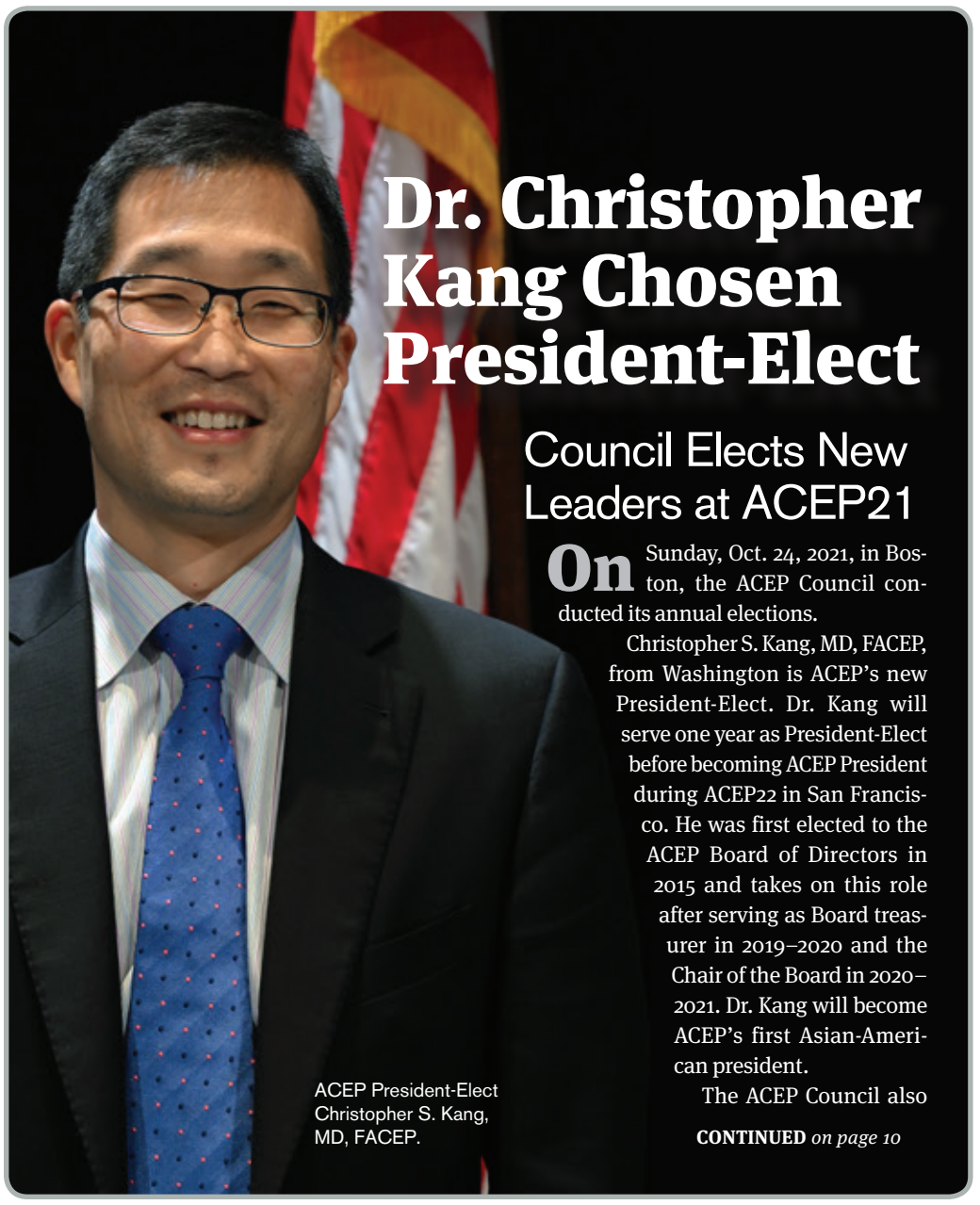

Dr. Christopher Kang Chosen President-Elect

Council Elects New Leaders at ACEP21

On Sunday, Oct. 24, 2021, in Boston, the ACEP Council conducted its annual elections.

Christopher S. Kang, MD, FACEP, from Washington is ACEP's new President-Elect. Dr. Kang will serve one year as President-Elect before becoming ACEP President during ACEP22 in San Francisco. He was first elected to the ACEP Board of Directors in 2015 and takes on this role after serving as Board treasurer in 2019–2020 and the Chair of the Board in 2020–2021. Dr. Kang will become ACEP's first Asian-American president.

The ACEP Council also

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ACEP President-Elect Christopher S. Kang, MD, FACEP.

ITP or VITT?

Rare but emerging conditions associated with COVID-19 vaccines

by GLENN GOODWIN, DO; CHARLES LATIMORE, MD; AND ANNALEE BAKER, MD, FACEP

Living up to its former name, *idiopathic* thrombocytopenic purpura, the pathophysiology of what is now currently called *immune* thrombocytopenic purpura (ITP) remains somewhat enigmatic. A multitude of inciting factors have been identified, from infections and drugs to vaccinations and autoimmune conditions.[1] Although most any vaccine can potentially trigger ITP, the alarming, emerging condition of vaccine-induced thrombotic thrombocytopenia (VITT) appears to have a specific link to the novel coronavirus (COVID-19) vaccines.[2] While both clinical entities can present with signs and symptoms of thrombocytopenia, the pathophysiology and clinical management differ in significant ways. A predisposition to thrombosis, even in the setting of critical thrombocytopenia, distinguishes VITT from ITP and poses particular diagnostic and therapeutic challenges in the emergency department.

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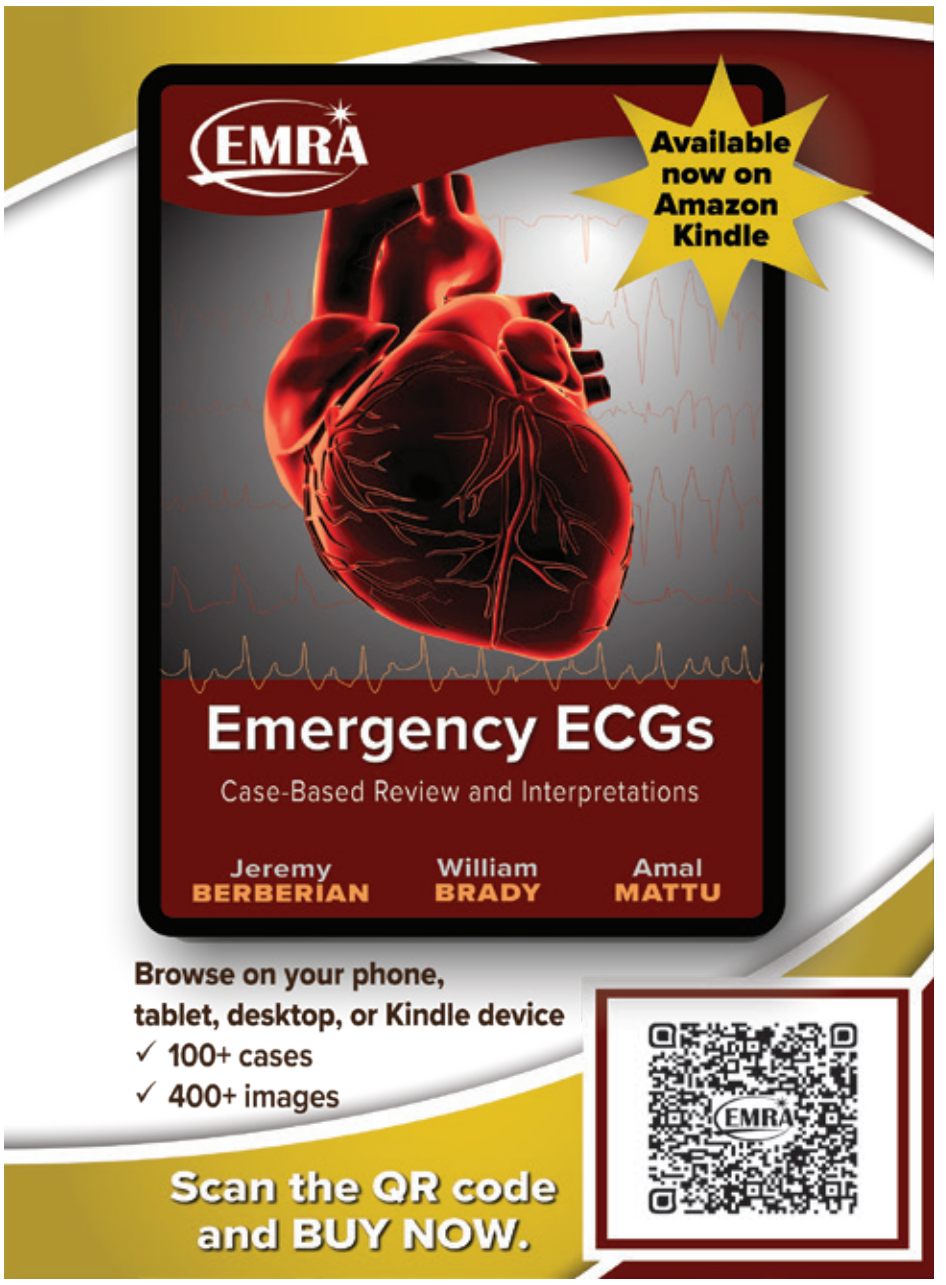

ITP CASE

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In this article, a case of COVID-19 vaccine–induced ITP will be discussed in contrast with COVID-19 vaccine–induced VITT.

The Case

A 34-year-old man with a past medical history of diabetes mellitus type II, hypertension, and hyperlipidemia presented to the emergency department for bleeding lesions in his mouth. The lesions began as painless, flat purple discolorations several days prior to his ED visit. They progressed in size and number, and when they began bleeding, he sought emergency care. He otherwise felt well. The patient reported that he had received his second dose of the Moderna COVID-19 vaccine one day prior to the lesions appearing and three days prior to presenting to the emergency department. He denied any adverse reactions to the first dose of vaccine or prior history of bleeding or easy bruising. Review of systems was negative for fevers, chills, weakness, fatigue, abdominal pain, hematemesis, dark tarry stools, or hematuria. He also denied any illicit drug abuse or history of alcoholism, cancer, and HIV. His initial vital signs were normal.

On physical exam, there were two hemorrhagic bullae in the buccal region of his mouth, approximately 2 cm in diameter, and scattered petechiae on his right shoulder and bilateral lower extremities (see Figure 1). The remainder of his exam was normal. Initial bloodwork revealed a normal comprehensive metabolic panel except for a glucose of 265 mg/dL. C-reactive protein was elevated at 3.7 mg/L. Erythrocyte sedimentation rate was normal at 14 mm/hr. Complete blood count revealed a platelet value of $1x10^3/\mu L$, teardrop cells, and ovalocytes but was otherwise unremarkable. Coagulation studies were all normal, as was fibrinogen, but his D-dimer was mildly elevated at 285 ng/ml DDU (normal <250).

Clinical Course and Resolution

The patient was presumptively diagnosed with ITP, thought to be precipitated by the vaccine. He was immediately given intravenous immunoglobulin (IVIg) 1 gm/kg and methylprednisolone 60 mg IV. A CT scan of his brain was performed. A second tube of blood was sent to confirm the initial findings. The patient was promptly admitted to the ICU and underwent further workup, including HIV testing, flow cytometry of peripheral blood, hepatitis testing, antinuclear antibody (ANA) testing, and bone marrow biopsy with interventional radiology. ANA was positive at 1.4 (normal 0–0.9), and imaging revealed splenomegaly but unremarkable flow cytometry. The patient responded well to IVIg and high-dose IV steroids. He was subsequently discharged with oral prednisone after six days, with a platelet count of $285x10^3/\mu L$.

Discussion

While ITP has long been established in the medical literature, the novel COVID-19 viral infection and its respective vaccines, treatments, and side effects are still being studied across the globe. Both the illness itself and the remarkably effective vaccines have been associated with disruptions in the coagulation cascade.[3] Discoveries and developments in these arenas are occurring almost daily. Currently, there are three COVID-19 vaccines approved by the Food and Drug Administration (FDA) for use in the United States: Pfizer-BioNtech, Moderna, and Johnson & Johnson.[4–6]

The Johnson & Johnson vaccine utilizes an adenovirus vector and is the only single-dose formulation.[4–6] The Pfizer and Moderna formulations, by contrast, are each delivered in a two-shot regimen and have been heavily scrutinized as the first vaccines to employ the long-studied messenger RNA (mRNA) vector technology. In these vaccines, a genetically engineered mRNA molecule coding for the immunogenic coronavirus spike protein is encapsulated in a lipid nanoparticle, which facilitates cellular uptake, transport to ribosomes in the endoplasmic reticulum, and subsequent translation to endogenously produced spike protein.[7] The mRNA is then rapidly degraded, decomposing within the cell, while the spike protein stimulates activated T cells to mount a protective immune response without the risk of active infection. While mRNA vaccine technology is relatively new in the world of vaccines, this method of treatment has been studied for years and successfully utilized in the treatment of certain cancers and genetic diseases.[7,8]

The pathogenesis of COVID-19 is complex and not fully understood. Thrombotic complications of the illness have been widely reported in patients with COVID-19, and early data suggest that the endogenous spike protein created by the vaccine response (whether by mRNA or adenovirus vector) could confer some risk of thrombotic and/or bleeding complications as well.[9–13] One theory posits that the spike protein binds to the angiotensin-converting enzyme 2 receptors on endothelial cells, resulting in a pro-thrombotic cascade.[9,10] It must be emphasized, however, that the data are conflicting and still emerging. Additionally, these effects were seen most compellingly with the AstraZeneca vaccine, which is not currently approved for use in the United States.[8,9]

Putting aside the undefined risk of the vaccine-induced spike protein response, the pathogenesis of COVID-19 vaccine–induced VITT does also seem to share pathophysiology with another well-established condition, heparin-induced thrombocytopenia (HIT). In almost every case of COVID-19 vaccine–related VITT, high levels of antibodies to platelet factor 4 (PF4)–polyanion complexes were identified.[9,13] The same PF4 complexes are typically detected in patients with HIT, in which heparin binds to PF4, creating a heparin-PF4 complex, which is then recognized and bound by IgG, resulting in platelet activation, binding, and destruction.[14] It is theorized that the spike protein may similarly bind PF4, resulting in the same platelet activation, binding, and destruction, but this has not been definitively proven.[9]

Practically speaking, when facing a recently vaccinated patient with thrombocytopenia, how can emergency physicians differentiate between ITP and VITT, and why does it matter?

As the name implies, the difference lies in whether the patient is also experiencing or at risk of *thrombosis* in the presence of their *thrombocytopenia*, a phenomenon not seen in classic ITP. It must be stressed, however, that clinical signs of thrombosis may be elusive. In the event of venous thromboembolism (VTE), signs include classic evidence of deep vein thrombosis (DVT) or pulmonary embolism (PE), such as unilateral extremity pain/swelling, chest pain, and dyspnea. In other less common sites of thrombosis, such as cerebral venous sinus thrombosis (CVST), signs may be subtle, including headache, vomiting, or visual changes, with or without a focal neurological deficit. Given that thrombosis can occur at any site in the body, the best initial approach includes a thorough history and physical plus full review of systems, with additional testing targeted by individual findings and clinical suspicion. In the *absence* of overt clinical signs of thrombosis, another promising method to screen for VITT is by checking D-dimer levels.[9] In a patient with post-vaccination thrombocytopenia, a D-dimer of >2,000 ng/mL with strong clinical suspicion of thrombosis or a D-dimer of >4,000 ng/mL alone makes a strong case for VITT. If these criteria are met, one can reasonably begin treatment while awaiting a more definitive diagnosis in consultation with Hematology. The diagnosis of VITT can be firmly established with a PF4 ELISA assay, which is unlikely to be available on-site in many hospitals. By contrast, D-dimer levels are widely available and will *not* typically be grossly elevated in ITP (some studies suggest minor elevations but nowhere near the several thousand threshold for VITT diagnosis), rendering it an excellent discerning piece of evidence.[9,16,17]

Determining whether a patient has COVID-19 vaccine–induced ITP versus VITT is critical when choosing a treatment algorithm. As detailed in Table 1 below, treatment pathways for each condition are distinct. It should be noted that there have not been nearly enough cases to definitively substantiate all aspects of proposed VITT treatment algorithms, but the following table represents expert consensus regarding best practice for early therapy in COVID-19 vaccine–related VITT.[9]

While the pathophysiologies of VITT and HIT are similar, the treatments do diverge slightly. Because HIT is caused by heparin, the first step is to discontinue it. The relatively short half-life of heparin renders HIT relatively reversible and treatable.[18–20] Once heparin has been discontinued, treatment with non-heparin anticoagulants (warfarin or direct oral anticoagulants) should be initiated because the HIT antibody continues to activate platelets, leading to their binding, thrombosis, and destruction. Anticoagulation should generally be continued

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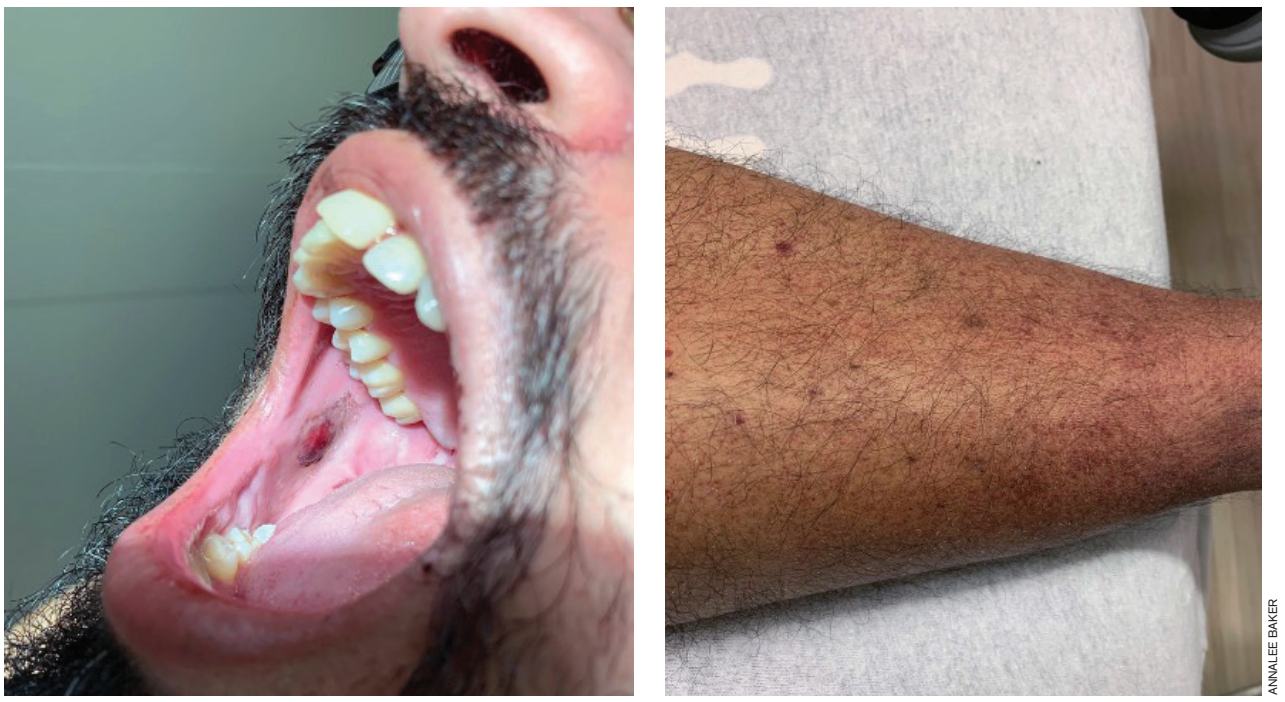
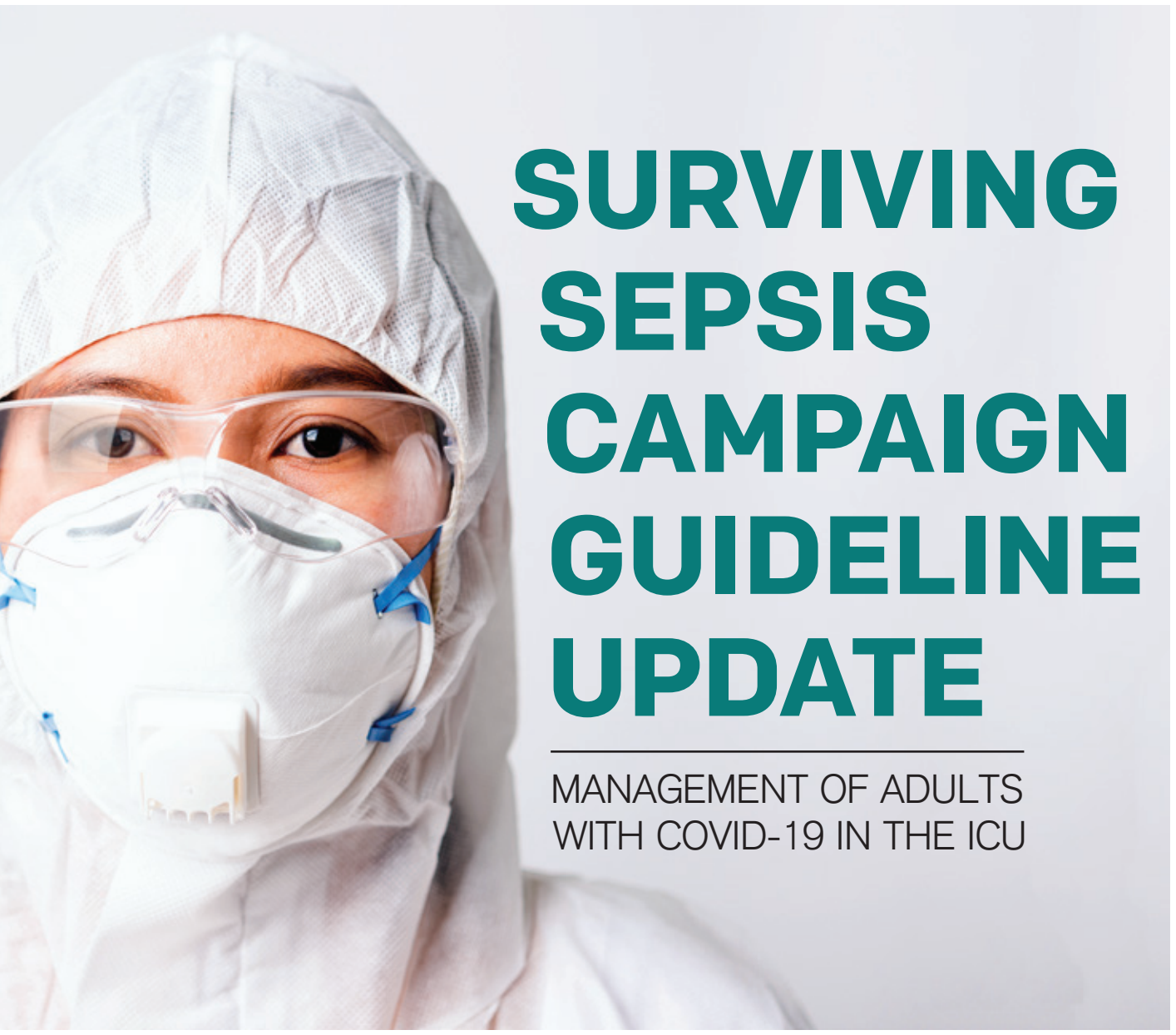


ANNALEE BAKER

Figure 1: Clinical findings included hemorrhagic bullae in the buccal region of the patient's mouth (left) and scattered petechiae on his lower extremities (right).

KEY POINTS

- There are extremely rare side effects associated with the three FDA-approved COVID-19 vaccines.
- Utilize D-dimer to differentiate between vaccine-induced ITP and VITT in the emergency department.
- Differentiating between vaccine-induced ITP and VITT is important because these entities require different interventions and management.



SURVIVING SEPSIS CAMPAIGN GUIDELINE UPDATE

MANAGEMENT OF ADULTS WITH COVID-19 IN THE ICU

SHUTTERSTOCK.COM

by SEAN HICKEY, MD; AND MELISSA VILLARS, MD, MPH

Editors' Note: *This article was accepted on Sept. 7, 2021, and was accurate at that time. Because information about COVID-19 is evolving rapidly, please verify these recommendations and information.*

The COVID-19 pandemic continues to affect billions throughout the world. The rapidly growing evidence base creates a challenge for clinicians worldwide. The dynamic nature of this evidence further makes it difficult to create timely clinical guidelines, which are normally created on the scale of months to years. Thus, professional societies have adjusted their methods on how to develop guidelines during the pandemic.

The ACEP Clinical Policies Committee regularly assesses the guidelines produced by other medical specialty societies facilitated by a presentation and discussion led by the Emergency Medicine Residents' Association (EMRA) representative to the Clinical Policies Committee. In light of the pandemic, the Surviving Sepsis Campaign created a dedicated panel, the Surviving Sepsis Campaign (SCC) COVID-19 panel, to establish and maintain guidelines to address the ever-growing body of evidence. Here we will briefly examine the "Surviving sepsis campaign guidelines on the management of adults with coronavirus disease 2019 (COVID-19) in the ICU."

Guideline Process

The SSC implemented a living guideline model to provide continually updated guidance on the treatment of COVID-19. The panel released its original guideline on the management of COVID-19 in June 2020 with a subsequent update published in March 2021.[1,2] The SSC COVID-19 panel includes a diverse range of experts from guideline development, infection control, infectious diseases and microbiology, critical care, hematology and thrombosis, surgery,

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emergency medicine, nursing, pharmacy, and public health. Eight new members were added to the panel from the prior iteration. All members had to disclose their conflict of interests (COI) and were not able to vote if they had a COI related to the guideline question. The panel utilized the GRADE methodology and the Evidence to Decision (EtD) Framework to develop the recommendations.[3,4] The EtD Framework provides a structured approach that helps make the assessment and integration of the evidence, and other patient-centered considerations more systematic and explicit to generate rigorous recommendations.

Professional medical librarians performed a literature search through Cochrane Central Register of Controlled Trials and the National Library of Medicine's MEDLINE databases. Trained reviewers screened the literature search and removed duplicates. Random-effects meta-analysis was done when applicable, based upon the data. The GRADE approach was utilized to assess the quality of evidence.[3] Only direct evidence (evidence generated from studies on COVID-19) was included in the March 2021 update, as opposed to the prior guideline which included indirect evidence (evidence from more general disease process such as acute respiratory distress syndrome). The exception to this is questions regarding anticoagulation, as direct evidence was not available.

The guideline utilizes "we recommend" for strong recommendations and "we suggest" for weak recommendations. Ultimately three new recommendations and six updated recommendations were added to the prior SSC COVID-19 guidelines. New and updated recommendations will be forthcoming as the COVID-19 evidence base grows in accordance with the above stated living guideline methodology.

Briefly, the guideline recommends against the use of hydroxychloroquine and therapeutic anticoagulation; suggests against convalescent plasma; recommends the use of pharmacologic venous thromboembolism prophylaxis and corticosteroids, suggesting dexamethasone as the corticosteroid choice; and suggests remdesivir in severe COVID-19 patients not needing mechanical ventilation. See Table 1 for a summary of the guideline updates.

The guideline uses the WHO definition of severe covid which, in adults, includes clinical signs of pneumonia plus one of the following: respiratory rate >30 breaths/min; severe respiratory distress; or SpO_2 <90 percent on room air.[5]

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DR. HICKEY is EMRA Representative to the Clinical Policies Committee 2019–2021. **DR. VILLARS** is EMRA Representative to the Clinical Policies Committee 2021–2022.

Table 1: SSC COVID-19 Guidelines

PREVIOUS SSC COVID-19 GUIDELINE	NEW SSC COVID-19 GUIDELINE	
Recommendation/Statement	**Recommendation/Statement**	**Justification**
VENTILATIONS		
Not applicable	1. There is insufficient evidence to issue a recommendation on the use of awake prone positioning in nonintubated adults with severe COVID-19.	• Uncertainty about the balance between benefit and harm • Awaiting the results of ongoing RCTs
THERAPY		
No recommendation	2. For adults with severe or critical COVID-19, we recommend against using hydroxychloroquine (strong recommendation).	• Moderate-quality evidence showed no effect on mortality or need for mechanical ventilation
In mechanically ventilated adults with COVID-19 and respiratory failure (without ARDS), we suggest against the routine use of systemic corticosteroids. In mechanically ventilated adults with COVID-19 and ARDS, we suggest using systemic corticosteroids over not using corticosteroids.	3. For adults with severe or critical COVID-19, we recommend using a short course of systemic corticosteroids over not using corticosteroids (strong recommendation).	• High-quality evidence showing reduction in death • Minimal adverse effects with short course of corticosteroids • Corticosteroids are affordable and widely available
Not applicable	4. For adults with severe or critical COVID-19 who are considered for systemic corticosteroids, we suggest using dexamethasone over other corticosteroids (weak recommendation). *Remark:* If dexamethasone is not available, clinicians may use other corticosteroids in doses equivalent to 6 mg daily of dexamethasone for up to 10 days.	• There are no trials comparing different corticosteroids with each other • Dexamethasone was associated with the largest treatment effect compared to no corticosteroids • Dexamethasone is widely available • It remains unclear whether this is a class effect or drug-specific effect
In critically ill adults with COVID-19, we suggest against the routine use of convalescent plasma.	5. For adults with severe or critical COVID-19, we suggest against the use convalescent plasma outside clinical trials (weak recommendation).	• Low-quality evidence from RCTs showed no improvement in outcomes • Awaiting the results of large ongoing RCT*
No recommendation	6. For adults with severe COVID-19 who do not require mechanical ventilation, we suggest using IV remdesivir over not using it (weak recommendation). *Remark:* Remdesivir should ideally be started within 72 hours of positive severe acute respiratory syndrome coronavirus 2 polymerase chain reaction or antigen testing.	• The result of a placebo-controlled trial showed a large reduction in time to recovery and hospital stay • Subgroup analysis from the three trials showed a discordant effect on mortality, suggesting a possible reduction in death in patients who are not invasively ventilated • Despite cost and limited availability, we believe that many patients, if presented with data, would prefer to receive remdesivir
No recommendation	7. For adults undergoing mechanical ventilation for critical COVID-19, we suggest against starting IV remdesivir (weak recommendation).	• Limited data on the effect of remdesivir on outcomes of mechanically ventilated patients • Until more data is available, current costs and limited drug availability favor a weak recommendation against its use in this population
Not applicable	8. For adults with severe or critical COVID-19, we recommend using pharmacologic VTE prophylaxis over not using prophylaxis (strong recommendation).	• High-quality indirect evidence from non-COVID-19 population shows that VTE prophylaxis is superior to no prophylaxis • VTE rates are higher in COVID-19 population
Not applicable	9. For adults with severe or critical COVID-19 and no evidence of VTE, we suggest against the routine use of therapeutic anticoagulation outside of clinical trials (weak recommendation, very low quality evidence).	• Awaiting the publication of ongoing RCTs

ARDS = acute respiratory distress syndrome, RCT = randomized controlled trial, VTE = venous thromboembolism.

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* Editor's note: The data regarding COVID changes rapidly. A large RCT, the C3PO trial, showed negative effects of convalescent plasma in August 2021.[6]

until platelet values normalize, but there still is no clear consensus on this timing.[20] Interestingly, IVIg has shown positive results in select cases of HIT, but in practice. it is rarely required.[21] Additionally, there has typically been no role of steroids or rituximab in the treatment of HIT, further differentiating it from management of VITT.[19-21]

Conclusion

Despite the rare, emerging hematologic complications of both COVID-19 and the novel coronavirus vaccines, the massive benefit of the COVID-19 vaccines cannot be understated. These exceptional vaccines have prevented millions of infections and continue to save lives around the world.

In determining the risk-benefit ratio of administering the vaccine to patients with pre-existing risk factors for ITP and VITT, such as prior history of ITP or HIT, the data are still emerging, and decisions must be made on a case-by-case basis. Patients with prior history of autoimmune disease or ITP would be well-advised to seek counsel from their rheumatologist or hematologist, respectively. Clinicians must carefully weigh the dangers and susceptibility of their patients with regards to COVID-19 infection against the extremely rare complications observed with the vaccines. The incidence of symptomatic thrombocytopenia post-vaccination is well below the risk of death and morbidity from COVID-19.[3] When patients do present with sudden and significant thrombocytopenia post-vaccination, the emergency physician must understand the difference between ITP and VITT and actively investigate clinical signs of thrombosis. In the absence of a newly diagnosed thrombosis, the astute emergency physician may consider checking a D-dimer in order to properly diagnose the cause of thrombocytopenia before initiating therapy for ITP or VITT.

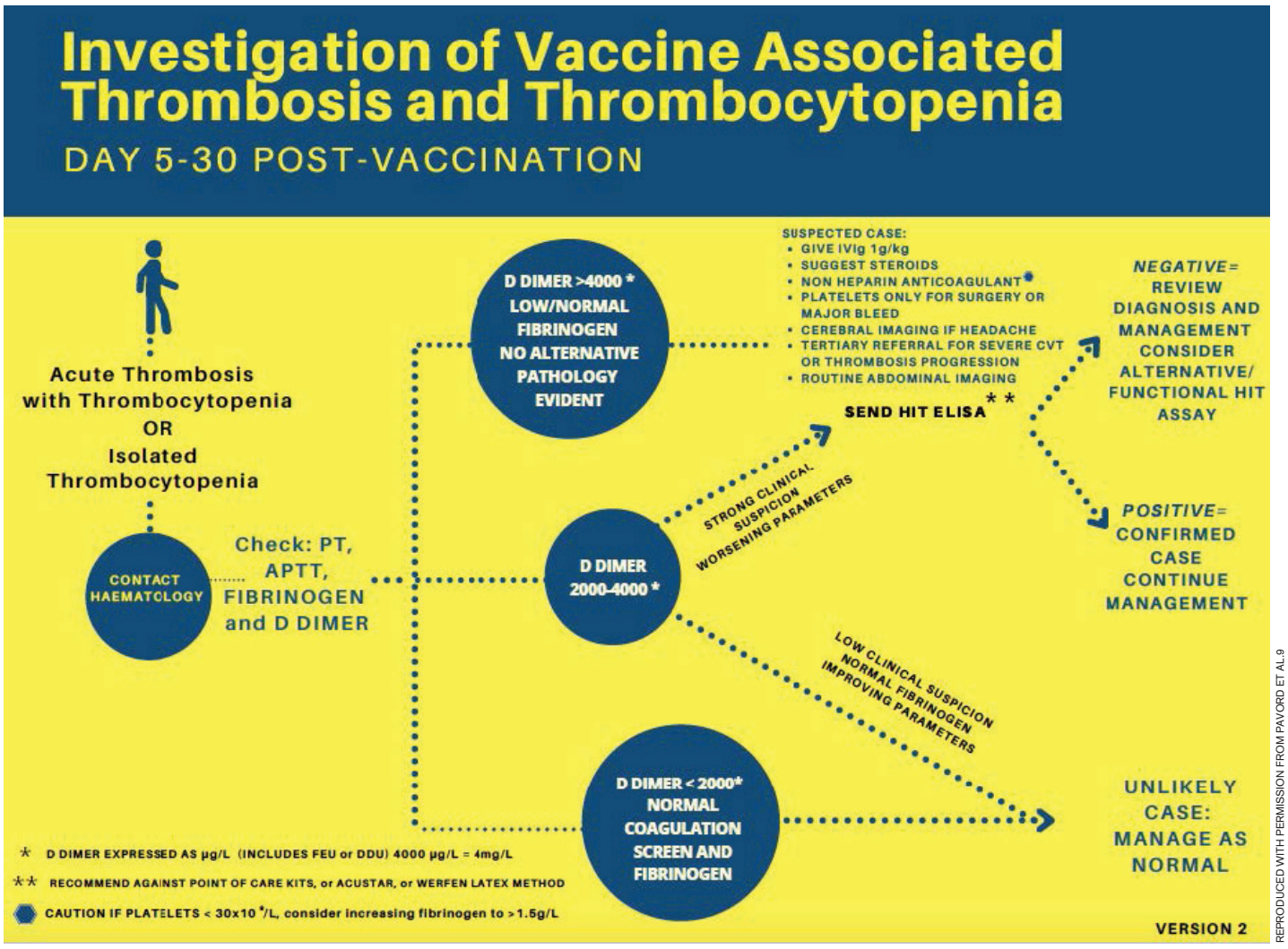

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Table 1: Management of COVID-19 Vaccine–Related ITP vs. VITT[1,9]

COVID-19 VACCINE–RELATED ITP	COVID-19 VACCINE–RELATED VITT
Platelet count >30,000/µL and no bleeding • Observation Platelet count <30,000/µL and no bleeding • IV corticosteroids • Add IVIg if steroids contraindicated or refractory to steroid treatment Platelet count <30,000/µL and bleeding or high risk of bleeding • Corticosteroids plus IVIg • Consider adding anti-D (WinRho SDF, Rhophylac) or thrombopoietin receptor agonists (TPO-RAs) Platelet count <50,000/µL and critical bleeding or platelet count <10,000/µL • IVIg plus corticosteroids + platelet transfusion • Splenectomy if refractory to IVIg + corticosteroids + platelet transfusion Refractory to all treatments • Romiplostim (Nplate) and eltrombopag (Promacta)	All VITT cases • Give fibrinogen concentrate or cryoprecipitate to keep fibrinogen level >1.5 g/L Platelet count <100,000/µL with no evidence of thrombosis (clot or elevated D-dimer) • IVIg (≥1 dose) • Consider adding: » IV corticosteroids » Direct oral anticoagulants (DOACs), fondaparinux, danaparoid, or argatraban for thromboprophylaxis (balance risk of bleeding/thrombosis) Platelet count <30,000/µL or evidence of thrombosis • IVIg (≥1 dose) • IV corticosteroids • Anticoagulant with non-heparin-based therapies such as DOACs, fondaparinux, danaparoid, or argatraban (balance risk of bleeding/thrombosis) Platelet count <30,000/µL with extensive thrombosis OR refractory to DOACs + IVIg + corticosteroids • Plasma exchange Refractory to all above treatments • Add rituximab Cerebral venous sinus thrombosis • Skip IVIg and go straight to plasma exchange + high-dose corticosteroids + neuroradiology/neurosurgery consult

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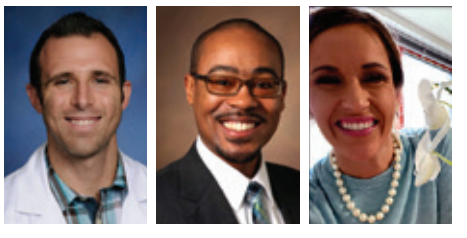


DR. GOODWIN and **DR. LATIMORE** are PGY2 emergency medicine residents at Aventura Hospital and Medical Center in Miami. **DR. BAKER** is residency program director and associate professor of emergency medicine at NYU Grossman School of Medicine in New York City.

The bugs are back in town.

It's time for a syndromic approach to respiratory season.

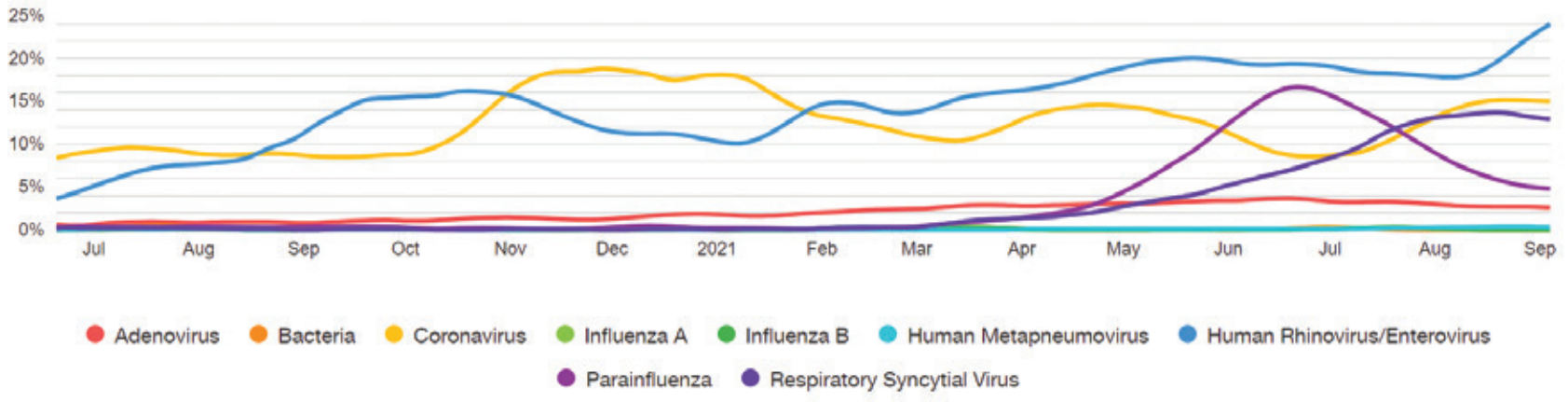
While SARS-CoV-2 continues to be a serious threat, the other, familiar respiratory pathogen culprits are back on the rise. Fortunately, the BioFire® Respiratory 2.1 (RP2.1) Panel lets you test for 22 common respiratory pathogens at once, helping you avoid missing important bugs like adenovirus and RSV. As we approach an uncertain respiratory season, make sure your emergency department is prepared with a fast, accurate, and comprehensive respiratory panel.

Syndromic testing is the process of using one test to simultaneously target multiple pathogens with overlapping signs and symptoms. The BioFire RP2.1 Panel utilizes multiplex PCR to target a comprehensive grouping of pathogens, including SARS-CoV-2, that could be causing a respiratory tract infection.

According to the most recent BioFire RP2.1 Panel data from BioFire® Syndromic Trends:

- As SARS-CoV-2 positivity continues, other respiratory pathogens are re-emerging.
- Positive detections of adenovirus, parainfluenza virus 3, and rhinovirus/enterovirus are increasing as compared to previous months.
- An uncharacteristic increase in RSV positivity has been observed. In high RSV activity regions, the CDC has issued a recommendation for RSV testing in patients with signs and symptoms of a respiratory tract infection that test negative for COVID-19. Learn more here. https://emergency.cdc.gov/han/2021/han00443.asp

Respiratory Pathogen Trends (RP2.1)



With so much more than SARS-CoV-2 and influenza at play, respiratory season will require creative thinking, focused effort, and a sensitive, specific testing strategy based on proven technology. Rapid answers on a broad range of pathogens can inform patient management and alleviate patients and staff alike. A BioFire® Respiratory Panel has been shown to:

Produce a 93.8% drop in turnaround time
compared to standard clinician-ordered testing.[1]

Increase number of patients receiving a result while in the ED by 38.2%
compared to batch testing.[2]

Demonstrate 98.4% PPA and 98.9% NPA for SARS-CoV-2, and 97.1% sensitivity and 99.3% specificity overall.[3]

It's a brand new world out there. Get ahead of it with help from a syndromic frontline testing solution. Learn more about the BioFire RP2.1 Panel at biofiredx.com/filmarrayrp.

To learn more about BioFire Syndromic Trends, and monitor the evolving respiratory pathogen landscape in near-real-time, visit syndromictrends.com.

BIOFIRE®
BY BIOMÉRIEUX

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3. BioFire RP2.1 Panel only. Overall performance based on prospective SARS-COV-2 clinical study for the BioFire® Respiratory 2.1 Panel in comparison to 3 EUA tests, Data on file, BioFire Diagnostics.

BFR0001-5594-01

RESIDENCY SPOTLIGHT

NEW YORK PRESBYTERIAN QUEENS

Instagram: @nypq_em | **Location:** Flushing, New York | **Year Founded:** 2004 | **Number of residents:** 28 | **Program length:** 3 years

What makes your department a unique place to learn emergency medicine?

We see approximately 130,000 patients per year. Our residents train in a busy Level 1 trauma center, stroke center, and gold-star STEMI center. The high volume and high-acuity patients coupled with the fact that we're a smaller program create an incredible environment to learn how to care for multiple sick patients simultaneously. It is the perfect place for active learners who like to push themselves and learn by doing.

Everyone—attendings, residents, scribes, and nurses—has great relationships inside and outside the hospital. This is clearly evident by the number of people who were residents here and stay on as core faculty and the fact that two of our former scribes are returning as interns next year.

Queens is one of the most diverse places in the world. What kinds of challenges and opportunities does this present?

Approximately 42 percent of our patients do not speak English as their primary language, with Chinese, Spanish, and Russian being the most common. We use video interpreters or our ancillary staff to help translate the more common languages. The majority of our patients come from blue-collar immigrant families, do not speak English, and rely on their children as their conduit for translation and health care decision making. This can create a role reversal in family power dynamics that can be difficult for the parents. In these instances, it's especially important to ensure that patients and families are on the same page regarding what is the patient's desire and what is in their best interest.

By being exposed to such a diverse population, we have an incredible opportunity to gain insight into cultural differences. Developing a strong cultural competency enables us to deliver high-quality health care to patients from myriad backgrounds. Further, since we're situated between two major airports, we see a good number of international travelers through our emergency department. You've got to keep your differential extremely broad and have a high level of suspicion for infectious diseases that you probably wouldn't see elsewhere.

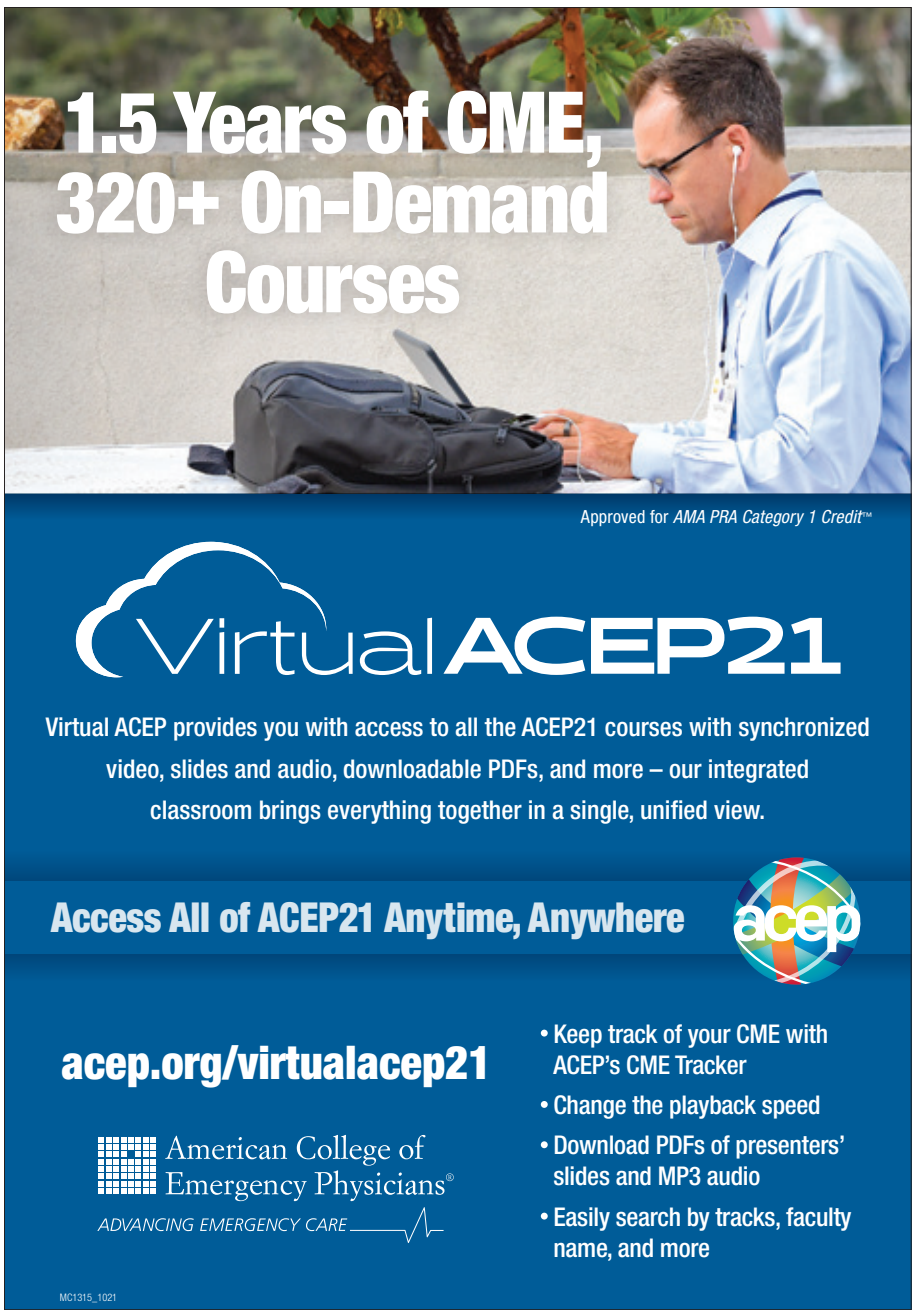
NEW YORK PRESBYTERIAN QUEENS

Residents in front of the Unisphere in Flushing Meadows Corona Park in Queens.

Recent Publications

1. William P, Huang V. Critical cases in orthopedics and trauma: proximal phalanx fracture. *Crit Decis Emerg Med*. 2020;34(10):16-17.
2. Del Greco G, Brady K, Clark B, et al. A novel pediatric multisystem inflammatory syndrome during the COVID-19 pandemic. *Pediatr Emerg Care*. 2020;36(10):500-504.
3. Riekena J, Lee I, Lui A, et al. A case report: co-presenting Covid-19 infection and acute drug intoxication. *Clin Pract Cases Emerg Med*. 2020;4(3):340-343.

—Marvin Mempin, MD, FACEP, assistant program director



Presidential Historian Draws Parallel Between Past and Present Hardships at ACEP21

BOSTON—Renowned presidential historian Doris Kearns Goodwin covered a lot of territory during the ACEP21 opening general session, "Leadership During Turbulent Times." She and ACEP President Gillian Schmitz, MD, FACEP, looked at a number of modern-day topics—stress, conflict management, consolidation, resilience, and more—through a historical lens to identify tactics from the past that can help manage the challenges of today.

Ms. Goodwin's most recent book focuses on the unique paths of four presidents whom she fondly refers to as "my guys"—Abraham Lincoln, Theodore Roosevelt, Franklin Roosevelt, and Lyndon B. Johnson. During her keynote, she drew on her in-depth knowledge of each leader to discuss how they managed stress and overcame failures.

Looking for a direct comparison to our current circumstances, Ms. Goodwin laid the stage for the hardships Teddy Roosevelt faced as he was starting his presidency: "The industrial revolution has shaken up the economy, much like globalization and the tech revolution have done today. And for the first time, you have a gap between the rich and the poor. You have big companies swallowing small companies and a real sense of anger out in the streets... The people in the country feel split off from the people in the city."

She explained that both the leaders of yesterday and today are navigating times of incredible uncertainty and unrest. History shows us "they were living with the same anxiety we're living with now," Ms. Goodwin explained. "I think it can give us hope that our generations before us faced more difficult times, and somehow the strength of leadership and the strength of the people responding to that leadership got us through. We can do it again."

When Dr. Schmitz talked with Ms. Goodwin about the current climate of increasing consolidation in the health care and insurance industries, Ms. Goodwin compared it to Teddy Roosevelt's experience during the Industrial Revolution. As larger companies were eating up smaller companies, she said Teddy Roosevelt realized the people in government have to fight for the people—not the unions, not the barons. She called this concept he was fighting for "fundamental fairness," and it's still highly relevant today.

"Maybe that's the fight that you guys are going to have to fight," Ms. Goodwin said to the audience. "Something's happening in this country today, where these big mergers are taking place, and they're not necessarily giving us the efficiency and the fairness. It's fundamental fairness that I think [Teddy Roosevelt] was asking for. And that's what the square deal was.

CONTINUED *on page 9*

By the Numbers

WORKPLACE INJURIES

IN 2019, HOSPITALS REPORTED

5.5

WORKPLACE INJURIES/ILLNESSES PER 100 EMPLOYEES

– more than construction or manufacturing

2.2

WORKPLACE INJURIES/ILLNESSES PER 100 EMPLOYEES RESULTED IN DAYS OFF WORK

HOSPITAL WORKPLACE INJURIES

54%

are sprains and strains

PHYSICIANS INCURRED

44%

of ED needle stick injuries, in one study

78%

of emergency physicians and residents have experienced workplace violence

21%

of these violent acts were physical assaults

Visit **ACEPNow.com** for the sources of these statistics.

PRESIDENTIAL HISTORIAN

CONTINUED FROM PAGE 8

It was for the rich and the poor, the capitalists and the wage worker. And that's what we need to be fighting for."

Ms. Goodwin and Dr. Schmitz went on to talk about how leaders cope with stress, and it turns out each president put his own flavor on the modern-day concept of "self-care." Abraham Lincoln sought refuge in the theater. Ms. Goodwin said President Lincoln was criticized for his attending shows so frequently, but "he said 'If I didn't do it, the anxiety would kill me.'"

For Teddy Roosevelt, he insisted on two hours of daily exercise during his worst times of crisis. And then there was FDR, who instituted daily cocktail parties during which guests were forbidden to talk about the war. That scheduled social hour was his mental reprieve.

She encouraged ACEP attendees to prioritize whatever activities help them mentally escape the daily hardships of the emergency department, especially during the pandemic. "We only have a finite amount of mental energy and it has to be replenished by those kinds of activities."

Dr. Schmitz asked Ms. Goodwin the age-old question: "Leaders: Are they born or made?" And Ms. Goodwin was thoughtful in her response.

"I think all of [these presidents] would agree, and I would argue that most leaders make themselves leaders, despite some of the gifts they might be given... Teddy Roosevelt wrote an essay in which he said, there's two kinds of success in the world. The first is if you're born with such an extraordinary talent... He put himself in the second category, one when people take ordinary qualities to an extraordinary degree through hard sustained work."

She went on to explain: "That drive for success has to be there... And then if you're lucky, you've got some gifts that you can turn into extraordinary qualities. Even if they're not extraordinary to begin with, they become talents that people will recognize."

A single 1500-mg dose of DALVANCE provides a **full course of therapy**,[1] helping your patients avoid hospitalization for daily ABSSSI treatment

Free to go Dalvance® (dalbavancin) for injection 500 mg

INDICATION AND USAGE

DALVANCE® (dalbavancin) for injection is indicated for the treatment of adult and pediatric patients with acute bacterial skin and skin structure infections (ABSSSI) caused by designated susceptible strains of Gram-positive microorganisms: *Staphylococcus aureus* (including methicillin-susceptible and methicillin-resistant isolates), *Streptococcus pyogenes*, *Streptococcus agalactiae*, *Streptococcus dysgalactiae*, *Streptococcus anginosus* group (including *S. anginosus*, *S. intermedius*, *S. constellatus*) and *Enterococcus faecalis* (vancomycin-susceptible isolates).

To reduce the development of drug-resistant bacteria and maintain the effectiveness of DALVANCE and other antibacterial agents, DALVANCE should be used only to treat or prevent infections that are proven or strongly suspected to be caused by susceptible bacteria.

IMPORTANT SAFETY INFORMATION

Contraindications

DALVANCE is contraindicated in patients with known hypersensitivity to dalbavancin.

Please see additional Important Safety Information on next page.
Please also see Brief Summary of full Prescribing Information on adjacent page or visit https://www.rxabbvie.com/pdf/dalvance_pi.pdf.

elected four members to the ACEP Board of Directors:

- L. Anthony Cirillo, MD, FACEP (incumbent), from Rhode Island
- J.T. Finnell II, MD, MSc, FACEP (incumbent), from Indiana
- Rami R. Khoury, MD, FACEP, from Michigan
- Heidi C. Knowles, MD, FACEP, from Texas

These Board members will serve three-year terms that expire in October 2024.

Kelly Gray-Eurom, MD, MMM, FACEP, from Florida is the new Council Speaker. She takes on this role after serving as Vice-Speaker since 2019. She will serve a two-year term.

ACEP Council elected Melissa W. Costello, MD, MS, FACEP, FAEMS, from Alabama as its new Vice Speaker. She will serve a two-year term.

It's a historic moment for ACEP Council leadership. This marks the first time the Council has elected women to serve as its Speaker and Vice Speaker concurrently.

Council Conducts Hybrid Meeting; Considers Record Number of Practice, Clinical Issues

The 2021 ACEP Council considered 82 resolutions—the most ever—during its annual meeting Oct. 23–24, including proposals related to scope of practice, rural emergency medicine, clinical issues, and emergency medicine practice trends.

This year's Council meeting was a hybrid experience, with some members of Council in person in Boston and others participating and voting online. The ACEP Council represents all 53 chapters, 40 sections of membership, the Association of Academic Chairs of Emergency Medicine, the Council of Emergency Medicine Residency Directors, the Emergency Medicine Residents' Association, and the Society for Academic Emergency Medicine.

The resolutions adopted by the Council are not official policy until approved by the ACEP Board of Directors.

The full compendium of resolutions under consideration can be found at www.acep.org/council.

The 2021 Council adopted these resolutions, with some amended or substituted:

- Amended Resolution 10(21): Board of Directors Action on Council Resolutions—Bylaws Amendment
- Resolution 12(21): Permitting Bylaws Amendments on the Unanimous Consent Agenda—Council Standing Rules Bylaws Amendment
- Resolution 14(21): Establishing a Young Physician Position on the ACEP Nominating Committee
- Amended Resolution 18(21): Change to ACEP Conflict of Interest Statement
- Substitute Resolution 19(21): Clear and Complete Conflict of Interest Disclosure at the Council Meeting
- Resolution 21(21): Diversity, Equity, and Inclusion
- Resolution 22(21): Expanding Diversity

IMPORTANT SAFETY INFORMATION (continued)

Warnings and Precautions

Hypersensitivity Reactions
Serious hypersensitivity (anaphylactic) and skin reactions have been reported with glycopeptide antibacterial agents, including DALVANCE. Exercise caution in patients with known hypersensitivity to glycopeptides due to the possibility of cross-sensitivity. If an allergic reaction occurs, treatment with DALVANCE should be discontinued.

Infusion-related Reactions
Rapid intravenous infusion of DALVANCE can cause reactions, including flushing of the upper body, urticaria, pruritus, rash, and/or back pain.

Hepatic Effects
ALT elevations with DALVANCE treatment were reported in clinical trials.

***Clostridioides difficile*-associated Diarrhea**
Clostridioides difficile-associated diarrhea (CDAD) has been reported with nearly all systemic antibacterial agents, including DALVANCE, with severity ranging from mild diarrhea to fatal colitis. Evaluate if diarrhea occurs.

Development of Drug-resistant Bacteria
Prescribing DALVANCE in the absence of a proven or strongly suspected bacterial infection or a prophylactic indication is unlikely to provide benefit to the patient and increases the risk of the development of drug-resistant bacteria.

Adverse Reactions
The most common adverse reactions in adult patients treated with DALVANCE in Phase 2/3 trials were nausea (5.5%), headache (4.7%), and diarrhea (4.4%). The most common adverse reaction that occurred in more than 1% of pediatric patients was pyrexia (1.2%).

Use in Specific Populations

- There are no adequate and well-controlled studies with DALVANCE use in pregnant or nursing women. The developmental and health benefits of breastfeeding should be considered along with the mother's clinical need for DALVANCE and any adverse effects on the breast-fed child from DALVANCE or from the underlying maternal condition.
- In patients with renal impairment whose known creatinine clearance (CLcr) is less than 30 mL/min and who are not receiving regularly scheduled hemodialysis, the recommended regimen of DALVANCE is 1125 mg, administered as a single dose, or 750 mg followed one week later by 375 mg. No dosage adjustment is recommended for patients receiving regularly scheduled hemodialysis, and DALVANCE can be administered without regard to the timing of hemodialysis. There is insufficient information to recommend dosage adjustment for pediatric patients younger than 18 years of age with CLcr less than 30 mL/min/1.73m^2.
- Caution should be exercised when prescribing DALVANCE to patients with moderate or severe hepatic impairment (Child-Pugh Class B or C) as no data are available to determine the appropriate dosing in these patients.

Please also see Brief Summary of full Prescribing Information on adjacent page or visit https://www.rxabbvie.com/pdf/dalvance_pi.pdf.

Reference: 1. DALVANCE® (dalbavancin) [prescribing information]. Madison, NJ: Allergan USA, Inc.; 2021.

abbvie

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Free to go Dalvance® (dalbavancin) for injection 500 mg

and Inclusion in Educational Programs
- Amended Resolution 23(21): Media Marketing of Value of Emergency Medicine Board Certification
- Amended Resolution 26(21): Advocacy for Syringe Services Programs and Fentanyl Test Strips
- Substitute Resolution 28(21): Consumer Awareness Through Classification of Emergency Departments
- Amended Resolution 29(21): Downcoding
- Resolution 30(21): Unfair Health Plan Payment Policies
- Amended Resolution 31(21): Employment-Retaliation, Whistleblower, Wrongful Termination
- Amended Resolution 32(21): Firearm Ban in EDs Excluding Active Duty Law Enforcement
- Resolution 33(21): Formation of a National Bureau for Firearm Injury Prevention

Newly elected ACEP leaders (from left) Rami R. Khoury, MD, FACEP; J.T. Finnell, II, MD, MSc, FACEP; Melissa W. Costello, MD, MS, FACEP, FAEMS; Christopher S. Kang, MD, FACEP; Kelly Gray-Eurom, MD, MMM, FACEP; Heidi C. Knowles, MD, FACEP; and L. Anthony Cirillo, MD, FACEP.

- Resolution 34(21): Global Budgeting for Emergency Physician Reimbursement in Rural and Underserved Areas
- Resolution 36(21): Mitigating the Unintended Consequences of the CURES Act
- Amended Resolution 38(21): Prehospital Oversight and Management of Patients Experiencing Hyperactive Delirium with Severe Agitation
- Substitute Resolution 41(21): Take Home Naloxone Programs in Emergency Departments (in lieu of Resolutions 40 and 41)
- Resolution 42(21): Administration of COVID-19 Vaccines in the Emergency Department
- Resolution 44(21): Caring for Transgender and Gender Diverse Patients in the Emergency Department
- Resolution 46(21): Effects of EM Practice Ownership on the Costs and Quality of Emergency Care
- Amended Resolution 48(21): Financial Incentives to Reduce ED Crowding
- Amended Resolution 50(21): Harms of Marijuana
- Amended Resolution 52(21): Standardization of Medical Screening Exams of Arrested Persons Brought to the ED
- Amended Resolution 54(21): Understanding the Effects of Law Enforcement Presence in the Emergency Department
- Amended Resolution 55(21): Patient Experience Scores
- Amended Resolution 56(21): Race-Based Science and Detrimental Impact on Black, Indigenous, and People of Color Communities
- Amended Resolution 57(21): Social Determinants of Health Screening in the Emergency Department
- Resolution 58(21): Updating and Enhancing ED Buprenorphine Treatment Training and Support
- Amended Resolution 59(21): Use of Medical Interpreters in the Emergency Department
- Amended Resolution 60(21): Accountable Organizations to Resident and Fellow Trainees
- Substitute Resolution 61(21): Advocating for a Required Emergency Medicine Experience at All U.S. Medical Schools
- Amended Resolution 62(21): Support of Telehealth Education in Emergency Medicine Residency
- Amended Resolution 63(21): Physician-Led Team Leader Training
- Amended Resolution 64(21): Rural Emergency Medicine Education and Recruitment
- Amended Resolution 65(21): Rural Provider Support and a Call for Data
- Amended Resolution 70(21): Creation of Specialized Scope Expansion Advocacy Teams for State Level Advocacy
- Amended Resolution 72(21): Fair Compensation to Emergency Physicians for Collaborative Practice Agreements & Supervision
- Amended Resolution 74(21): Regulation by State Medical Boards of All Who Engage in Practice of Medicine
- Resolution 81(21): Leon L. Haley, Jr. Award
- Amended Resolution 82(21): Defining the Job Description of an Emergency Physician

Adopted in Part:

- Resolution 49(21): Forced EMS Diversion
- Amended Resolution 47(21): Family and Medical Leave

Referred to the Council Steering Committee:

- Resolution 15(21): Member Determined Council Representation

Referred to the ACEP Board of Directors:

- Resolution 37(21): Physician Pay Ratio
- Substitute Resolution 66(21): ACEP Promotion of Emergency Physician Led Teams (in lieu of Resolutions 66, 67, and 76)
- Resolution 73(21): Offsite Supervision of Nurse Practitioners and Physician Assistants ⊕

DALVANCE® (dalbavancin) for injection, for intravenous use

PROFESSIONAL BRIEF SUMMARY
CONSULT PACKAGE INSERT FOR FULL PRESCRIBING INFORMATION

INDICATION AND USAGE

Acute Bacterial Skin and Skin Structure Infections

DALVANCE® is indicated for the treatment of adult and pediatric patients with acute bacterial skin and skin structure infections (ABSSSI) caused by designated susceptible strains of the following Gram-positive microorganisms: *Staphylococcus aureus* (including methicillin-susceptible and methicillin-resistant isolates), *Streptococcus pyogenes*, *Streptococcus agalactiae*, *Streptococcus dysgalactiae*, *Streptococcus anginosus* group (including *S. anginosus*, *S. intermedius*, *S. constellatus*) and *Enterococcus faecalis* (vancomycin susceptible isolates).

Usage

To reduce the development of drug-resistant bacteria and maintain the effectiveness of DALVANCE and other antibacterial agents, DALVANCE should be used only to treat or prevent infections that are proven or strongly suspected to be caused by susceptible bacteria. When culture and susceptibility information are available, they should be considered in selecting or modifying antibacterial therapy. In the absence of such data, local epidemiology and susceptibility patterns may contribute to the empiric selection of therapy.

CONTRAINDICATIONS

DALVANCE is contraindicated in patients with known hypersensitivity to dalbavancin.

WARNINGS AND PRECAUTIONS

Hypersensitivity Reactions

Serious hypersensitivity (anaphylactic) and skin reactions have been reported in patients treated with DALVANCE. If an allergic reaction to DALVANCE occurs, discontinue treatment with DALVANCE and institute appropriate therapy for the allergic reaction. Before using DALVANCE, inquire carefully about previous hypersensitivity reactions to other glycopeptides. Due to the possibility of cross-sensitivity, carefully monitor for signs of hypersensitivity during treatment with DALVANCE in patients with a history of glycopeptide allergy *[see Patient Counseling Information]*.

Infusion-Related Reactions

DALVANCE is administered via intravenous infusion, using a total infusion time of 30 minutes to minimize the risk of infusion-related reactions. Rapid intravenous infusions of DALVANCE can cause flushing of the upper body, urticaria, pruritus, rash, and/or back pain. Stopping or slowing the infusion may result in cessation of these reactions.

Hepatic Effects

In Phase 2 and 3 clinical trials, more DALVANCE than comparator-treated subjects with normal baseline transaminase levels had post-baseline alanine aminotransferase (ALT) elevation greater than 3 times the upper limit of normal (ULN). Overall, abnormalities in liver tests (ALT, AST, bilirubin) were reported with similar frequency in the DALVANCE and comparator arms *[see Adverse Reactions]*.

***Clostridioides difficile*-Associated Diarrhea**

Clostridioides difficile-associated diarrhea (CDAD) has been reported in users of nearly all systemic antibacterial drugs, including DALVANCE, with severity ranging from mild diarrhea to fatal colitis. Treatment with antibacterial agents can alter the normal flora of the colon, and may permit overgrowth of *C. difficile*.

C. difficile produces toxins A and B which contribute to the development of CDAD. Hypertoxin-producing strains of *C. difficile* cause increased morbidity and mortality, as these infections can be refractory to antibacterial therapy and may require colectomy. CDAD must be considered in all patients who present with diarrhea following antibacterial use. Careful medical history is necessary because CDAD has been reported to occur more than 2 months after the administration of antibacterial agents.

If CDAD is suspected or confirmed, ongoing antibacterial use not directed against *C. difficile* should be discontinued, if possible. Appropriate measures such as fluid and electrolyte management, protein supplementation, antibacterial treatment of *C. difficile*, and surgical evaluation should be instituted as clinically indicated.

Development of Drug-Resistant Bacteria

Prescribing DALVANCE in the absence of a proven or strongly suspected bacterial infection or a prophylactic indication is unlikely to provide benefit to the patient and increases the risk of the development of drug-resistant bacteria.

ADVERSE REACTIONS

The following clinically significant adverse reactions are also discussed elsewhere in the labeling:

- Hypersensitivity Reactions *[see Warnings and Precautions]*
- Infusion Related Reactions *[see Warnings and Precautions]*
- Hepatic Effects *[see Warnings and Precautions]*
- *Clostridioides difficile*-associated Diarrhea *[see Warnings and Precautions]*

Clinical Trials Experience

Because clinical trials are conducted under widely varying conditions, adverse reaction rates observed in clinical trials of DALVANCE cannot be directly compared to rates in the clinical trials of another drug and may not reflect rates observed in practice.

Clinical Trials Experience in Adult Patients

Adverse reactions were evaluated for 2473 patients treated with DALVANCE: 1778 patients were treated with DALVANCE in seven Phase 2/3 trials comparing DALVANCE to comparator antibacterial drugs and 695 patients were treated with DALVANCE in one Phase 3 trial comparing DALVANCE single and two-dose regimens. The median age of patients treated with DALVANCE was 48 years, ranging between 16 and 93 years. Patients treated with DALVANCE were predominantly male (59.5%) and White (81.2%).

Serious Adverse Reactions and Adverse Reactions Leading to Discontinuation

Serious adverse reactions occurred in 121/2473 (4.9%) of patients treated with any regimen of DALVANCE. In the Phase 2/3 trials comparing DALVANCE to comparator, serious adverse reactions occurred in 109/1778 (6.1%) of patients in the DALVANCE group and 80/1224 (6.5%) of patients in the comparator group. In a Phase 3 trial comparing DALVANCE single and two-dose regimens, serious adverse reactions occurred in 7/349 (2.0%) of patients in the DALVANCE single dose group and 5/346 (1.4%) of patients in the DALVANCE two-dose group. DALVANCE was discontinued due to an adverse reaction in 64/2473 (2.6%) patients treated with any regimen of DALVANCE. In the Phase 2/3 trials comparing DALVANCE to comparator, DALVANCE was discontinued due to an adverse reaction in 53/1778 (3.0%) of patients in the DALVANCE group and 35/1224 (2.9%) of patients in the comparator group. In a Phase 3 trial comparing DALVANCE single and two-dose regimens, DALVANCE was discontinued due to an adverse reaction in 6/349 (1.7%) of patients in the DALVANCE single dose group and 5/346 (1.4%) of patients in the DALVANCE two-dose group.

Most Common Adverse Reactions

The most common adverse reactions in patients treated with DALVANCE in Phase 2/3 trials were nausea (5.5%), headache (4.7%), and diarrhea (4.4%). The median duration of adverse reactions was 3.0 days in patients treated with DALVANCE. In the Phase 2/3 trials comparing DALVANCE to comparator, the median duration of adverse reactions was 3.0 days for patients in the DALVANCE group and 4.0 days in patients in the comparator group. In a Phase 3 trial comparing DALVANCE single and two-dose regimens, the median duration of adverse reactions was 3.0 days for patients in the DALVANCE single and two-dose group.

Table 1 lists selected adverse reactions occurring in 2% or more of patients treated with DALVANCE in Phase 2/3 clinical trials.

Table 1. Selected Adverse Reactions Occurring in ≥ 2% of Patients Receiving DALVANCE in Phase 2/3 Trials (Number (%) of Patients)

Adverse Reactions	DALVANCE (N = 1778)	Comparator* (N = 1224)
Nausea	98 (5.5)	78 (6.4)
Diarrhea	79 (4.4)	72 (5.9)
Headache	83 (4.7)	59 (4.8)
Vomiting	50 (2.8)	37 (3)
Rash	48 (2.7)	30 (2.4)
Pruritus	38 (2.1)	41 (3.3)

* Comparators included linezolid, cefazolin, cephalexin, and vancomycin.

In the Phase 3 trial comparing the single and two-dose regimen of DALVANCE, the adverse reaction that occurred in 2% or more of patients treated with DALVANCE was nausea (3.4% in the DALVANCE single dose group and 2% in the DALVANCE two-dose group).

The following selected adverse reactions were reported in DALVANCE treated patients at a rate of less than 2% in these clinical trials:
Blood and lymphatic system disorders: anemia, hemorrhagic anemia, leucopenia, neutropenia, thrombocytopenia, petechiae, eosinophilia, thrombocytosis
Gastrointestinal disorders: gastrointestinal hemorrhage, melena, hematochezia, abdominal pain
General disorders and administration site conditions: infusion-related reactions
Hepatobiliary disorders: hepatotoxicity
Immune system disorders: anaphylactic reaction
Infections and infestations: *Clostridioides difficile* colitis, oral candidiasis, vulvovaginal mycotic infection
Investigations: hepatic transaminases increased, blood alkaline phosphatase increased, international normalized ratio increased, blood lactate dehydrogenase increased, gamma-glutamyl transferase increased
Metabolism and nutrition disorders: hypoglycemia
Nervous system disorders: dizziness
Respiratory, thoracic and mediastinal disorders: bronchospasm
Skin and subcutaneous tissue disorders: rash, pruritus, urticaria
Vascular disorders: flushing, phlebitis, wound hemorrhage, spontaneous hematoma

Alanine Aminotransferase (ALT) Elevations

Among patients with normal baseline ALT levels treated with DALVANCE 17 (0.8%) had post baseline ALT elevations greater than 3 times the upper limit of normal (ULN) including five subjects with post-baseline ALT values greater than 10 times ULN. Among patients with normal baseline ALT levels treated with non-DALVANCE comparators 2 (0.2%) had post-baseline ALT elevations greater than 3 times the upper limit of normal. Fifteen of the 17 patients treated with DALVANCE and one comparator patient had underlying conditions which could affect liver enzymes, including chronic viral hepatitis, history of alcohol abuse and metabolic syndrome. In addition, one DALVANCE-treated subject in a Phase 1 trial had post-baseline ALT elevations greater than 20 times ULN. ALT elevations were reversible in all subjects with follow-up assessments. No comparator-treated subject with normal baseline transaminases had post-baseline ALT elevation greater than 10 times ULN.

Clinical Trials Experience in Pediatric Patients

Adverse reactions were evaluated in one Phase 3 pediatric clinical trial which included 161 pediatric patients from birth to less than 18 years of age with ABSSSI treated with DALVANCE (83 patients treated with a single dose of DALVANCE and 78 patients treated with a two-dose regimen of DALVANCE) and 30 patients treated with comparator agents for a treatment period up to 14 days. The median age of pediatric patients treated with DALVANCE was 9 years, ranging from birth to <18 years. The majority of patients were male (62.3%) and White (89.0%).

The safety findings of DALVANCE in pediatric patients were similar to those observed in adults.

Serious Adverse Reactions and Adverse Reactions Leading to Discontinuation

Serious adverse reactions (SARs) occurred in 3/161 (1.9%) of patients treated with DALVANCE, all in the single-dose arm. There were no adverse reactions leading to DALVANCE discontinuation.

Most Common Adverse Reactions

Most common adverse reaction occuring in more than 1% of pediatric patients 2/161 (1.2%) was pyrexia.

Other Adverse Reactions

The following selected adverse reactions were reported in DALVANCE-treated patients at a rate of less than 1% in this pediatric clinical trial:
Gastrointestinal disorders: diarrhea
Nervous system disorders: dizziness
Skin and subcutaneous tissue disorders: pruritus

Post Marketing Experience

The following adverse reaction has been identified during post-approval use of dalbavancin. Because the reaction is reported voluntarily from a population of uncertain size, it is not possible to reliably estimate the frequency or establish a causal relationship to drug exposure.

General disorders and administration site conditions: Back pain as an infusion-related reaction *[See Warnings and Precautions]*.

DRUG INTERACTIONS

Drug-Laboratory Test Interactions

Drug-laboratory test interactions have not been reported. DALVANCE at therapeutic concentrations does not artificially prolong prothrombin time (PT) or activated partial thromboplastin time (aPTT).

Drug-Drug Interactions

No clinical drug-drug interaction studies have been conducted with DALVANCE. There is minimal potential for drug-drug interactions between DALVANCE and cytochrome P450 (CYP450) substrates, inhibitors, or inducers.

USE IN SPECIFIC POPULATIONS

Pregnancy

Risk Summary

There are no adequate and well-controlled studies with DALVANCE use in pregnant women to evaluate for a drug-associated risk of major birth defects, miscarriage or adverse developmental outcomes.

No treatment-related malformations or embryo-fetal toxicity were observed in pregnant rats or rabbits at clinically relevant exposures of dalbavancin. Treatment of pregnant rats with dalbavancin at 3.5 times the human dose on an exposure basis during early embryonic development and from implantation to the end of lactation resulted in delayed fetal maturation and increased fetal loss, respectively *[see Data]*.

The estimated background risk of major birth defects and miscarriage for the indicated population is unknown. All pregnancies have a background risk of birth defect, loss, or other adverse outcomes. In the U.S. general population, the estimated background risk of major birth defects and miscarriage in clinically recognized pregnancies is 2% to 4% and 15% to 20%, respectively.

Data

Animal Data

No evidence of embryo or fetal toxicity was found in the rat or rabbit at a dose of 15 mg/kg/day (1.2 and 0.7 times the human dose on an exposure basis, respectively). Delayed fetal maturation was observed in the rat at a dose of 45 mg/kg/day (3.5 times the human dose on an exposure basis).

In a rat prenatal and postnatal development study, increased embryo lethality and increased offspring deaths during the first week post-partum were observed at a dose of 45 mg/kg/day (3.5 times the human dose on an exposure basis).

Lactation

Risk Summary

There are no data on the presence of dalbavancin or its metabolite in human milk, the effects on the breast-fed child, or the effects on milk production. Dalbavancin is excreted in the milk of lactating rats. When a drug is present in animal milk, it is likely that the drug will be present in human milk.

The developmental and health benefits of breastfeeding should be considered along with the mother's clinical need for DALVANCE and any potential adverse effects on the breast-fed child from DALVANCE or from the underlying maternal condition.

Pediatric Use

The safety and effectiveness of DALVANCE for the treatment of ABSSSI has been established in pediatric patients aged birth to less than 18 years. Use of DALVANCE for this indication is supported by evidence from adequate and well-controlled studies in adults with additional pharmacokinetic and safety data in pediatric patients aged birth to less than 18 years *[see Adverse Reactions]*.

There is insufficient information to recommend dosage adjustment for pediatric patients with ABSSSI and CLcr less than 30 mL/min/1.73m^2.

Geriatric Use

Of the 2473 patients treated with DALVANCE in Phase 2 and 3 clinical trials, 403 patients (16.3%) were 65 years of age or older. The efficacy and tolerability of DALVANCE were similar to comparator regardless of age. The pharmacokinetics of DALVANCE was not significantly altered with age; therefore, no dosage adjustment is necessary based on age alone.

DALVANCE is substantially excreted by the kidney, and the risk of adverse reactions may be greater in patients with impaired renal function. Because elderly patients are more likely to have decreased renal function, care should be taken in dose selection in this age group.

Renal Impairment

In patients with renal impairment whose known CLcr is less than 30 mL/min and who are not receiving regularly scheduled hemodialysis, the recommended regimen for DALVANCE is 1125 mg, administered as a single dose, or 750 mg followed one week later by 375 mg. No dosage adjustment is recommended for patients receiving regularly scheduled hemodialysis, and DALVANCE can be administered without regard to the timing of hemodialysis. There is insufficient information to recommend dosage adjustment for pediatric patients younger than 18 years with CLcr less than 30 mL/min/1.73m^2.

Hepatic Impairment

No dosage adjustment of DALVANCE is recommended for patients with mild hepatic impairment (Child-Pugh Class A). Caution should be exercised when prescribing DALVANCE to patients with moderate or severe hepatic impairment (Child-Pugh Class B or C) as no data are available to determine the appropriate dosing in these patients.

OVERDOSAGE

Specific information is not available on the treatment of overdose with DALVANCE, as dose-limiting toxicity has not been observed in clinical studies. In Phase 1 studies, healthy volunteers have been administered cumulative doses of up to 4500 mg over a period of up to 8 weeks (not an approved dosing regimen), with no signs of toxicity or laboratory results of clinical concern.

Treatment of overdose with DALVANCE should consist of observation and general supportive measures. Although no information is available specifically regarding the use of hemodialysis to treat overdose, in a Phase 1 study in patients with renal impairment less than 6% of the recommended dalbavancin dose was removed.

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Saying "I'm Sorry"

Several states protect physicians who apologize to patients or families—but be careful about admitting fault

by WILLIAM J. NABER, MD, JD

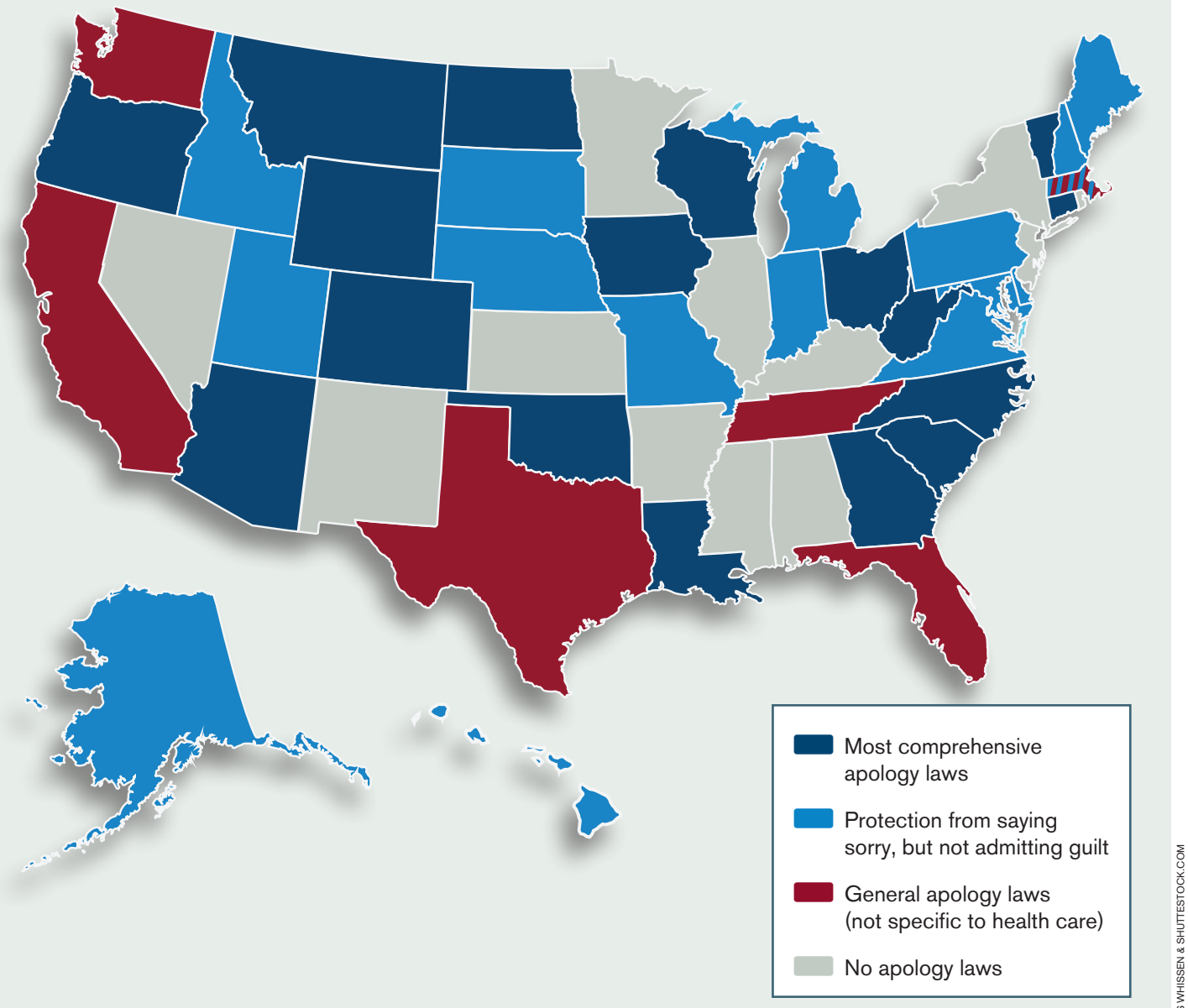
I have always strived to apologize when I thought someone was harmed by my actions. This is a lesson taught to children from their earliest days. When children begin to understand right from wrong, a parent will frequently ask the child to say, "I'm sorry," as part of this developmental process. As children grow and mature, the hope is that they will initiate this behavior on their own. As adults, we begin to say we are sorry for many events, such as loss of a loved one or other tragedies in people's lives.

This process and basic human quality are unfortunately flipped on their head in the medical world and in the emergency departments in which we all work.

When in the emergency department providing medical care, our human tendency to say we are sorry for tragic events is frequently restrained by the fear of litigation. We ask ourselves, "If I say I am sorry, will they think I am admitting guilt and sue me? Can they use this apology against me in court? Will hospital administration get mad at me for saying I'm sorry?" The questions and anxiety surrounding this can be paralyzing and prevent us from doing what is very likely the right thing. Fortunately, most states have enacted laws to protect the physician saying, "I'm sorry." They have variable protection, and knowing your state law is crucial. Also, there are institutions such as the Veterans Administration in Lexington, Kentucky, and University of Michigan that have full disclosure of error programs that involve apologizing for the error, root cause analysis on how it happened to prevent future errors, and offer of settlement. However, not all agree that apology laws make a significant decrease in litigation, and some say they can actually increase the incentive to sue when the patients hear the apology and think the clinician has committed malpractice.[1,2]

Medical malpractice rules are almost entirely based on state law because the litigation is done in state courts unless a federal statute is violated. Knowing the laws and practice patterns of your state(s) of practice is critical to understanding your protection around apology laws. The state laws really fall into four general categories: total protection, partial protection, general apology statutes, and no protection.[3] We will explore the differences in these categories and discuss the relevant clinical implications of them. Please remember to consult local legal experts for the details on how the written law is applied in your state jurisdiction.

Figure 1: "I'm Sorry" Laws by State



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"I'm Sorry" Laws by State

Those who live in Arizona, Colorado, Connecticut, Georgia, Iowa, Louisiana, Montana, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, South Carolina, Vermont, West Virginia, Wisconsin, and Wyoming as well as Washington, D.C., are covered by the most comprehensive apology laws (see Figure 1). I practice primarily in the State of Ohio, where Ohio Revised Code Section 2317.43 reads:

(A) (1) In any civil action brought by an alleged victim of an unanticipated outcome of medical care … ***any and all statements, affirmations, gestures, or conduct expressing apology, sympathy, commiseration, condolence, compassion, error, fault, or a general sense of benevolence that are made by a health care provider*** … that relate to the discomfort, pain, suffering, injury, or death of the alleged victim as the result of the unanticipated outcome of medical care ***are inadmissible as evidence of an admission of liability*** or as evidence of an admission against interest. [emphasis added]

Fortunately, with this broad protection, practitioners in Ohio can apologize with little fear that their words will be used against them. I have said I am sorry to many families over the years for unanticipated medical tragedies; to this day, I still feel it was the right thing to do. As proponents of the University of Michigan model would say, an open and honest discussion after these events has been shown to decrease the frustration felt by those affected; decrease the frequency of litigation; and, when harmed, decrease the settlement amounts.

The partial protection states include Alaska, Delaware, Hawaii, Idaho, Indiana, Maine, Massachusetts, Michigan, Missouri, Maryland, Nebraska, New Hampshire, Pennsylvania, South Dakota, Utah and Virginia. If you practice in these areas, you have protection from saying sorry but not if you admit guilt. If you admit wrongdoing, those statements can be admissible in court. The Michigan law, MCL Section 600.2155, reads:

(1) ***A statement***, writing, or action ***that expresses sympathy, compassion, commiseration, or a general sense of benevolence*** relating to the pain, suffering, or death of an individual … ***is inadmissible as evidence*** of an admission of liability in an action for medical malpractice.

(2) This section ***does not apply to a statement of fault***, negligence, or culpable conduct … [emphasis added]

If I was a practitioner in Michigan, I could still say I am sorry for the unanticipated medical outcome, but if I also said, "It was my fault," that could be used against me in any civil legal proceedings. The plaintiff's attor-

ney would question me around the admission of fault in a deposition and then at trial if needed. The University of Michigan exists in this legal system and feels its open and honest approach helps with families' need for transparency and the need for information on what happened to their loved one. There is some debate, however, on whether the University of Michigan's strong performance and quality improvement program, its approach to harm, or both have decreased the actual number of cases litigated.[4]

Some states take a more general approach to apology laws; those include California, Florida, Massachusetts, Tennessee, Texas, and Washington. These states are trying to protect the human need to apologize in much broader circumstances outside of health care. The Texas law, Section 18.061, reads, in part:

> **Communications of Sympathy** (a) A court in a civil action ***may not admit*** a ***communication that: (1) expresses sympathy*** or a general sense of benevolence relating to the pain, suffering, or death of an individual in an accident, (2) is made to the individual or a person related to the individual ... ***a communication***, including an excited utterance ... ***which includes ... statements concerning negligence*** ... pertaining to an accident or event, ***is admissible*** to prove liability of the communicator. [emphasis added]

Notice that the act of apology or expression of sympathy after an accident is protected here, but any admission of fault or negligence is not protected and admissible to prove liability. California's law and wording are very similar to Texas's; however, California specifically excludes the admissibility of any statement related to fault in an accident. Remember, these laws are general apology laws, not specific for health care, and their applicability to health care accidents will vary by state.

There are 12 states left that do not have formal apology laws: Alabama, Arkansas, Illinois, Kansas, Kentucky, Minnesota, Mississippi, New Jersey, Nevada, New Mexico, New York, and Rhode Island. If you practice in these states, there is no partial or full protection for apologies and admissions of fault. This lack of protection could lead to decreased communication between patients, families, doctors, and health systems. Families and patients may be compelled to seek legal counsel more often and initiate litigation to get the answers they need for their questions. Without adequate protection in these states, it would be very challenging, if not impossible, to follow the ACEP Policy Statement on Disclosure of Medical Errors.[3] It states, in part:

> If, after a careful review of all available relevant information, emergency physicians determine that a medical error has occurred during their care of a patient in the ED, they or appropriate designee should inform the patient in a timely manner ... and provide information about the error and its consequences following institutional and practice group policies and considering applicable state statures on this subject.

Do "I'm Sorry" Laws Offer Enough Protection?

As mentioned above, the Veterans Administration and the University of Michigan have instituted self-disclosure policies that involve an explanation if an error occurred, an apology, a settlement offer, and a systemic approach of quality improvement to prevent that error from happening again in the future. Both have stated that this approach has decreased the number of legal claims against the institutions. It seems that this type of system should be protected by all state laws and be the standard for medical error disclosure and the quality improvement needed so that an error never happens again. However, an article in the *Stanford Law Review* states, "Once a patient has been made aware that the physician has committed a medical error, the patient's incentive to pursue a claim may increase even though the apology itself cannot be introduced as evidence."[4] Similarly, an article in the *Lewis and Clark Law Review* states, "[Their research] shows that while apology laws may reduce the frequency and size of malpractice claims as intended, they may also have a perverse effect on patients' propensity to litigate ... an apology could alert the patient to that malpractice and encourage the filing of a claim."[5]

As a practicing physician out of residency for more than 25 years, I must admit it feels good to be able to apologize to families when an unexpected tragedy occurs during the course of medical care, even when I don't feel I am at fault. Being able to do that in my professional life mirrors what I strive to do in my private life and creates less internal conflict for me in these difficult situations. It seems unclear that apology and offers of settlement alone decrease litigation, but coupled with a system-based strong root-cause analysis and quality improvement program driving harm to zero, it can decrease all causes of system errors and malpractice.

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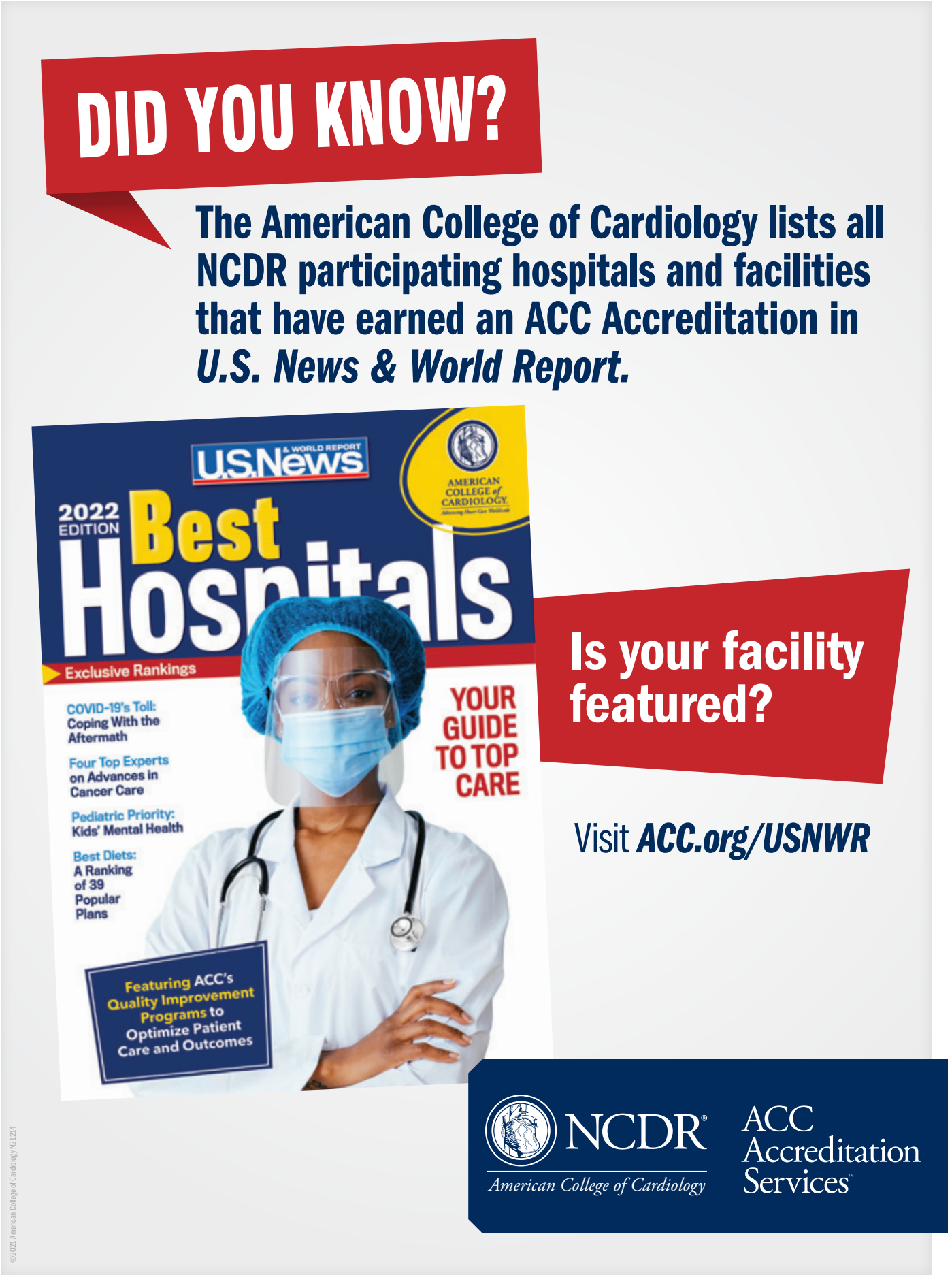

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SKEPTICS' GUIDE TO EMERGENCY MEDICINE

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Interphysician Weight Bias in the House of Medicine

Is this bias affecting how we interact with our colleagues?

by KEN MILNE, MD

The Case

You are sitting in a committee meeting, discussing an application to promote another physician in your group to a leadership position. They are an outstanding candidate. A member on the committee comments that a leadership position should be awarded to a physician having a normal weight as opposed to one who is overweight. This makes you feel uncomfortable, and you wonder if you should speak up.

Clinical Question

Is there interphysician implicit, explicit, and/or professional weight bias in emergency medicine?

Background

Bias, as defined by the common English language, is "a particular tendency, trend, inclination, feeling, or opinion, especially one that is preconceived or unreasoned."[1] It is a sense of prejudice or stereotyping and the formation of a foregone conclusion independent of current evidence.

Bias can be either implicit or explicit. Implicit bias is an unconscious and often subtle type of bias that is hard to pinpoint and difficult to measure. Explicit bias is a more outward bias expressed in words or actions that's easier to identify in other people and ourselves.

Examples of these types of biases in the house of medicine include age, gender, socioeconomic status, and race. Weight bias has not received as much attention. There is literature on physicians' weight biases toward patients.[2–4] However, there is limited information on physician-to-physician weight bias.[5]

Implicit weight bias (IWB) can be measured using the Implicit Association Test (IAT) based on work from Project Implicit, a Harvard-based research organization. Explicit weight bias (EWB) was quantified using a modified Anti-Fat Attitudes Questionnaire.[6] Participants were asked to respond on a seven-point Likert scale from 1 (strongly agree) to 7 (strongly disagree), shown in Table 1.

This recent study added a third category of bias called professional weight bias (PWB). This was defined as the reduced willingness to collaborate with, seek advice from, and foster mutually beneficial professional relationships with physician colleagues with obesity. The same seven-point Likert scale was used to assess PWB (see Table 2).

Reference: McLean ME, McLean LE, McLean-Holden AC, et al. Interphysician weight bias: a cross-sectional observational survey study to guide implicit bias training in the medical workplace. *Acad Emerg Med*. 2021;28(9):1024-1034.

- **Population:** Practicing physicians and physicians-in-training in the United States and Canada
- **Intervention:** Survey instruments measuring IWB, EWB, and PWB
- **Comparison:** None
- **Outcome:** Descriptive analyses along with correlative models

Authors' Conclusions

"Our findings highlight the prevalence of interphysician implicit WB; the strong correlations between implicit, explicit, and professional WB; and the potential disparities faced by physicians with obesity. These results may be used to guide implicit bias training for a more inclusive medical workplace."

Results

The survey was completed by 620 people. The mean age was 44 years, 58 percent identified as female, the mean body mass index was 26, 73 percent were Caucasian, 78 percent were emergency physicians, and 72 percent were attending physicians.

Table 1: Modified Anti-Fat Attitudes Questionnaire

EXPLICIT WEIGHT BIAS *(SCORE EACH 1-7)*
I really don't like fat physicians much.
I don't have many physician friends who are fat.
I tend to think that physicians who are fat are a little untrustworthy.
Although some fat physicians are surely smart, in general, I think they tend not to be quite as bright as normal-weight physicians.
I have a hard time taking fat physicians too seriously.
Fat physicians make me somewhat uncomfortable.
If I were an employer looking to hire, I would avoid hiring a fat physician.
As a medical professional, I feel disgusted with myself when I gain weight.
As a medical professional, one of the worst things that could happen to me would be if I gained 25 pounds.
As a medical professional, I worry about becoming fat.
Physicians who weigh too much could lose at least some part of their weight through a little exercise.
Fat physicians are generally fat because they have no willpower.
Fat physicians tend to be fat pretty much through their own fault.

Table 2: Professional Weight Bias Questionnaire

PROFESSIONAL WEIGHT BIAS *(SCORE EACH 1-7)*
I prefer making referrals to normal-weight physicians over fat physicians.
I prefer collaborating with normal-weight physicians over fat physicians.
I prefer to seek advice from normal-weight physicians over fat physicians.
If I were making decisions about salaries, I would probably give a normal-weight physician a higher salary than a fat physician if all other qualities were equal.
If I were making decisions about job promotions, I would probably give a normal-weight physician a promotion over a fat physician if all other qualities were equal.
Having a normal body weight, as opposed to being fat, should be required for any physician in order to be hired for any health care job.
Having a normal body weight, as opposed to being fat, should be required for any physician to be in a position of power in their career.

Key Result: A high percentage of participants indicated IWB against other physicians, while other results suggested some EWB and PWB do exist.

- **Implicit Weight Bias:**
  - » Eighty-seven percent of participants had a D-score above 0, indicating IWB against other physicians.
  - » Male sex and increased age were both positively correlated with anti-fat weight bias.
- **Explicit Weight Bias and Professional Weight Bias:**
  - » Ranges and means on the rating scales showed levels of variability, but overall suggested bias does exist.
  - » Male sex positively correlated with both EWB and PWB.

Evidence-Based Medicine Commentary

1. Low r Values: The r value represents strength of correlations and ranges from (-1) to (+1), with 0 representing no association, (-1) representing maximal negative association, and (+1) representing maximal positive association. Correlations do not address causality between two things. Some of the r values for correlation in this study were low (0.24, 0.16, and 0.73). However, small correlations are in line with previous literature on the topic.[7–9]

2. Respondent Bias: Any survey literature is limited by respondent bias—when respondents know what they are being asked about, this may influence the honesty and accuracy of their answers. It would have been apparent to the physicians being surveyed that the study was about weight bias. Physicians are typically motivated and trained to control expression of their biases. This could have underestimated the amount of bias in this cohort.

3. Externally Unvalidated Tool: The PWB scale was developed by this research group for this study. It was tested on emergency physicians and residents in the United States and Canada. We need to be cautious not to overinterpret the results until this tool has been externally validated with emergency physicians in other countries.

Bottom Line

Implicit, explicit, and professional biases exist in emergency physicians. Recognizing these biases can be a potential step to help mitigate the negative impact these biases may have on interprofessional relationships.

Case Resolution

You decide to speak truth to power and acknowledge that everyone has some biases. This specific comment about a candidate being overweight could suggest a possible interprofessional weight bias. You recommend to the other committee members that the weight of the candidate should not be part of the decision whether to promote the physician to a leadership position.

Thank you to Dr. Corey Heitz, an emergency physician in Roanoke, Virginia, for his help with this review.

Remember to be skeptical of anything you learn, even if you heard it on the Skeptics' Guide to Emergency Medicine.

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EM LITERATURE OF NOTE

PEARLS FROM THE MEDICAL LITERATURE

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It Would Be Cooler If You Didn't

The data supporting therapeutic hypothermia for cardiac arrest aren't so hot

by RYAN PATRICK RADECKI, MD, MS

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The idea of cooling survivors from cardiac arrest has a long and storied history. In perhaps the most famous, although fictional, example of the efficacy of hypothermia, a military hero named Steve Rodgers went into the ice during operations over the Arctic Ocean in 1945. After being successfully resuscitated nearly 66 years later, no cognitive or physical impairment was evident in this soldier also known as Captain America. Despite powerful fictional anecdotes such as this and others, the evidence guiding routine use of mild therapeutic hypothermia remains elusive.

Research History

For nearly 20 years, controversy has followed, primarily from a prospective multicenter trial testing mild therapeutic hypothermia versus normothermia in survivors of out-of-hospital cardiac arrest.[1] This prominent trial identified a risk ratio of 1.40 favoring good neurological outcome in the hypothermia group, along with a corresponding benefit on mortality. These data, among other studies and observational series, ultimately resulted in recommendations for mild therapeutic hypothermia entering into clinical guidelines.[2]

Following initial adoption of therapeutic hypothermia, the precise ideal temperature for hypothermia remained an open question. Subsequently, in 2013, the first Targeted Temperature Management (TTM) trial tested active temperature management of 33° C versus 36° C following cardiac arrest in a much larger trial population.[3] This trial was unable to identify an advantage of 33° C over 36° C, adding substantial uncertainty regarding both implementation of and the fundamental principle of therapeutic hypothermia. Given this lack of observed difference between temperature targets, it became necessary to take a broader look at whether hypothermia conferred a benefit or simple avoidance of pyrexia.

Two additional trials served mainly to further muddy the issue. A trial testing therapeutic hypothermia against targeted normothermia in children provided inconclusive results but generally favored therapeutic hypothermia.[4] Likewise, a trial in adults restricted solely to nonshockable rhythms tilted the balance of evidence incrementally toward therapeutic hypothermia.[5]

Latest Research

Finally, this August, the Targeted Temperature Management 2 (TTM2) trial was published, re-examining the fundamental question of the value of therapeutic hypothermia.[6] Enrolling 1,900 patients in the largest trial addressing the question to date, study procedures tested 33°C and controlled rewarming against targeted normothermia and early treatment of pyrexia. The primary outcome was mortality at six months, along with secondary outcomes of functional outcome and other adverse events.

Like the TTM trial before it, this second iteration was unable to identify any advantage to therapeutic hypothermia for any patient-oriented outcome. Mortality at six months was similar, as was the proportion of patients with severe disability. Regardless of subgroup, including shockable and nonshockable rhythms, there was no further signal for potential benefit. Prespecified adverse outcomes while hospitalized were more common in the therapeutic hypothermia cohort, primarily manifesting as an excess of arrhythmias resulting in hemodynamic compromise.

Somehow, then, after 20 years of investing in cooling infrastructure, protocols, and research, we are back to nearly where we began and still with many outstanding questions. It is becoming clearly unlikely that therapeutic hypothermia, down to 33° C as implemented in these trials, provides a beneficial effect. Additionally, the biases in these trials virtually all favor the therapeutic hypothermia arm, considering their open-label nature. Clinicians and families are less likely to de-escalate care for patients randomized to an active intervention as compared to those in a control arm. Where possible, protocols and conservative withdrawal of care assessments aim to reduce early de-escalation, but this bias can only be minimized, not eliminated.

Additionally, it still is not possible to determine the benefit of active temperature management using intravascular or external devices versus simply aggressively treating pyrexia. Approximately half of the patients included in TTM2 had their temperatures actively managed with a device, leaving a knowledge gap regarding this intervention. Pyrexia is clearly associated with poorer outcomes following out-of-hospital cardiac arrest, but it remains unknown whether pyrexia may simply be treated or prevented via pharmacological methods.

Finally, the last major question raised by critics of trials of therapeutic hypothermia is about the rapidity with which patients attained target temperature. In TTM2, the median time from cardiac arrest to randomization was approximately two hours, and patients achieved core temperatures below 34° C approximately four hours later. It remains an open question whether cooling is achieved quickly enough to receive any therapeutic benefit from hypothermia. Prehospital trials using cold saline have achieved rapid cooling prior to hospital arrival but with concurrent adverse effects and no clear beneficial effect on hospital outcomes.[7]

We are nearly back at square one with respect to therapeutic hypothermia. Certainly, the routine use of therapeutic hypothermia under current protocols has little remaining justification. It would likewise be reasonable to discontinue routine use of active temperature management devices while awaiting further evidence of benefit. While the trends in medicine always tend to favor adoption rather than de-adoption of new practices, the time has likely come to fully reevaluate any role for therapeutic hypothermia.

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POLICY Rx

DR. DARK is Medical Editor in Chief of *ACEP Now*.

Supplier-Induced Demand

Are current efforts to increase access missing the point?

by CEDRIC DARK, MD, MPH, FACEP

CHRIS WHISSEN & SHUTTESTOCK.COM

For the longest time, efforts to bring health care closer to the patient have fascinated me. Although hospital-based emergency care is the crème de la crème of acute unscheduled care, available 24-7-365 and with a plethora of consultants available to handle any complicated issue, it is often inconvenient for many Americans. When patients can't rely on primary care physicians for emergent or after-hours care, they will seek us out or go to another venue, such as a freestanding emergency department, a retail clinic, an urgent care center, or perhaps now telemedicine. What patients want, in their moment of acute illness, is an immediate medical decision, not an appointment two weeks away.

As we have seen in the past with innovations such as the retail clinic model, the adage from the movie "Field of Dreams" holds true: "If you build it, they will come." Fifty-eight percent of visits to these convenient care facilities are for new care, not substitutions for either an emergency department or physician office visit.[1] Contrary to popular belief, the presence of low-cost venues for care does not reliably divert patients away from the emergency department but instead allows patients to seek out medical advice in situations they would have managed on their own at home.

The concept of supplier-induced demand occurs with every novel iteration of bringing health care closer to the patient, making access more convenient for them.

Of course, the voice whispering, "If you build it, they will come" sounds far more ominous to health insurers and government payers than it did to fictional Iowa farmer Ray Kinsella. But do we not want Americans to seek out health care? Perhaps our nation's policymakers should worry far less about how much we spend on the marginal visit—whether it's telemedicine or to a retail clinic, an urgent care, a physician's office, a freestanding emergency department, or a hospital-based emergency department—and worry more about whether we have the right clinician available at the right time and in the right place for the next patient who walks through the door.

Specifically, for those of us who provide EMTALA-regulated care, it's about time insurance and government payers worry less about how much we earn for our years of training and expertise and instead worry about whether all Americans, not just the well-off, have similar opportunities to get care in the manner most convenient to them. After all, as told in this month's Health Policy Journal Club column, just because an urgent care visit is cheaper doesn't mean overall health care costs will decrease.

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EMRA+POLICYRx HEALTH POLICY JOURNAL CLUB

New Study Analyzed Effects of Increasing Urgent Care Capacity

by MICHAEL RUSHTON, MD

Emergency departments were created to handle, well, emergencies. However, the emergency department has evolved from a high-acuity-only environment to a critically necessary safety net for the American health care system. This safety net handles all acute needs, regardless of the severity of the issue or the patient's ability to pay. And despite the breadth of acuity, emergency department visits continue to be universally expensive.[1] This has propelled private and public insurers to funnel low-acuity needs to lower-cost alternatives, such as telemedicine and urgent care centers.

Have these efforts been successful in reducing costs? This is the question asked by Wang et al in their retrospective cohort study.[2]

Wang and his team gathered impressively expansive data, analyzing the claims of approximately 20 million nonelderly patients per year covered by a national managed care plan from Jan. 1, 2008, to Dec. 31, 2019. Their data spanned all 50 states and every type of insurance, including high-deductible, HMO, and PPO. To mitigate confounding data, only previously defined low-acuity conditions frequently seen at urgent care centers (such as rash, muscle strain, bronchitis, and urinary tract infection) were compared. Grouping patients by ZIP code, this study aimed to estimate the proportionate decrease in low-acuity ED visits associated with an increase in urgent care visits. ZIP codes were classified as having no urgent care use, intermediate urgent care use, or high urgent care use.

The study found there was an obvious decline in low-acuity ED visits in ZIP codes that introduced a high-volume urgent care, dropping from 82 visits to 50 (a 39 percent decline). However, even in ZIP codes with no urgent care, low-acuity emergency room usage dropped from 110 to 76 visits (a 31 percent decline). An increase in 37 urgent care visits per enrollee was associated with a decrease of only a single low-acuity ED visit.

This ratio is particularly unsettling when you consider that emergency department visits cost an average of 10 times more than urgent care visits.[3] The authors thus predicted that each $1,646 low-acuity ED visit prevented was offset by a $6,327 increase in urgent care center costs—an overall net increase in spending!

A multipronged effort has been pushed by health policymakers, practitioners, and private and public payers to curb low-acuity, high-cost ED visits. Wang et al indicate that utilizing urgent cares to this end has potential but appears financially ineffectual at its current stage.

There is an obvious need to change the way we treat patients with low-acuity ailments without compromising quality of care or drastically increasing cost of care. Although the increased access to unscheduled acute care that urgent care centers have created is a step in the right direction, there is an obvious need for innovative models of delivery that can increase this access without increasing the cost patients and insurers must shoulder—costs that inevitably are passed on to patients.

This Health Policy Journal Club review is a collaboration between Policy Prescriptions and the Emergency Medicine Residents' Association.

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BRINGING DATA TO THE BEDSIDE

BENCHMARKING ALLIANCE

DR. AUGUSTINE is chair emeritus of the National Clinical Governance Board of US Acute Care Solutions, based in Canton, Ohio; a member of the *ACEP Now* Editorial Board; clinical professor of emergency medicine at Wright State University in Dayton, Ohio; and vice president of the Emergency Department Benchmarking Alliance.

EMS and Emergency Department

Building a new relationship or recovering a strained one

by JAMES AUGUSTINE, MD, FACEP

COVID-19 won't go away. As the pandemic peters out, one of the relationships you may want to build—or recover—will be with the EMS services surrounding your emergency department. Why? Here are few reasons.

EMS arrivals are increasing in 2021, on a new trajectory over the last five years, with continued high acuity.

- At least 70 percent of hospital inpatients are processed in through the emergency department; the majority of those admissions arrive by EMS.
- For medical centers that specialize in trauma, burns, acute cardiac intervention, and comprehensive stroke care, patients brought in by EMS represent the majority of patients who are served by those specialty programs.
- EMS is building novel out-of-hospital programs for mental health and substance abuse patients in many communities.
- EMS and the emergency department have overlapping responsibilities for multiple-casualty incident preparedness.
- Both the emergency department and the EMS system will be undergoing profound design changes post-pandemic. New designs will focus on improvements in patient and staff safety, flexibility, and cleanliness.

The 2020 Emergency Department Benchmarking Alliance (EDBA) survey gathered performance measures from more than 1,300 participating emergency departments. Specifically, the survey asked member emergency departments to report metrics related to their interactions with EMS. This survey has a 14-year trend line demonstrating that a very consistent percentage of ED patients arrive by ambulance. A large percentage of those patients will receive diagnostic testing in the emergency department, initial treatment, and then admission to an inpatient hospitalization (see Figure 1). EMS patients are admitted in about 40 percent of cases. Patients arriving by other means have a much lower admission rate, approximately 13 percent.

The pandemic resulted in a transient reduction in patients arriving in the nation's emergency departments; however, the ones arriving remain high-acuity and slightly more likely to arrive by ambulance.

EMS arrival rates vary by type of emergency department (see Table 1). They are higher at emergency departments with higher volumes and by far greatest in emergency departments serving adults, where one-quarter of patients arrive via ambulance. Ambulance arrival rates average around 12 percent in lower-volume emergency departments and about 9 percent in emergency departments that serve only pediatric patients.

Repairing a Strained Partnership

Although EMS and emergency departments have traditionally maintained strong partnerships, the last two years have presented massive challenges to those relationships.[1] Many emergency departments shut their doors to EMS personnel.[2] As a result, communication during the transition of patient care was less complete, and EMS personnel were left outside to produce patient care reports, decontaminate personnel, clean and resupply their rigs—all without being able to enjoy simple biological functions like emptying their bladders or getting a refreshment after an exhausting run.

Recent months have demonstrated that boarded inpatients crowd out those who are just arriving, creating "ambulance patient offload delays" (a new term to describe EMS personnel who are holding the wall). A result of this is that EMS agencies are literally "out of ambulances" to respond to the next set of medical or trauma emergencies occurring in the community. In many metro areas, these situations boiled into very tenuous relationships with fire and EMS staff, and the potential for poor patient outcomes blossomed into finger-pointing and malpractice allegations against all parties.

Emergency physicians and EMS directors must develop regional models of care that match local needs to the appropriate use of ambulances and emergency departments. This presents a timely opportunity to address these aspects of the 911 system. It may also represent an ideal time to plan for how to care for patients with mental health and substance abuse issues outside of the traditional law enforcement–EMS–emergency department pathway.[3–6]

Localities should also develop new systems for multiple-casualty incident management, as recent active-shooter events across the country have had transport of patients managed outside of the EMS. During some of those incidents, EMS has been stationed at the entrances to the hospitals to help receive, triage, and move patients into the hospital.[7–9]

Emergency physicians should plan for a variety of care models useful to patients in need of mobile services, whether they are scheduled or unscheduled. When we apply the Triple Aim to emergency care, effective patient care will be provided at the right place, at the right time, with the right equipment and personnel, at the right price, and, of course, for the appropriate value.

Figure 1: Trends in EMS Arrival and Admissions Versus Walk-in ED Patients

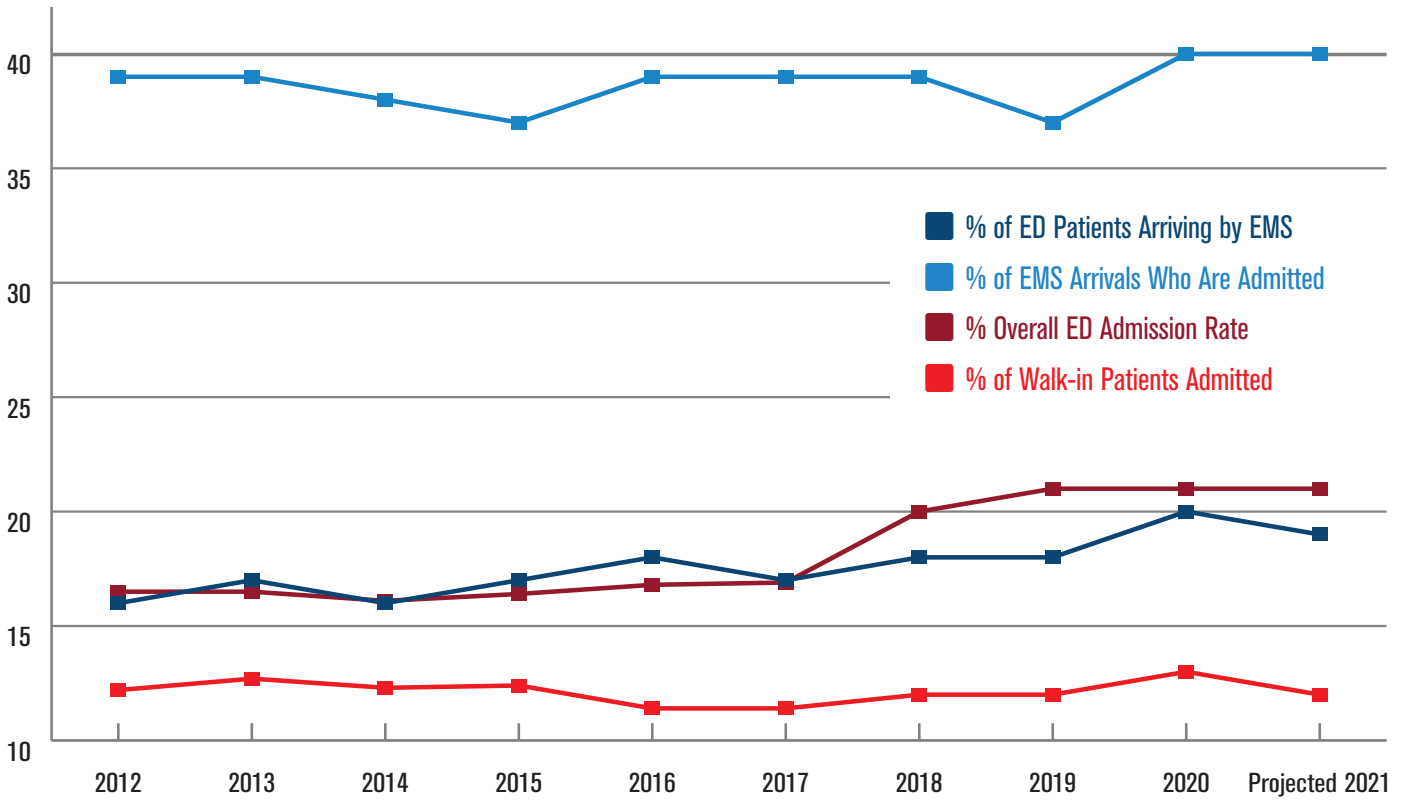

Table 1: EMS Arrival and Admissions in 2019

EMERGENCY DEPARTMENT TYPE	% OF PATIENTS ARRIVING BY EMS	% OF EMS ARRIVALS WHO ARE ADMITTED	% OF ED PATIENTS WHO ARE ADMITTED
All EDs	17.5%	36.9%	20.7%
Adult	24.8%	42.7%	26.5%
Pediatric	8.7%	26.3%	10.1%
Over 120K volume	22.5%	38.2%	20.1%
100–120K	24.5%	40.5%	22.7%
80–100K	24.0%	43.3%	23.0%
60–80K	22.0%	42.0%	22.4%
40–60K	19.8%	41.3%	21.3%
20–40K	15.6%	35.5%	16.4%
Under 20K volume	11.9%	28.0%	10.6%

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Q&A ABOUT OUR LITTLEST PATIENTS

KIDS KORNER

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DR. CANTOR is professor of emergency medicine and pediatrics, director of the pediatric emergency department, and medical director of the Central New York Regional Poison Control Center at Upstate Medical University in Syracuse, New York.

by LANDON JONES, MD, AND RICHARD M. CANTOR, MD, FAAP, FACEP

The best questions often stem from the inquisitive learner. As educators, we love, and are always humbled by, those moments when we get to say, "I don't know." For some of these questions, you may already know the answers. For others, you may never have thought to ask the question. For all, questions, comments, concerns, and critiques are encouraged. Welcome to the Kids Korner.

Stop That Headache

Question 1: In children presenting with acute migraine, what appears to be the best abortive pharmacological treatment?

A 2004 randomized controlled trial compared IV ketorolac (0.5 mg/kg, maximum 30 mg) and IV prochlorperazine (0.15 mg/kg, maximum 10 mg) in 62 children (ages 5–18 years) with migraine presenting to two pediatric emergency departments.[1] All children received a normal saline IV fluid bolus as well. Treatment success was defined as ≥50 percent reduction in pain score at one hour as measured by the Nine Faces Pain Scale. If the child's headache did not improve by ≥50 percent at one hour, then the child received the other study medication and treatment success was measured again one hour later.

In the prochlorperazine (n=33) and ketorolac (n=29) groups at one hour, treatment success was 84.8 percent (28 of 33 children) and 55.2 percent (16 of 29 children), respectively, suggesting that prochlorperazine was better at providing successful migraine relief at one hour. Overall success—defined as either ≥50 percent reduction after a single medication at one hour or ≥50 percent reduction after receiving both medications at two hours—was 93.3 percent (56 of 60 children). This suggests that the combination of both prochlorperazine and ketorolac is more successful at reducing pain than either alone.

Similar results for combination therapy were seen in a 2021 prospective observational study that evaluated 120 children (ages 7–18 years) with migraine with standard combination therapy containing IV ketorolac (0.5 mg/kg, maximum 30 mg), IV prochlorperazine (0.15 mg/kg, maximum 10 mg), and IV diphenhydramine (1 mg/kg, maximum 50 mg).[2] The authors' primary aim was to evaluate headache severity at two hours, 24 hours, and seven days after administration. Compared to premedication pain assessment, at two hours, 24 hours, and seven days, the median reduction in pain score was 87.5 percent, 100 percent, and 50 percent (P=0.001), respectively, suggesting that combination therapy was effective at treating pediatric migraine. Of note, this study only included the dopamine receptor antagonist prochlorperazine. As in adults, it appears that migraine combination therapy in children significantly reduces migraine pain scores.

But which dopamine receptor blocker is best studied in pediatric migraine? There are few studies comparing dopamine receptor blockers. Most have evaluated prochlorperazine. A 2015 study retrospectively evaluated 32,124 children ages 7–18 years with migraine across 35 children's hospitals.[3] The primary outcome was 72-hour ED return visit for any reason in patients who were initially discharged from the emergency department. Of the 32,124 patients presenting with migraine to the emergency department, 85 percent were discharged and eligible for the outcome analysis. The authors examined the most common medications administered at the initial ED evaluation for the patient's migraine including nonopioid analgesics (65.6 percent), dopamine receptor antagonists (49.9 percent), and diphenhydramine (33.2 percent). Among discharged patients, 5.5 percent had a return visit within 72 hours. Compared to prochlorperazine, children receiving metoclopramide had an adjusted odds ratio of 1.31 (95 percent confidence interval [CI] 1.11–1.55) for 72-hour ED return, suggesting that prochlorperazine might be better for treatment of migraine in children compared to metoclopramide.

A separate 2018 retrospective study evaluated prochlorperazine (n=27), metoclopramide (n=23), and promethazine (n=17) for their efficacy in aborting a migraine.[4] This study included 67 children under 19 years of age. All patients additionally received IV ketorolac. No dosing concentrations were mentioned in the study, which is one of its biggest weaknesses. Outcomes included treatment failure, return visits within 48 hours, and pain score. Treatment failures were 8.7 percent with prochlorperazine, 25 percent with metoclopramide, and 43 percent with promethazine. There was no significant difference in return visits at 48 hours.

Summary

Prochlorperazine (0.15 mg/kg) is the most commonly studied and most effective intravenous abortive migraine therapy in children. Combination therapy with ketorolac (0.5 mg/kg) appears to improve success.

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Overutilization Makes Me Wanna Puke

Question 2: In light of the Choosing Wisely campaign regarding oral antiemetic medications in children with acute gastroenteritis, does the literature suggest that we administer IV fluids too freely?

A 2021 study by Freedman et al evaluated 1,415 children ages 3–48 months.[1] The study was a preplanned secondary analysis of two multicenter pediatric ED studies—one in Canada and one in the United States. These studies were performed by Pediatric Emergency Research Canada (PERC) and Pediatric Emergency Care Applied Research Network (PECARN) and included six sites in Canada and 10 sites in the United States. The initial study protocols were both prospective randomized trials evaluating probiotics and acute gastroenteritis (AGE). The authors incorporated a preplanned secondary analysis of these studies with a primary outcome of evaluating return visits within seven days in patients who received oral antiemetics. Secondary outcomes evaluated IV insertion and hospitalization. Clinical dehydration scale scores were recorded and include characteristics of general appearance, eyes, mucous membranes, and tears.

ED and primary care revisits within seven days of enrollment did not differ (adjusted odds ratio [aOR], 0.72; 95 percent confidence interval [CI] 0.50–1.02). While the revisit odds were similar, IV placement for fluid administration was higher in the U.S. cohort compared to the Canadian cohort (aOR 17.0 percent vs 8.2 percent; difference 8.8 percent; 95 percent CI 5.2–12.4 percent). There was no difference in the proportion of children receiving IV rehydration in the seven days following the index visit and no difference in the requirement for hospitalization, suggesting that the administration of oral antiemetics did not mask significant dehydration requiring IV fluid administration. Ondansetron was the antiemetic of choice in this study. This study suggests that U.S. pediatric emergency departments more liberally administer parenteral IV fluids and that resource allocation may be better utilized elsewhere initially with a trial of oral antiemetics for AGE without harming patient outcomes.

On a similar note, a 2016 meta-analysis by Tomasik et al further evaluated the effects of oral antiemetics on AGE outcomes in children.[2] Ondansetron was the antiemetic evaluated in this study and compared to placebo. The study included 10 randomized controlled trials with 1,215 total patients. Ondansetron increased the likelihood that vomiting would cease at one hour (relative risk [RR], 1.49; 95 percent CI, 1.17–1.89). Ondansetron reduced the risk of failure of oral rehydration therapy (RR, 0.5; 95 percent CI, 0.37–0.69) and increased the intake of oral rehydration therapy at one hour and four hours after administration. A trial of oral ondansetron for AGE reduced the risk of hospitalization (RR, 0.53; 95 percent CI, 0.29–0.97) and demonstrated a reduction in the risk of need for IV placement for fluids (RR, 0.45; 95 percent CI, 0.31–0.63). Compared to placebo, there were no differences in return visits to the emergency department (RR, 1.14; 95 percent CI, 0.72–1.80), again suggesting that it does not appear to harm care.

Summary

Oral antiemetic treatment should be trialed first in children with AGE and mild-to-moderate dehydration before IV placement for IV fluid administration. This is consistent with the ACEP Choosing Wisely initiative.

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EDITOR'S NOTE

Every emergency physician has their own version of a migraine cocktail. Mine includes fluid bolus, prochlorperazine, and ketorolac. But one thing to consider adding, at least in adults, is dexamethasone as it reduces the likelihood of rebound headaches.[3]

As ACEP's Choosing Wisely Champion for 2019, I cannot stress this enough: Let's stop doing things we shouldn't do—in this case, IV fluids for pediatric gastroenteritis—and spend our time and resources on high-yield interventions.

Read the recommendations at www.choosingwisely.org/societies/american-college-of-emergency-physicians.

–Cedric Dark, MD, MPH, FACEP

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THE END OF THE RAINBOW

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

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What to Do About Inflation?

How to protect the value of your dollar

Q. Inflation is higher this year than it has been in years. What should I do about it?

A. Inflation is a general increase in the price of goods and services. While your personal inflation rate (ie, the increase in price of what you actually buy) is the one that should matter most to you, many financial figures are tied to the government's official inflation rate, the Consumer Price Index (CPI). These include increases in Social Security taxes and benefits, the tax brackets, increases in retirement account contribution limits, and the yields of certain types of bonds such as treasury inflation-protected securities (TIPS) and series I savings bonds. Inflation as measured by the CPI over the last year is indeed higher than it has been in years. This summer, it was more than 5 percent on an annualized basis, whereas the Federal Reserve has stated it targets a rate of around 2 percent.

Many blame this inflation on low interest rates, loose monetary policy, and large amounts of economic stimulus, all of which, indeed, are inflationary. However, the inflation rate is always a balance between inflationary elements and deflationary forces, such as unemployment and economic recession. The trick for the Federal Reserve is to strike that balance. When deflationary forces decrease, government needs to make a corresponding decrease in the inflationary forces it can control. However, since you are an emergency physician and not on the Federal Reserve Board, you don't have to control inflation—you simply have to respond to it. Here are five responses I recommend.

1. Think in "Real" (After-Inflation) Terms

Five-thousand dollars in last year's money is the same as $5,250 in this year's money. Over long periods of time, inflation makes a huge difference. Many of us remember paying less than $1 per gallon for gasoline years ago. But the truth is that gasoline cost about the same back then; it's the money that has less value. Behavioral economists call this the "money illusion." It is natural to think in nominal (noninflationary) terms; guard against that tendency. This is particularly important when making long-term financial projections. For example, the stock market has had an average historical return of 10 percent. But after inflation, that return is only 7 percent and even less after taxes and investment fees. If you were counting on 10 percent returns to meet your financial goals, you are going to be disappointed to have less purchasing power in the future than you expected, even if the stock market performs in the future as it has in the past.

2. Ask for a Raise

The vast majority of emergency physicians are now employees. Some surveys estimate as few as 8 percent of emergency doctors own their jobs as partners. If you are an employee and your paycheck is not 5 percent more than it was a year ago, you took a pay cut. Ask your employer to rectify that. Point out that you're not asking for a raise; instead, you're just asking to be paid the same as last year via a cost-of-living increase. And while you're at it, you might as well ask for a real raise, too. Granted, the emergency physician job market is tighter than it has ever been, but it doesn't hurt to ask.

3. Save More

Just like you need to be paid more, you will need to save more each year as inflation rises. I find it useful to think in terms of percentages of your gross pay. I recommend attending physicians save 20 percent of their gross pay for retirement, perhaps $60,000 on an income of $300,000. If you got that 5 percent raise, it should not be hard to save 5 percent more than you did last year. The government will help, too. Every year or two, retirement account contribution limits are increased. Projections for 2022 are that 401(k)/403(b) employee contribution limits will increase from $19,500 to $20,500. 457(b) contribution limits will also increase to $20,500. Solo 401(k) and SEP-IRA contribution limits should increase to $61,000. Health savings account contribution limits will also increase to $3,650 (single) or $7,300 (family). However, neither catch-up contribution limits for those over 50 nor IRA contribution limits are expected to increase this year due to the IRS rounding method.

4. Take Enough Risk

You need to make sure your investment portfolio is taking on enough risk to outpace inflation. That means the majority of the assets should usually be invested in risky investments like stock index funds and real estate, with only a minority in safer assets like cash, CDs, and bonds. Some people even like to keep a small part of their portfolio in assets expected to do well in an inflationary environment, like TIPS, gold, commodities, or even the newer and extremely speculative cryptocurrencies. However, avoid the extremes when designing your portfolio. Do not make large bets that will only pay off if you can successfully predict the future.

5. Worry a Little Less About Your Debts

While most doctors are entirely too comfortable with debt, and debt payments prevent many of them from ever building significant wealth, inflation erodes the value of debt, especially when the interest rates on that debt are low and fixed. Inflation generally hurts savers but helps debtors. If you have 2 percent debt and inflation is 5 percent, your debt becomes worth 3 percent less every year. After 10 years of 5 percent inflation, a 2 percent fixed $100,000 debt is really just a $74,000 debt.

Inflation is a reality of our modern financial system. Deal with it properly so you do not fall for the money illusion and find yourself becoming less financially secure over time.

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Geriatric Trauma Myths and Misperceptions: Part 2

Bust these 5 injury myths to provide better care for older patients

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

Last month we debunked five myths about trauma and triage in older patients—the fastest growing population in the United States.[1] This month we'll look at falls and other common injuries.

Older adults with severe injuries represent at least 40 percent of all adults with severe injuries.[2] Ground-level falls are the most common mechanism of injury in older patients and carry a 10-fold higher mortality rate.[3] Research funding to study falls, relative to their associated mortality, is much lower than comparable conditions—including firearm deaths (see Figure 1).[4] Older trauma patients with falls are often undertriaged at the ED triage as well as to regional trauma centers.[5–8]

Myth 6: Unstable C-Spine Injuries Are Unlikely After Ground-Level Fall

Older patients are more likely to sustain fractures (especially vertebral fractures) at much lower forces due to osteoporosis and reduced bone mass. Half of cervical spine injuries in older patients are considered unstable and older patients are at higher risk for central and anterior cord syndromes.[9] Any older trauma patient who is undergoing a head CT to rule out traumatic brain injury should also be considered for cervical spine imaging.

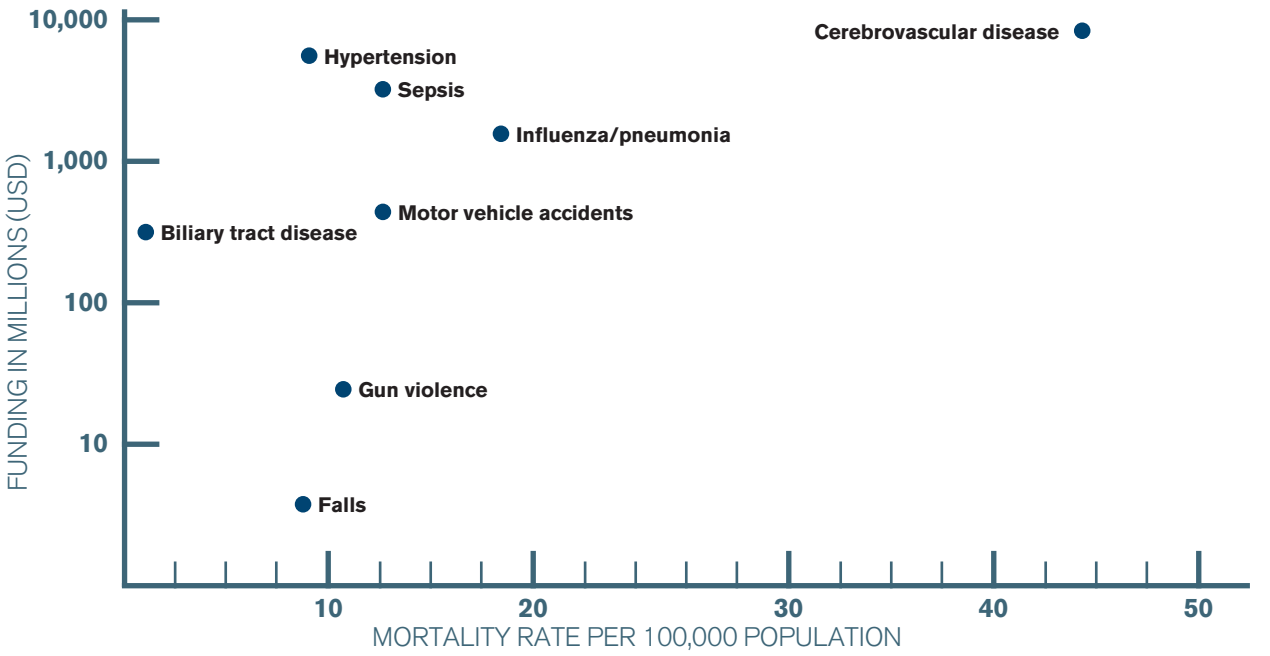
Myth 7: Anticoagulant Medications Should Always Be Withheld After Minor Head Injury in Older Patients

While anticoagulants should certainly be withheld after major head injury with evidence of traumatic intracranial hemorrhage, cessation of anticoagulation is unnecessary following an ED visit for minor head injury without evidence of intracranial hemorrhage.[10] In the context of warfarin for primary stroke prevention in atrial fibrillation, observational data suggest that a person would need to fall 295 times in one year for the risk of a subdural hemorrhage to outweigh the benefits of warfarin therapy.[11] This risk-benefit ratio would predictably be even more favourable for direct oral anticoagulants since they have been shown to carry a lower risk of intracranial hemorrhage than warfarin.[12]

Myth 8: Isolated Rib Fractures Are Benign Injuries That Do Not Require Treatment

Frailty is one of the strongest predictors of mortality following rib fractures, and mortality increases proportionally with each additional rib fracture.[13] Rib fractures are a surrogate marker for polytrauma—observational data suggest that 81 percent of patients with rib fractures have additional associated traumatic injuries.[14] CT is the imaging modality of choice, as chest X-ray has been shown to miss up to 50 percent of rib fractures. There is a higher incidence of pulmonary contusions, pneumonia, and respiratory failure requiring mechanical ventilation in older patients with rib fractures. It is prudent to have a low threshold to order a CT of the abdomen to rule out solid organ injury that also has a higher incidence in older patients who have sustained rib fractures.[15] Consider transfer to a regional trauma center for older patients with three or more rib fractures, bilateral rib fractures, flail segment, or any rib fracture in an older patient with significant underlying pulmonary disease.[16]

Figure 1. Causes of deaths per 100k population



SOURCE: *JAMA*. 2017;317(1):84-85. PLOTTING IS ON A SEMI-LOG SCALE

Myth 9: Hip Fractures Do Not Require Urgent Surgery

Observational studies suggest that delays to surgery for hip fractures are associated with higher 30-day mortality, pulmonary embolism, myocardial infarction, and pneumonia.[17] The recent HIP Fracture Accelerated Surgical TreaTment And Care tracK (HIP ATTACK) randomized controlled trial compared time to surgery of less than six hours versus usual care and found a lower rate of delirium, stroke, infection, and urinary tract infection.[18] It is incumbent upon the emergency physician to help facilitate timely transfer to the operating room for all patients requiring surgery for hip fractures.

Myth 10: Older Patients Who Are Discharged from the ED with a Non-injurious Fall Do Not Require Specific Follow-up Assessments

Persons with single non-injurious falls who have normal gait and balance are considered at low risk for recurrent falls. Older patients who present to the emergency department after a fall should have a quick gait and balance assessment completed in the emergency department. Time-efficient validated assessment tools include the timed up and go test and the modified 30 second sit to stand test.[19,20] Patients at high risk for recurrent falls include those with a fall resulting in injury, a gait or balance disorder, two or more falls in the past 12 months or a Clinical Frailty Scale of 4–9.[21] All such patients should be considered for evidence-based fall-reduction management, including referral for an occupational therapy home safety assessment, falls prevention program, and communication with the primary care physician to conduct a full fall risk assessment and screen for conditions predisposing to injurious falls, such as osteoporosis.[22]

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