GETTING INSURERS TO PAY
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SEE PAGE 14

KIDS KORNER
Acute Gastroenteritis & Acute Epididymitis
SEE PAGE 17

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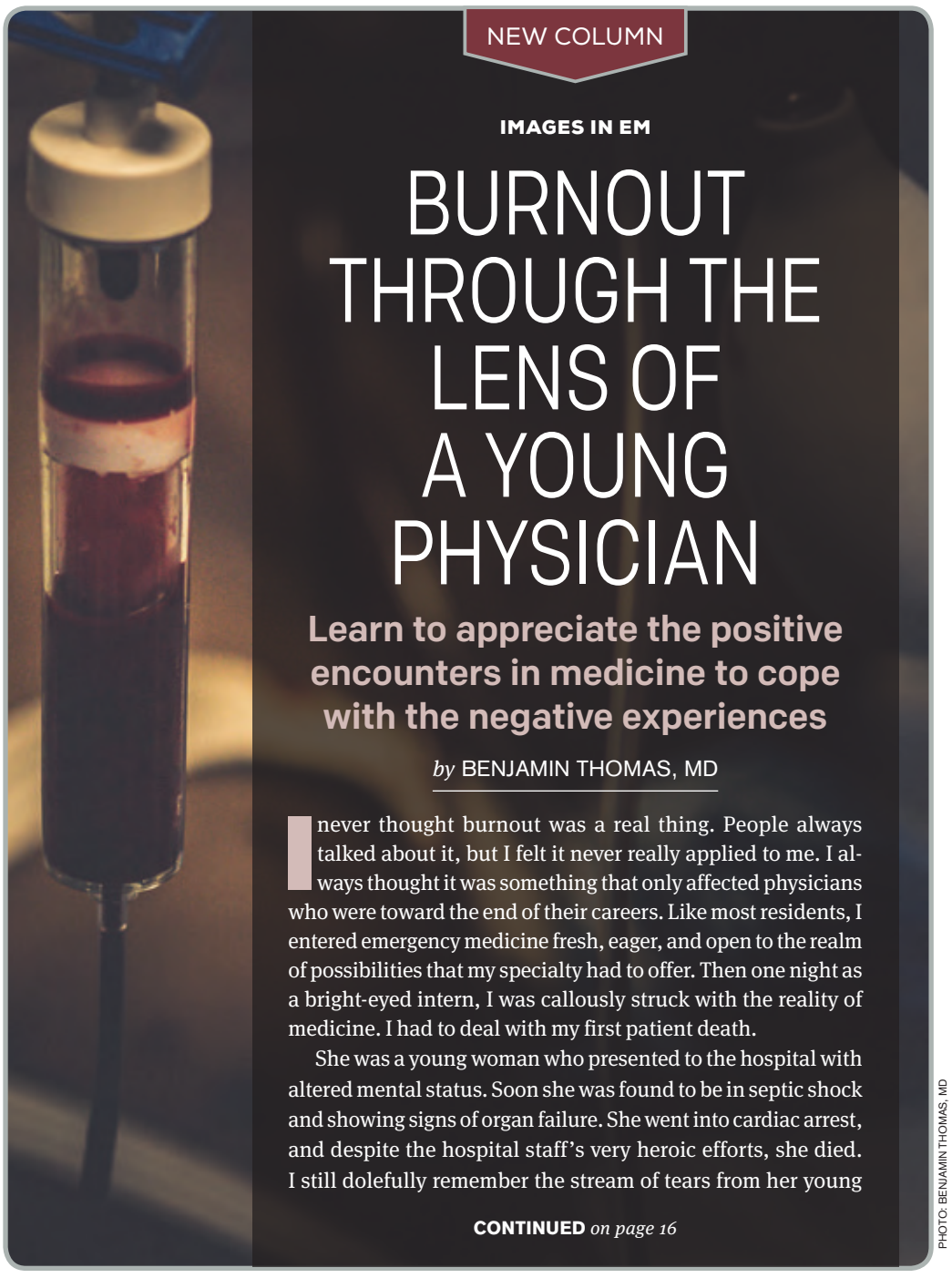

NEW COLUMN

IMAGES IN EM

BURNOUT THROUGH THE LENS OF A YOUNG PHYSICIAN

Learn to appreciate the positive encounters in medicine to cope with the negative experiences

by BENJAMIN THOMAS, MD

I never thought burnout was a real thing. People always talked about it, but I felt it never really applied to me. I always thought it was something that only affected physicians who were toward the end of their careers. Like most residents, I entered emergency medicine fresh, eager, and open to the realm of possibilities that my specialty had to offer. Then one night as a bright-eyed intern, I was callously struck with the reality of medicine. I had to deal with my first patient death.

She was a young woman who presented to the hospital with altered mental status. Soon she was found to be in septic shock and showing signs of organ failure. She went into cardiac arrest, and despite the hospital staff's very heroic efforts, she died. I still dolefully remember the stream of tears from her young

CONTINUED *on page 16*

PHOTO: BENJAMIN THOMAS, MD

IS BIAS AFFECTING YOU AND YOUR PATIENTS?

Unconscious biases can influence the way we think and act

by BERNARD L. LOPEZ, MD, MS, CPE, FACEP, FAAEM

Women have a higher rate of missed myocardial infarction. Black patients wait longer to receive care in the emergency department for chest pain. Transgender patients get asked questions about their orientation that have nothing to do with their clinical condition. A Latina woman does not get adequate pain medication because she is being "dramatic." A female physician's opinion is dismissed by her male colleagues. An older physician views residents as being "lazy" because they get to limit their work hours. Male physicians get paid more and achieve leadership positions more frequently than female physicians. You've heard this before and seen the research behind these disparities. None of this is intentional, yet somehow these things continue to happen and are a part of our daily lives. While the causes for these disparities are multifactorial, un-

CONTINUED *on page 5*

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THE END OF THE RAINBOW
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PAGE 18

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EXERTIONAL HEAT STROKE DESTROYS FROM THE INSIDE

WHEN THEIR BODY TEMPERATURE RISES TO DANGEROUS LEVELS, IT CAN QUICKLY BECOME A LIFE-THREATENING SITUATION.[1]

Exertional heat stroke (EHS) is a hyperthermic and hypermetabolic crisis that creates an immediate cascade of CNS and other serious complications. If core body temperatures remain elevated, EHS has been shown to cause long-term neurologic damage and death.[1-3]

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BIAS | CONTINUED FROM PAGE 1

conscious bias plays a big role.

Bias is a tendency or an inclination that results in judgment without question. In its most extreme, negative form, it is a prejudice against someone who is not like you that results in some harm to the "other." It can also be positive. In reality, bias serves two purposes. It helps us to function on a daily basis, and most important, it serves to protect us from harm. Think about it. You are walking down the street at night in an unfamiliar area. Just ahead, you see the shadow of a figure walking toward you and see a glint of light off of a long pointy object in what looks like that figure's hand. What do most of us instinctively do? We quickly move away from the figure. Why? Because most of us have developed a strong bias against strange and unknown figures holding presumably sharp objects that may cause us harm. While the figure may not be a true threat, our bias causes us to instantaneously perform certain protective actions. It is unlikely that we would approach the figure, do a careful and detailed assessment, review a long list of potential actions, and choose our option—we may not be alive if we did so.

Each of us is a unique individual who has our own individual experiences and education (both formal and informal). These can be described as our "book of rules." Our "schema" organizes these rules. Together, these form the background, our "lens," through which we view the world. We are constantly experiencing rules and reshaping our schema and background on a minute-by-minute basis. Background is context, and context is the lens through which we view the world. We cannot help having biases; it is a part of who we are.

No explicit preference for white or black patients or perceived cooperativeness was found. However, the IATs demonstrated implicit preference for white patients and implicit stereotypes of black patients as less cooperative with medical procedures and less cooperative in general.

In 1998, Anthony Greenwald, Debbie McGhee, and Jordan Schwarz created an implicit association test (IAT).[1] This tool is the most recognized and commonly used test to measure unconscious bias and measures the strength of automatic associations between concepts (eg, black people, gay people) and evaluations (eg, good and bad). The IAT score is based on how long it takes a person, on average, to associate certain evaluative words with the concept being tested. Thus, if one quickly associates "good" words with "white" and "bad" words with "black," there may be a preference of white over black. (A more detailed description can be found in the "Education" section at Implicit.Harvard.edu.) Currently, there are 13 tests on the Project Implicit website: Native American, Gender-Science, Asian American, Race (Black-White), Age, Disability, Weight, Presidents, Arab-Muslim, Skin-Tone, Sexuality, Weapons, and Gender-Career.[2]

Does unconscious bias affect patient care? A study by Green et al using the IAT tested whether physicians show implicit race bias and whether the magnitude of such bias predicts thrombolysis recommendations for black and white patients with acute coronary syndromes (ACS). Using vignettes of a patient presenting to the emergency department with ACS followed by a questionnaire and three IATs, 287 internal medicine and emergency medicine residents at four academic medical centers in Atlanta and Boston were studied. No explicit preference for white or black patients or perceived cooperativeness was found. However, the IATs demonstrated implicit preference for white patients and implicit stereotypes of black patients as less cooperative with medical procedures and less cooperative in general. As the physicians' pro-white implicit bias increased so did their likelihood of treating white patients and not treating black patients with thrombolysis. The authors conclude that unconscious bias may contribute to racial/ethnic disparities in the use of medical procedures. While the study is a bit dated (percutaneous coronary intervention is the standard for myocardial infarction), it is the one study linking IAT results to treatment choices. A number of other studies have demonstrated the existence of implicit biases of physicians in race, obesity, gender, and age.[4–6]

One question that comes up with the IAT is, does it measure prejudice? Research to date has not clarified the answer. The IAT may simply be measuring the association of positive evaluations with the "in," or majority, group and negative evaluations with the "out," or minority, group and may not be related to a specific attribute. A study was done in which two versions of an IAT were studied. In the first, the in group was "French and me" and the out group was "North African," and an IAT effect was found. In the second version, the two categories were "French" and "North African and me." The IAT effect disappeared. The investigators concluded that in-group/out-group membership, and not nationality, was the important factor.[7] What is the importance of the IAT? In my opinion, it is a tool that can be used to stimulate thought about one's unconscious biases but should not be used to

CONTINUED *on page 6*

measure one's prejudices. Preference for a certain group does not equal prejudice against another. Awareness of a preference allows you to consider how your bias may affect your decisions related to the other group. Remember, also, that it is a two-way street. Your patients also have their own implicit biases, and this, too, has the potential to affect decisions regarding compliance with your decisions.

The lives of our patients are affected by bias. It plays a role in how we interpret important clues in the history and physical examination of patients, how we interpret tests, and how we convey information. If your unconscious bias is such that you downplay or discount certain facts or findings, this has the potential to negatively affect patient care (eg, missed myocardial infarction, reduced analgesic treatment, longer wait times, etc.).

What can we do? First, recognize and accept that we have biases. They help us to function and serve to protect us. It is a necessary part of who we are as humans. Reflect on our biases, developing the capacity to shine the light on ourselves. Research has demonstrated that bias blind spots (the ability to "rationally" explain away our biases) are greater in those with higher cognitive ability (eg, physicians). Realize that this is not easy to deal with. Explore the awkwardness and discomfort that comes along with examining our biases and how it affects our daily interactions. Engage with people who we consider "others" and learn and gain experience from them. Finally, get feedback. Ask a trusted person, "How did I do?" This is how we learned our profession. We became educated, sought guidance and feedback, and practiced it over and over.

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DR. LOPEZ is professor and vice chair in the department of emergency medicine at Thomas Jefferson University Hospital, associate provost for diversity and inclusion at Thomas Jefferson University, and associate dean for diversity and community engagement at Sidney Kimmel Medical College of Thomas Jefferson University, all in Philadelphia.

Leon L. Haley Jr., MD (left), and James D. Thomas, MD, (right) were elected to the American Board of Emergency Medicine's Board of Directors at the February 2017 meeting.

ABEM Names Two New Board of Directors Members

The American Board of Emergency Medicine (ABEM) Board of Directors elected two new directors at its February 2017 meeting: Leon L. Haley Jr., MD, and James D. Thomas, MD. They will begin their terms at the close of the summer board meeting.

Dr. Haley is vice president for health affairs and dean and professor of emergency medicine at the University of Florida College of Medicine in Jacksonville. He has served as an ABEM oral examiner since 2004 and was recently appointed as a senior examiner.

Dr. Thomas practices emergency medicine at Good Samaritan Medical Center in Brockton, Massachusetts, and St. Anne's Hospital in Fall River, Massachusetts, and is on the medical staffs of several other community hospitals in southeastern Massachusetts. He has served as an ABEM oral examiner since 2002 and senior oral examiner since 2014 and has been an item writer for the ConCert Examination.

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Reviewing ILCOR Guidelines on Education, Dehydration, and Spinal Motion Restriction

Dissecting the evidence behind the recommendations

Editor's Note: *This is part four of a four-part series.*

The International Liaison Committee on Resuscitation (ILCOR) appointed a task force in 2013 to prepare recommendations regarding first-aid care by trained or untrained rescuers. The recommendations were released with the 2015 American Heart Association Guidelines Update for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. The goal was to provide an evidence base for the initial care provided by laypersons, EMS, and physicians outside of the office or hospital setting.

ACEP Now has partnered with three emergency medicine residency training programs (Wake Forest School of Medicine, Winston-Salem, North Carolina; Mayo School of Graduate Medical Education/Mayo Clinic, Rochester, Minnesota; and Warren Alpert Medical School of Brown University, Providence, Rhode Island) to review 15 of these recommendations following the PICO (Population, Intervention, Comparator, and Outcomes) analytic format utilized by the recommendation authors.

Panel Commentators

- **Howard Mell, MD, MPH, CPE, FACEP,** emergency physician and member of *ACEP Now*'s editorial advisory board
- **Jessica L. Smith, MD, FACEP,** associate professor (clinical), Warren Alpert Medical School of Brown University, and program director, Emergency Medicine Residency
- **Jason Stopyra, MD, FACEP,** assistant professor, Wake Forest Baptist Medical Center, Department of Emergency Medicine
- **Matthew Sztajnkrycer, MD, PHD, FACEP,** associate professor, Mayo Clinic, Department of Emergency Medicine

Reference: Singletary EM, Charlton NP, Epstein JL, et al. Part 15: first aid: 2015 American Heart Association and American Red Cross guidelines update for first aid. Circulation. 2015;132(suppl 2):S574–S589.

FIRST-AID EDUCATION (FA 773)

Recommendation Author: Jennifer Beatty, MD

Dr. Beatty is a member of the residency training class of 2018 at the Wake Forest University School of Medicine.

QUESTION: Among patients receiving first aid (P), does care from trained first-aid providers (I) compared with care from untrained persons (C) change survival rates, recognition of acute injury/illness, prevention of further illness/injury, time to resolution of injury, likelihood of harm, or time to symptom resolution (O)?

Results: Results: Low- or very-low-quality observational studies were identified to address some PICO outcomes.

Outcomes: One low-quality observational study showed reduced mortality among 1,341 patients initially managed by first-aid providers (9.8 percent versus 15.6 percent). One very-low-quality observational study of 125 subjects with burns showed 88.5 percent of patients treated by first-aid providers required hospitalization fewer than 10 days versus only 67.2 percent of subjects without intervention. One low-quality observational study of 244 burn patients showed benefit from care after a burn treatment campaign, with reduction in requiring inpatient wound care/surgery (35.6 percent versus 64.2 percent). Additionally, a review was found that showed training of laypersons with a stroke assessment system led to improved recognition of stroke after training (94.4 percent versus 76.4 percent).

Discussion: Compared to untrained persons, there is evidence that trained first-aid providers are associated with increased survival from trauma, shorter length of hospitalization after burns, prevention of further burn injuries, and stroke recognition.

Recommendation: Education and training in first aid should be undertaken to improve outcomes after injury and illness. This is a weak recommendation based on low-quality evidence.

Note from Dr. Stopyra: This recommendation suggests that ancillary ED personnel (greeters, security officers, registration personnel) should be trained in first aid. It also tells us that we should take the lead when we encounter the ill or injured outside of the hospital.

EXERTIONAL DEHYDRATION (FA 584)

Recommendation Author: Jessica A. Stanich, MD

Dr. Stanich is a member of the emergency medicine residency training class of 2017 at the Mayo School of Graduate Medical Education/Mayo Clinic.

QUESTION: Among adults and children with exertion-related dehydration (P), does drinking oral carbohydrate-electrolyte liquids (I) compared with drinking water (C) change volume/hydration status, vital signs, development of hyperthermia, development of hyponatremia, need for advanced medical care, blood glucose, or patient satisfaction (O)?

Results: Of 1,751 citations initially identified, 12 studies comparing carbohydrate-electrolyte (CE) liquids with water were included in the final analysis. Studies were rated very low quality to moderate quality and downgraded based upon risk of bias and imprecision.

Outcomes: For the critical outcome of volume/hydration status, results suggested that 3% to 8% CE solutions were superior to water for the rehydration of individuals with simple exercise-induced dehydration, although results were mixed. No difference in core temperature was noted after hydration with 5% to 8% CE solutions versus water. No difference in patient satisfaction, based upon nausea or stomach upset scores, was noted between 3% to 8% CE solutions and water. Additionally, 5% to 8% CE solutions were associated with increased serum sodium two to four hours after hydration. No studies evaluated the important outcomes of blood glucose and need for advanced medical care.

Discussion: First-aid providers must recognize signs and symptoms of dehydration and initiate fluid resuscitation when appropriate. The presence or absence of thirst is a poor surrogate for need for rehydration. Available studies demonstrated conflicting results for the primary outcome of rehydration and limited to no information on critical secondary outcomes.

Recommendations: For simple exertion-related dehydration, 3% to 8% CE therapy is the preferred treatment. Acceptable alternatives include water, 12% CE solution, coconut water, 2% milk, tea, tea-CE, or caffeinated tea beverages (weak recommendation, very-low-quality evidence).

Note from Dr. Mell: While the evidence is weak, it seems that oral CE liquids are superior to water alone for the rehydration of individuals with simple exercise-induced dehydration. Sports drinks may have value.

SPINAL MOTION RESTRICTION (FA 772)

Recommendation Author: Jonathan Thorndike, MD

Dr. Thorndike is a member of the emergency medicine residency training class of 2019 at the Warren Alpert Medical School of Brown University.

QUESTION: Among adults and children with suspected cervical trauma (P), does spinal motion restriction (I) compared to no spinal restriction (C) improve outcomes or reduce complications (O)?

Results: A total of 25 nonrandomized studies that addressed the PICO question were included in the analysis. All studies were observational and deemed to be low- to very-low-quality evidence. Methodology ranged from convenience samples of healthy volunteers to large retrospective reviews.

Outcomes: One observational study showed no difference in neurological injury between patients treated with cervical collars and those without, but analysis was incomplete due to nonpublished intervention and control group means and standard deviations. One small study showed no difference in patient comfort between the two groups. Regarding complications, studies suggest that c-collars cause increased intracranial pressure but no decrease in tidal volume. One pediatric study showed no limitation of spine movement by c-collars, although 13 nonpediatric studies demonstrated movement limitation. There was no evidence to address the outcomes of overall mortality, pain, or hospital length of stay for soft, semi-rigid collars or sandbags.

Discussion: C-collars are effective at reducing spine motion, but for first-aid providers, the risks of complications such as unnecessary neck motion or increased intracranial pressure outweigh the benefit of attempting placement. It may be difficult for first-aid providers to determine which patients are at high risk for spinal injury and thus who could benefit the most from immobilization.

Recommendation: The task force recommends against the routine application of cervical collars by first-aid providers.

Note from Dr. Smith: First responders should focus on reducing cervical spinal movement in trauma rather than applying devices to restrict spine movement. Although not part of the review, there is also potential value in manual cervical stabilization in certain circumstances.

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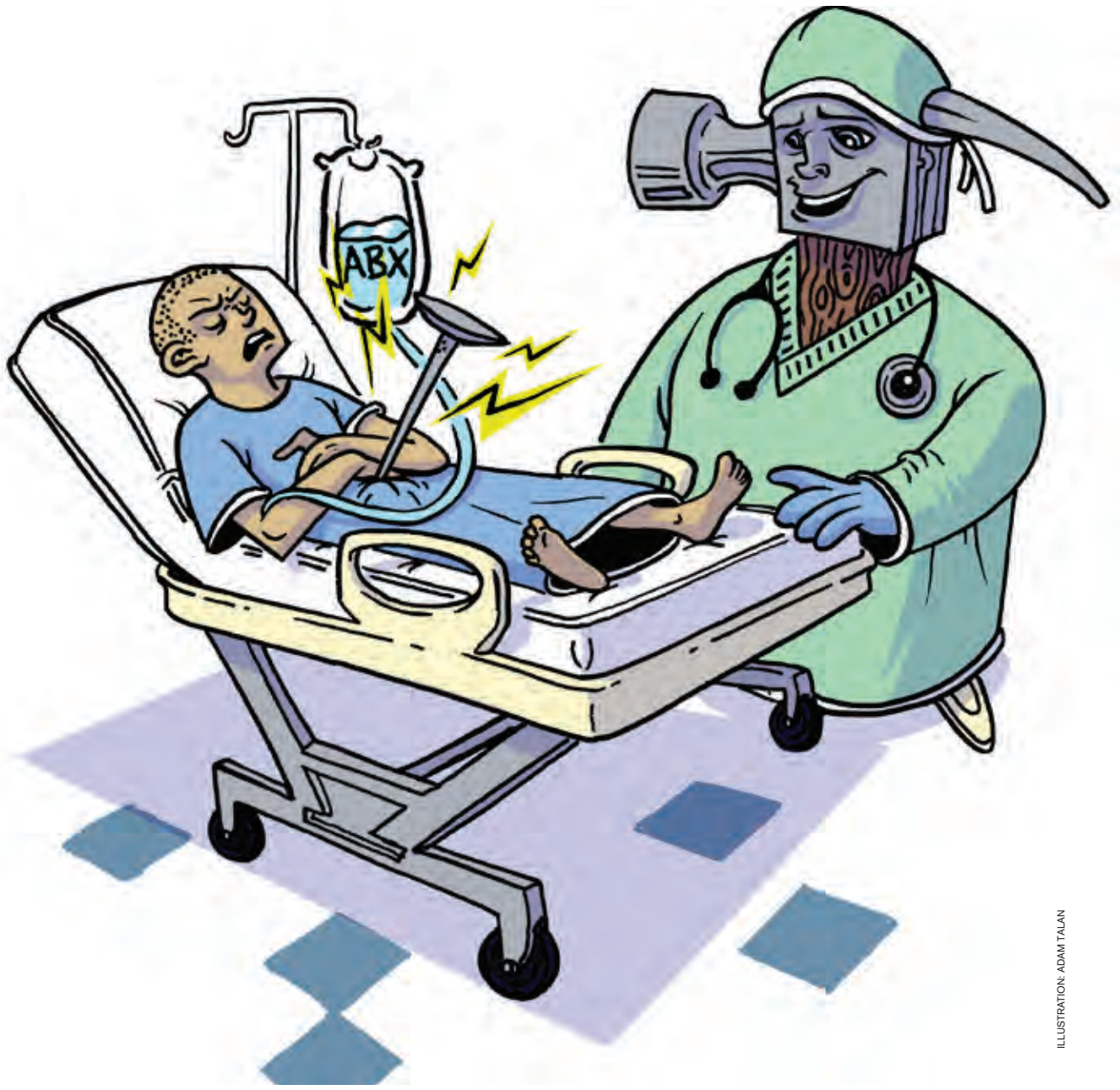
WHEN YOUR ONLY TOOL'S A HAMMER...

Antibiotics are another tool for appendicitis

by DAVID A. TALAN, MD



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"Appendicitis is an obstructed, ischemic ticking time bomb of a finger-like extension of the bowel, which if not urgently removed will burst and lead to death."

For more than 100 years, this understanding guided practice and patient expectations, with appendectomy becoming the most common emergency surgery.

We are now learning this was wrong.

New evidence suggests that appendicitis can be cured with antibiotics alone, avoiding surgery. Perhaps hospitalization can be avoided, too, like we manage some cases of acute diverticulitis.

Surgery became available in the late 1800s, and as anesthesia became more effective, appendectomy became routine. When antibiotics were introduced decades later, their use made appendectomy safer. The first clue that antibiotics could cure appendicitis came from experience among young submariners. However, it's only been in the past few years that researchers have conducted studies in which patients with appendicitis were randomized to receive antibiotics first or urgent appendectomy.

There have been seven European randomized trials, the largest a study from Finland involving 530 participants with results published in *JAMA*.[1] Adults with localized, uncomplicated appendicitis were enrolled. These trials found no increased rate of perforation or sepsis, and there have been no reported deaths in the antibiotics groups. Participants treated with antibiotics returned to their normal activities one to two weeks sooner than those treated with appendectomy. However, about 10 percent initially failed to improve, requiring surgery, as did about another 15 percent who had recurrence over the next year, totaling a 25 percent subsequent appendectomy rate overall. Similar findings have been reported in children from studies in which treatment was not randomized but guided by parent and patient preference.

This year, our group at Olive View-UCLA Medical Center reported our findings on the first US randomized trial in the *Annals of Emergency Medicine*.[2] This study, funded by the National Institutes of Health, was a pilot study of 30 patients with imaging-confirmed, acute, uncomplicated appendicitis. This study's innovation was the premise that standard postoperative milestones for hospital discharge—clinical stability, oral intake, pain control, and ability to follow up—should be applied to both groups, including the antibiotics group, even when met as early as during the ED stay. We initially gave a dose of long-acting parenteral antibiotic ertapenem to ensure active treatment while the patient's bowel infection was recovering. Then we had the patients complete a 10-day antibiotics course with oral cefdinir and metronidazole, and we prescribed around-the-clock ibuprofen and prn oxycodone.

We found that of 15 adults randomized to antibiotics, 14 achieved stability in the emergency department and were discharged home. All antibiotics-treated participants had their symptoms of acute appendicitis resolve. Like previous trials, we found antibiotics-treated participants recovered much sooner than those treated surgically. Remarkably, about one-third were pain-free and could return to their normal activities after only one day. Many patients would like to avoid surgery, and of course, eliminating hospitalization would also substantially reduce costs.

Over the next year, two antibiotics-treated participants developed recurrent appendicitis; one had surgery, and the other elected to take another antibiotics course and has remained well. So in this small pilot, our one-year appendectomy rate for antibiotics-treated patients was less than 10 percent.

Is ED management and discharge of acute appendicitis ready for prime time? No. However, emergency physicians should be familiar with antibiotics management since some surgeons are early adopters. Also, the topic of antibiotics treatment of appendicitis has been exposed in the lay press; some patients are now inquiring and even demanding this treatment.[3]

Before antibiotics treatment is mainstreamed, we need to know much more. Comparing against modern endoscopic appendectomy, it must be clearly established that antibiotics lead to no more complications. We need to better understand how patients value permanently curing the disease compared to minimizing that disease's impact on their life. We also don't know how much time to give antibiotics to work. One reason we think we saw no initial antibiotics failures in our pilot study was that, with ED discharge, there was less opportunity for surgeons to observe variation in pain control and offer patients appendectomy. We don't yet know conclusively in which patients antibiotics are more likely to work.

We are now conducting the first multicenter, randomized US trial called Comparing Outcomes of Drugs and Appendectomy (CODA, ClinicalTrials.gov: NCT02800785). Our methods are similar to our pilot study. This work is being done under a Patient-Centered Outcomes Research Institute grant and in collaboration with the University of Washington Department of Surgery in Seattle.

The results of this study will be important in determining if acute appendicitis should be routinely managed from the emergency department like acute diverticulitis. It appears that we are on the verge of a new type of shared decision making with our ED patients, turning the previous understanding about the most common "surgical emergency" on its head.

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Dr. Talan (right) with son Adam.

ADAM TALAN, the artist who created the article's illustration, is Dr. Talan's son. He obtained his degree in Illustration from Academy of Art University in San Francisco and currently works in Los Angeles. You can see more of his work and contact him at adamtalan.com. Adam still has his appendix.

ACEP Seizes the Day

ACCREDITING GERIATRIC EMERGENCY CARE FOR OUR EMERGENCY DEPARTMENTS

by CHRISTOPHER CARPENTER, MD, MSC, FACEP; ULA HWANG, MD, MPH, FACEP; KEVIN BIESE, MD; DARRELL CARTER, MD, FACEP; TERESITA HOGAN, MD; MARIANNA KAROUNOS, DO, MS, FACEP; MICHAEL MALONE, MD; DONALD MELADY, MD; ANTHONY ROSEN, MD, MPH; MARK ROSENBERG, DO, MBA, FACEP; SANDY SCHNEIDER, MD, FACEP; MANISH SHAH, MD, FACEP; THOMAS SPIEGEL, MD, MS, MBA; AND MICHAEL STERN, MD

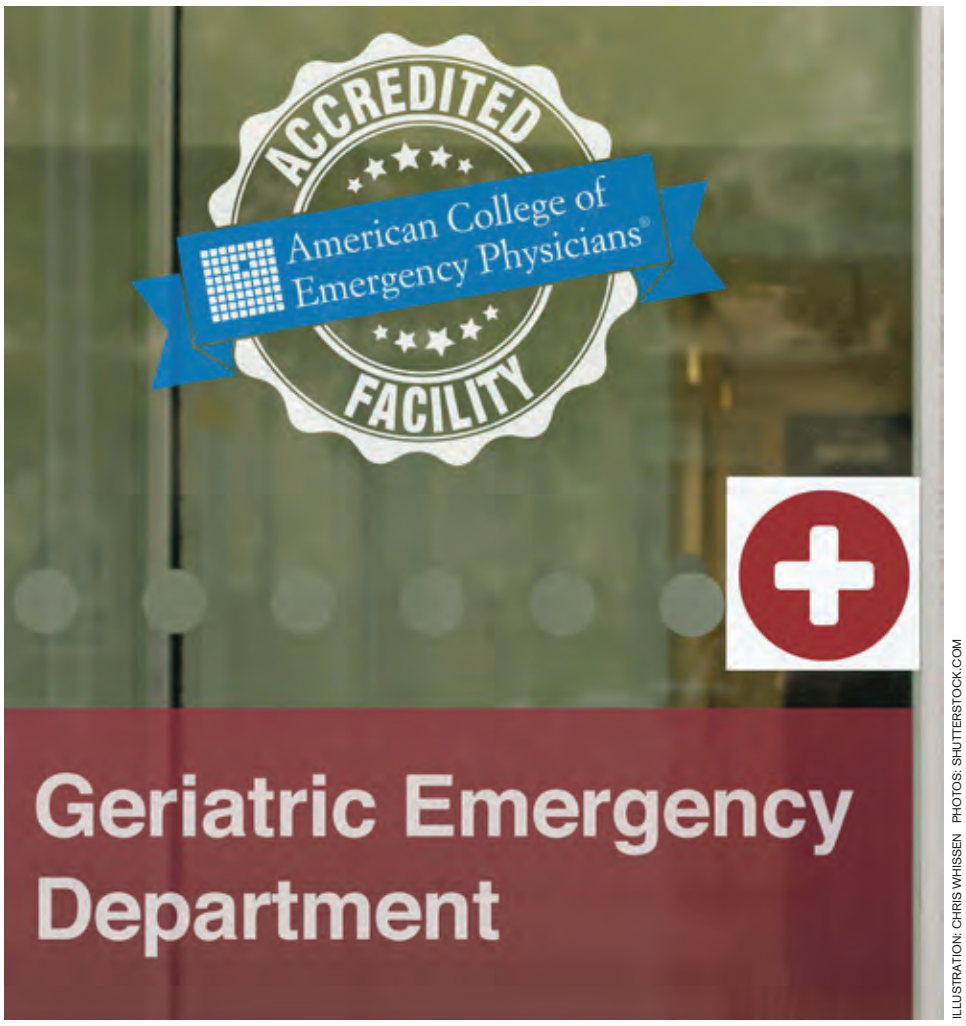

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Table 1: Geriatric ED Accreditation Taskforce

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Thomas Spiegel, MD, MS, MBA
Michael Stern, MD

Emergency department providers across the nation recognize that, every shift, patients seem older. These observations are not an illusion. Aging baby boomers will increase the number of older ED patients every year for the next few decades. Vulnerable older patients often arrive to the emergency department with multiple comorbidities and vague chief complaints that require more complex decision making and prolonged evaluation times and increase the likelihood of admissions. ED providers are concurrently pressured to increase throughput and discharge many of these patients.[1] Adding the difficulty of navigating the often-complex social issues that come with caring for elder patients, the challenges increase even further. ACEP's Geriatric Emergency Medicine Section (GEMS) developed geriatric emergency department (GED) guidelines intended to provide recommendations and guidance for optimal geriatric emergency patient care.[2] These were endorsed by the ACEP Board of Directors in 2013 and also by several other national emergency medicine and geriatrics organizations.

Not all emergency departments are the same, yet optimizing geriatric emergency care across emergency departments of varying sizes and capabilities depends on prioritizing the best practices included in the ACEP GED guidelines. Best elder care depends on aligning GED practices with the resource capacity of one's hospital and staff as well as the specific needs of one's patients. In addition, ED leaders can use these recommendations to leverage hospital resources and the support required to care for an aging population safely and efficiently. Increasingly, hospitals are advertising "senior-friendly emergency departments," but the process of transforming guidelines into actual health care delivery has not been standardized.[3] In the fall of 2016, ACEP convened a taskforce (see Table 1) to develop a GED accreditation proposal intended to help members and hospitals provide higher-quality geriatric emergency care under increasingly challenging conditions. This proposal was approved by the Board of Directors in January 2017. Accreditation will be awarded on a three-tier platform as determined by each hospital's level of implementation of the GED guidelines.

The ACEP GED Accreditation (GEDA) program is intended to be a transparent and minimally disruptive mechanism that assesses and publicly recognizes a hospital's commitment to optimal geriatric emergency health care delivery. The emphasis here is on hospital responsibility because effective geriatric care requires effective interdisciplinary patient care. Success depends upon giving the emergency department needed support and hospital resources to ensure more comprehensive geriatric evaluations and timely access to follow-up care. Once a hospital commits to support credentialing an emergency department as geriatric-centered, the expectation is that the hospital will also provide and sustain the resources to effect those changes.

Table 2: Comparisons of Established Definitions, Sepsis-3 Definitions, and SSC Guidelines

LEVEL	STAFFING	EDUCATION	SAMPLE POLICY	SAMPLE OUTCOME MEASURES	STANDARD ED EQUIPMENT
3	One nurse and one physician to provide geriatric-focused education	No requirements	Evidence of adherence to urinary catheter avoidance policy	No requirements	Mobility aids
2	Level 3 staffing + transitional care nurse + interdisciplinary care team (physical therapy, occupational therapy, social work, pharmacy) + dedicated hospital administrator who supervises and supports GED	Document geriatric EM–appropriate educational CME for providers working in the GED	Standardized assessments for delirium, dementia, elder abuse, and falls Access to postdischarge follow-up resources such as community paramedicine	Proportion of patients assessed (for delirium, dementia, falls, etc.) and proportion identified as high-risk Rates for hospital admissions and ED returns Proportions of patients with extended ED lengths of stay (>8 hours)	Mobility aids, nonslip socks, pressure-reducing mattresses, hearing aids, bedside commodes, condom catheters, bedside transition stools, large-face analog clocks
1	Level 2 requirements + patient adviser or patient council providing monthly input on GED care quality	Same as level 2	Same as level 2 + guidelines defining criteria for accessing the GED	Same as level 2	Ideally a separate space within or adjacent to non-geriatric ED

The accreditation criteria for each tier are summarized in Table 2. Level 3 GEDs represent expectations attainable by smaller hospitals, often in rural settings in which around-the-clock access to advanced imaging or labs may be limited and where staffing often includes non-physician providers. The level 3 criteria reflect these more limited resources. The level 2 criteria add expectations for demonstrable geriatric-focused staff education and guidelines as well as regular outcomes linked to specific process changes. Level 2 GEDs would be expected to achieve 75 percent adherence to at least 10 (out of 26) best practices on random chart audits of 10 total patients occurring quarterly, and they should be able to report on at least 25 percent of relevant outcome measures. Level 1 GEDs would serve as the gold standard of geriatric emergency care, demonstrating excellence by fulfilling the same criteria as Level 2 but with the addition of patient stakeholder representation, dedicated space or structures, and reporting of at least 50 percent of relevant outcome measures.

The ACEP GEDA taskforce and Board of Directors are well aware of the ever-increasing and largely unreimbursed quality and educational requirements placed on ACEP members. Being mindful of this, accreditation relies on self-reporting, has minimal associated cost, and incurs no additional CME requirements. We anticipate the accreditation process, and subsequent recognition of GED hospitals, will create a standardized and quantifiable program aligning the GED guidelines and GED accreditation with hospitals' priorities. ACEP members at GED-accredited hospitals should

CONTINUED *on page 22*

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UPDATES IN EVENT MEDICINE

Highlights from one of ACEP's newest sections

by CHRISSY H. CHAN, MD, AND MATT S. FRIEDMAN, MD

RENÉE FERNANDES/RENEEMEDIA

James R. Kennedye MD, MPH, FACEP, of Tulsa, OK, helps Davi Millsaps up after a crash on the track during the Monster Energy Supercross races in Arlington, Texas.

The term "mass gathering" refers to a variety of different events including music festivals, concerts, state fairs, political rallies, sporting events like the Olympics and football games, public exhibitions, and the recent Pokémon GO game sensation. Mass gatherings are occurring more frequently globally.[1] While the majority of attendees who seek medical attention have minor injuries or illnesses and commonly remain at the event, deaths are not infrequently reported in the academic and gray literature (ie, white papers and government documents).[2,3] At music festivals between 1999 and 2014, 722 deaths were reported.[3] Thus, onsite medical care has become an integral component of mass gatherings, and provisions for onsite resuscitation are critical to improve patient outcomes.[4]

There is not a uniform consensus regarding the definition of a mass gathering. A mass gathering is commonly defined by a single characteristic of the event: the number of attendees. Some define a mass gathering as an event with more than 1,000 attendees, while others argue the minimum is 25,000 persons.[5,6] Strictly defining a mass gathering by the number of attendees incorrectly suggests that attendance is the most important variable of an event. A broader definition of a mass gathering would be more useful. One authority defined a mass gathering as an event at which persons gather and the potential exists for delayed response to emergencies because of limited accessibility or the environment.[7] The potential for delayed response requires advanced planning and preparation to allow timely access to appropriate medical care.

Mass-Gathering Medicine Literature

Reviews of mass-gathering medicine (MGM) literature repeatedly note that the existing literature is largely anecdotal or descriptive.[2,7] MGM terminology and concepts are inconsistently defined and applied in the literature, leading to a relatively limited and non-standardized evidence base.[8] For instance, event medicine and MGM are two synonymous terms referring to the same unique field of medicine. Pivotal details required to assess the impact of mass gatherings on local emergency medical services (EMS) and health care services are infrequently collected and analyzed.[2] These deficiencies in data hinder the development of a core knowledge base. The unique challenges of providing adequate health care at mass gatherings are inadequately studied.

Mass gatherings have a higher incidence of injury and illness than is expected from the general population despite typically being gatherings of healthy persons.[7,9] The reasons for this are incompletely understood. Variables affecting patient presentation rates (PPRs) at mass gatherings include type of event, ambient temperature, drug use and resultant toxicity, and availability of free water. Events with increased PPRs require greater resources, medical staffing, preparation, and disaster planning. As the field of event medicine develops, goals include standardized data collection, collaboration among researchers, and the development of a minimum core competency of knowledge for clinical providers and the attendant medical directors who work at these events. An international multidisciplinary group has begun to develop agreement on key concepts, data definitions, and a minimum data set.[8] The overarching goal of MGM is to offer a multidisciplinary health care team capable of decreasing PPRs, optimizing onsite care by providing care similar to that available in emergency departments, and minimizing the effect of the event on local health care resources.

Demographics of Attendees

In one recent large Australian study of nearly 5,000 patients at mass gatherings, females were shown to be more frequent utilizers of onsite medical care (62.4 percent), contradicting other studies finding equal gender distribution or slightly higher male medical usage rates (MURs).[9,10] The majority of patients were younger than 25 years of age (78.3 percent). The most common complaints in descending order were headache, lacerations, sprains, pain, asthma, and nausea/vomiting. Females sustained injuries at half the rate as males (odds ratio, 0.54; 95 percent CI, 0.47–0.62; P <.001). The majority of the critical non-traumatic illness that occurs at music festivals arises from 3,4-methylenedioxymethamphetamine (MDMA) and associated adulterant toxicity.[11] MDMA, known as "ecstasy" in pill form and "molly" in powder form, has been popularized as an illicit recreational drug commonly used at electronic dance music events. Fatalities in the United States attributed to MDMA use

CONTINUED *on page 13*

were first reported in 1987.[12]

Predictive Variables

A literature review identified multiple interacting variables that affect the MUR.[9] The following variables (see Table 1) contribute significantly to the PPRs: ambient temperature, event type, event duration, crowd mood, crowd density, attendance, average age, and the prevalence of alcohol and drug use. Cold and rainy days generally lead to lower PPRs but with a higher incidence of hypothermia, frostbite, and falls, while hot weather leads to higher PPRs for dehydration, insect bites, and sunburns.[9] Rock concerts have a positive correlation with trauma (often secondary to moshing and crowd surfing).[9] At music concerts, attendees often have limited mobility and consume drugs and excessive amounts of alcohol, leading to higher PPRs. Event duration extends exposure and increases exhaustion.[9] Crowd density may affect crowd mood, limit access of patrons to water and facilities, and limit EMS access to potential patients.[9] Interestingly, PPRs tend to decrease with higher attendance (ie, as the number of spectators increases, the number of patients evaluated per 10,000 in attendance decreases).[9] The reasons for this are not understood.

Younger adult spectators use more alcohol and drugs than older spectators and have increased trauma, often secondary to physical altercations.[9] Age distribution of a particular event is also a key variable as medical and social issues for older patrons differ widely from those of younger crowds due to their behavior, judgment, frailty, and vulnerability.[9]

Heat index is associated directly with PPRs.[13] The heat index at the kickoff times of football games in the southeastern United States was compared to the PPRs for the games over the course of four years. For every 10-degree increase in the heat index, three more patients per 10,000 patrons required medical care.

Five variables (see Table 2) are known to increase PPR: unbounded venues, outdoor venues, events lacking free water, lack of climate control, and a higher heat index.[5] Thus, medical staffing should be especially prepared if these risk factors exist. After accounting for these other variables, the presence of alcohol does not increase the PPR.

Table 1: Key Variables Affecting Patient Presentation Rate

WEATHER
EVENT TYPE
EVENT DURATION
CROWD MOOD
CROWD DENSITY
ATTENDANCE
AGE
ALCOHOL AND DRUG USE

Table 2: Variables That Predict Increased Patient Presentation Rate

OUTSIDE VENUE
UNBOUND VENUE
LACK OF FREE WATER
LACK OF CLIMATE CONTROL
HIGHER HEAT INDEX

Conclusion

The following actions can improve patient safety at mass gatherings as described in a recent prospective analysis of patients at a large outdoor summertime mass gathering: develop and drill incident action plans in preparation for disaster scenarios and mass casualty incidents; use roaming, clearly identified medical staff; provide free water for attendees; designate multiple access points for EMS in the event of transport or a mass casualty incident; and use trained medical staff capable of administering rapid cooling, benzodiazepines, and advanced airway management, including rapid sequence intubation.[14]

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ACEP Clinical Policy on Early Pregnancy

by SIGRID A. HAHN, MD, MPH

In October 2016, the ACEP Board of Directors approved an update of the clinical policy on the evaluation of patients with abdominal pain or vaginal bleeding in early pregnancy. For patients presenting to the emergency department with complications of early pregnancy, the clinician's primary goal is to localize the pregnancy, if possible, in order to minimize the risk of an undiagnosed ectopic pregnancy. The Clinical Policies Committee focused on critical questions about whether the β-hCG should be used to determine the need for an ultrasound and, in cases where the ultrasound is indeterminate, whether the β-hCG should be used to predict the risk of an ectopic pregnancy.

CRITICAL QUESTIONS AND RECOMMENDATIONS

QUESTION 1: Should the emergency physician obtain a pelvic ultrasound in a clinically stable pregnant patient who presents to the emergency department with abdominal pain and/or vaginal bleeding and a β-hCG level below a discriminatory threshold?

Patient Management Recommendations

- **Level B recommendations:** Perform or obtain a pelvic ultrasound for symptomatic pregnant patients with any β-hCG level.

MORE ONLINE

Visit **ACEPNow.com** and search for **"ectopic pregnancy"** to read the full guideline summary.

QUESTION 2: In patients who have an indeterminate transvaginal ultrasound result, what is the diagnostic utility of β-hCG for predicting possible ectopic pregnancy?

Patient Management Recommendations

- **Level B recommendations:** Do not use the β-hCG value to exclude the diagnosis of ectopic pregnancy in patients who have an indeterminate ultrasound result.
- **Level C recommendations:** Obtain specialty consultation or arrange close outpatient follow-up for all patients with an indeterminate pelvic ultrasound result.

All patients with symptomatic early pregnancy should have an ultrasound, with a few exclusions such as lack of ultrasound availability. If the ultrasound result is indeterminate, the disposition should be based on the clinical scenario (taking into account mitigating system and patient factors), and all patients should have specialty consultation and/or close follow-up.

DR. HAHN is an associate professor of emergency medicine at the Icahn School of Medicine at Mount Sinai in New York City.

SEND YOUR THOUGHTS AND COMMENTS TO
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PHOTO: SHUTTERSTOCK.COM

Dr. Edwards and Mr. Selesnick have spent decades advocating for California emergency physicians at the state capitol (pictured) and in the courts.

Physician and Lawyer Team Up to Fight for EP Reimbursement

Dr. Irv Edwards and Andrew Selesnick take on insurance companies that neglect to pay fairly

It can be difficult for small physician groups to take on large insurance companies over payment and contract issues even if the law is on the physicians' side. Lawsuits are often long and expensive, with no guarantee of success, and individual physicians or small groups frequently lack the resources to pursue costly court cases.

California's emergency physicians have an ally in the fight for fair reimbursement: the physician-lawyer duo of Irv Edwards, MD, FACEP, and Andrew Selesnick, JD. The pair have been advocating for fair and proper payments for emergency physicians for about 20 years. They recently celebrated a victory in a case argued before the Supreme Court of California that could make it easier for physicians to collect fees they are owed by independent practice associations (IPAs).

Dr. Edwards is a board-certified residency-trained emergency physician who established southern California-based Emergent Medical Associates 25 years ago and is currently its president. Mr. Selesnick was a partner in the firm Michelman & Robinson and head of the firm's health care department during the Supreme Court of California case. He recently joined Buchalter, a law firm based in Los Angeles.

They both recently sat down with *ACEP Now* Medical Editor in Chief Kevin Klauer, DO, EJD, FACEP, to discuss their recent court win and their long-term mission of fighting for fair compensation for emergency medicine services.

KK: You two have had a long history of supporting emergency physicians and pursuing emergency physician reimbursement when things have been unfair. Can you give us a sense of the history of what you have done and those you've pursued over the years?

IE: I was the president of California ACEP, and much of my desire to see the tables of justice set properly occurred when I met with the president of Health Net many years ago while seeking a contract that would be statewide that set fair reimbursement

Dr. Edwards (left) and Mr. Selesnick (right) successfully advocated for fair payments for emergency physicians.

rights. He honestly said to me in his condescending way, "Son, 'fair' isn't part of our negotiating strategy." Andy, at that point, became my partner. We spent a lot of time looking at laws in the state of California, and it wasn't really very hard to figure out, in many regards, how the rights of emergency physicians were being trampled. People were almost daring you to say, "you can sue us, but we're not going to pay you what the law says." I do think that it is somewhat difficult for smaller independent groups to pursue such litigation because, in many regards, it is undoubtedly expensive. Certainly, the cost of pursuing legal recourse can be greater than the economic recovery. That's what the health plans bank on.

KK: Is it fair to say that the barriers to litigation have allowed for commercial payers to take advantage of emergency physicians and other providers?

IE: Perfectly well said.

KK: How many times have you decided to file suit against a commercial payer regarding physician reimbursement?

AS: We have filed suit dozens of times, including against every major payer. Emergency physicians need to understand the health plans take up to a 10-, 20-, or 30-year outlook on their business and emergency physician groups, especially those that are independent, probably take a weekly or a monthly view. In California, for example, if you had most of the groups who were out of network and they all decided to sue Anthem, it would be very hard for Anthem to counter. Their business model is predicated upon only a certain amount of people doing it even though many others can.

KK: In rough numbers of the suits that you have filed, how often have you been successful?

AS: I think on behalf of Irv's groups, we have always recovered money.

KK: I wouldn't have guessed that. You're saying that if you decide to challenge them and you pick and choose your battles appropriately, you are going to recover something in every case.

AS: I use the stock market phrase, "Past performance is not a predictor of future performance." The reality is that if you analyze these cases appropriately, you can do it. If you litigate and enter into a contract and that contract means that they are not down-coding any more, they are going to pay you a set rate that is higher than they were reimbursing you before. When you look at your whole business model and you are taking a multi-year view, those numbers quickly add up and are substantially more. In the vast majority of cases, we recover well in excess of the fees that are incurred.

CONTINUED *on page 15*

FIGHT FOR REIMBURSEMENT | CONTINUED FROM PAGE 14

KK: Let's talk about this most recent win. Tell us about the background of the issues that led you to file suit in this particular case.

AS: There has been a problem in managed care with IPAs going out of business or IPAs being underfunded in the managed care model. That's been a consistent problem for decades. Irv and I have had multiple discussions over the years about what to do with this problem because it costs his group and other emergency physicians a lot of money. There was a group in South Bay called La Vida, headed by a physician named Dr. Chidi. He had a lot of problems with his IPA; it was upside down. The health plans and the government regulators knew about it, but they really didn't do anything for years. So, for years, emergency physicians like Irv's group were not being paid appropriately. One day, the IPA went out of business. They didn't declare bankruptcy; they just literally turned off the lights and left. As the head of the group, Dr. Chidi said, under oath and deposition, they didn't even have enough money to buy a stamp. Irv's group was owed a lot of money because they were out of network with the IPA, and they were out of network with the health plans that were supporting the IPA. We felt like this would be a good cause where we could hold the plans to their obligations to reimburse for emergency services they were advertising for. They should pay for it. So we filed a case in the trial court, and we lost immediately because health plans are allowed to delegate their responsibilities. The health plans took the position that they can delegate to whomever they want even though we had no choice in it at all. They can just delegate it, and it would be fine. Once they delegated it, they were done. We like to use the example of they could've delegated it to Joe's IPA. Joe could have gone to the south of France, and emergency physicians wouldn't get paid.

IE: The health plans' excuse was, "We've paid for it once, and in order for you to collect, you would be asking us to pay a second time, and that's kind of double jeopardy."

KK: In an analogy, taking the plan's position, if I decided to subrogate my utility bills to a third party and the third party went out of business, I wouldn't have to pay my bills anymore. Isn't that basically what they did?

IE and AS: Yes.

IE: We wrote a series of certified letters to each health plan, both to the CEOs and to the general counsel, alerting them to the fact that we were not being paid, that we had a significant financial shortfall, that level fives that were intubated were being down-coded to level ones, that we were underpaid on many claims, and that we had delays in payments. They wrote back, "Thank you for telling us. We forwarded your letter and your complaint to the plan for processing." Nothing ever changed, but there was clearly proof that they knew of the abuses and that really the ER doctors were being victimized. We met with Gary Baldwin at the Department of Managed Health Care (DMHC) to complain about them, then spent a day, got on an airplane, and went up to the capitol to talk to them. They took it seriously, but their ultimate decision was La Vida was in trouble. Rather than order the health plans to pay ER claims directly—they felt that would make La Vida more insolvent—they actually worked out an arrangement to pay them additional money, but I don't believe that they ever monitored that the money flowed to us. So DMHC took the opposite tactic and paid the requested health plan's increased reimbursement to this troubled IPA, but still not a single increase for emergency physicians occurred.

AS: Along the way, in addition to Irv and his group carrying the torch, California ACEP and the California Medical Association got involved in supporting the cause all the way up through the Supreme Court to show that the house of medicine was in favor of holding the health plans responsible. What was really gratifying, especially for Irv, was in the Supreme Court's decision. They found the health plan's conduct morally blameworthy. You don't get to delegate, walk away, and leave everybody else holding the bag. The Supreme Court was unanimous. Maybe I'm being overly dramatic, but I think lives will be saved because there will be sufficient funds to make sure that appropriate access to care is maintained for patients in need of emergency care.

KK: I wouldn't expect you to have the exact amount, but have you quantified the compensation that was withheld based on this over a period of time?

AS: When you count all the specialists and everyone else, it is going to be millions and millions of dollars in uncompensated care, and you know that makes a difference over time.

KK: Andy, would you summarize in one or two sentences your feelings about Irv's contribution to the health care delivery system in California?

AS: Irv is a visionary when it comes to the understanding of health care economics and the importance of being reimbursed properly for lifesaving services. He has put real dollars, real money behind it, and I think the result is that the safety net in California is much stronger. Physicians may not realize it, but I think he has made a real difference in their reimbursement and therefore in the staffing and the lives of not only the physicians and the hospitals but the patients, too.

NEW COLUMN

EM PICS WORTH A THOUSAND WORD

IMAGES IN EM

DR. THOMAS is an emergency medicine resident at Highland Hospital in Oakland, California.

PHOTO: BENJAMIN THOMAS, MD

IMAGES IN EM | CONTINUED FROM PAGE 1

daughter's face as I told her family that she passed away. This was the first time that I had had to deal with death as a physician, and it was certainly not the last. Leaving the hospital that night, I questioned whether I was meant to do this and began to understand that burnout was a real phenomenon.

A recent survey illustrated that emergency medicine has one of the highest percentages of burnout.[1] Burnout can mean a number of different things to different people. Lack of satisfaction, apathy, compassion fatigue, and simple exhaustion are all commonly described symptoms of burnout. For me, burnout manifested most after I had a patient death under my care. Each and every bad outcome that I had early on in residency began to exacerbate those symptoms more and more. Many physicians, including myself, are goal-directed, type A perfectionists.

We do not do well with failure or even the perception of it. Even when failure is inevitable, we often focus on the things that went wrong or the things that we should have changed. I felt myself becoming jaded. I felt like my empathy and compassion were now at the edge of a cliff, hanging on by a thread.

Several months later, I saw the brother of the patient who died in the emergency department that fateful night. Our eyes met, and his first words to me were not of criticism or scorn but of thanks. To my surprise, he was thanking me for the care and effort that I was able to provide for his sister. Over that time, I was so focused on the negative experiences in medicine that I lost sight of the overwhelmingly positive things that manifest on a daily basis. I began to accept the gratitude for the simple laceration repair or basic shoulder reduction.

What we do is hard. We take care of patients on the worst days of their lives. Ignoring the reality of burnout, like I did, will only set you up for failure. Recognize the signs and take the time to appreciate the gratitude that our patients provide on a daily basis.

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Leaving the hospital that night, I questioned whether I was meant to do this and began to understand that burnout was a real phenomenon.

Q&A ABOUT OUR LITTLEST PATIENTS

KIDS KORNER

DR. JONES is assistant professor of pediatric emergency medicine at the University of Kentucky in Lexington.

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

Acute Gastroenteritis & Acute Epididymitis

Predicting outpatient failure in AGE and using antibiotics in prepubescent children with acute epididymitis

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.

Question 1: In children with acute gastroenteritis (AGE), is there a particular serum bicarbonate level that strongly predicts admission or outpatient treatment failure?

While most AGE literature evaluating serum bicarbonate focuses on its incorporation into assessment scores of dehydration, few studies evaluate its ability to predict hospital admission.

A prospective observational study evaluated 206 children with AGE between the ages of 1 month and 5 years. Of these kids, 59 of 206 (29 percent) had blood work drawn.[1] The goal of the study was to assess the validity of the clinical dehydration scale (CDS), which classifies dehydration as "no," "some," or "moderate/severe" dehydration. The authors, a priori, grouped serum bicarbonate levels into two groups (< 18 and ≥ 18 mEq/L). In the group with "moderate/severe" compared to "some" dehydration, the serum bicarbonate was < 18 mEq/L in 75 percent versus 39 percent (P=0.22), respectively. This difference was not statistically significant, and there were only a very small number of "moderate/severe" dehydrated patients. The rate of admission was 5 percent (10 of 206), but no comparison was made between admitted and discharged patients. Overall, the study suggested that, as expected, children with worsening dehydration may have lower serum bicarbonate levels.

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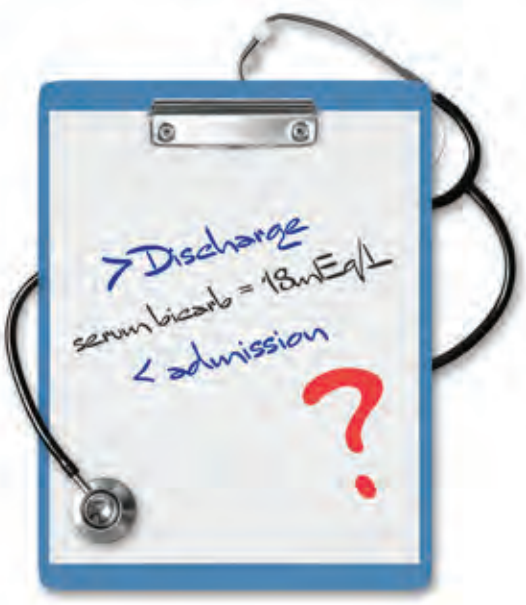
Another prospective observational study by Madati and Bachur evaluated 130 children age 3 months to 7 years with AGE.[2] Patients received either blood work or an end-tidal carbon dioxide ($ETCO_2$) reading. Per the authors, an $ETCO_2$ of 31 mmHg approximates a serum bicarbonate of 15 mmol/L. In this study, they also confirmed that an $ETCO_2$ of 31 mmHg or less had 98.6 percent sensitivity for demonstrating a serum bicarbonate of ≤16 mmol/L. Regarding admission, they found there was no significant difference in serum bicarbonate values (P=0.11) between patients admitted (17.5 ± 3.3 mmol/L) versus discharged (19.0 ± 3.1 mmol/L). Twelve percent of the patients were admitted.

A study by Freedman et al may best address this topic.[3] It's a secondary analysis of prospectively collected data. In the initial study, the authors were looking at regular versus rapid rehydration. Children were randomized to either a single 20 mL/kg bolus or three boluses (total of 60 mL/kg) over the course of an hour. The primary outcome was whether a serum bicarbonate level could predict an ED revisit within seven days. The study included 226 children older than 3 months of age with AGE and found that 52 of 226 (23 percent) were admitted at the time of initial presentation. Of the remaining discharged



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patients, 30 of 174 (18 percent) had an ED revisit within seven days. There was no statistically significant difference (P=0.25) between serum bicarbonate values in children who did and did not have a "successful discharge" (not admitted at initial visit and not having a return ED visit within seven days).

Conclusion: While the data are limited, there does not appear to be a particular serum bicarbonate level that can reliably predict hospital admission in children with acute gastroenteritis.

Question 2: Should prepubescent children with acute epididymitis receive antibiotics?

The majority of studies addressing pediatric epididymitis are retrospective and exclude postpubertal or sexually active children. Therefore, this topic does not address these populations. To begin, let's look at some representative retrospective studies.

A three-year retrospective study by Sakellaris and Charissis reviewed 66 cases of acute scrotum in preadolescent Greek boys, of which 29 were diagnosed with epididymitis.[4] Boys with epididymitis were ages 2–13 years and diagnosed with epididymitis via ultrasound (n=28) or intraoperatively (n=1). All patients with acute epididymitis received intravenous antibiotics, and all received follow-up. There were no positive urine cultures and no follow-up complications of testicular atrophy.

Another retrospective study examined 151 cases of first-time epididymitis in children presenting to an outpatient urology clinic.[5] Ages ranged from 3 months to 17 years. Cases of recurrent epididymitis, recent instrumentation or urologic surgery, or epididymitis secondary to another cause (eg, testicular torsion, vasculitis, hernia, etc.) were excluded. Of note, this study included postpubertal boys. Ninety-seven patients were treated as inpatients. All patients received a scrotal ultrasound (US). Urinalysis (UA) was obtained in 93 of 151 (61.6 percent) patients, and of those 93 patients, there was only one positive urinalysis. The authors describe this case as "mild leukocyturia," although their definition of mild leukocyturia could not be found. The urine culture was negative in that child. With regard to the remainder of these 93 patients, a urine culture was obtained in only six patients. All patients received antibiotics, but follow-up data are not mentioned. This article suggests that the large majority of epididymitis cases demonstrate negative UA results. Two additional retrospective studies demonstrate similar findings.[6,7] A recent systematic review of 27 retrospective studies by Cristoforo that included 1,496 total pediatric patients also concluded that practitioners "should consider prescribing antibiotics only in the treatment of acute epididymitis for patients with a confirmed bacterial etiology."[8]

There are two observational prospective studies. The first evaluated prepubertal boys, excluding postpubertal or sexually active patients.[9] Of the 48 boys included, five (10.4 percent) had a positive UA, defined as > 3 WBC/hpf, or a positive urine culture. All of those with a positive culture had a positive UA. The remaining 43 cases of epididymitis were diagnosed by US only (n=1), radionuclide scan only (n=36), a combination of the two modalities (n=3), or an "experienced clinician" (n=3). Of these 43 remaining cases, 36 (83.7 percent) did not receive antibiotics, and 40 (93 percent) received follow-up. No patients showed any negative effects of epididymitis, with the authors suggesting "antibiotics play little or no role in its management when there are no urinary findings."

A second prospective study was a one-year prospective study in prepubescent males and excluded sexually active boys.[10] The patients were 2–14 years of age. All patients with epididymitis (n=44) were diagnosed via US and admitted. Only 3 of 44 (6.8 percent) received antibiotics, with the remainder receiving "analgesics and bed rest." All patients were followed up through symptom resolution. Only three patients had "mild *pyuria*" (3–5 WBC/hpf), and one patient had a positive urine culture. The authors state, "During follow up, no testicular abnormality and no symptom recurrence were noted."

Conclusion: In prepubescent boys with acute epididymitis, antibiotics are probably not routinely indicated unless the UA or urine culture is positive. In postpubertal or sexually active boys with epididymitis, antibiotics treatment may be practitioner-specific since many studies on acute epididymitis commonly exclude these patients.

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THE END OF THE RAINBOW

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Make Hay While the Sun Shines

Optimizing your financial behavior—even when mathematically that might not appear to be the right approach

by JAMES M. DAHLE, MD, FACEP

Q. ***Why do some physicians seem to be so much more financially adept than others? What are the keys to success?***

A. There is an old adage that states, "Personal finance is both personal and finance." That is to say, there are two components to success: behavior and math. Most experts agree that 80 percent of success in personal finance is due to optimizing your behavior and only 20 percent is due to learning the rules of the game.

When trying to eliminate or reduce debt, the mathematically correct thing to do is to pay the minimum on all the debts in order to avoid additional fees and penalties, then use any extra income to pay down the debt with the highest interest rate. Despite that fact, financial coaches have advocated a different approach for years, putting the additional income toward the smallest debt regardless of interest rate. What these "soldiers in the trenches" have learned, which was recently confirmed by a Harvard study, is that people are more likely to get out of debt faster when they feel they are making progress. Behaviorally, it feels like you are making more progress when you have fewer debts and are writing fewer checks each month, even if the total debt is slightly larger. This is often called a "debt snowball" because as the number of debts decrease, borrowers feel they are gaining momentum and are more likely to complete the task simply because they stick with the task longer and put more money toward the debt rather than spending it.

Many physicians appropriately struggle with the decision of whether to direct additional income toward investments or debt reduction. This becomes particularly problematic when the debt is at a very low interest rate, such as some student loans and many mortgages. It seems mathematically obvious that, even with some additional risk, the investor is likely to outperform the guaranteed 1–3 percent return from paying off low-interest-rate debt. However, what often happens is money that would have gone toward the debt is spent rather than invested. After a while, you're "borrowing at 2 percent" to pay for your Car-

CONTINUED *on page 22*

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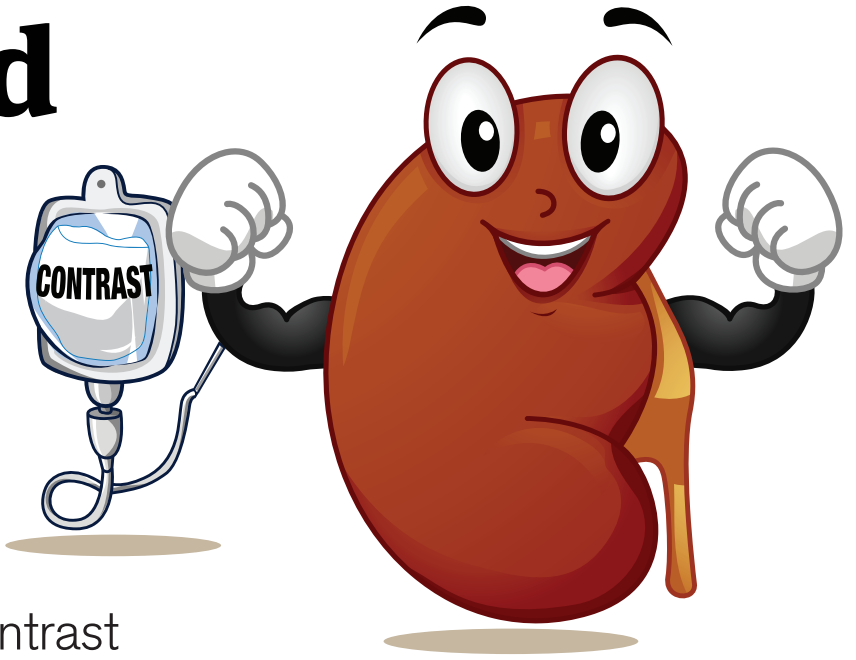
EM LITERATURE OF NOTE

PEARLS FROM THE MEDICAL LITERATURE

DR. RADECKI is assistant professor of emergency medicine at The University of Texas Medical School at Houston. He blogs at Emergency Medicine Literature of Note (emlitofnote.com) and can be found on Twitter @emlitofnote.

Contrast-Induced Nephropathy: Kidney Says "Bring It!"



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Revisiting the evidence regarding use of IV contrast

by RYAN PATRICK RADECKI, MD, MS

In the last few decades, as advanced imaging has become pervasive, a few adverse effects relating to its use have been accepted: There are small age-dependent harms suspected from radiation exposure, the underappreciated harms of overdiagnosis and false-positive results, and the deleterious effect on renal function from contrast-induced nephropathy (CIN).

It is not unusual for radiology departments to have a renal function cutoff for the use of intravenous contrast or even a protocol requiring hydration or other preventive therapy for those "at risk."

However, physicians have been wringing their hands over CIN unnecessarily. It may not even be a relevant clinical entity in the context of the emergency department. While many observational studies have documented the substantial incidence of acute kidney injury (AKI) following intravenous (IV) contrast exposure, per the common general definition of CIN, it has been challenging to find a proper control group. Are patients developing subsequent AKI because of the IV contrast or due to the morbidity of the acute illness indicating the need for the CT?

This viewpoint is not new but has been gaining steam over the last few years, particularly in the radiology literature. In 2013, a group from the Mayo Clinic performed a systematic review and meta-analysis of the evidence published prior to 2011 regarding the association with IV contrast exposure and subsequent AKI.[1] These authors identified 13 nonrandomized studies comprising 25,950 patients, most of which were published after 2008. There was no statistically significant difference in incidence of AKI, need for dialysis, or death in their comparison, and any trend, if present, actually favored the IV contrast cohort.

Subsequently, these same authors and a group from the University of Michigan published several competing retrospective cohort studies showing differing conclusions.[2,3] Each group, with slightly different methodology, presented retrospective single-center analyses of tens of thousands of patients. Again, these were not randomized trials with proper control groups, but rather they used statistical propensity-matching techniques attempting to minimize confounding effects. In the data presented by the University of Michigan, a small increase in the likelihood of AKI was observed in relation to contrast exposure, and the likelihood increased as the glomerular filtration rate decreased. In the data presented by the Mayo Clinic, no association of AKI with contrast exposure was observed.

Finally, most recently, a group from Johns Hopkins University weighed in; call it a tie-breaker. It performed its own slightly different propensity-matching analysis.[4] The authors included not only emergency department patients undergoing CT with and without IV contrast but also ED patients not undergoing any advanced imaging. These authors controlled for factors such as critical illness, vital signs, potentially nephrotoxic medication exposures, and comorbid baseline features. In their analysis, again, no association was found between IV contrast exposure and AKI across all their comparison groups.

These dogma-challenging findings seem a little less revelatory when considered in the context of the literature regarding treatments to prevent CIN. Recently, yet another study tested sodium bicarbonate against sodium chloride as periprocedural hydration to prevent CIN.[5] In an intensive care unit (ICU) cohort, the frequency of AKI was similar as was the need for renal replacement therapy, ICU length of stay, and mortality. These data were consistent with multiple previous studies, which were unable to reliably demonstrate a renal protective effect from sodium bicarbonate.

Furthermore, these data were also consistent with previous studies unable to reliably find any specific protective benefit from theophylline or N-acetylcysteine, with statins having shown the most promise but no consistent positive result. This has left the cornerstone of preventive therapy as isotonic volume expansion or, simply, intravenous hydration with sodium chloride. However, even this commonly prescribed treatment has been called into question by a recent trial published in *The Lancet*.[6] These authors randomized patients at risk for CIN to either protocolized sodium chloride hydration prior and following IV contrast exposure or to usual care. In their cohort of approximately 600 patients, the exact same number of patients, eight in each group, developed AKI.

The sum of this evidence leads to a very reasonable question, "Is our commonly held concern regarding CIN valid?" The retrospective data hardly answers the question, but it reasonably suggests at least equipoise for future research. Then, in the context of the repeated failures to find a preventive treatment, it is similarly reasonable to suggest the disease in question may be something of a mirage.

To start chipping away at the definitive answer, a truly randomized prospective sample will be needed. Patients for whom a contrast

CONTINUED *on page 20*

Are patients developing subsequent AKI because of the IV contrast or due to the morbidity of the acute illness indicating the need for the CT?

study is indicated but whose renal function would otherwise exclude the use of contrast could be randomized at the point of imaging acquisition. Other than the brief interruption to enroll patients with informed consent, the most significant resource outlay would be to follow up changes in renal function and other outcomes at appropriate intervals. Many other trials test far less for larger investments, and hopefully, the data in question can be forthcoming in the not-so-distant future.

In the meantime, these data probably allow for a loosening of adherence to strict protocols and cutoffs regarding the use of IV contrast. The baseline risk for developing CIN is still low regardless of renal function, and decisions regarding its use should be weighed individually against the potential for missed serious diagnoses if IV contrast is not used.

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Editor's Note: *Cutting through the red tape to make certain that you get paid for every dollar you earn has become more difficult than ever, particularly in our current climate of health care reform and ICD-10 transition. The ACEP Coding and Nomenclature Committee has partnered with ACEP Now to provide you with practical, impactful tips to help you navigate through this coding and reimbursement maze.*

GET PAID FOR YOUR ULTRASOUNDS

by **MIKE LEMANSKI, MD, FACEP, FAAFP**

Question: What do I need to know about billing for ultrasounds performed in the emergency department?

Answer: Bedside ultrasound is one of the best things that has happened for ED patients in the last decade. Physicians who interpret an ultrasound can bill for the professional component. In addition to demographics, an ultrasound report should include the indication, a description of the study, findings, interpretation, and physician name. It is also required that images be permanently archived and be retrievable. Ultrasound guidance is also frequently used to perform procedures. Some procedures, such as arthrocentesis, have newer codes that include ultrasound guidance. Other procedures (eg, paracentesis or central venous line placement) require the procedure be coded separately from the ultrasound guidance. See ACEP's ultrasound FAQ for more information and a complete list of the correct billing codes at www.acep.org/Physician-Resources/Practice-Resources/Administration/Financial-Issues-/-Reimbursement/Ultrasound-FAQs/.

Brought to you by the ACEP Coding and Nomenclature Committee.

DR. LEMANSKI is associate professor of emergency medicine at Baystate Medical Center/Tufts University School of Medicine in Springfield, Massachusetts, and chair of the ACEP Coding and Nomenclature Committee.

CLASSIFIEDS

RAINBOW | CONTINUED FROM PAGE 18

ibbean vacation, that ski trip, and the Tesla in the driveway. This "I can make the payments" mentality actually slows the accumulation of wealth despite being, theoretically, mathematically superior. The best way to combat this natural behavioral tendency is to have a written plan for debt elimination, such as paying off student loans within three years or your mortgage within 10 years. Paying off even low-interest-rate debt early is a good idea, but you don't want to be foolish about it. For example, it would be silly to send extra money to the mortgage lender when you are not contributing enough to your 401(k) to get the entire employer match.

Another area where bad behavior trips up investors is in investment selection. The psychological rush that some people get from gambling can be re-created by selecting a winning individual stock, an actively managed mutual fund, or a hedge fund. However, this is not only a losing strategy mathematically (since most stock pickers, mutual fund managers, and hedge funds underperform the market over the long run), it is a losing strategy behaviorally. By focusing on choosing investments, the investor doesn't focus on what matters most: saving more money, using an appropriately risky asset allocation, minimizing fees, and paying less in taxes. Investing primarily in boring old index mutual funds will help the physician investor not only mathematically but also behaviorally.

Happiness studies show that we rapidly acclimate to a higher income and higher levels of spending. The best strategy for maximizing happiness is to have a constantly increasing standard of living throughout life. However, this does not line up well with a typical emergency physician career and earnings pathway. Therefore, wise physicians will create this scenario artificially by growing into their attending income as slowly as possible after residency. Having to decrease spending in mid to late career in order to accumulate an adequate retirement nest egg is psychologically painful. Of course, that pain would be less than a dramatically decreased lifestyle in mid-retirement due to running out of money!

Finally, it is critical for emergency physicians to realize that the future may not resemble the past. Emergency physicians currently make one of the highest hourly rates in the entire house of medicine. Over the past decade, many specialties in medicine have seen pay cuts of 25 percent or more. Emergency medicine could be next. The current and potential financial pressures on the incomes of emergency physicians cannot be ignored. Emergency physicians would be wise to "make hay while the sun shines" by maintaining a high savings rate, eliminating debt early in their careers, and investing wisely. If you expect a 25 percent drop in income halfway through your career and it doesn't materialize, you'll be that much better off. If you don't plan on that increasingly likely possibility, you may find yourself working far more night shifts than you prefer in your 60s.

Personal finance is both personal and financial. Be sure you attack it from both behavioral and mathematical perspectives.

GEDA | CONTINUED FROM PAGE 11

therefore benefit from greater hospital resources and support that better address the needs of geriatric patients, providers, and health care systems, which ultimately will improve the care delivered to geriatric ED patients. As observed in other areas of emergency medicine, non–emergency medicine organizations could potentially dictate GED accreditation with little knowledge of the issues important to emergency physicians. Emergency physicians are setting the standard, and thus, ACEP is seizing the opportunity to determine and define our own best practices and to support the delivery of emergency care for its members.

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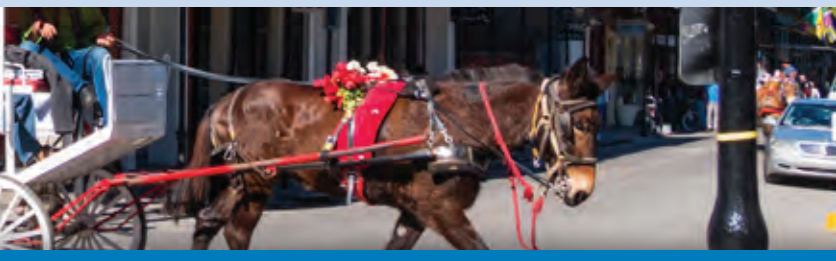

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