ILCOR
Resuscitation First Aid Guidelines
SEE PAGE 12

GUIDELINES
Body Cavity Search Warrant?
SEE PAGE 13

PEARLS FROM THE MEDICAL LITERATURE
INR: Misunderstood and Misleading
SEE PAGE 24

WILEY

American College of Emergency Physicians®
ADVANCING EMERGENCY CARE

ACEP Now

The Official Voice of Emergency Medicine

WINNER 2015 APEX® AWARDS FOR PUBLICATION EXCELLENCE

OCTOBER 2016 Volume 35 Number 10 FACEBOOK/ACEPFAN TWITTER/ACEPNOW ACEPNOW.COM

PLUS

THE END OF THE RAINBOW

TAKING AN APPROPRIATE AMOUNT OF INVESTING RISK

SEE PAGE 19

SOUND ADVICE

ULTRASOUND-GUIDED FOREARM NERVE BLOCKS

SEE PAGE 20

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

Antibiotics for Abscesses

MATTERS COME TO A HEAD

by DAVID A. TALAN, MD, FACEP, FAAEM, FIDSA

Medicine has its dogma, but sometimes it's wrong and, rarely, it's challenged and disproved. Recall, "Pain meds interfere with evaluation of abdominal pain"? So bring on the dogma, "To cut is to cure," for management of the skin abscess, epidemic in emergency departments since the emergence of a new strain of staph, community-associated methicillin-resistant *Staphylococcus aureus* (MRSA).

CONTINUED *on page 18*

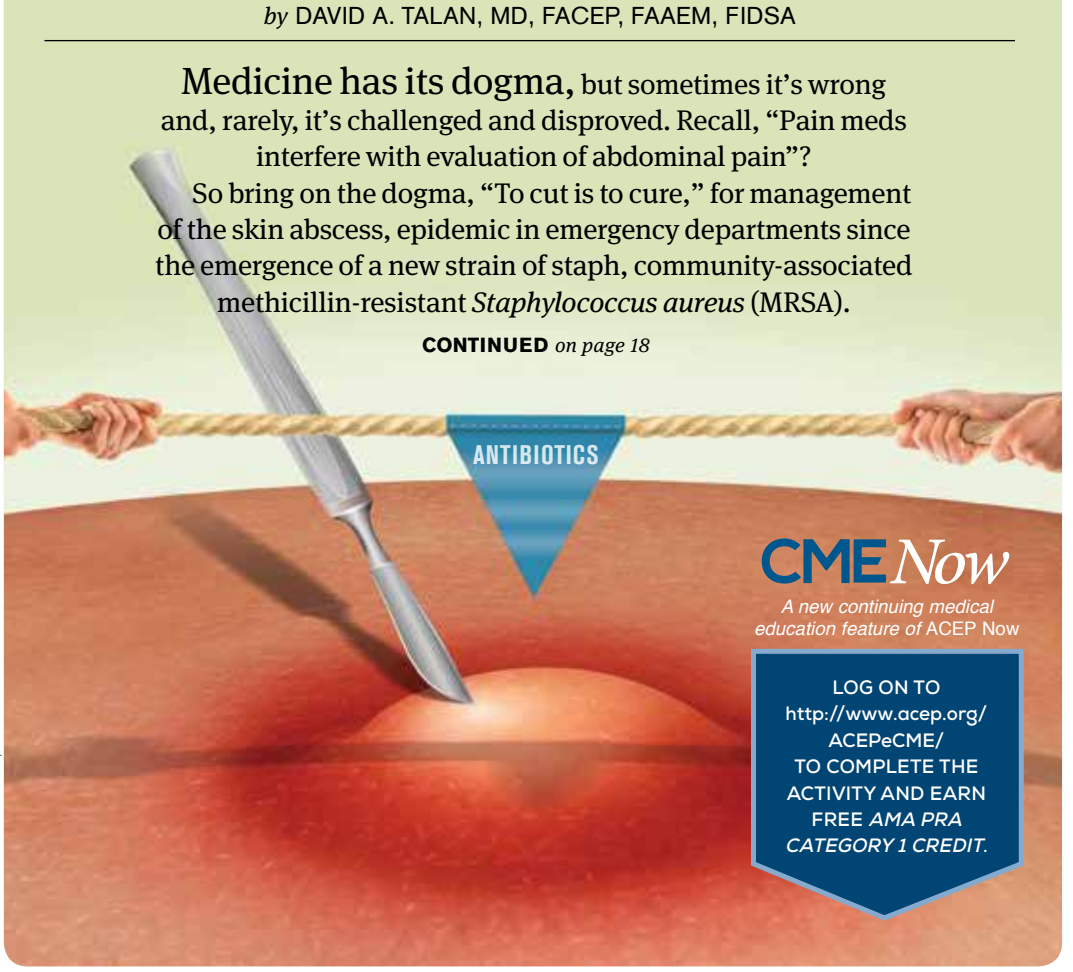


ILLUSTRATION: PAUL JUESTRICH; PHOTOS: SHUTTERSTOCK.COM

CME Now
A new continuing medical education feature of ACEP Now

LOG ON TO http://www.acep.org/ACEPeCME/ TO COMPLETE THE ACTIVITY AND EARN FREE *AMA PRA CATEGORY 1 CREDIT.*

2016–2017 COMPENSATION REPORT FOR EMERGENCY PHYSICIANS

The $200-per-hour benchmark still holds, but not everywhere

by BARB KATZ

Emergency departments continue to see growth in the number of patients they serve, stretching resources and capacity limits. However, there's some good news (and a little troubling news) regarding the compensation emergency physicians receive for their hard work.

This year's report shows a compensation increase of 10.16 percent nationally, from highs of 13 percent in the Middle Atlantic and the Pacific Northwest to lows of 6 percent in the Northeast. The market continues to reflect the lack of standardization in the specialty, with jobs in areas with highly desirable lifestyles featuring significantly lower incomes than nearby positions in "geographically challenged" areas.

There are some overall trends that can spotted in our report:

- The percentage of jobs open to primary care boarded physicians is 45 percent, up 8 percent from last year.
- Sign-on bonuses are increasing, with the average at $25,000 and the high at $100,000; most do not include relocation costs.
- Scribes are becoming the norm, no longer a major plus, in emergency departments nationwide.
- The benchmark of $200 per hour continues to prevail, spreading into the Middle Atlantic but not translating to the Northeast.
- Urgent care jobs are rife in all states, with increasing incomes as high as $350,000.
- Within the next five years, emergency physicians living and working in New York may require food stamps to make ends meet if incomes aren't adjusted to the cost of living!

CONTINUED *on page 10*

PERIODICAL

ACEP Now The Official Voice of Emergency Medicine

JOHN WILEY & SONS, INC.
Journal Customer Services
111 River Street
Hoboken, NJ 07030-5790

If you have changed your address or wish to contact us, please visit our website www.wileycustomerhelp.com

OPINIONS FROM THE READERSHIP

YOUR NEXT PATIENT
EXPOSED TO SMOKE MAY HAVE
CYANIDE POISONING

Visit CYANIDEINSIGHT.COM to learn the causes, signs, and symptoms of cyanide poisoning.

MERIDIAN MEDICAL TECHNOLOGIES
A Pfizer Company

ACEP Now
The Official Voice of Emergency Medicine

INFORMATION FOR SUBSCRIBERS

Subscriptions are free for members of ACEP and SEMPA. Free access is also available online at www.acepnow.com. Paid subscriptions are available to all others for $247/year individual. To initiate a paid subscription, email cs-journals@wiley.com or call (800) 835 6770. ACEP Now (ISSN: 2333-259X print; 2333-2603 digital) is published monthly on behalf of the American College of Emergency Physicians by Wiley Subscription Services, Inc., a Wiley Company, 111 River Street, Hoboken, NJ 07030-5774. Periodical postage paid at Hoboken, NJ, and additional offices. Postmaster: Send address changes to ACEP Now, American College of Emergency Physicians, P.O. Box 619911, Dallas, Texas 75261-9911. Readers can email address changes and correspondence to acepnow@acep.org. Printed in the United States by Cadmus(Cenveo), Lancaster, PA.

CORRECTION
In the September issue article "Meet the ACEP Board of Directors Candidates," Dr. Gillian Schmitz's chapter was incorrectly listed as Texas instead of Government Services. *ACEP Now* apologizes for this error.

OPINIONS FROM EMERGENCY MEDICINE

A NEW SPIN

"REPORTING THE NEWS, NOT CREATING IT"

Editors' Note: *We have received many passionate letters and articles in response to our articles on firearms safety. We have opted to publish a selection of these unsolicited letters here, as they reflect the opinions we've received. These opinions do not represent official positions of ACEP, nor are they representative of all opinions on this topic.*

Firearm Injury Prevention Is Far More Than a Pro/Con Debate

Confusion between legal and science advocacy can negatively affect physicians and patients

BY MEGAN L. RANNEY, MD, MPH, FACEP, AND CHRISTOPHER BARSOTTI, MD

We read with interest the recent pro/con debate in *ACEP Now* (July 2016) about gun control. This debate followed reporting of advocacy for the restoration of federal funding for gun violence research in June by ACEP President Jay Kaplan, MD, and by the American Medical Association (AMA) (*ACEP Now*, June 2016).

The July article purported to debate the merits of political advocacy for gun control by our profession. However, it confused *legal* advocacy with *science* advocacy, and so it perpetuates the misconception that public health and the science of firearm injury prevention are in opposition to the US Constitution.

SCIENCE ADVOCACY

Science informs law. Americans' enjoyment of individual rights and civic security has been repeatedly refined and improved by the application of scientific evidence to legal reasoning. The science of firearm injury prevention intends to diminish firearm-related health risks and, therefore, to improve the rights and securities afforded to all Americans. Portraying firearm injury prevention as being in opposition to Constitutional law expresses a fear of science and the knowledge it may provide. Our profession has long been a standard bearer in injury prevention science. Under the leadership of emergency physicians and other injury prevention specialists, the United States has improved the health outcomes of many nonfatal and fatal injuries, ranging from motor vehicle crashes and drownings to unintentional medication overdoses. These health improvements were achieved without changing the availability of cars, pools, or prescription medications. We have simply made these consumer items, and the behaviors of individuals who use them, safer. We can do the same for firearms, which are by far the most lethal mechanism of injury and which cause the same number of deaths in the United States each year as cars.

FIREARM PREVENTION IN CLINICAL PRACTICE

The science of firearm injury prevention also has immediate application to our clinical practice. It's relevant to every emergency physician who has evaluated the danger of a depressed, angry, agitated, delusional, or intoxicated patient or who has treated a patient at elevated risk of firearm-related victimization or injury/death.

According to a recent survey of a sample of emergency physicians participating in the Emergency Medicine Practice Research Network (EM-PRN), the majority of us ask "often" or "almost always" about firearm access for patients with suicidal ideation, with fewer regularly asking about firearm access for patients suffering from psychosis, domestic violence, assault injury, or substance use. More than 90 percent of respondents said that knowledge of firearm access would change their risk assessment and disposition for suicide, and more than two-thirds said that it would change their risk assessment and disposition for victims of domestic violence or patients with acute psychosis (see Figures 1 and 2).

Yet most respondents say that their colleagues "almost never" ask suicidal patients about firearm access. Fewer than half of respondents said that they "often" or "almost always" provide lethal means counseling to suicidal patients. The most common reasons that emergency physicians said they didn't screen were "not having time" and "not knowing what to do with the information" (see Figure 3). Of note, only 1 percent of respondents felt that doctors should not ask patients about firearms. This disparity deserves to be addressed.

Equally disturbing in this EM-PRN survey, more than half (56 percent) of respondents reported a moderate or high concern about their own safety due to gun violence while working in the emergency department. This safety concern may also be seen through the diffuse deployment and drilling of active-shooter plans in emergency departments, medical offices, and hospitals.

As this and other similar data from the peer-reviewed literature show, the risk of firearm injury is an issue of utmost clinical importance to our specialty.

As our ability to respond to this problem

Figure 1. Emergency Physician Reported Change in Risk Assessment When Patient Reports Access to Firearm

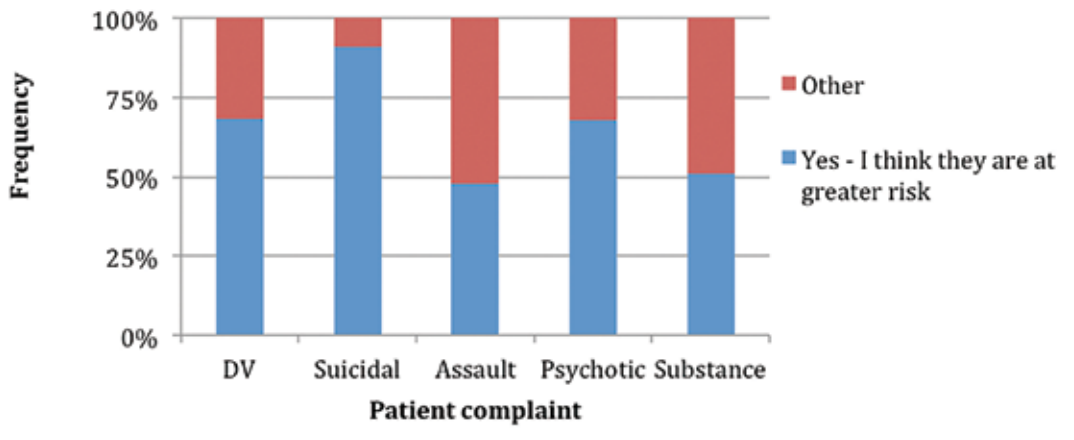
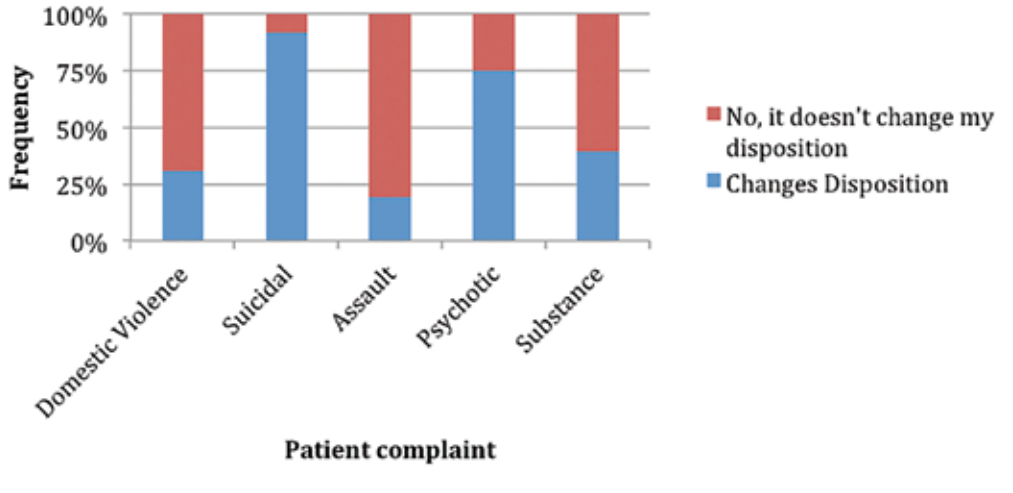


Figure 2. Emergency Physician Reported Change in Disposition When Patient Reports Access to Firearm by Injury Type



is clearly underdeveloped, it's *critical* for ACEP to continue to advocate for scientific funding to help us mitigate the incidence and health consequences of firearm-related trauma. Emergency physicians need to know how to evaluate for firearm access, whom to screen, and what to do with this information. We need to know how to effectively and quickly mitigate suicide risk among our patients, how best to help victims of domestic violence, and how to reduce the risk of mass violence among our patients with risk factors for violence and access to firearms.

Conversations that confuse science and politics distract us from the medically relevant issues of firearm injury risk. This confusion impairs our practice and ultimately harms ourselves, our patients, their families, and our communities.

DR. RANNEY is the past chair of the ACEP Trauma & Injury Prevention Section.
DR. BARSOTTI is the chair-elect of the ACEP Trauma & Injury Prevention Section.

Speak Out: Join EM-PRN

It's essential that ACEP, and researchers, understand how emergency medicine is practiced in all areas. ACEP's Emergency Medicine Practice Research Network (EM-PRN) was designed to provide a means of assessing the real-life practice of emergency medicine. EM-PRN members are asked to complete up to four short surveys a year, consisting of 30 or fewer questions covering a wide range of subjects, from how patients are treated to opinions about current controversies in medicine to how groups are surviving.

Visit www.acep.org/emprn/ to learn more about making your own voice heard.

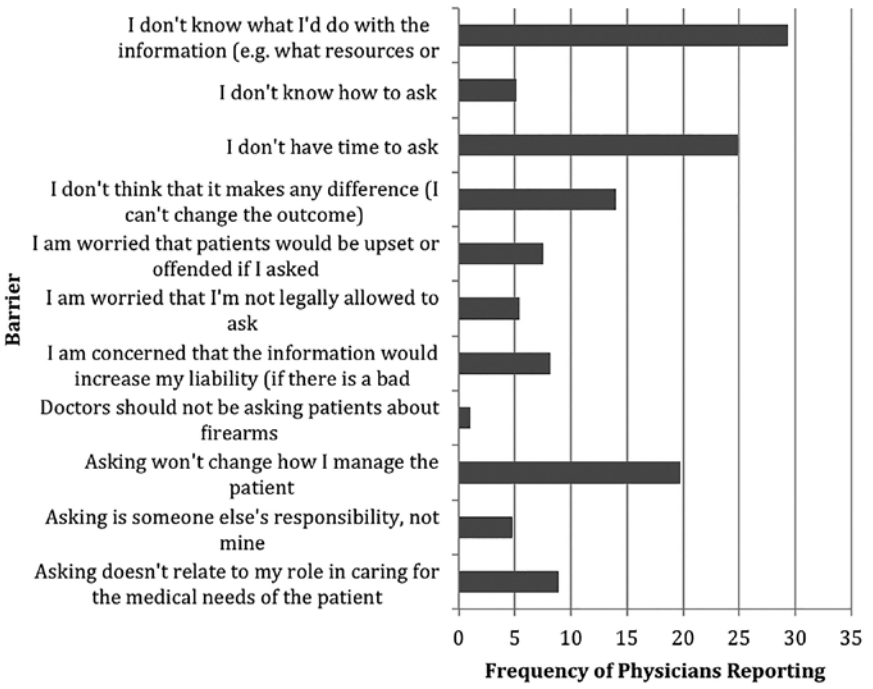
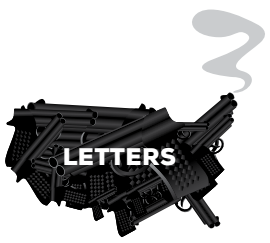


Figure 3: Emergency Physician Reported Barriers to Asking About Patient Firearm Access



Readers Weigh in on Firearms

What is missing from this is the public health perspective in preventing these tragedies. In particular, it sure would have been nice for our emergency physician national organization to take a stand against the sale of automatic and semiautomatic weapons used in these mass shootings. ACEP has policies and statements advocating against texting while walking and against laws requiring mandatory reporting of certain injured patients in the ED to law enforcement to improve the health and safety of the public. Responding to and taking care of mass shooting victims is clearly important. More important to all of those whose loved ones have been murdered during these tragedies would have been the prevention in the first place. The fact that there is no such prevention statement listed in this ACEP correspondence seems odd and unfortunately suspicious for political motivation.

—C.J.S.
(from ACEPNow.com)

This is a shame that ACEP is even trying to have a debate on this issue. As emergency physicians who treat victims of gun violence, it's pretty clear our position should be that we should be doing everything we can to ensure fewer gun deaths. The ecological data from other countries and from studies in the United States is clear, in spite of what Dr. Coppola is suggesting—where there are fewer firearms, there are fewer firearm deaths. If ACEP wants to consider his position that we should become an even more armed society, it only has to remember we are already far and away the most armed first-world country in the world and have more gun violence and gun deaths than any other such country. Coincidence? I think not.

–Paul
(from ACEPNow.com)

Thanks to *ACEP Now* for acknowledging that there are two sides to this issue. But let me correct an error that has been endlessly perpetuated by those who wish to even further restrict firearm civil rights.

Congress did not prohibit firearm research at the CDC. I know. I was one of three medical doctors who testified before the House Appropriations Committee in March 1996. We showed the committee hard evidence of the CDC leadership's overt gun control advocacy. It was that anti-civil rights advocacy that Congress quite reasonably prohibited, not firearm research.

The events of that era are documented in my three-part historical series, "The History of Public Health Gun Control," at Doctors for Responsible Gun Ownership's website, drgo.us.

—Timothy Wheeler, MD
Director, Doctors for Responsible Gun Ownership, California
(from ACEPNow.com)

In *ACEP Now*'s July 15 gun control debate, you asked whether ACEP and, by implication, any other medical organization should become involved in questions regarding the Second Amendment to the Constitution. We should, without a doubt.

As an emergency medicine physician, sworn law enforcement officer, retired Navy Medical Corps captain, and firearm trainer with multiple certifications from the National Rifle Association and the Massad Ayoob Group, I am extraordinarily qualified to comment on this subject.

As physicians, we bear extraordinary privileges and responsibilities not only because of what we do but also because we are Americans. All American physicians (and we are the *American* College of Emergency Physicians) should stand behind all of the amendments to the Constitution, especially the Second Amendment, without which none of the others are enforceable. The first 10 amendments to the Constitution are called the Bill of Rights. Those amendments are actually a Bill of Restraints on the federal government. History teaches us that without them we would not have had the Constitution and likely not a country. Now we are engaged in a great civil discussion regarding the nature and culture of our country. On one side are those who believe that it is the province of the federal government to control and provide for all actions and resources within our society. Those on the other side of the discussion maintain that although there are some constraints upon individual and group actions, progress has been made more by individuals, and freeing the people to make progress yields more liberty. It is ludicrous that some are trying to prohibit citizens from owning the very firearms that our police use to protect us—pistols and rifles with a modern design. Yet we know that the police are rarely on the scene when desperately needed. Therefore, since it is natural instinct for all animals, including *Homo sapiens*, to defend themselves and their young, it seems only fitting that the people have access to the same firearms that we expect our police to use to defend and protect us. Statistics can be twisted, but I have yet to find a study that produces significant evidence of crime going up as firearm ownership and use have increased in the United States. We also find studies that show that in countries that have recently restricted firearms, rates of violence have not trended up. The exception is the United Kingdom, specifically Britain, where criminal violence has increased dramatically since civilians were disarmed.

The first 10 amendments to the Constitution are called the Bill of Rights. Those amendments are actually a Bill of Restraints on the federal government. History teaches us that without them we would not have had the Constitution and likely not a country.

The states of California, New Jersey, Illinois, and Maryland have seen significant increases in criminal misuse of all weapons, including firearms. It must be clear to anyone paying attention that those states have the strictest firearms laws in this country. Why would anyone expect more draconian gun control laws to somehow work?

While the total number of firearms and the population of the United States have increased dramatically, both the rates and absolute numbers of firearm deaths have decreased. Poorly done and often discredited studies such as the 1993_Kellerman study are still referenced by those who wish to decrease our freedoms.

Supporters of still more gun control laws often point to innovations in motor vehicle safety reducing auto fatalities as a model for mandating similar safety modifications to firearms. This comparison is false on several levels. First, better trauma care has reduced fatalities and mitigated injuries from both motor vehicles and firearms. Decreasing gasoline prices encourage drivers to log more miles, thus increasing the probability of collisions.

But the auto-to-firearm comparison really falls apart when one ponders the obvious—auto deaths are almost all accidental, but firearm deaths are almost all intentional. Expecting a safety device to stop a killer is ridiculous.

About two-thirds of firearms deaths are suicides. Countries with strict firearms restrictions have higher rates of suicide than we do. Mentally ill persons who choose to commit suicide can always find a way. Police and criminologists have data that small populations of chronically violent offenders are responsible for most wrongful homicides. A firearm is simply a tool and not the cause of the criminality.

Death is inevitable. None of us will leave this world alive. But reducing the already declining number of avoidable deaths in America will not be accomplished by passing even more gun prohibition laws. We should renew our allegiance to the Constitutional principles that made America great instead of looking for even more ways to limit the freedom of good Americans.

—Robert A. Margulies, MD, MPH, FACEP
Richland, Washington

A NEW SPIN CONTINUES *on page 6*

OPINION: ON RACISM AND THE EMERGENCY DEPARTMENT

We can all contribute to reducing racism in our hospitals

BY ANWAR OSBORNE, MD, MPM, FACEP

I am a black male who lives in two worlds. I am a physician in a busy inner-city emergency department who works closely and respectfully with the law enforcement professionals who bring in patients. I am also someone who has been pulled over for driving while black, has been followed in stores for shopping while black, and is aware that we live in a country where black people can be killed for minor offenses like selling cigarettes, having broken tail lights, and holding sandwiches.

The busyness of the emergency department can act as a barrier to conversations and actions that would ideally lead to systemic change. Worse yet, the racism in the academic medical environment is covert as it is often systemic. Therefore, as a person of color and often the only black physician present in the room, I am compelled to share my perspective in order to create awareness and encourage change.

Here are four ways to help avoid racism in your emergency department.

1 UNDERSTAND THE DIFFERENCE BETWEEN "SYSTEMIC RACISM" AND "PERSONAL RACISM."

As with any issue, the first step is acceptance that there is a problem. Systemic racism is as real as sepsis, myocardial infarction, and ringworm. It is often conflated with the more overt racism that we experience on a personal level. Systemic racism is defined by a set of policies that are put into place in order to maintain the disenfranchisement of a group based on race.[1] The personal racism we traditionally think of belongs to an individual who wields their own position of power to disenfranchise a people.

Emergency physicians should be very familiar with systemic racism to provide insight into their own practice. Knox Todd, MD, MPH, who has published extensively in the pain and disparity space, noted these disparities in several studies. We know that black people with long-bone fractures get fewer pain medications, but we also know that there are not sufficient data to support provider/patient concordance in these disparities.[2] A true understanding of why this occurs (and keeps occurring) cannot be obtained without accepting that all races and ethnicities of providers are complicit in the creation of this systemic racism.

2 CONTINUE TO EDUCATE ABOUT HEALTH CARE DISPARITIES.

In addition to oligoanalgesia, we know that blacks are less likely to get invasive cardiology procedures.[3] We know that blacks are less likely to survive cardiac arrest even when it happens in the hospital.[4] We know that blacks are less likely to receive thrombolytics for stroke.[5] We know that blacks do worse in many aspects of the care we deliver to patients. We may never be able to adequately control for all variables and confounders, and perhaps, black patients are somehow predisposed to worse outcomes.

Very few of us would readily be able to name an overtly racist colleague. However, we must consider racism (personal or systemic) or subconscious bias as a contributing factor. We can educate residents and medical students on these concepts and further teach them that even when we try to do "everything right," we can still be part of harmful outcomes for our patients. That said, we cannot let ourselves become defensive because of confusion about systemic racism. To combat this, we must continue to review the evidence that says that these differences in care are not entirely explained by other factors. Every department can approach these evidence-based realities behind the data from the vantage point that *every* member of the department is complicit in the creation of these disparities.

Unfortunately, there are also some who think that this systemic racism is imagined, that the evidence is a fluke, and that black patients should inherently trust the American health care system. Those folks need a reminder that the last survivor of the Tuskegee experiments (the one where we just watched black people with syphilis suffer while there was a cure available), Ernest Hendon, died in 2004.

3 PARTICIPATE IN HOSPITAL POLICIES.

As we continue to answer the demands of The Joint Commission and other regulatory bodies, we can be wary of unintended consequences of new policies and initiatives. Today, everyone from rappers to President Barack Obama point at medical professionals as both the cause and the solution to our country's opioid problem. In 2012, Mehgani and others performed a meta-analysis of the oligoanalgesia in health care and found considerable racial disparities in pain control.[6] Ironically, some researchers suggest that there is a "silver lining" to this oligoanalgesia that has protected non-Hispanic blacks from the rise in heroin overdose deaths. Although this epidemic is sad for all races, participating in the guidance of hospital policies that protect ED patients from being collateral damage could be an actionable item. In many guidelines and among expert panels, opioid pain medications remain the mainstay of therapy for severe pain in a sickle cell pain crisis.[7]

To combat this, we must continue to review the evidence that says that these differences in care are not entirely explained by other factors. Every department can approach these evidence-based realities behind the data from the vantage point that every member of the department is complicit in the creation of these disparities.

Combating policies that make it harder or more demeaning for sickle cell patients, who are essentially all black, to get pain medications is an example of how an individual department can address systemic racism. In our individual shops, we can advocate for this often at-risk group. You don't have to be a diversity expert to be a part of the change.

4 GRASP OPPORTUNITIES TO DISCUSS.

We cannot be afraid to have an open dialogue about messaging during times of crisis (perceived or actual). The conversations about systemic racism can occur simultaneously with any other. In drafting guidelines for management of pain or the treatment of acute coronary syndrome, we should overtly discuss how to avoid disparities in care. Let's take it one step further: We should talk about disaster preparedness in the setting of a nearby demonstration, regardless of its cause, *and* we can talk about how most emergency physicians neither report nor know how to report brutality toward persons in custody.[8] Failing to address such issues insults our position in society.

Even though another task can be cumbersome, making sure that providers and staff understand the issues at hand should be imperative. Emergency physicians are inherent leaders in health care who interact with all segments of society. Therefore, turning a blind eye to disparities in care is counterproductive. Surely, we'd all define ourselves as scientists. So adherence to the evidence should elevate us above our own experiences, which unfortunately seem to convince some that racism is an overreaction of blacks. Culture change is hard. Avoiding difficult issues is not the approach that led to a decrease in heart disease mortality, extended the life expectancy of persons with HIV, or helped avoid the spread of Ebola in the United States.

We can all do something to combat the racism of our workplace. Obviously, many of us are already taking steps to overcome the systemic racism that we know exists. Further, some disparities may be improving, as evidenced by some of the newer studies on analgesia administration. We can suggest journal clubs on health disparities, join hospital committees that inform institutional policies, or encourage discussion at faculty meetings. Again, you don't have to be a diversity expert to act.

DR. OSBORNE is assistant professor of emergency medicine and internal medicine at Emory University School of Medicine and medical director of the chest pain center and the observation unit at Emory University Hospital Midtown, both in Atlanta.

References

1. The Stephen Lawrence Inquiry. GOV.UK website. Available at: https://www.gov.uk/government/publications/the-stephen-lawrence-inquiry. Accessed Aug. 1, 2016.
2. Todd KH, Deaton C, D'Adamo AP, et al. Ethnicity and analgesic practice. *Ann Emerg Med.* 2000;35(1):11-16.
3. Ford E, Newman J, Deosaransingh K. Racial and ethnic differences in the use of cardiovascular procedures: findings from the California Cooperative Cardiovascular Project. *Am J Public Health.* 2000;90(7):1128-1134.
4. Chan PS, Nichol G, Krumholz HM, et al. Racial differences in survival after in-hospital cardiac arrest. *JAMA.* 2009;302(11):1195-1201.
5. Hsia AW, Edwards DF, Morgenstern LB, et al. Racial disparities in tissue plasminogen activator treatment rate for stroke: a population-based study. Stroke. 2011;42(8):2217-2221.
6. Meghani SH, Byun E, Gallagher RM. Time to take stock: a meta-analysis and systematic review of analgesic treatment disparities for pain in the United States. *Pain Med.* 2012;13(2):150-174.
7. Yawn BP, Buchanan GR, Afenyi-Annan AN, et al. Management of sickle cell disease: summary of the 2014 evidence-based report by expert panel members. *JAMA.* 2014;312(10):1033-1048.
8. Hutson HR, Anglin D, Rice P, et al. Excessive use of force by police: a survey of academic emergency physicians. *Emerg Med J.* 2009;26(1):20-22.

NEXT ISSUE: National diversity expert **Tracy Brown** helps bring the issues to action.

Visit Us at ACEP16! Booth #S3013

The Best EM Peds Articles Are in the Peds Journals – and the Same Is True for IM, Ortho and ENT.

Let the EM Abstracts Team Find the Most Important Articles for You in Emergency Medicine

The EM Focused Podcast That Critiques 30 Practice-Changing Papers Each Month – And More!

Now Earn up to 9 CME Credits Monthly!

Each Issue Includes:

- **30 Key Papers Abstracted and Reviewed**
- **An Audio Essay on a Leading-Edge EM Topic**
- **An Interview With an EM Newsmaker**
- **A 30-Minute Evidence-Based Lecture With Searchable Notes**
- **Reflections of a Skeptic With Jerry Hoffman, MD**

Plus...

- Access to Our Searchable Database of Over 15,000 Abstracts, 175,000 Titles and 250 Essays
- Access to All Prior Issues Going Back to 1978

EM ABSTRACTS

Pearls From the October Issue

In 49 ED pts with agitation, the addition of ketamine (4-5mg/kg IM) quickly sedated when major tranquilizers were inadequate.

In a RCT of 376 adult asthmatics an oral dose of dexamethasone (12mg) had similar relapses as 5 days of prednisolone (60mg/day).

In a RCT of pts. with severe trauma, total body CT (702 pts) did not reduce in-hospital mortality vs standard imaging (542 pts).

An analysis of 22 studies found that CT within 6 hrs of onset accurately rules In and rules out SAH, LP benefits are minimal.

Of 12,044 No Am children with blunt abdominal trauma CTs were done in 52% of whites, 33% of blacks and 44% of Hispanics.

Of 10,351 children with anaphylaxis, variation in Rx at 35 peds EDs was large re. meds and hospitalization rates (12% vs 96%).

14 RCTs with various flaws provided limited evidence to support IV APAP as the primary analgesic for acute pain in the ED.

In 105 ant. STEMI pts eligible for IV metoprolol (15mg), the sooner the drug was given, the smaller the MI & the better the LVEF.

In a pop. study of 148,027, using restrictive criteria, 7% of strokes would qualify for endovascular treatment (13% if liberal).

Significantly improved early survival and delayed time to death was associated with prehospital use of tranexamic acid vs. not.

...And This List Covers Less Than Half of the 30 Papers in the October Issue of EMA.

Subscribe Today at **emabstracts.com/current**

SEND YOUR THOUGHTS AND COMMENTS TO ACEPNOW@ACEP.ORG

THE BREAK ROOM

Suspicious Reference in Active Shooter Article

Dr. Mell:

JUST NOW DURING DOWN TIME ON MY NIGHT SHIFT, I took the opportunity to read your article "Run, Hide, Fight" in *ACEP Now* [July 2016]. After a few minutes of internal dialogue, my guttural annoyance prevailed, and here I am sending you a note about one of your references.

I will do my best to make an extremely long story short. The final point is that I encourage you to strongly consider refraining from ever again referencing Dr. Gary Ordog in your articles, specifically reference #2: Weapon carriage among major trauma victims in the emergency department (*Acad Emerg Med*. 1995;2:109-113).

In 1994 and 1995 I had the unfortunate opportunity to interact with Dr. Ordog at Martin Luther King/Charles R. Drew Medical Center. I was a co-attending at that facility. It was not long that I quickly developed a personal opinion of this individual who dared call himself a "doctor." I found him corrupt, to say the least, and completely deceitful and unethical in nature. The referenced article is only one example. In 1994/5, myself and a few colleagues revealed extreme examples of misinformation published by Dr. Ordog and Wasserberger. This included the specific article you are referencing. Despite serious threats from the authors, we reported our findings to *Academic Emergency Medicine*. An investigation of the article you referenced ensued, and Dr. Hedges (chief editor) personally investigated our accusations and eventually published a comment about the article indicating that Dr. Ordog's citation inflated data by twentyfold (*Acad Emerg Med*. 1996;3:735).

It is my opinion, based on objective data review and personal interactions, that any and all research or publications by this author should be scrutinized to the greatest extent. I will go further to encourage anyone and everyone to never cite this author's publications because of corrupt practices (both clinically and academically).

This is just my opinion, but to carry my point, I note that in 1995 Dr. Gary Ordog was cited with 15 counts of professional misconduct including "deceptive publications" by the Medical Board. His license was suspended, but it was eventually reinstated. In 2016 he was again involved in an investigation and eventually pleaded guilty to health care fraud. You will find this information if you take a few moments of time to research his activities.

—Anonymous

Dr. Mell Responds

I really appreciate your taking the time to read my article, and thank you for taking the time to correct this information! Unfortunately, there is no question that guns are entering our workplace (along with myriad other weapons). Other data, referenced in the article, support this, as does common sense. So that point is no less true or valid despite the shortcomings of Dr. Ordog's work. Even if Dr. Ordog's work were excluded from my article, the point that we should be vigilant and aware would remain. Thank you for taking the time to correct this information!

—Howard K. Mell, MD, MPH, CPE, FACEP
Winston-Salem, North Carolina

Shifting Winds for *Choosing Wisely*?

RE: "A WHIRLWIND YEAR IN REVIEW: Trimethoprim-Sulfamethoxazole Versus Placebo for Uncomplicated Skin Abscess" [August 2016]

"This well-designed trial seems to show that patients receiving trimethoprim-sulfamethoxazole following I&D had substantial reduction in both initial treatment failure and abscess recurrence."

Did anyone ask Dr. Choosing Wisely from ACEP about this one? According to Dr. Wisely, "For patients with uncomplicated skin and soft tissue abscesses successfully treated with incision and drainage, clinicians should provide adequate medical follow-up but avoid antibiotics and wound cultures."

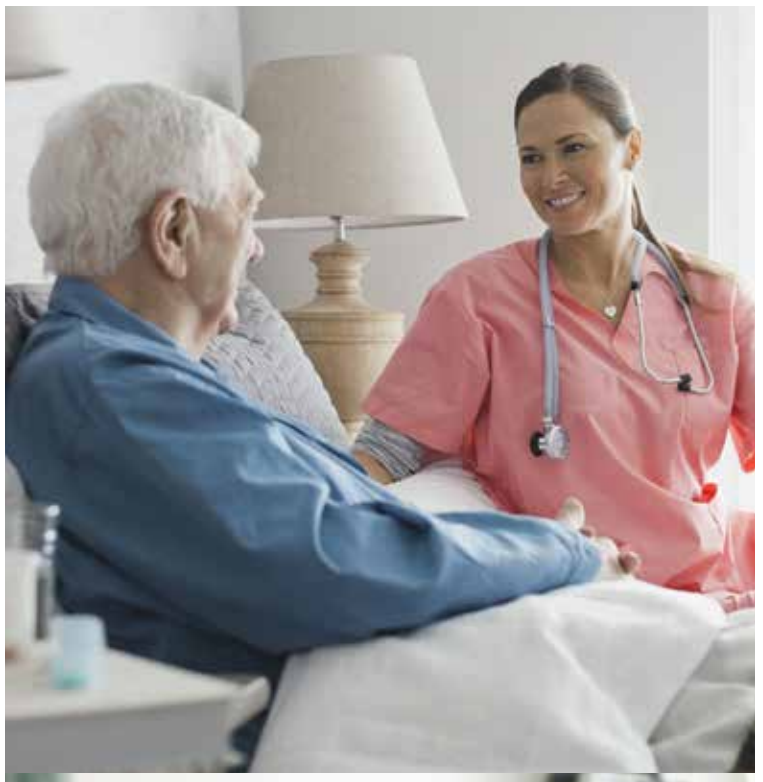
Have we given CMS another blood-culture-before-antibiotics noose to hang us with?

—Sam Herring, MD
Birmingham, Alabama

FDA ALERT

An important change is being made to the label of epinephrine. Traditionally, the two doses of epinephrine have been labeled and called 1:1000 (used traditionally for anaphylaxis) and 1:10,000 (used for cardiac arrest). There has often been confusion between the two doses and uses. Now, the labels will be changed to 1 mg/mL (1:1000) and 0.1 mg/mL (1:10,000). It is hoped that this change will decrease or eliminate the confusion. The labeling of epinephrine combined with other drugs (such as lidocaine) will not change.

In addition, isoproterenol 1:5000 will now be labeled 0.2 mg/mL, and neostigmine 1:1000 will be labeled as 1 mg/mL.



When your pumps are in more hospitals and homes worldwide than any others, **you don’t need to pump up the facts.**

54 YEARS

of medical negative pressure innovation

APPROXIMATELY

5,760,000

hospitals and homes use our medical pumps*

1 NPWT portfolio for hospital, post-acute, home and on the go

*Approximate number of hospitals, homes, LTC and other with at least 1 Medela pump (USA and EU). Statement based on accumulated sales figures.

medela

Learn more at
medela-healthcare.us

2016–2017 COMPENSATION REPORT FOR EMERGENCY PHYSICIANS

CONTINUED *from page 1*

The following regional numbers are based on 1,632 clinical hours per year and reflect all employment models, including employed directly and employed by a group or immediate care center, that were all input and averaged out. They include incentive bonuses and productivity components measured in relative value units (RVUs) where applicable. The picture of the emergency medicine market comes from data drawn from primary emergency medicine job websites, including EDPhysician.com, EDSource.com, EDOpenings.com, and ACEP's Career Central, as well as from inquiries sent to all large national contract management groups. The annual incomes include a basic benefits package worth $25,000. Sign-on bonuses, loan assistance, and other perks are not included. Rankings are based on state averages rather than sporadic highs. (See Figure 1 for the top 10 and bottom 10 states in terms of overall compensation.)

THE SOUTHEAST leads the country in compensation, with all state income averages well over $200 per hour and a regional income increase of just over 9 percent. However, Louisiana and North Carolina saw compensation drop this year.

ALABAMA: Average: $206/hr., $362,000 annually; high of $291/hr., $500,000 annually in the Gulf Coast

ARKANSAS: Average: $232/hr., $403,000 annually; high of $245/hr., $425,000 annually

FLORIDA: Average: $220/hr., $385,000 annually; high of $300/hr., $150,000 annually on the Gulf Coast

GEORGIA: Average: $240/hr., $417,000 annually; high of $291/hr., $500,000 annually

LOUISIANA: Average: $212/hr., $371,000 annually; high of $291/hr., $500,000 annually

MISSISSIPPI: Average: $255/hr., $441,000 annually; high of $291/hr., $500,000 annually on the Gulf Coast

NORTH CAROLINA: Average: $207/hr., $364,000 annually; no significant highs

SOUTH CAROLINA: Average: $220/hr., $384,000 annually; high of $270/hr., $466,000 annually

TENNESSEE: Average: $235/hr., $408,000 annually; high of $300/hr., $515,000 annually

THE MIDWEST shows about a 9 percent increase across the region, with huge bumps in North Dakota (22 percent) and Ohio (15 percent), while Wisconsin experienced little change.

ILLINOIS: Average: $238/hr., $414,000 annually; high of $350/hr., $550,000 annually in central state

INDIANA: Average: $212/hr., $370,000 annually; high of $275/hr., $474,000 annually

IOWA: Average: $200/hr., $351,000 annually; high of $272/hr., $469,000 annually

KANSAS: Average: $222/hr., $387,000 annually; high of $250/hr., $433,000 annually

KENTUCKY: Average: $200/hr., $351,000 annually; no significant highs

MICHIGAN: Average: $185/hr., $328,000 annually; no significant highs

MINNESOTA: Average: $165/hr., $292,000 annually; high of $200/hr., $351,000 annually

MISSOURI: Average: $227/hr., $395,000 annually; high of $275/hr., $474,000 annually

NEBRASKA: Average: $200/hr., $351,000 annually; no significant highs

NORTH DAKOTA: Average: $265/hr., $457,000 annually; high of $263/hr., $455,000 annually

OHIO: Average: $219/hr., $382,000 annually; no significant highs

SOUTH DAKOTA: Data not available due to a lack of listed jobs

WISCONSIN: Average: $225/hr., $392,000 annually; high of $300/hr., $515,000 annually; $300,000 in Madison/Milwaukee

MIDDLE ATLANTIC states experienced some big bumps–28 percent in Delaware and 12 percent in Virginia, with a region-wide increase of 13 percent.

DELAWARE: Average: $250/hr., $433,000 annually (based on one opening)

DISTRICT OF COLUMBIA: Average: $157/hr., $281,000 annually; no significant highs

MARYLAND: Average: $165/hr., $294,000 annually; no significant highs

NEW JERSEY: Average: $199/hr., $349,000 annually; no significant highs

PENNSYLVANIA: Average: $217/hr., $380,000 annually; high of $260/hr., $450,000 annually; $375,000 in Pittsburgh; $300,000 in Philadelphia

VIRGINIA: Average: $220/hr., $384,000 annually; high of $275/hr., $475,000 annually

WEST VIRGINIA: Average: $190/hr., $335,000 annually; no significant highs

WESTERN REGION: Texas, New Mexico, and California drive the high dollars in the Western region with 10 percent hikes, but the dramatic lows continue in Colorado, Arizona, and Hawaii.

ARIZONA: Average: $168/hr., $300,000 annually; high of $215/hr., $375,000 in Kingman; $250,000 in Phoenix

CALIFORNIA: Average: $241/hr., $418,000 annually; high of $270/hr., $465,000 annually in central inland areas

COLORADO: Average: $150/hr., $269,000 annually; no significant highs

HAWAII: Average: $140/hr., $253,000 annually; no significant highs

NEVADA: Average: $200/hr., $351,000 annually in Las Vegas; no significant highs

NEW MEXICO: Average: $228/hr., $398,000 annually; high of $308/hr., $525,000 for regional director

OKLAHOMA: Average: $203/hr., $356,000 annually; high of $230/hr., $400,000 annually

TEXAS: Average: $252/hr., $435,000 annually; high of $315/hr., $540,000 annually in El Paso; $450,000 in Houston and Dallas; $380,000 in San Antonio and Austin

UTAH: Data not available due to a lack of listed jobs

PACIFIC NORTHWEST REGION: There were big changes in the Pacific Northwest, with Washington salaries up 20 percent and Montana up 21 percent, taking the regional average to $190 per hour.

ALASKA: Average: $150/hr., $270,000 annually; high of $566,000 in Anchorage

IDAHO: Average: $140/hr., $253,000 annually

MONTANA: Average: $221/hr., $385,000 annually

OREGON: Average: $190/hr., $335,000 annually

WASHINGTON: Average: $231/hr., $400,000 annually; high of $400/hr. in Albany; $350,000 for urgent care

WYOMING: Average: $212/hr., $370,000 annually; no significant highs

THE NORTHEASTERN states remain predominately the same, with only minor increases overall of just less than 6 percent, providing a regional average of $179 an hour–well below the rest of the country.

CONNECTICUT: Average: $185/hr., $327,000 annually; no significant highs

MAINE: Average: $176/hr., $288,000 annually; no significant highs

MASSACHUSETTS: Average: $185/hr., $327,000 annually; high of $400,000 in Cape Cod; $150–$179/hr. in Boston

NEW HAMPSHIRE: Average: $187/hr., $330,000 annually; no significant highs

NEW YORK: Average: $171/hr., $305,000 annually; high of $215/hr. in upstate residency; $270,000 in New York City

RHODE ISLAND: Average: $160/hr., $286,000 annually; no significant highs

VERMONT: Average: $192/hr., $338,000 annually; no significant highs

Figure 1. States Offering the Most and Least Compensation

TOP 10 STATES FOR COMPENSATION

1. North Dakota
2. Mississippi
3. Texas
4. California
5. Georgia
6. Illinois
7. Tennessee
8. Arkansas
9. Washington
10. New Mexico

BOTTOM 10 STATES FOR COMPENSATION

1. Hawaii (second time in three years)
2. Idaho
3. Alaska
4. Colorado
5. District of Columbia
6. Rhode Island
7. Maryland
8. Minnesota
9. Arizona
10. New York

MS. KATZ is president of The Katz Company EMC, a member of ACEP's Workforce and Career sections, and a frequent speaker and faculty at conferences and residency programs. She can be reached at katzco@cox.net.

NEWS FROM THE COLLEGE

UPDATES AND ALERTS FROM ACEP

Excellence in Emergency Medicine Honored at ACEP16

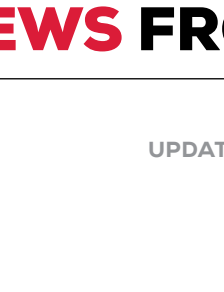
At ACEP16, Immediate Past President Jay A. Kaplan, MD, FACEP, honored incoming president Rebecca B. Parker, MD, FACEP, and other 2016 President's Awards winners at a banquet held in their honor.

John G. Wiegenstein Leadership Award: Linda L. Lawrence, MD, FACEP

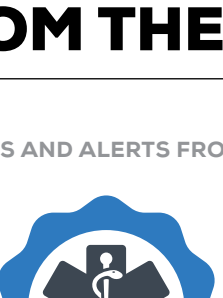
John A. Rupke Legacy Award: Kathleen Cowling, DO, FACEP

James D. Mills Outstanding Contribution to Emergency Medicine Award: Lewis R. Goldfrank, MD, FACEP

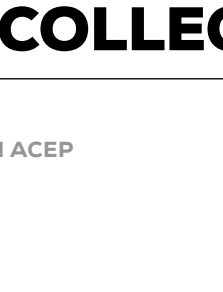
Outstanding Contribution in Education Award: James R. Roberts, MD, FACEP



Colin R. Rorrie, Jr., PhD Award for Excellence in Health Policy: Marilyn J. Heine, MD, FACEP



Honorary Membership Award: Beth P. Bruner, CAE

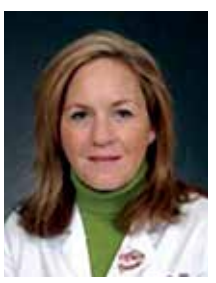


Honorary Membership Award: Barb Burgess

At other events throughout the conference, several more President's Awards were awarded to the following winners:

Council Meritorious Service Award: Marco Coppola, DO, FACEP

Disaster Medical Sciences Award: Andrew I. Bern, MD, FACEP



Outstanding Contribution in EMS Award: Juliette M. Saussy, MD, FACEP

Outstanding Contribution in Research Award: Carlos A. Camargo Jr., MD, DrPH, FACEP

ACEP would like to congratulate all winners of the President's Awards and thank them for their service to the field of emergency medicine.

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

A Review of the International Liaison Committee on Resuscitation First Aid Guidelines

Dissecting the evidence behind the recommendations

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

The International Liaison Committee on Resuscitation (ILCOR) defines first aid as "helping behaviors and initial care provided for an acute illness or injury." Noting the paucity of evidence regarding these treatments, in 2013, ILCOR appointed a task force to prepare recommendations regarding initial care by trained or untrained rescuers for the 2015 American Heart Association (AHA) and American Red Cross Guidelines Update for First Aid, which were released with the 2015 American Heart Association Guidelines Update for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care.

The task force included emergency physicians from throughout the world. 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. These first aid competencies include, at any level of training:

- Recognizing, assessing, and prioritizing the need for first aid
- Providing care by using appropriate knowledge, skills, and behaviors
- Recognizing limitations and seeking additional care when needed

In order to review these recommendations, *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, assistant professor, Wake Forest Baptist Medical Center, Department of Emergency Medicine
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.

ILLUSTRATION: PAUL JUESTRICH, PHOTOS: SHUTTERSTOCK.COM

Aspirin for Chest Pain (FA 871)

Recommendation Author: Erika M. McMahon, MD

Dr. McMahon 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 experiencing chest pain due to suspected myocardial infarction (P), does administration of aspirin (I) compared with no administration of aspirin (C) change cardiovascular mortality, complications, adverse effects, incidence of cardiac arrest, cardiac functional outcome, infarct size, or hospital length of stay (O), and does early administration of aspirin change these outcomes or chest pain resolution compared with late administration?

Results: High-quality evidence was identified from one randomized controlled trial (RCT) regarding aspirin's effect on mortality, complications, adverse effects due to bleeding, and incidence of cardiac arrest. Low- to very-low-quality evidence was identified from four other studies regarding the effect, but not timing, of aspirin administration on infarction size and early administration on cardiovascular mortality. No evidence was found regarding cardiac functional outcome or hospital length of stay.

Outcomes: Aspirin use showed benefits on mortality, complications, and cardiac arrest. No effect was noted on infarct size. Early administration (defined as prehospital or within the first hours of symptoms) showed a positive mortality benefit. Aspirin was found to increase minor bleeding risk.

Discussion: High-quality evidence supports administering aspirin to patients with chest pain due to suspected myocardial infarction (MI). Aspirin has been shown to decrease cardiovascular mortality, rates of complication secondary to MI, and cardiac arrest occurrence. While only low-quality evidence was found in regard to optimal timing of aspirin administration, early administration demonstrated a positive mortality benefit.

Recommendation: Early aspirin administration is recommended for all adults with chest pain due to suspected MI (weak recommendation, very-low-quality evidence).

Comment:

Dr. Sztajnkrycer: It must be clarified that the current recommendation (weak, very-low-quality evidence) solely examines the issue of timing of aspirin administration. The administration of aspirin in adults with chest pain suggestive of MI is a strong recommendation based upon high-quality evidence.

Stroke Recognition (FA 801)

Recommendation Author: Ann B. Smith, MD

Dr. Smith is a member of the Emergency Medicine Residency Training Class of 2018 at the Wake Forest School of Medicine.

Question: Among adults with suspected acute stroke (P), does the use of a rapid stroke scoring system or scale (I), compared with standard first aid assessment (C), change outcomes (O)?

Results: Six observational studies identified evaluated stroke systems on the outcome of time to treatment. For the outcome of recognition of stroke defined as diagnosis of stroke or administration of tissue plasminogen activator (tPA), four observational studies were identified. For the outcome of recognition of stroke defined as correct stroke diagnosis, 22 studies were evaluated to determine sensitivity and specificity of stroke scales. All studies but one (Harbison, 2003) were deemed low-quality evidence.

Outcomes: Two scales, Functional Assessment Staging Test (FAST) and Kurashiki Prehospital Stroke Scale (KPSS), resulted in decreased time from symptom onset to hospital arrival. Application of FAST resulted in increased stroke identification. Patients who had FAST or KPSS applied were more likely to receive thrombolytics. Inclusion of glucose measurement increased specificity of stroke assessment scales. All scales studied had a similar sensitivity, while scales that use glucose measurement (Los Angeles Prehospital Stroke Screen [LAPSS], Ontario Prehospital Stroke Screening [OPSS], KPSS, Recognition of Stroke in the Emergency Room [ROSIER]) had a higher specificity when compared with scales that do not (FAST, Melbourne Ambulance Stroke Screen [MASS], Los Angeles Motor Scale [LAMS], CPSS, Medical Priority Dispatch System [MPDS]).

Discussion: Stroke assessment systems are simple, low-risk methods for promoting early stroke recognition among first aid providers and have the potential to improve patient outcomes.

Recommendation: The use of a stroke assessment system by first aid providers is recommended. FAST or KPSS are preferred as these are the simplest tools with the highest sensitivity. If a glucometer is available, use of LAPSS, OPSS, KPSS, or ROSIER may increase specificity.

CONTINUED *on page 35*

ILLUSTRATION: PAUL JUESTRICH, PHOTOS: SHUTTERSTOCK.COM

Must an emergency physician comply with a body cavity search warrant?

BY CHARLES A. PILCHER, MD, FACEP, AND ERIKA SCHRODER, MD, MPH

An emergency physician recently told us a story of an unusual night visit from the police. "One night in our emergency department, the police brought in a person they suspected of dealing drugs," he said. "They said they wanted an Ewald tube lavage because they alleged the patient swallowed evidence. When I refused, they got an on-call magistrate to come to the emergency department in the middle of the night—still in his pajamas—to present a warrant to me.

"When he got there, I gave him the Ewald tube and a basin and told him, 'Here you go. The red plunger pushes the water in, and the blue plunger pulls it back out. Have fun.' The magistrate left the ED with the police and the patient, and that was the end of it."

Although the story may bring a chuckle, there are two key questions it raises:

1. Must the physician do the search even if the patient does not consent?
2. Will the physician be in violation of the warrant or a state statute for refusing to comply with the warrant?

Thankfully, the quick answer to both questions seems to be no. We couldn't find any report of a physician being sued for not complying with a such a warrant.[1,2] But because it hasn't happened doesn't necessarily mean it couldn't. Here are some guidelines and background information you should know to avoid potential trouble.

State Codes and Laws

Some states have regulations regarding emergency physicians or others complying with warrants in search of evidence within body cavities and whether consent is required. For example:

- In Washington, RCW 10.79.080 uses the word "authorized" when discussing a warrant that seeks evidence through a body cavity search.[3] It does not, however, imply that a physician is "compelled" to perform such a search.
- In Maine (as of 2003), Title 5, Part 1, Chapter 9, Section 200-G specifically concludes, "Nothing in this subsection requires a person authorized [italics ours] to conduct body cavity searches to conduct a body cavity search pursuant to a search warrant."[4]
- In Tennessee, a physician complying with a valid search warrant is protected from liability "except for any damages or criminal liability that may result from the negligence, gross negligence, willful misconduct or unlawful conduct of the person conducting the examination or search."[5]

The majority of state laws addressing body cavity searches are silent on the issue of a physician not complying with such a warrant. Being "authorized" is different from being "mandated." Providing that the medical record adequately documents the medical reasons for the physician's refusal to perform the search on a non-consenting patient, a judge would likely have little recourse against a third-party physician who refuses to perform such a search. (However, these examples may not hold true for all states; check with your hospital's legal counsel for more information on your state.)

Legal Feedback

Regardless of whether your state has statutes that address physician adherence in body cavity evidence searches, there are some legal theories that members of ACEP's Medical-Legal Committee say may keep physicians from being called upon to perform them. (Again, this advice is for discussion only; consult with your own legal counsel for specific situations.)

Are you specifically named in the warrant as the physician performing the search? A warrant that doesn't name a specific physician or other health care professional to perform the search is probably not enforceable. A judge would be trying to assert jurisdiction over a third party who hasn't been accused of a crime.

A physician also cannot be made an agent of the state for the purposes of law enforcement; if an activity being performed isn't advancing the health care of a patient, then the physician has no business performing that activity. In other words, a judge can't just rule that I have to shovel the courthouse steps. Such an order would be unenforceable. A recent example of this "agency rule" is the request by the federal government for Apple to de-encrypt a terrorist's iPhone.

Additionally, a physician not specifically appointed by the court to perform such a search isn't obliged to follow a warrant for a body search. If a patient is stable, is capable of making their own decisions, and doesn't consent, we aren't medically or legally obliged to comply with a warrant. It would be reasonable to redirect law enforcement to an appropriate jail clinic where a physician with legal jurisdiction can perform the exam.[6]

Liability is an issue when conducting a procedure mandated by a search warrant. It might be argued that even a patient who consented had been coerced into consenting (eg, if handcuffed to a gurney with two police officers standing by). If doctors perform medically unnecessary procedures, even with a warrant, they can be sued for battery or malpractice if the patient suffers an injury and face licensure action by the state medical board.[7] (A better course is to advise the patient of potential risks such as perforation, drug absorption, etc. and offer the exam and/or X-ray. An honest conversation and/or a positive X-ray might cause a patient to reconsider.)

A physician refusing to do such a body cavity search may do so with at least the implicit approval of the American Medical Association's Code of Ethics—namely principles I, III, IV, VI, VII, and VIII, as well as the preamble, which states, "As a member of this profession, a physician must recognize responsibility to patients first and foremost, as well as to society, to other health professionals, and to self."[8] One outspoken MD/JD recommended that the warrant be copied and submitted to the judge's county judicial review board. "And if that doesn't work, put it up on social media. Overlawyered.com has a far reach and would create quite a buzz about it."

Guidelines for Physicians

If you're faced with a similar situation, it's best to have a protocol in place. Below are some steps you should take prior to making any decisions when examining a patient brought in by police:

- Rule out a medical emergency or life-threatening condition by doing a medical screening exam to fulfill the requirements of the EMTALA mandate.
- Talk to the patient and gather as much information as possible. Is the patient likely to be "packing" a weapon or contraband?
- Determine whether the patient has decision-making capacity. Are drugs or alcohol affecting their mental capacity?
- Try to obtain consent by explaining the risk of drug toxicity if you suspect drugs are involved. Several incidents of death from such activity have been recorded.[9] Offer noninvasive options such as ultrasound or X-ray. If consent is granted, perform the exam and/or tests.
- If consent for the search is not given, do not perform the exam. Explain to the officers that performing the exam may require chemical or physical restraints with risk of aspiration and/or injury and might place the patient at increased risk of rupture of the contents with harm to the patient or staff.
- Notify the hospital administrator in charge (or on call) and/or hospital legal counsel for advice.
- Document the entire encounter in detail, with emphasis placed on the medical rationale for not doing the search. Make sure to have the encounter write-up witnessed.

DR. PILCHER is an emergency physician who writes "Learning from Lawsuits" on his website (www.pilchermd.com) for physician colleagues. **DR. SCHROEDER** is an emergency physician with North Sound Emergency Medicine in Everett, Washington.

References

1. *USA v Gray,* 669 F3d 556 (5th Cir 2012).
2. Snider B. When can police conduct a body cavity search? FindLaw website. Available at: http://blogs.findlaw.com/blotter/2013/11/when-can-police-conduct-a-body-cavity-search.html. Accessed Sept. 23, 2016.
3. RCW 10.79.080: Strip, body cavity searches—warrant, authorization, report. Washington State Legislature website. Available at: http://apps.leg.wa.gov/rcw/default.aspx?cite=10.79.080. Accessed Sept. 23, 2016.
4. Maine Revised Statutes §200-G. Strip searches and body cavity searches. Maine Legislature website. Available at: http://legislature.maine.gov/legis/statutes/5/title5sec200-G.html. Accessed Sept. 23, 2016.
5. 2010 Tennessee Code 40-7-121 - Body cavity searches warrant requirement waiver liability. Justia US Law website. Available at: http://law.justia.com/codes/tennessee/2010/title-40/chapter-7/part-1/40-7-121. Accessed Sept. 23, 2016.
6. *Bell v Wolfish,* 441 US 520 (US Supreme Court 1979).
7. *USA v Booker,* 728 F3d 535, 536 (6th Cir 2013).
8. Principles of medical ethics. American Medical Association website. Available at: http://www.ama-assn.org/ama/pub/physician-resources/medical-ethics/code-medical-ethics/principles-medical-ethics.page. Accessed Sept. 23, 2016.
9. Cappelletti S, Aromatario M, Bottoni E, et al. Drug-related deaths with evidence of body packing: two case reports and medico-legal issues. *Leg Med* (Tokyo). 2016;20:23-26.

THE INFERIORITY OF NON-INFERIORITY TRIALS

The illusion of inferiority trials

BY JAMES DUCHARME, MD, CM, FRCP

The objective of non-inferiority trials is to compare a novel treatment to an active treatment, with a view of demonstrating that it isn't clinically worse with regard to a specified endpoint. As treatments improve, showing *superiority* of a new therapy becomes more and more difficult because incremental improvements are ever smaller, whereas showing non-inferiority becomes ever easier. Going further down this wormhole, in many conditions (as in oncology), a treatment may be very effective in a minority but doesn't outperform a placebo in all comers. Imagine how easy it would be to produce a study of a novel medication that doesn't have to prove it's better in that minority but instead shows itself to be non-inferior to the older treatment for all comers—non-inferior to placebo overall?

It's important to remember that the non-inferiority trial ***does not have to show it's as good as*** the old treatment (ie, equivalence)—it just has to show that the new intervention is "not unacceptably worse" than the intervention used as the control.[1] As editor in chief of the *Canadian Journal of Emergency Medicine*, I believe that non-inferiority trials are of a quality that does not produce valid enough data to warrant publication.

ILLUSTRATION: PAUL JUESTRICH; PHOTOS: SHUTTERSTOCK.COM

Non-inferiority trials cannot show a drug is safe. They can prove a drug is inferior while also proving it's non-inferior. (This still gives me a headache.) They cannot show a medication to be equivalent or superior.

A CLOSER LOOK AT NON-INFERIORITY

Given the above, why would we ever want to see a non-inferiority trial? Some theoretical reasons to show non-inferiority are:

1. Marketing: It's no worse but more "convenient" to take (once a day instead of twice a day, for example).
2. Marketing: The adverse-effect profile is superior so that quality of life is potentially better.
3. Safety: Its benefit isn't unacceptably worse, but fewer people suffer harm.

There are inherent problems to this approach. The authors themselves define what they mean by "not unacceptably worse" (non-inferior). Since that margin of difference is essentially based on the opinion of the biased authors rather than on any consensus clinical outcome, it leads us to a slippery slope of sample-size calculation. If the authors theorize that a 10 percent worse outcome is acceptable (as compared to 5 percent), they need to recruit fewer patients. When calculating sample size for a study, the smaller the difference between the two groups, the greater the number of patients required to detect that difference. In a non-inferiority study, making the assumption that there is a larger difference means you need to recruit fewer patients. If the authors choose less restrictive inclusion criteria (eg, all people with chronic heart failure [CHF] instead of only those with CHF from coronary artery disease), recruitment is easier and requires fewer patients screened. Since the goal is to prove non-inferiority, fewer patients means it is easier to not find a difference! That is, it must be non-inferior.

The researchers doing non-inferiority trials are therefore "encouraged" to be less rigorous in their methodology and assumptions!

In general, non-inferiority trials require fewer patients than a standardized superiority trial. So hold on then: The vast majority of superiority trials aren't large enough to assess the number needed to harm (NNH)—only the number needed to treat (NNT). Superiority trials can successfully reject the null hypothesis (stating that there is no relationship between specified groups, with any observed differences due to sampling or experiment errors) and demonstrate superiority.

In a 2014 The *BMJ* article, 76 percent of studies in a Cochrane cohort failed to report adequately on harm. Even in studies reporting adverse events, 41 percent failed to adequately report outcomes related to harm.[2] Non-inferiority studies, which on average recruit fewer patients into a trial than a superiority trial, consistently fail to report NNH for three reasons:

1. It isn't in the interest of the pharmaceutical industry to publish data about harm when they cannot even show equivalency.
2. The sample sizes used are insufficient to accrue enough data to calculate NNH.
3. The number to be recruited would increase the cost of doing the study to the point of being outside the budget of most researchers.

To confuse the reader more, given that the researcher chooses the confidence interval for the margin of efficacy (it isn't as efficacious but within our assumed limits to be non-inferior), a result of such a study may simultaneously demonstrate that the novel treatment is *both non-inferior and inferior* at the same time. (The opposite of non-inferior is "not non-inferior" rather than "inferior.")[1] Such results are never reported by the authors of non-inferiority trials.

A confidence interval basically is used like in a poll: We chose 1,000 people for the poll, which makes our result valid ±0.3 percent. (Confidence interval is roughly the equivalent of 3/n, where "n" is the number of people recruited). If you assume a difference required to make it non-inferior as being larger than what the difference actually is (wide confidence intervals), the normal study calculation may find that your arm is indeed inferior but still within the range of what you chose as being non-inferior. Remember: You choose a difference of performance that you declare as acceptable and therefore non-inferior. That does not mean analysis may not actually find it inferior but still within your assumed range that you declared at the start of the study.

The Center for Drug Evaluation and Research (CDER) and the Center for Biologics Evaluation and Research (CBER) of the US Food and Drug Administration issued a draft Guidance for Industry on non-inferiority trials in 2010, trying to prevent studies that show a novel drug to be non-inferior to an active control but not superior to placebo.[3] They have tried to establish that the effect of the novel treatment must fall within the 95 percent confidence interval of the active control (ie, taking the subjective choice of defining non-inferiority out of the researchers' hands). Unfortunately, as witnessed by many publications, authors are not adhering to that mandate.

More than 500,000 articles were indexed in Medline in 2015. No one will ever read them all. We have to choose selectively what we'll read. John Ioannidis, a professor of medicine and health research and policy at Stanford University School of Medicine and a professor of statistics at Stanford University School of Humanities and Sciences, once wrote, "Ultimately, over 95 percent of what is published in the medical literature will be proven to be false."

Non-inferiority trials cannot show a drug is safe. They can prove a drug is inferior while also proving it's non-inferior. (This still gives me a headache.) They cannot show a medication to be equivalent or superior. All that leaves as justification for doing these studies is marketing, which is why most of these trials are pharmaceutical industry funded. Given all that I have to read to try and keep up, I've decided that the non-inferiority trial class of research is a class I can safely put aside—the quality is just too inferior to be worth it.

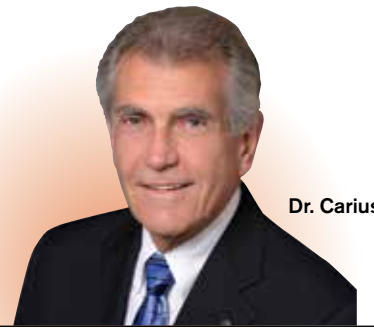
DR. DUCHARME is editor in chief of the *Canadian Journal of Emergency Medicine*, clinical professor of medicine at McMaster University in Hamilton, Ontario, and adjunct professor of family medicine at Queen's University in Kingston, Ontario.

References

1. Schumi J, Wittes JT. Through the looking glass: understanding non-inferiority. *Trials* website. Available at: http://www.trialsjournal.com/content/12/1/106. Accessed Sept. 14, 2016.
2. Saini P, Loke YK, Gamble C, et al. Selective reporting bias of harm outcomes within studies: findings from a cohort of systematic reviews. *BMJ.* 2014;348:g501.
3. Guidance for Industry Non-Inferiority Clinical Trials 2010. United States Food and Drug Administration website. Available at: http://www.fda.gov/downloads/drugs/guidancecomplianceregulatoryinformation/guidances/ucm202140.pdf. Accessed Sept. 14, 2016.

Continuing the Quest for Quality Certification

An interview with ABEM President **Michael L. Carius, MD, FACEP**



Dr. Carius

There are many challenges facing medical certification organizations these days—evolving certification standards, technology integration, and increased scrutiny from the medical community and regulators, to name a few—but Michael L. Carius, MD, FACEP, is ready to meet those challenges. He was elected President of the American Board of Emergency Medicine (ABEM) in August and will serve for the 2016–2017 term.

Dr. Carius is currently assistant clinical professor in the department of traumatology and emergency medicine at the University of Connecticut School of Medicine in Farmington, emeritus chair of the department of emergency medicine at Norwalk Hospital in Norwalk, and an emergency physician at Bridgeport Hospital in Bridgeport and Milford Hospital in Milford, all in Connecticut.

He has a long history with ABEM, including serving on its Board of Directors since 2009 and on its executive committee since 2013. He is also an active ACEP member, having served on the Board of Directors and as ACEP President for 2000–2001.

Dr. Carius recently sat down with *ACEP Now* to talk about his goals as ABEM President and the value ABEM certification has for physicians and society.

What are your goals during your term as ABEM President?

I have three main goals. First, one of most important things I can accomplish is to maintain the current trajectory of ABEM. ABEM is constantly innovating with testing formats, such as the eOral cases, and regularly reviewing the ABEM Maintenance of Certification (MOC) program. Creating positive changes that enhance the relevance and meaningfulness of the MOC program is a priority for me.

The second goal I have is to further strengthen our relationships with other emergency medicine organizations. We have an outstanding relationship with ACEP and our specialty. Emergency physicians and patients seeking emergency care benefit when we are all working together.

The third goal is to get more community emergency physicians involved in ABEM activities, including writing exam questions, becoming oral examiners, and even being on the ABEM Board. Most of our diplomates practice in the community setting, and we need their input and participation.

What is your vision for ABEM, especially as it impacts other organizations?

ABEM interacts with different organizations on several levels, including other EM organizations, other medical specialties, and the American Board of Medical Specialties (ABMS). Our ability to partner with other organizations such as ACEP has led to high-value CME as a part of MOC. ABEM has received outstanding suggestions from the EM community that have increased the value of certification.

CONTINUED *on page 16*

Our ability to partner with other organizations such as ACEP has led to high-value CME as a part of MOC. ABEM has received outstanding suggestions from the EM community that have increased the value of certification.

With respect to other specialties, it is becoming increasingly important for there to be greater consistency among the boards. This is particularly true when the ABMS is discussing policy decisions with regulators to maintain the privilege of professional self-regulation. By the way, if physicians don't think that self-regulation is being threatened, look at the intrusion of government into quality reporting and physician reimbursement.

How do you envision the ABEM presidency being different than your ACEP presidency?

Well, let me start with some commonalities. Both boards are composed of incredibly talented and motivated emergency physicians who want to improve the specialty. It is an honor to be in service to emergency physicians; I can think of serving no finer group of professionals. As President of ACEP and now as President of ABEM, I see myself as a servant leader, with an opportunity to move the specialty forward. In addition, as a community physician, I want to ensure that the voice of the community physician is heard.

ABEM and ACEP are markedly different organizations in that ACEP is a membership organization with an emphasis on advocacy and education. ABEM is a certifying body with a quasi-regulatory function. With initial certification, ABEM makes certain that physicians meet very high professional standards. Throughout a physician's career, maintaining certification means that the physician is continuing to meet those standards. ABEM certification is a credential to be proud of. Being certified is hard work and the public, payers, and credentialers value it. After all, it is what sets us apart from our non–board-certified colleagues.

A recent example is that we are piloting a program of no longer requiring the attestation of a patient experience of care or patient satisfaction survey. We are committed to finding a more meaningful way to assess professionalism and physician communication. We are also going to start providing greater detail in the score reports with the 2017 Lifelong Learning and Self Assessment, which I think diplomates will like.

How do you see MOC changing in the future?

There has never been a time when ABEM hasn't been changing its MOC program. However, ABEM must make changes that comply with the ABMS 2015 MOC standards. Most of the changes to MOC that ABEM has made result from feedback from our diplomates; we definitely listen to diplomate suggestions. A recent example is that we are piloting a program of no longer requiring the attestation of a patient experience of care or patient satisfaction survey. We are committed to finding a more meaningful way to assess professionalism and physician communication. We are also going to start providing greater detail in the score reports with the 2017 Lifelong Learning and Self Assessment, which I think diplomates will like.

With regard to the ConCert Examination, we are closely monitoring the pilots of boards like the American Board of Anesthesiology. ABEM will be watchful to see if such a format will be a good fit for emergency medicine. What we must remember, however we proceed, is that ABEM certification will always involve the assessment of physicians against an external national standard.

What is the number-one benefit ABEM provides to diplomates and to society?

There are many benefits to the ABEM MOC program, including additional compensation, greater career opportunities, reinforcing and learning new medical knowledge, and greater respect among peers.

The number-one benefit of certification to the diplomate is in possessing a credential that proves to the patient and others that the physician has been engaged in a rigorous program of continuous professional development and that the physician has "made the grade."

The benefit to the public is considerable. The public doesn't often pick their emergency physician, and we want patients to be assured that when they are being treated by an ABEM-certified physician, they are receiving what is likely the safest and highest-quality care available.

ACEP LEADERS ATTEND 2016 NATIONAL PARTY CONVENTIONS

Jay Kaplan, MD, FACEP, at the Democratic National Convention.

TO ADVANCE THE FOOTPRINT OF emergency medicine in the national political scene in this critical election year, ACEP's President and President-elect recently participated in the 2016 Democratic and Republican national conventions, respectively. Although ACEP does not endorse presidential candidates, our presence at both conventions offered ACEP leaders and staff exclusive access to members of Congress and their staffs, as well as national Republican and Democratic leaders, and valuable opportunities to network with key health care policymakers and professionals.

ACEP President Jay Kaplan, MD, FACEP, attended the Democratic National Convention July 25–28 in Philadelphia, while ACEP President-Elect Rebecca Parker, MD, FACEP, attended the Republican Convention July 18–21 in Cleveland. During the conventions, in addition to nominating their respective candidates for president and vice president, Democrats and Republicans adopted their official party platforms.

Many of the opportunities provided at the conventions were a direct result of the clout of ACEP's political action committee, the National Emergency Medicine PAC. NEMPAC is one of the top medical PACs in the country and consistently raises $2 million per election cycle from ACEP members to assist the campaigns of federal candidates. Our PAC has provided ACEP members with many opportunities to educate candidates about emergency medicine's priorities and has helped elect legislators who will work to support issues important to ACEP and our patients.

NEMPAC, along with eight other physician specialty and dentist organizations, co-hosted physician community receptions at both conventions. The events offered a

Rebecca Parker, MD, FACEP (right), and Rep. Greg Walden (R-OR) at Republican National Convention.

watch lounge for delegates and other attendees to stay up-to-date on important convention coverage, as well as live entertainment. Invitations were extended to all members of Congress and key staff members.

If you have not yet made your annual contribution to NEMPAC, now is the time to join thousands of your ACEP colleagues to elevate the voice of emergency medicine in this critical election year. There are tremendous changes occurring in our health care system, and we need the combined voices of all 35,000 ACEP members across the country to ensure that support for and access to emergency care remains a top priority in Congress in 2016 and beyond.

To learn more or to get more involved with NEMPAC, visit www.acep.org/NEMPAC or contact NEMPAC staff at 202-727-0610, ext. 3013.

It's not the cutting that's at issue, rather the tenet that antibiotics don't lead to any better outcomes after adequate drainage, just more cost and side effects. That's what's been taught and was supported by small studies, including two randomized placebo-controlled trials (RCTs) of approximately 200 total participants each done during the MRSA era.

In your practice, is drainage all you do, or does that depend on your last case of epidural abscess or Stevens-Johnson syndrome?

On March 3, 2016, this dogma had its day. In *The New England Journal of Medicine*, my colleagues and I described the first large RCT comparing trimethoprim-sulfamethoxazole (TMP/SMX) to placebo.[1] This National Institutes of Health–funded double-blind study involved more than 1,200 ED patients who had abscesses evaluated by bedside ultrasound, received standardized drainage, and were followed for eight weeks. Participants were discharged and treated with twice the usual TMP/SMX dose, two double-strength tablets BID for seven days, now ED-slanged as "Octa-Bactrim" for eight single-strength tabs per day. Almost all patients were adults, 11 percent had diabetes, and 18 percent gave a history of fever, but a measured temp >38°C was rare. Most abscesses were small, median diameter 2.5 cm (minimum 2 cm, 75 percent were <3.5 cm), with median 7 cm erythema. In 20 percent, the abscess area was >75 cm^2.

To our surprise, we found that TMP/SMX led to significantly better outcomes and only slightly more, mostly mild, gastrointestinal side effects and no serious reactions.

The number and types of the improved outcomes were notable (see Table 1). At seven to 14 days, significantly fewer TMP/SMX-treated participants had clinical failure requiring a new antibiotic or another drainage procedure. There was a trend toward half the rate of subsequent admits, fewer recurrences, and even fewer infections in household members. Through eight weeks, new abscesses developed in 10.1 percent of the TMP/SMX group compared to 19.1 percent of the placebo group. These findings were for the per-protocol group, the 85 percent who complied and followed-up, but also held up in the intention-to-treat population. This evidence supports routine antibiotic use.

So do we now abandon, "Just say 'no' to antibiotics for abscesses," and risk promoting bacterial resistance Armageddon? There's another perspective to these results. Most patients recover with drainage alone, 85.7 percent not needing a new antibiotic and 74.3 percent not needing either a new antibiotic or more drainage. Further, the placebo group was found to be at no increased risk of subsequent rare invasive infections.

I asked an emergency medicine antibiotic stewardship expert, Larissa May, MD, MSPH, MSHS, at the University of California, Davis. She replied, "I would argue that these results cannot be generalized to truly uncomplicated abscesses as a substantial minority of participants fell into the moderately ill category (diabetes, systemic signs of infection, and abscesses >75 cm^2). I am more likely to treat patients who suffer from repeated infections. In addition, even if the study reinforces the current practice of prescribing antibiotics to most patients with uncomplicated abscesses, there is opportunity for decreasing duration of antibiotic use. The authors chose seven to 10 days, which is not necessary."

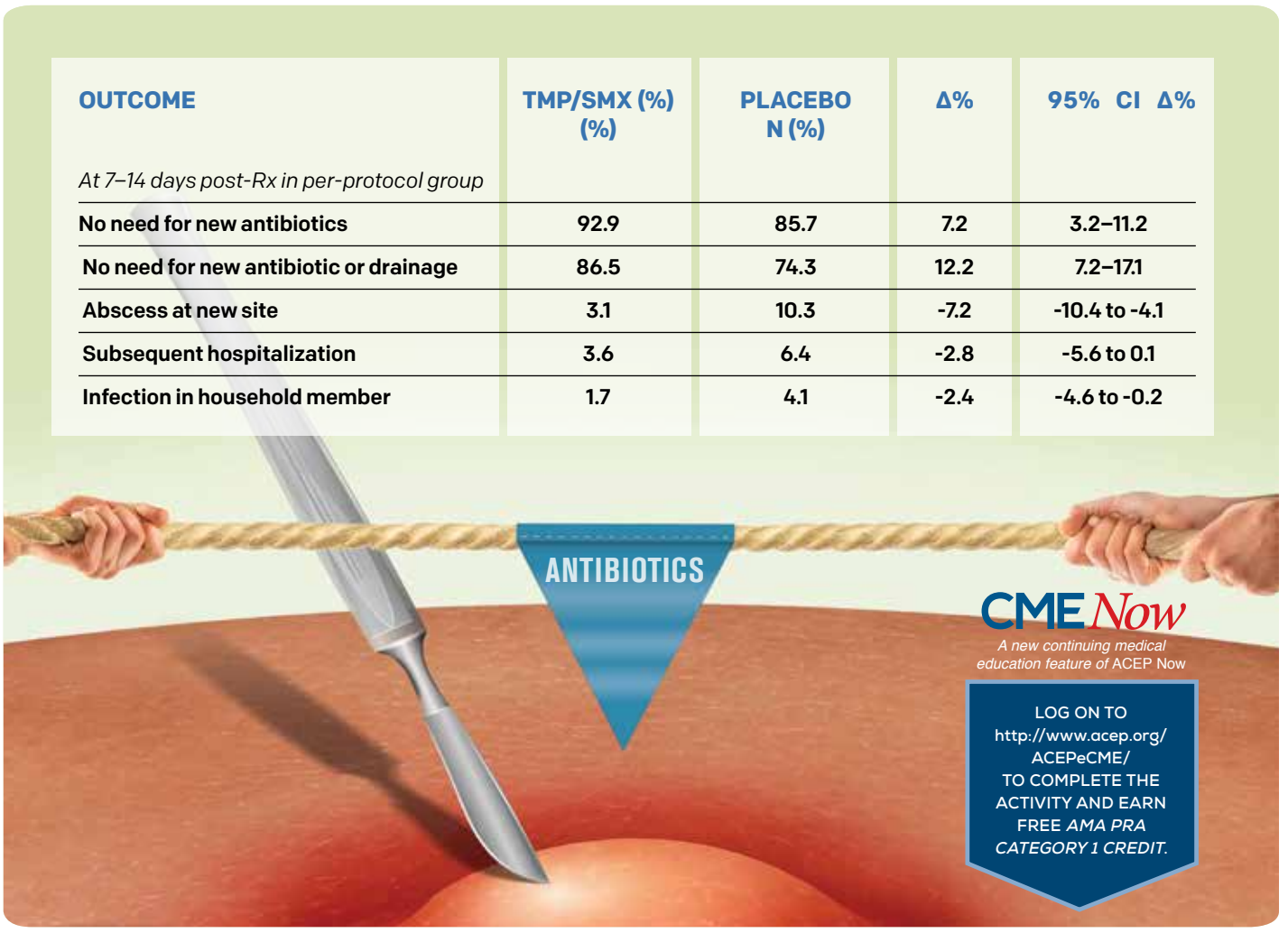
Emergency physicians are routinely second-guessed when complications occur, so I asked an infectious diseases expert, Brad Spellberg, MD, at Los Angeles County-University of Southern California Medical Center, who advises the US Food and Drug Administration on antibiotic trials, about his take. He replied, "I cannot understand people's fixation on not giving antibiotics to people we *know* have bacterial infections, but they seem to be perfectly at ease blasting people with viral bronchitis, sinusitis, otitis, etc. with pseudomonally active therapy, typically with vanco. ... Patients with abscesses need to be treated. ... Your data have frankly made it below the standard of care not to do so."

Brad, we caught the dig about our vosyn abuse. Ouch. We'll keep working on that.

A seven-day course of TMP/SMX costs about $5 on GoodRx.com. Here's a back-of-the-napkin cost analysis (see Figure 1).

Table 1: Outcome of Patients with a Drained Skin Abscess Randomized to TMP/SMX or Placebo

OUTCOME *At 7–14 days post-Rx in per-protocol group*	TMP/SMX (%) (%)	PLACEBO N (%)	Δ%	95% CI Δ%
No need for new antibiotics	92.9	85.7	7.2	3.2–11.2
No need for new antibiotic or drainage	86.5	74.3	12.2	7.2–17.1
Abscess at new site	3.1	10.3	-7.2	-10.4 to -4.1
Subsequent hospitalization	3.6	6.4	-2.8	-5.6 to 0.1
Infection in household member	1.7	4.1	-2.4	-4.6 to -0.2



"I cannot understand people's fixation on not giving antibiotics to people we know have bacterial infections, but they seem to be perfectly at ease blasting people with viral bronchitis, sinusitis, otitis, etc. with pseudomonally active therapy, typically with vanco. ... Patients with abscesses need to be treated. ... Your data have frankly made it below the standard of care not to do so."

—Brad Spellberg, MD, at Los Angeles County-University of Southern California Medical Center

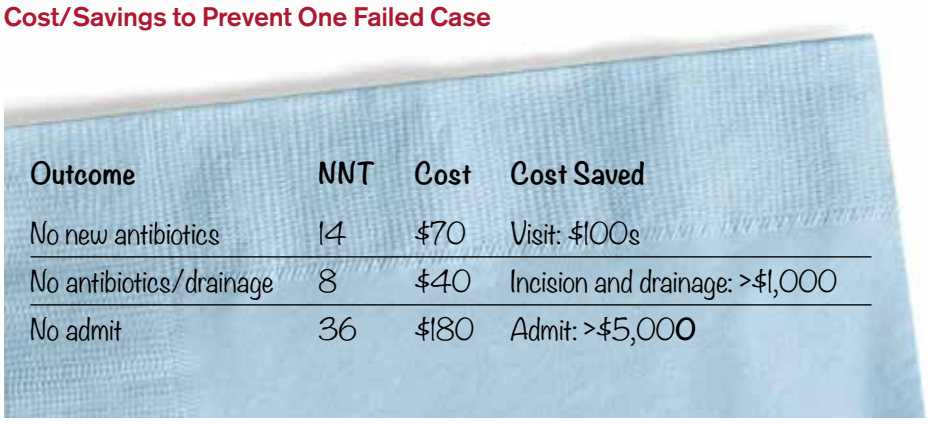
With an antibiotic that is so cheap, routine use is cost-saving, even with a small outcome benefit considering the savings in avoiding a return visit and especially an extra drainage procedure or hospitalization.

Jerry Hoffman, MD, perhaps emergency medicine's toughest literature critic, concluded, "I was quite surprised by the results ... and actually wished they'd been different. But this is very good evidence, and certainly the best we have, of a small but real benefit. So it strongly suggests that a few days of antibiotics is worth it." This new evidence at least opens the door to a discussion with your patient.

Some have suggested untested strategies like giving a later-dated just-in-case prescription, not treating smaller abscesses, and treating for fewer days. We're conducting subgroup analyses to test abscess mythology, like antibiotics are only effective for those with bigger lesions, more erythema, fever, or comorbidities. One double-strength BID could work just as well. There is another RCT that used this dose (ClinicalTrials.gov #NCT00730028), and we'll see if that study validates our findings.

In the meantime, you can decide if it's time to discard abscess treatment dogma and if, with this new evidence, matters have now come to a head!

Figure 1. Back of Dave's Napkin: Number Needed to Treat (NNT) and Cost/Savings to Prevent One Failed Case



Outcome	NNT	Cost	Cost Saved
No new antibiotics	14	$70	Visit: $100s
No antibiotics/drainage	8	$40	Incision and drainage: >$1,000
No admit	36	$180	Admit: >$5,000

Reference

1. Talan DA, Mower WR, Krishnadasan A, et al. Trimethoprim-sulfamethoxazole versus placebo for uncomplicated skin abscess. *N Engl J Med.* 2016;374(9):823-832.

DR. TALAN is professor of medicine in residence (emeritus) at David Geffen School of Medicine at UCLA and chairman emeritus of the department of emergency medicine and faculty in the division of infectious diseases at Olive View-UCLA Medical Center in Los Angeles.

PROTECT YOUR POT OF GOLD FROM BAD ADVICE

THE END OF THE RAINBOW

DR. DAHLE is the author of *The White Coat Investor: A Doctor's Guide to Personal Finance and Investing* and blogs at http://whitecoatinvestor.com. 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.

Taking an Appropriate Amount of Investing Risk

Too much or too little risk in your portfolio can keep you from reaching your retirement goals

ILLUSTRATION: PAUL JUESTRICH; PHOTOS: SHUTTERSTOCK.COM

by JAMES M. DAHLE, MD, FACEP

Q. ***I don't like watching the value of my investments going up and down—it feels like I'm in a casino sometimes. How much risk should I be taking with my portfolio?***

A. The more investors learn about investing, the more they realize it's *all* about risk management—and the risks you face matter far more than the past or projected returns of the investment. In the words of Will Rogers, "I am not so much concerned with the return *on* my capital as I am with the return *of* my capital."

However, it's also important to not take on too little investment risk, as one of the most significant risks an investor faces is shortfall, or running out of money in retirement. The lower returns available on lower-risk investments may not allow your money to grow fast enough for your needs. There's a reasonable range of risk for an investor to appropriately take, but there are far too many investors whose portfolios fall outside of that range.

RISK VERSUS REWARD

The amount of risk you take should be directly related to your need and ability to take risk. Most investors have a significant need to take on risk, but there are some who do not. For example, an investor with a $10 million portfolio who needs only $100,000 a year from it can eliminate almost all significant risk from the portfolio and still meet goals. Most investors, however, aren't nearly as fortunate. An investor with a $1 million portfolio who hopes to spend that same $100,000 per year needs to not only continue to add to the portfolio but also to take significant risk with it.

Likewise, it's critical to not exceed your risk tolerance. If you don't have the emotional and financial ability to withstand a 50 percent drop in your assets (and few do), a 100 percent stock portfolio probably isn't for you because once every 30 to 50 years or so, the assets of stock investors take a 50 percent haircut.

One of the best ways to lower the amount of risk you need to take is to save more money. Saving more of your income now has a double positive effect on your portfolio: Not only does it grow faster but the amount of income it needs to provide you to maintain your pre-retirement lifestyle is also lowered. Consider an investor who makes $200,000 per year and is saving 20 percent of gross income in hopes of retiring on an income of $160,000 per year, including $30,000 per year of Social Security benefits. Using a 4 percent inflation-adjusted spending rate in retirement, that investor needs to work and save for 33 years prior to retirement. By instead saving 40 percent of gross income and planning to live on $120,000 per year, including a $20,000 Social Security benefit, the investor now only needs to work and save for 19 years, which equals more than a decade of extra time in retirement.

Many investors prefer to invest in very safe but low-returning investments like CDs, bonds, savings accounts, and insurance-based products such as whole-life insurance. These investments appear to be safe because the returns aren't volatile like those of higher-returning investments such as stocks and real estate. In reality, though, they can be even more dangerous. Perhaps an investor's greatest opponent is inflation. Even inflation of just 2 to 3 percent a year presents a formidable threshold to investments that yield only 1 to 2 percent a year. Nobody likes to see their investments drop dramatically in value, but the alternative is to be forced to spend less than you would have otherwise in retirement or face running out of money if you live long enough. Investors who prefer low-volatility investments have likely never run the numbers to really understand what their investment preference means.

For example, an investor who wants a portfolio to provide 50 percent of pre-retirement income but who achieves an investment return that only matches inflation (0 percent real) and wants a 25-year career will require a savings rate of 50 percent of gross income for each of those 25 years. Very few doctors are willing to save that much of their income. Alternatively, the investor can work for 40 years while saving 31 percent of income. A more risk-tolerant investor who achieves a return that beats inflation by 5 percent, on the other hand, would need to save only 25 percent of income for 25 years, or 10 percent of income for 40 years, to have the same retirement spending level. The bottom line is that almost all investors need to take on a significant amount of risk in order to meet their financial goals.

A REASONABLE RISK?

Phil DeMuth, PhD, managing director at Conservative Wealth Management, LLC, has said, "Even if risk tolerance existed and could be measured accurately, why would it be an important factor when considering how to invest? You should invest in the way that has the greatest prospect to fulfill your investment goals. That might mean taking more or less risk than you would prefer. If you are a sensitive soul who can brook no paper losses, the solution is to get a grip, not to invest 'safely' if that locks in running out of money when you are old."

There are many investing "products" (most of them insurance-based) that are marketed as reducing the risk in investing. However, these same products are also likely to reduce the return so much that a typical investor cannot afford to have any significant chunk of a portfolio in them. Financial theorist William Bernstein, MD, said, "There are no free volatility-reducing lunches that will inexpensively reduce your portfolio risk, and there is no risk fairy to insure the risky parts of your portfolio on the cheap. Yes, there are people who—and vehicles that—will do this for you, but they will cost you a pretty penny."

While the general adage that higher risk equals a higher return is true, you should be aware that you won't be compensated for taking some risks. A risk that can be diversified away is, by its very definition, uncompensated risk. An example of this is investing in a single stock or even a handful of stocks. Since you can easily buy all of the publicly traded stocks in the world using low-cost index funds, you won't be paid an additional risk premium for investing in a single stock—even if that stock is Apple.

A novice investor may ask, "What's a reasonable amount of risk to take in a standard portfolio of low-cost, broadly diversified stock and bond index funds?" Many decades ago Warren Buffett's mentor, Benjamin Graham, recommended never holding more than 75 percent or less than 25 percent of your portfolio in stocks, with the remainder in bonds. I think that wisdom still holds true today, and you should have a very good reason to go outside that recommendation. If you do decide to leave the relatively safe confines of the publicly traded markets for your investments, limiting risk should be of the utmost importance in evaluating a prospective investment.

Owning stocks, bonds, and real estate isn't gambling. You're loaning money to or owning small pieces of real profit-generating enterprises, some of the largest and most successful that the world has ever seen. Make sure the amount of risk you're taking on isn't too much, or too little, to reach your goals.

Many decades ago Warren Buffett's mentor, Benjamin Graham, recommended never holding more than 75 percent or less than 25 percent of your portfolio in stocks with the remainder in bonds. I think that wisdom still holds true today, and you should have a very good reason to go outside that recommendation.

SOUND ADVICE

DR. WROE is a senior resident at Highland Hospital, Alameda Health System, in Oakland, California.

DR. NAGDEV is director of emergency ultrasound at Highland Hospital, Alameda Health System, in Oakland, California, and assistant clinical professor at the University of California, San Francisco School of Medicine.

Ultrasound-Guided Forearm Nerve Blocks

Non-drug pain relief for acute forearm injuries

While forearm nerve blocks provide excellent anesthesia for hand injuries (fractures, dislocations, lacerations, abscesses), they don't provide anesthesia to the volar forearm or the wrist.

by PETER WROE, MD, AND ARUN NAGDEV, MD

Hand injuries are a very common emergency department complaint, accounting for a great deal of acute pain as well as chronic morbidity and productivity loss.[1–3] Adequate analgesia and anesthesia are necessary to provide hemostasis, wound irrigation, debridement, an adequate examination, laceration or tendon repair, joint reduction, splinting, and other acute interventions. Ultrasound-guided forearm nerve blocks can provide definitive analgesia and facilitate these interventions in acute hand injuries in the emergency department.[4–7]

Anatomy of Forearm Nerves

The distribution of nerves throughout the forearm is in three segments (see Figure 1):

- *Median nerve:* radial/lateral aspect of volar hand; volar surface of thumb, index, long, and radial/lateral side of ring finger
- *Radial nerve:* radial/lateral aspect of dorsal hand; dorsal surface of thumb; dorsal surface of index, long, and radial/lateral side of ring finger, proximal to the distal interphalangeal (DIP) joints
- *Ulnar nerve:* ulnar/medial aspect of dorsal and volar hand including hypothenar eminence, fifth digit, and ulnar/medial aspect of ring finger

For major injuries to the hand, such as firework blast injuries, all three forearm nerves can be blocked. For injuries to the radial aspect of the hand or the first four digits, consider blocking the median and/or radial nerve(s). For injuries to the ulnar hand or little finger (eg, a boxer's fracture), utilize the ulnar nerve block. (See Figure 2.) There's moderate overlap of innervation for each dermatomal location. Injuries located close to dermatomal transitions often require both nerves to be blocked to ensure adequate pain control. We also recommend using a multimodal approach to pain management that relies on oral agents as well as local anesthetic infiltration, if possible.

While forearm nerve blocks provide excellent anesthesia for hand injuries (fractures, dislocations, lacerations, abscesses), they don't provide anesthesia to the volar forearm or the wrist. Therefore, other means of analgesia/anesthesia should be pursued for injuries to these areas, such as distal radius fractures and other wrist injuries.

Ultrasound Setup

Probe: The probe selection should be a high-frequency linear transducer (15-6 MHz) set at the nerve (or soft tissue) preset (found on most POCUS systems). A 10-5 MHz transducer could also be used. Use a standard 1.5-inch, 25-gauge needle. (An alternative is a 22-gauge, blunt-tipped regional block needle.)

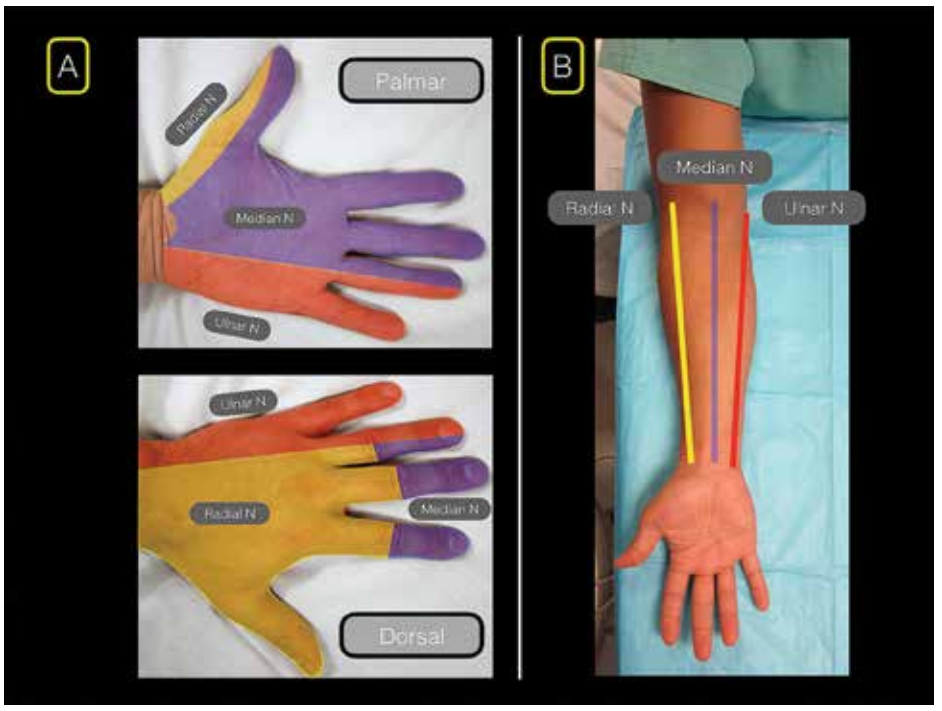
Anesthetic: For the anesthetic, we recommend lidocaine 1 to 2 percent, bupivacaine 0.25 percent, 2 to 5 cc per nerve block. For the less experienced provider, we recommend starting with lidocaine, as bupivacaine is more commonly associated with local anesthetic systemic toxicity. All anesthetics should be used with caution when injecting near vascular structures, with LipidRescue available if needed (www.lipidrescue.org).

Positioning: Position the ultrasound system across from the affected extremity at a comfortable height. Place the patient in a supine or 45-degree upright position, with the affected arm supinated and externally rotated and the forearm resting on a stand. As you start with the linear ultrasound probe in a transverse position in the distal forearm, align the probe marker to the same side as it appears to you on your screen. The provider should have both the ultrasound screen and the point of needle entry in the same line of sight if possible.

Locating Each Nerve

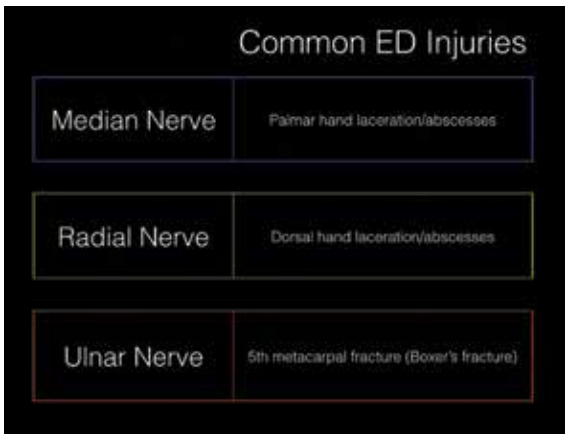
The **median nerve** lies along the midline of the forearm in the fascial plane between the flexor digitorum superficialis and profundus tendons. Place the linear ultrasound probe in a transverse position at the wrist crease on the volar surface of the distal forearm. Scan proximally to the mid-forearm and look for the classic "honeycomb" appearance of a nervous structure at the junction of several fascial planes (see Figure 3). There are no associated vascular structures, except in rare incidences. In the distal wrist, muscle tendon sheaths will look similar to the classic honeycomb appearance of the nerves. By scanning proximally, tendons will disappear

Figure 1.



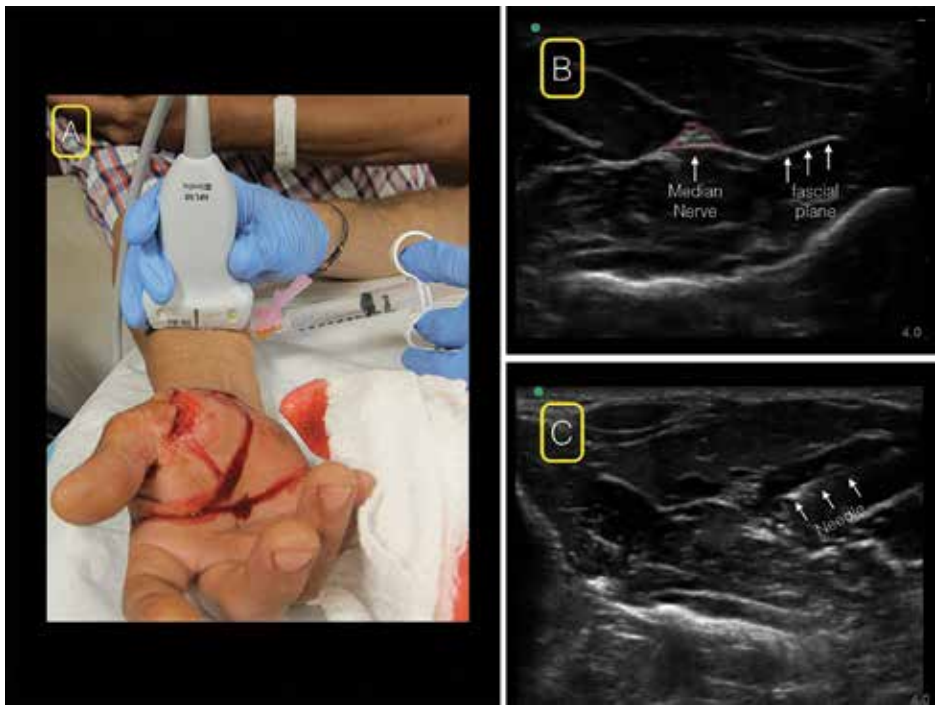
Distribution of the median (purpe), radial (yellow), and ulnar (red) nerves on the hand (A) and forearm (b).

Figure 2.



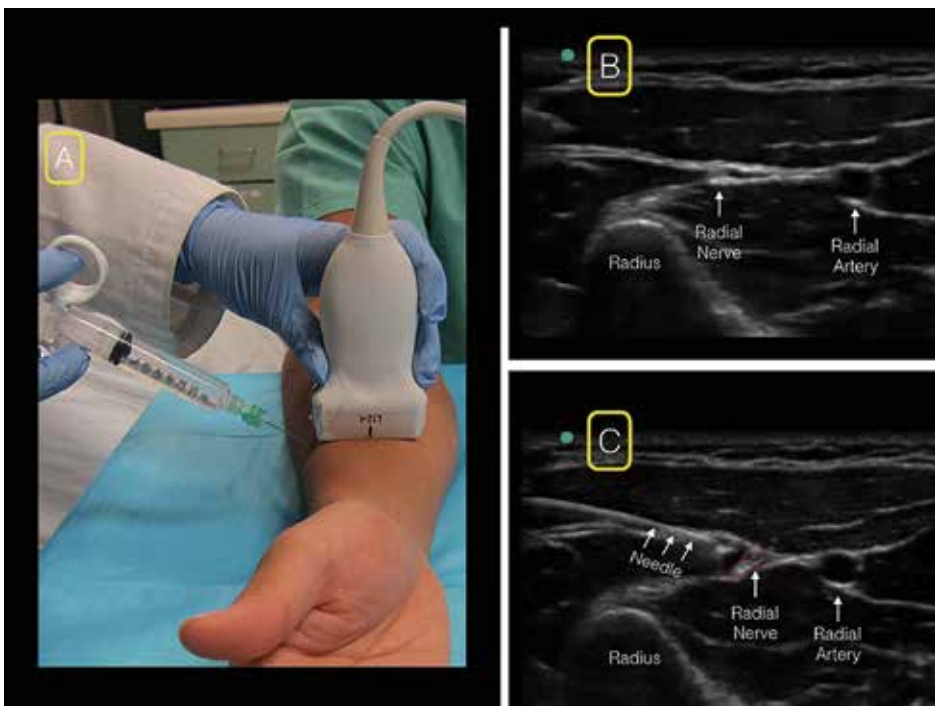
Choosing the correct nerve block for the injured area.

Figure 3.



For the median nerve block, place the linear ultrasound probe in a transverse position at the wrist crease on the volar surface of the distal forearm. Scan proximally to the mid-forearm (A) and look for the classic "honeycomb" appearance of a nervous structure at the junction of several fascial planes (B). insert your needle from whichever side is most comfortable (A&C).

Figure 4.



For the radial nerve block, starting at the wrist with the linear ultrasound probe in a transverse position over the radial artery (A), scan proximally until the nerve can be visualized separating from the radial artery (B). Locate the radial nerve between the brachioradialis and brachialis muscles. insert your needle from the radial (lateral) aspect of the probe (A&C).

and the nerve will be clearer.

The **radial nerve** can be found in a position radial (lateral) to the radial artery. Starting at the wrist with the linear ultrasound probe in a transverse position over the radial artery, scan proximally until the nerve can be visualized separating from the radial artery (see Figure 4). Alternatively, you can slide the probe proximally and find the nerve in the supracondylar area. Keeping the probe transverse on the lateral aspect of the arm, locate the radial nerve between the brachioradialis and brachialis muscles. You can perform the block from this position or trace the nerve back distally to a comfortable position in the forearm.

The **ulnar nerve** runs adjacent to the ulnar artery in the ulnar (medial) direction. Position the linear ultrasound at the wrist over the ulnar artery. Scan proximally until the nerve separates from the artery in the ulnar direction in the mid- to proximal forearm (see Figure 5). For a more comfortable position to perform an in-plane ultrasound-guided ulnar nerve block, consider having the patient abduct the arm and flex the elbow to 90 degrees, with the elbow resting on the stand.[8]

Performing the Block

Before your block, perform and document an appropriate neurovascular exam. After prepping the skin with antiseptic solution, use a local anesthetic to make a skin wheal at your chosen injection site. With a sterile transducer cover, insert your needle using an in-plane approach for continuous direct needle visualization. For the median nerve block, enter from whichever side is most comfortable/natural (see Figure 3). For the radial nerve block, enter the skin from the radial (lateral) aspect of the probe (see Figure 4). For the ulnar nerve block, enter from the ulnar (medial) aspect of the probe (see Figure 5).

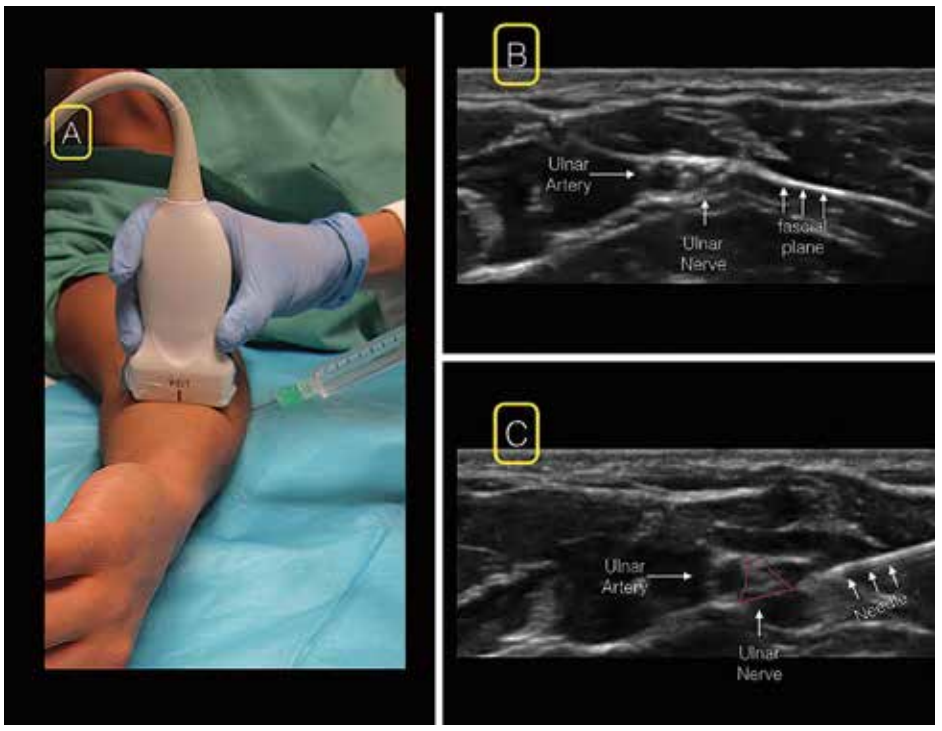
Once the needle tip is visualized to be adjacent to the nerve, slowly inject 2 to 5 mL of anesthetic into the fascial plane containing the nerve. You should see hypoechoic fluid gradually surrounding the nerve. Be careful not to insert your needle or inject anesthetic into the nerve sheath itself. Also, be careful to avoid vascular structures while inserting and removing your needle. While we recommend that novice providers use an in-plane approach for all regional nerve blocks, the median presents an opportunity to practice employing an out-of-plane approach since it doesn't lie as close to major vascular structures as the radial and ulnar nerves.

After the Block

After performing the forearm nerve block, mark the affected extremity with the date, time, and type of block performed. Communicate with the nurse(s), other providers, and any relevant consultants that a block was performed. Of note, if consultants are to be involved in the acute care of your patient's injury, a clear discussion regarding regional anesthesia should occur prior to performing your block. Lastly, reassess your patient to ensure adequate analgesia and assess the efficacy of your block. Be sure to reassess and document repeat neurovascular examinations.

Ultrasound-guided forearm nerve blocks are an effective method to provide analgesia for hand injuries. Because most hand injuries don't require orthopedic consultation, we recommend that clinicians new to ultrasound-guided regional anesthesia start with ultrasound-guided forearm nerve blocks. In an era of opioid-sparing pain management, these techniques are an ideal addition to the broad armamentarium of the emergency physician.

Figure 5.



For the ulnar nerve block, position the linear ultrasound at the wrist over the ulnar artery (A). Scan proximally until the nerve separates from the artery in the ulnar direction in the mid-to-proximal forearm (B). insert your needle from the ulnar (medial) aspect of the probe (A&C).

References

1. Andrade A, Hern HG. Traumatic hand injuries: the emergency clinician's evidence-based approach. *Emerg Med Pract.* 2011;13(6):1-23.
2. Angermann P, Lohmann M. Injuries to the hand and wrist. A study of 50,272 injuries. *J Hand Surg Br.* 1993;18(5):642-644.
3. de Putter CE, van Beeck EF, Polinder S, et al. Healthcare costs and productivity costs of hand and wrist injuries by external cause: a population-based study in working-age adults in the period 2008-2012. *Injury.* 2006;47(7):1478-1482.
4. Liebmann O, Price D, Mills C, et al. Feasibility of forearm ultrasonography-guided nerve blocks of the radial, ulnar, and median nerves for hand procedures in the emergency department. *Ann Emerg Med.* 2006;48(5):558-562.
5. Frenkel O, Liebmann O, Fischer JW. Ultrasound-guided forearm nerve blocks in kids: a novel method for pain control in the treatment of hand-injured pediatric patients in the emergency department. *Pediatr Emerg Care.* 2015;31(4):255-259.
6. Sohoni A, Nagdev A, Takhar S, et al. Forearm ultrasound-guided nerve blocks vs landmark-based wrist blocks for hand anesthesia in healthy volunteers. *Am J Emerg Med.* 2016;34(4):730-734.
7. Wroe P, O'Shea R, Johnson B, et al. Ultrasound-guided forearm nerve blocks for hand blast injuries: case series and multidisciplinary protocol. *Am J Emerg Med.* 2016;34(9):1895-1897.
8. Toles K, Nagdev A. Trick of the trade: patient positioning for ultrasound-guided ulnar nerve block. Academic Life in Emergency Medicine website. Available at: https://www.aliem.com/2016/trick-of-the-trade-patient-positioning-for-ultrasound-guided-ulnar-nerve-block/. Accessed Sept. 14, 2016.

Other Resources

Forearm blocks for hand injuries. Highland Ultrasound website. Available at: **http://highlandultrasound.com/forearm-blocks/.**

Ootes D, Lambers KT, Ring DC. The epidemiology of acute upper extremity injuries presenting to the emergency department in the United States. *Hand* (N Y). 2012;7(1):18-22.

DR. LIN is an assistant professor of emergency medicine at the Icahn School of Medicine at Mount Sinai in New York City. She is an attending emergency physician at Mount Sinai Beth Israel.

DR. SCHUUR is vice chair of quality and safety and chief of the Division of Health Policy Research and Translation in the Department of Emergency Medicine, Brigham & Women's Hospital in Boston. He also serves as assistant professor at Harvard Medical School.

Simplifying Emergency Sinusitis Care

CT and antibiotics should have little to no role in treating uncomplicated acute viral or bacterial rhinosinusitis

SHUTTERSTOCK.COM

by MICHELLE P. LIN, MD, MPH, AND JEREMIAH D. SCHUUR, MD, MHS

Your first patient of the shift is a 40-year-old woman with a fever of 101 degrees Fahrenheit, and has had congestion, facial pain, and thick, yellow nasal discharge for the past three days. You diagnose her with acute sinusitis, and she asks if she needs any testing to confirm the diagnosis or antibiotics to help clear up the infection.

Acute sinusitis or rhinosinusitis (the latter term is preferred since sinus inflammation almost never occurs without nasal mucosal inflammation) affects one in seven adults annually and accounts for $4.3 billion in annual direct health care expenditures.

CT Has No Role in Routine Management

Acute rhinosinusitis is a clinical diagnosis, characterized by nasal discharge, congestion, facial pain or pressure, postnasal drip, olfactory dysfunction, fever, and/or ear pain or pressure. The vast majority of acute sinusitis and rhinosinusitis cases are viral, associated with the common cold, and only 0.5 to 2 percent are acute bacterial rhinosinusitis.[1]

Non-contrast computerized tomography (CT) of the sinuses is used to characterize sinus anatomy prior to surgery in patients with chronic refractory sinusitis. In the emergency department setting, CT is the diagnostic modality of choice for complications of bacterial sinusitis, such as intraorbital or intracranial extension, abscess, or osteomyelitis.

There's no indication for CT in the routine management of acute uncomplicated rhinosinusitis, however. In fact, a prospective study found sinus abnormalities in 37 percent of asymptomatic adults and 87 percent of adults with common cold symptoms (rhinitis only).[2,3] Additional studies have shown poor correlation between abnormalities on CT and symptoms.[4]

Medicare reimbursement (a conservative estimate of cost) for non-contrast CT max/face (or sinus) is $173.85. A recent study in a managed care population found that among ED patients with sinusitis, over 25 percent underwent CT scans, compared to 0.6 percent and 1.4 percent in primary care and urgent care settings, respectively.[5] Based on 350,000 annual ED visits for sinusitis, a 50 percent reduction in current CT use rates would result in $7.6 million in annual savings.

Antibiotics: Unnecessary and Overprescribed

Nearly all acute rhinosinusitis is viral and associated with organisms that cause the common cold. A 2013 Cochrane review of four randomized, controlled studies found that antibiotics had no effect on persistence of acute purulent rhinosinusitis, and that antibiotics were associated with high rates of side effects when compared to a placebo.[6]

Among the 2 percent of patients with bacterial rhinosinusitis, the majority will improve without antibiotics within 10 to 14 days.[7] Acute purulent bacterial rhinosinusitis is rare and is characterized by:

- Persistent or worsening symptoms lasting over 10-14 days;
- Fever of greater than 102 degrees Fahrenheit (39 degrees Celsius) for three to four consecutive days (in contrast to a fever in a common cold, which usually lasts 24 to 48 hours);
- Unilateral facial pain; and
- Worsening symptoms after typical viral cold symptoms seem to be improving.

Despite this, 85 percent of ED patients diagnosed with sinusitis receive antibiotics.[8] Furthermore, there's wide variation in ED antibiotic prescribing patterns for bacterial sinusitis. Amoxicillin-clavulanate for five to seven days (not 10 to 14 days) is the first-line treatment, while doxycycline or a respiratory fluoroquinolone can be used for penicillin-allergic patients. Due to antibiotic resistance, probably related to previous overuse, amoxicillin is no longer the recommended first-line therapy.

Effective Alternatives for Acute Sinusitis

Nasal corticosteroids have shown evidence of symptom improvement in both viral and bacterial acute rhinosinusitis. Nasal irrigation has been shown to have modest benefit in symptom reduction as well.

Limited use of topical decongestants such as oxymetazoline has shown benefit in treating viral rhinosinusitis. Oral decongestants (phenylephrine, pseudoephedrine) and antihistamines have not been shown to be superior to a placebo in randomized trials and may worsen inflammation by drying mucous membranes.

So, the next time you diagnose a patient with acute sinusitis, skip the CT and antibiotics and offer a prescription for evidence-based symptomatic therapy instead (see Table 1). Opting for a cost-effective approach to sinusitis can not only improve quality of care and reduce costs, it can actually relieve your patient's sinus discomfort.

Table 1. Conversation Guide for Acute Sinusitis

"After hearing your history and examining you, I believe that your symptoms are caused by acute sinusitis.

- Sinusitis is a clinical diagnosis. Additional testing such as X-rays or a CT scan will only expose you to harmful radiation, prolong your stay, and add several hundred dollars to your bill.

Nearly all sinusitis is viral, so antibiotics aren't helpful and can cause side effects such as stomach upset and diarrhea. However, there are several medications for symptom relief I can prescribe, such as:

- A nasal corticosteroid spray to reduce inflammation

-and/or-

- A nasal decongestant that you can use sparingly to decrease congestion

-and/or-

- A sinus rinse than can help alleviate sinus congestion.

Most patients, even those with bacterial infections, will get better on their own in 10 to 14 days. What questions do you have?"

References

1. Fokkens W, Lund V, Mullol J. European Position Paper on Rhinosinusitis and Nasal Polyps Group. EP3OS 2007: European position paper on rhinosinusitis and nasal polyps 2007. A summary for otorhinolaryngologists. *Rhinology.* 2007 Jun;45(2):97–101.
2. Nazri M, Bux SI, Tengku-Kamalden TF, Ng K-H, Sun Z. Incidental detection of sinus mucosal abnormalities on CT and MRI imaging of the head. *Quant Imaging Med Surg.* 2013 Apr;3(2):82–8.
3. Gwaltney JM, Phillips CD, Miller RD, Riker DK. Computed Tomographic Study of the Common Cold. *N Engl J Med* [Internet]. 1994 Jan 6 [cited 2015 May 13];330(1):25–30. Available at: http://dx.doi.org/10.1056/NEJM199401063300105. Accessed: Aug. 23, 2016.
4. Basu S, Georgalas C, Kumar BN, Desai S. Correlation between symptoms and radiological findings in patients with chronic rhinosinusitis: an evaluation study using the Sinonasal Assessment Questionnaire and Lund-Mackay grading system. *Eur Arch Otorhinolaryngol.* 2005 Sep;262(9):751–4.
5. Sharp AL, Klau MH, Keschner D, Macy E, Tang T, Shen E, Munoz-Plaza C, Kanter M, Silver MA, Gould MK. Low-value care for acute sinusitis encounters: who's choosing wisely? *Am J Manag Care.* 2015 Jul;21(7):479-85.
6. Kenealy T, Arroll B. Antibiotics for the common cold and acute purulent rhinitis. Cochrane Database Syst Rev. 2013;6:CD000247.
7. Ahovuo-Saloranta A, Rautakorpi U-M, Borisenko OV, Liira H, Williams JW, Mäkelä M. Antibiotics for acute maxillary sinusitis in adults. Cochrane Database Syst Rev. 2014;2:CD000243.
8. Fairlie T, Shapiro DJ, Hersh AL, Hicks LA. National trends in visit rates and antibiotic prescribing for adults with acute sinusitis. *Arch Intern Med* [Internet]. 2012 Oct 22 [cited 2015 May 12];172(19):1513–4. Available at: http://dx.doi.org/10.1001/archinternmed.2012.4089. Accessed: Aug. 23, 2016.

DO YOU **PLAY WELL** WITH OTHERS?

It's one of the things we do best.

At CEP America, we developed a culture that values teamwork, collaboration, and playing well with others, which makes for a truly fun and warm work environment.

GOING TO ACEP? VISIT BOOTH #S2017
and ask our physicians how we work and play.

YOU'RE INVITED!
RECEPTION AT THE HOUSE OF BLUES ON 10/17:
go.cep.com/RSVPnow

CEP America®

OWN YOUR CAREER

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.

INR: Misunderstood and Misleading

Improper use of this test can lead to misuse of resources or even patient harm

by RYAN PATRICK RADECKI, MD, MS

There are many overused tests in the vastness of medicine, but few synthesize both overuse and inappropriateness like the international normalized ratio (INR). The INR is a test with a singular purpose: a standardized calibration for the measurement of the anticoagulant activity of warfarin. It has no other reason for existence, yet it is frequently ordered as part of routine screening for previously undiagnosed coagulopathy. Indeed, its use is so prevalent as a stowaway in anachronistic order sets that ACEP once considered tracking coagulation studies as a marker of low-quality care.[1] The INR and its related cousin prothrombin time (PT) are elevated only in a handful of conditions: vitamin K–dependent factor deficiency, presence of factor VII inhibitor, disseminated intravascular coagulation, or in the setting of massive transfusion. An incidentally encountered mild elevation of INR or PT is typically of no clinical significance nor is it associated with increased bleeding risk.

The prime example of this misunderstanding and misuse of the INR is in our approach to patients with cirrhosis or end-stage liver disease (ESLD). As a result of their chronic liver injury, these patients have impaired intrahepatic synthesis of a number of important elements of hemostasis. Further complicating the matter, much of our contact with patients suffering from ESLD occurs in the heat of critical illness such as upper gastrointestinal bleeding, including brisk variceal bleeding. This is, unfortunately, where the INR does us the greatest disservice.

The INR does not accurately reflect underlying coagulopathy. Patients with impaired hepatic synthetic dysfunction and ESLD do suffer from a diminished hemostatic reserve (ie, thrombocytopenia, low levels of coagulation factors, and dysfibrinogenemia).[2] However, these deficiencies are counterbalanced by pro-hemostatic features (ie, elevated levels of von Willenbrand factor, elevated factor VIII, and low levels of protein C and S). The PT and INR only narrowly reflect one portion of the coagulation cascade, do not reflect a holistic view of the ability to clot, and do not accurately represent bleeding risk.

In fact, at one surgical center, the authors report on a series of 500 consecutive liver transplant procedures performed in the setting of advanced liver disease.[3] The mean INR for these patients was 1.8. In spite of this, these authors were able to perform 398 of the 500 surgical procedures without requiring transfusion of any additional blood products and, similarly, without any prophylactic administration of fresh frozen plasma (FFP). In fact, when these authors were designing their surgical protocol for liver transplant, their retrospective case review revealed administration of FFP was actually a risk factor for red blood cell (RBC) transfusion and decreased one-year survival rates. This leads to a second important conclusion regarding the approach to patients with ESLD: **FFP should not routinely be used as procedural prophylaxis or treatment for the bleeding cirrhotic with an elevated INR.**

Despite running contrary to dogma, this is actually fairly straightforward. If a patient cannot be helped by a particular therapy, they can only be harmed. Therefore, it follows that if patients with ESLD are in a rebalanced state of pro- and anti-hemostatic factors without an innately increased bleeding risk, there remain only the harms associated with FFP transfusion.

The PT and INR only narrowly reflect one portion of the coagulation cascade, do not reflect a holistic view of the ability to clot, and do not accurately represent bleeding risk.

Most of the evidence in support of this statement has emerged from case series utilizing clot-formation assays such as thromboelastometry (ROTEM) or thromboelastography (TEG). For example, one pilot study found all but one of 55 patients with elevated INR (≥1.3) in an intensive care unit had, in fact, normal coagulation when tested by ROTEM.[4] Subsequently, these authors were able to obviate their typical practice of periprocedural transfusion of four units of FFP, and no bleeding complications were observed.

Specific to cirrhotics, a small randomized trial divided patients into two cohorts: preprocedural transfusion using an INR-based "standard of care" and an alternative TEG-guided pathway.[5] The mean INR in the study was just under 2, and while only half of the cohort underwent procedures with an elevated bleeding risk, the TEG-guided strategy dramatically reduced FFP and platelet transfusions without any difference in subsequent periprocedural RBC transfusion.

These findings are critically important because a growing body of evidence reflects previously underrecognized risks related to transfusion. Transfusion-associated adverse events cause significant morbidity and mortality while consuming limited resources. Transfusion-associated circulatory overload and transfusion-related lung injury are reported to occur in 1 in 20 to 1 in 50 critically ill patients receiving transfusion and are major causes of transfusion-related fatalities. Transfusion-related immunomodulation also increases the susceptibility to nosocomial infections and sepsis in the critically ill.

Furthermore, in patients with cirrhosis and upper gastrointestinal bleeding (UGIB), aggressive resuscitation is almost certainly harmful. The typical dose required to "correct" an elevated INR of 4 units of FFP adds approximately a liter of high-osmotic intravascular volume. This has the effect of increasing portal venous pressures and can thereby precipitate worsening gastrointestinal hemorrhage. These same harms from transfusion are also seen in RBC transfusions in acute UGIB. In a prospective trial, a restrictive transfusion threshold of 7 g/dL conferred a survival advantage over a more liberal strategy using a threshold of 9 g/dL.[6] This advantage was maintained in the third of patients with cirrhosis and UGIB and those with variceal bleeds, reducing mortality from 18 percent to 11 percent.

It is clear that our erroneous dependence on the INR for the routine screening and treatment of coagulopathy and bleeding is harming patients and wasting limited resources. Use of the PT and INR should be to answer their narrow spectrum of appropriate clinical questions. We are also compounding the issue by misinterpreting these tests in the setting of ESLD, whose "rebalanced" hemostasis is best reflected only in the newer clot-formation assays. It is time to leave the old dogma behind and look at coagulation through a better lens.

References

1. ACEP DRAFT quality measures for public comment. Measure #3: coagulation studies in adult patients presenting with chest pain with no coagulopathy or bleeding. ACEP website. Available at: https://www.acep.org/uploadedFiles/ACEP/Advocacy/federal_issues/Quality_Issues/Measure%203%20-%20Coagulation%20Studies%20in%20Adult%20ED%20Patients%20with%20Chest%20Pain.pdf. Accessed Sept. 2, 2016.
2. Tripodi A, Mannucci PM. The coagulopathy of chronic liver disease. *N Engl J Med.* 2011;365(2):147-156.
3. Massicotte L, Denault AY, Beaulieu D, et al. Transfusion rate for 500 consecutive liver transplantations: experience of one liver transplantation center. *Transplantation.* 2012;93(12):1276-1281.
4. Durila M, Lukas P, Astraverkhava M, et al. Tracheostomy in intensive care unit patients can be performed without bleeding complications in case of normal thromboelastometry results (EXTEM CT) despite increased PT-INR: a prospective pilot study. *BMC Anesthesiol.* 2015;15:89.
5. De Pietri L, Bianchini M, Montalti R, et al. Thrombelastography-guided blood product use before invasive procedures in cirrhosis with severe coagulopathy: a randomized, controlled trial. *Hepatology.* 2016;63(2):566-573.
6. Villanueva C, Colomo A, Bosch A, et al. Transfusion strategies for acute upper gastrointestinal bleeding. *N Engl J Med.* 2013;368(1):11-21.

BE A MEDICAL DETECTIVE– BONE UP ON YOUR FORENSIC SKILLS

FORENSIC FACTS

DR. RIVIELLO is professor of emergency medicine at Drexel Emergency Medicine in Philadelphia.

DR. ROZZI is an emergency physician, director of the Forensic Examiner Team at WellSpan York Hospital in York, Pennsylvania, and chair of the Forensic Section of ACEP.

Evidence Collection

Protecting the chain of custody

Key Points

- Although sexual assault nurse examiners are generally widely available, emergency physicians should be familiar with the management of the sexually assaulted patient and how to collect forensic evidence.
- Some familiarity with evidence collection procedures will make the process easier for the patient and physician.
- Maintenance of the chain of custody is important for the integrity of the evidence to not be challenged.
- Dried specimens should be collected with a wet swab followed by a dry swab.
- Change gloves frequently during the collection and packaging of evidence to prevent cross-contamination.

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

THE CASE: You're working the overnight shift in a rural emergency department. The charge nurse says, "Tag, you're it," and hands you the chart of a 19-year-old female who reports that she has been sexually assaulted. There are no sexual assault nurse examiners at your hospital, but the department does have a stash of sexual assault evidence collection kits. Do you know how to proceed?

©BONNIE JACOBS/GETTY IMAGES

Kit Contents

The type of sexual assault evidence kit (SAEK) your hospital uses may vary. The photos below are of the kit commonly used in Pennsylvania, but most commercially available kits contain similar contents. States or jurisdictions often mandate the contents of the SAEK to be used. Here's what should be in a standard SAEK:

- Consent form
- Chain of Custody form
- Foreign material bags and envelopes
- Oral assault collection swabs/slide/envelopes
- Fingernail clipping envelopes
- Pubic hair combing envelopes
- Vaginal/penile assault collection swabs/envelopes
- Rectal assault collection envelopes
- Buccal swab collection envelopes

Examination

Always obtain consent prior to beginning a sexual assault examination. Depending upon where you practice, you may also be required to notify law enforcement as dictated by state and local laws. In addition, there are often jurisdictionally mandated chart forms that should be used. Some of the steps listed below may not be required depending on your practice location; it's important to know the requirements in the jurisdictions where you practice.

Patients presenting after sexual assault, like all other patients, must have a medical screening exam upon presentation to the emergency department. Although serious physical injury following sexual assault is rare, if serious injury is present, medical care takes precedence over evidence collection.

Once you've begun collecting evidence, the kit must remain in your direct line of sight or securely stored until collected by law enforcement. Most kits include a Chain of Custody form, often on the outside of the box, to document transfer of evidence. Failure to maintain the chain of custody may result in collected evidence being inadmissible in court.

Although commercial swab driers are available, specimens can be air-dried by inverting swabs into a lump of clay, a rack of test tubes, or inverted Styrofoam cups. The cups and tubes are single use to prevent cross-contamination. The other surfaces should be thoroughly cleaned before and after use with a 10 percent bleach solution. Carefully label each swab immediately after collection.

Last but certainly not least, after placing the evidence in separate envelopes, seal the envelopes with tape or a label. Do *not* lick the envelopes!

Foreign material and clothing collection. Place a clean bed sheet on the floor; over that, place a clean paper sheet. Have the patient stand in the center of the sheet and disrobe. As each piece of clothing is removed, place it in a separate paper bag. If clothing is wet, it should ideally be air-dried before packaging. If the patient isn't wearing the same clothing as at the time of assault, collect only the clothing in contact with the patient's genital area. Once all clothing has been collected, fold the paper sheet to contain any foreign material and place that in a bag.

Oral assault evidence collection. If the patient reports oral assault, using one swab, swab the buccal area and gum line. Repeat with a second swab. With both swabs held together, prepare one smear on a slide. Allow swabs and smear to air-dry. Do not moisten swabs prior to sample collection.

External genitalia collection. There are similar protocols for female and male victims:

- **Female victim:** Moisten swab with distilled water and swab the vulva. Repeat with a dry swab. Allow swabs to air-dry.
- **Male victim:** Moisten swab with distilled water and swab the glans and shaft of the penis. Repeat with a dry swab. Using another moistened swab, swab the scrotum. Repeat with a dry swab. Allow swabs to air-dry.

Vaginal assault collection. Swab the vaginal vault with two separate swabs, then use both together to prepare a smear on one slide. Use warm water to lubricate a vaginal speculum. Swab the cervix with two separate swabs. Allow all swabs and the slide to air-dry.

Rectal assault collection. If the patient reports rectal assault, swab the rectal canal with two separate swabs. Allow to air dry. However, even if rectal assault is not reported, DNA evidence may be recovered due to fluid/evidence transfer to that area. In cases where the victim was incapacitated or unconscious, rectal swabs should be performed.

DNA analysis collection. Collection methods vary based on crime lab preferences. Many commercial kits include a collection pad meant to be used on the buccal mucosa. Some crime labs prefer a blood sample.

Miscellaneous collection. There are several areas that should be checked as part of the examination. Any evidence collected should be placed in separate envelopes:

- **Debris:** Place any debris on a clean sheet of paper and fold the paper around debris.
- **Dried secretions:** Lightly moisten a sterile swab with distilled water and swab the dried secretions. Repeat with a dry swab. Allow both swabs to air-dry and label them with the anatomical area that was swabbed.
- **Tampon/sanitary napkin:** Allow to air-dry and place in a wax bag.
- **Fingernail clippings:** Over a clean paper sheet, cut the patient's fingernails using the clipper provided in the kit. Repeat using a new paper sheet for fingernails of other hand; be sure to label the hand from which the clippings were taken. Swab the fingertips/nails with swabs moistened with distilled water, then again with dry swabs.
- **Pubic hair combings:** Place a paper sheet under the patient's buttocks. Using the comb provided in the kit, comb the pubic hair so that loose hairs and debris fall onto the sheet. Fold the sheet to retain the debris.

CODING WIZARD

NAVIGATE THE CPT MAZE, OPTIMIZING YOUR REIMBURSEMENT

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.*

Complete Check

by DAVID FRIEDENSON, MD, FACEP, AND HAMILTON LEMPERT, MD, FACEP, CEDC

Question: What's considered a "complete" review of systems (ROS)?

Answer: Per the 1995 Medicare documentation guidelines, 10 systems, including pertinent positives and negatives, constitute a complete review of systems, which is required for Level 5 (99285) visits. If you review all the systems with the patient and document the pertinent positives and negatives, you may use statements such as, "Complete review of systems is negative except as noted above," or "All systems negative except as noted above."

Some payers deviate from the guidelines and may require 10 individual systems to be documented, while others don't accept statements such as "A 10-system review was completed and was negative," as they feel that there is no indication of which 10 systems were reviewed. Be wary of some EHR systems, as they may group responses to the ROS, making it seem like you're getting to 10 when you actually have only eight or nine.

These are the officially recognized systems:

- Constitutional (eg, fever, weight loss)
- Eyes
- Ears, Nose, Throat, Mouth
- Cardiovascular
- Respiratory
- Gastrointestinal
- Genitourinary
- Musculoskeletal
- Integument (skin and/or breast)
- Neurological
- Psychiatric
- Endocrine
- Hematologic/Lymphatic
- Allergy/Immunology

Brought to you by the ACEP Coding and Nomenclature Committee.

DR. FRIEDENSON is the chief medical officer of Reventics, a coding, RCM and provider engagement company, and president of ACEP's Colorado Chapter. He practices emergency medicine in Thornton, Colorado, and educates physicians on a variety of documentation topics. **DR. LEMPERT** is chief medical officer, health care financial services, at Knoxville, Tennessee-based TeamHealth.

CLASSIFIEDS

Emergency Medicine Physician
NYU Lutheran Medical Center
Brooklyn, NY

NYU School of Medicine
NYU LANGONE MEDICAL CENTER

The Ronald O. Perelman Department of Emergency Medicine at the New York University School of Medicine is pleased to announce an outstanding community practice opportunity in Brooklyn. The merger between NYU and Lutheran hospitals has created a unique community practice opportunity with the ability to also work at our academic sites in Manhattan.

The NYU Lutheran ED opportunity offers the following:

- 70K annual visits with high acuity
- Trauma Center Designation
- Comprehensive Stroke and STEMI Center
- 24/7 Peds Coverage
- Opportunity to work with rotating EM residents
- 10% of shifts at NYU Langone Medical Center in Manhattan
- Ability if desired to also work at our other ED's (Bellevue Hospital, NYU Cobble Hill and our Urgent Care locations)
- Faculty appointment in the Ronald O. Perelman Department of Emergency Medicine at the NYU School of Medicine
- Outstanding financial package worth over 300K
- Full NYU Benefits including Tuition Remission for Dependents
- 10% NYU Retirement Plan Employer Contribution
- Easy Access from Manhattan to Lutheran via NYU sponsored river ferry
- Ability to join many new colleagues and build a premier NYU community practice
- **Leadership opportunities available. Candidates with interest in safety and quality improvement preferred.**

The Ronald O. Perelman Department of Emergency Medicine at NYU Langone is a robust and thriving group of physicians, PA's and other health care providers. We are a collegial group committed to providing outstanding patient care and an outstanding work environment.

If you are interested in joining our Emergency Medicine Division, please send your CV to:
Robert Femia, MD, Chair | C/O: **emjobposts@nyumc.org**

San Francisco: Work in one of America's finest cities! Established, independent, democratic, physician-owned group at multi-hospital system looking for PT/FT physicians. 2 new facilities pending. Excellent compensation/benefits. Apply to leilanig@farallonmed.com.

CEP America: Your Partnership
Bay Area Hospital
Coos Bay, Oregon

- Up to $100k sign-on bonus for qualified candidates
- BE/BC EM physicians; current state license a plus
- Level 3 Trauma Center; 25,000+ annual ED volume
- Enjoy picturesque forests, beautiful coast, and plenty of outdoor activities

Apply Now! Call, email, or visit us at:
(800)842-2619
careers@cepamerica.com
www.cepamerica.com/careers

Tired of the rain and cold?

We are based in **Phoenix, Arizona!**

Openings for full-time Emergency Physician with established independent, democratic group. We contract with four Banner hospitals in the Phoenix-metro valley. University Medical Center Phoenix - **state-of-the art ED opening early 2017.** Estrella, Ironwood, and Goldfield Medical Centers.

We offer an extremely competitive comprehensive benefits package including • a partnership opportunity with a defined partnership track • paid claims-made malpractice insurance/ tail coverage included • group health insurance • disability insurance • CME allowance • paid licensing fees and dues • 401(k) plan.

Candidates must be EM residency trained or ABEM/ABOEM certified/ eligible.

Email CV to Monica Holt Emergency Professional Services, P.C. at monica.holt@bannerhealth.com

Visit us at
www.emergencyprofessionaservices.com

TO PLACE AN AD IN ACEP *NOW*'S CLASSIFIED ADVERTISING SECTION PLEASE CONTACT:

Kevin Dunn: kdunn@cunnasso.com

Cynthia Kucera: ckucera@cunnasso.com

Phone: 201-767-4170

UCSF sfgh
ZUCKERBERG SAN FRANCISCO GENERAL
Hospital and Trauma Center

EMERGENCY MEDICINE TOXICOLOGY FACULTY
University of California San Francisco

The University of California San Francisco, Department of Emergency Medicine is recruiting for a full time Medical Toxicology Fellowship trained faculty member. We seek individuals to join a growing group of medical toxicologists. The successful applicant will have strong emergency medicine clinical skills, a desire to incorporate education and training of residents and fellows into their practice, and the ability to perform clinical research or excel in scholarly activities. Rank and series will be commensurate with qualifications.

The Department of Emergency Medicine provides comprehensive emergency services to a large local and referral population with approximately 93,000 visits a year at UCSF Medical Center and Zuckerberg San Francisco General Hospital and UCSF Benioff Children's Hospital. ZSFG is a level 1 trauma center, paramedic base station and training center with a new state of the art 60-bed emergency department, including an 8-bed pediatric ED. The San Francisco division of the California Poison Control Center is based at ZFGH, and handles approximately 65,000 exposure calls per year. Medical toxicology faculty offer bedside consultation services at ZSFG. The Department of Emergency Medicine serves as the primary teaching site for a fully accredited 4-year Emergency Medicine residency program, which currently has 54 residents and fellowships in education, EMS, global health, toxicology, and ultrasound. Research is a major priority of the department with over 150 peer-reviewed publications last year. There is an active and successful research group focused on a number of disciplines within EM. There are opportunities for leadership and growth within the Department and UCSF School of Medicine.

Board certification or eligibility in emergency medicine and medical toxicology is required. All applicants should excel in bedside teaching and a have strong ethic of service to their patients and profession.

The University of California, San Francisco (UCSF) is one of the nation's top five medical schools and demonstrates excellence in basic science and clinical research, global health sciences, policy, advocacy, and medical education scholarship. The San Francisco Bay Area is well-known for its great food, mild climate, beautiful scenery, vibrant cultural environment, and its outdoor recreational activities.

PLEASE APPLY ONLINE AT:
https://aprecruit.ucsf.edu/apply/JPF00478

UCSF seeks candidates whose experience, teaching, research, or community service has prepared them to contribute to our commitment to diversity and excellence. UCSF is an Equal Opportunity/Affirmative Action Employer. The University undertakes affirmative action to assure equal employment opportunity for underutilized minorities and women, for persons with disabilities, and for covered veterans. All qualified applicants are encouraged to apply, including minorities and women. For additional information, please visit our website at http://emergency.ucsf.edu/ or contact Natalya Khait at Natalya.khait@ucsf.edu or 415-206-5753.

TO PLACE AN AD IN ACEP *NOW*'S CLASSIFIED ADVERTISING SECTION PLEASE CONTACT:

Kevin Dunn: kdunn@cunnasso.com
Cynthia Kucera: ckucera@cunnasso.com
Phone: 201-767-4170

TEG

Honolulu, Hawaii

The Emergency Group, Inc. (TEG) is a growing, independent, democratic group that has been providing emergency services at The Queen's Medical Center (QMC) in Honolulu, Hawaii since 1973.QMC is the largest and only trauma hospital in the state and cares for more than 65,000 ED patients per year. QMC opened an additional medical center in the community of West Oahu in 2014, which currently sees 50,000 ED patients annually.

Due to the vastly growing community in the West Oahu area, TEG is actively recruiting for **EM Physicians BC/BE, EM Physicians with Pediatric Fellowship who are BE/BC and an Ultrasound Director**. Physicians will be credentialed at both facilities and will work the majority of the shifts at the West Oahu facility in Ewa Beach, Hawaii.

We offer competitive compensation,benefits, and an opportunity to share in the ownership and profits of the company. Our physicians enjoy working in QMC's excellent facilities and experience the wonderful surroundings of living in Hawaii.

For more information, visit our website at www.teghi.com.

Email your CV to tegrecruiter@gmail.com or call the Operations Manager at 808-597-8799.

Visit us at the EMRA Job Fair (Booth 444) at ACEP Vegas

PEPA Professional Emergency Physicians Associates LLC

EMERGENCY MEDICINE POSITIONS AVAILABLE AT OUR LADY OF THE LAKE REGIONAL MEDICAL CENTER BATON ROUGE, LA

including academic and community positions!

Contact us anytime for more information or send your CV to:

Taylor Sanders, MD, FACEP
Vice President, Physician Development
Taylor.Sanders@pepaem.com

Phone: 843-743-5505

TO PLACE AN AD IN ACEP *NOW*'S CLASSIFIED ADVERTISING SECTION PLEASE CONTACT:

Kevin Dunn: kdunn@cunnasso.com
Cynthia Kucera: ckucera@cunnasso.com
Phone: 201-767-4170

PennState Health
Milton S. Hershey Medical Center

pennstatehershey.org

CAREERS.THAT inspire

Emergency Medicine Opportunities in Scenic, Central PA

The Emergency Medicine Department at Penn State Health Milton S. Hershey Medical Center seeks energetic, highly motivated talented physicians to join our Penn State Health family. Academic and Community Site settings available. As one of Pennsylvania's busiest Emergency Departments treating over 70,000 patients annually, Hershey Medical Center is a Magnet healthcare organization and the only Level 1 Adult and Level 1 Pediatric Trauma Center in PA with state of the art resuscitation/trauma bays, incorporated Pediatric Emergency Department and Observation Unit.

We offer competitive salaries commensurate with qualifications, SIGN-ON Bonus, relocation assistance, physician incentive program, and a CME allowance. Our comprehensive benefit package includes health insurance, education assistance, retirement options, on-campus fitness center, day care, PSU tuition discount for you and your dependents, and so much more! For your health, Hershey Medical Center is a smoke-free campus.

Applicants must have graduated from an accredited Emergency Medicine Residency Program and be board eligible/certified by ABEM or AOBEM. We seek candidates with strong interpersonal skills and the ability to work collaboratively within diverse academic and clinical environments.

Our local neighborhoods boast a reasonable cost of living whether you prefer a more suburban setting or a thriving city rich in theater, arts and culture. Our region is home to an array of museums, concert venues, gardens, historic sites and restaurants. The Susquehanna River and Appalachian Trail are in our backyard. Outdoor and sporting activities, including biking, fishing, golf and hiking, are well supported. We are conveniently located within a short distance of major cities such as Philadelphia, Pittsburgh, New York, Baltimore and Washington, DC.

Visit our Booth# S2426 at ACEP in Las Vegas, NV

Check us out at:
www.pennstatehersheycareers.com/EDPhysicians

For additional information, please contact:
Susan B. Promes, MD FACEP
Professor and Chair,
Department of Emergency Medicine, c/o
Heather Peffley, Physician Recruiter,
hpeffley@hmc.psu.edu
717-531-6205

BEST CHILDREN'S HOSPITALS U.S.News 2015-16

The Penn State Health Milton S. Hershey Medical Center is committed to affirmative action, equal opportunity and the diversity of its workforce. Equal Opportunity Employer – Minorities/Women/Protected Veterans/Disabled.

HIT THE EMERGENCY MEDICINE CAREER JACKPOT WITH EMCARE

Flush with Coast-to-Coast Opportunities

PHYSICIAN-LED ON THE LOCAL, REGIONAL AND NATIONAL LEVEL

The Exclusive Presenting Supporter of the ACEP16 Scientific Assembly Closing Celebration

Join us for the ACEP16 Closing Celebration
Tuesday, October 18 • 7:00 pm – 11:00 pm
Location: Drai's Beachclub and Nightclub, The Cromwell

VISIT US AT BOOTH #S3026 AND ENTER OUR DRAWING

Becker's Hospital Review 150 Great Places to Work EmCare Three Year Recognition 2014 - 2015 - 2016

855.367.3650 | Recruiting@EmCare.com | EmCare.com

EmCare® Emergency Medicine
MAKING HEALTHCARE WORK BETTER™

HEPA
HAWAII EMERGENCY PHYSICIANS ASSOCIATES

As Hawaii's oldest and largest ED physician group, we are dedicated to nurturing the next generation of quality emergency physicians and meeting the ever-changing healthcare challenges.

Send your CV to HEPA@EMrecruits.com or call (877) 379-1088.

Visit us at ACEP Booth #S2421 & the EMRA Career Fair #442.

Baylor College of Medicine

EMERGENCY MEDICINE RESIDENCY PROGRAM

Service ▪ Education ▪ Leadership

Exciting Academic Emergency Medicine Opportunities

The Baylor College of Medicine, a top medical school, is looking for academic leaders to join us in the world's largest medical center, located in Houston, Texas. We offer a highly competitive academic salary and benefits. The program is based out of Ben Taub General Hospital, the largest Level 1 trauma center in southeast Texas with certified stroke and STEMI programs that has more than 100,000 emergency visits per year. BCM is affiliated with eight world-class hospitals and clinics in the Texas Medical Center. These affiliations, along with the medical school's preeminence in education and research, help to create one of the strongest emergency medicine experiences in the country. We are currently seeking applicants who have demonstrated a strong interest and background in medical education, simulation, ultrasound, or research. Clinical opportunities are also available at our affiliated hospitals. Our very competitive PGY 1-3 residency program currently has 14 residents per year.

MEDICAL DIRECTOR

The program is searching for a dedicated Medical Director for the Ben Taub General Hospital, The Medical Director will oversee all clinical operations at Ben Taub, with a focus on clinical excellence. The successful candidate will be board certified and eligible for licensure in the state of Texas. The candidate will have a solid academic and administrative track record with prior experience in medical direction. Faculty rank will be determined by qualifications.

Those interested in a position or further information may contact Dr. Dick Kuo via email dckuo@bcm.edu or by phone at 713-873-2626. Pleases send a CV and cover letter with your past experience and interests.

Emergency Medicine Physician

The Department of Emergency Medicine at Mayo Clinic is seeking a full-time Academic Emergency Medicine Physician to join our team in Jacksonville, Florida.

Qualified candidates must be a residency trained, ABEM/ABOEM board certified/eligible physician with a demonstrated interest in academic emergency medicine as proven by performance in residency, fellowship training, or faculty positions.

Mayo Clinic is ranked No. 1 in the nation by *U.S. News and World Report* (2016-2017 Best Hospitals). Our multi-disciplinary group practice focuses on providing high quality, compassionate medical care. We are the largest integrated, not-for-profit medical group practice in the world with approximately 3,800 physicians and scientists across all locations working in a unique environment that brings together the best in patient care, groundbreaking research and innovative medical education. We offer a highly competitive compensation package, which includes exceptional benefits, and have been recognized by *FORTUNE* magazine as one of the top 100 "Best Companies to Work For".

To learn more and to apply, please visit **mayocareers.com/ACEP**

Inquiries may be sent to Physician Recruiter, Aaron Hooks, **hooks.aaron@mayo.edu**

Heal the sick,
Advance the science,
Share the knowledge.

MAYO CLINIC

Post offer/pre-employment drug screening is required. Mayo Clinic is an equal opportunity educator and employer (including veterans and persons with disabilities). ©2016 MFMER.

RUTGERS
Robert Wood Johnson Medical School

Emergency Medicine Faculty

The Department of Emergency Medicine at Rutgers Robert Wood Johnson Medical School, one of the nation's leading comprehensive medical schools, is currently recruiting Emergency Physicians to join our growing academic faculty.

Robert Wood Johnson Medical School and its principal teaching affiliate, Robert Wood Johnson University Hospital, comprise New Jersey's premier academic medical center. A 580-bed, Level 1 Trauma Center and New Jersey's only Level 2 Pediatric Trauma Center, Robert Wood Johnson University Hospital has an annual ED census of greater than 90,000 visits.

The department has a well-established, three-year residency program and an Emergency Ultrasound fellowship. The department is seeking physicians who can contribute to our clinical, education and research missions.

Qualified candidates must be ABEM/ABOEM certified/eligible. Salary and benefits are competitive and commensurate with experience. For consideration, please send a letter of intent and a curriculum vitae to: **Robert Eisenstein, MD, Interim Chair, Department of Emergency Medicine, Rutgers Robert Wood Johnson Medical School, 1 Robert Wood Johnson Place, MEB 104, New Brunswick, NJ 08901; Email: Robert.Eisenstein@rutgers.edu; Phone: 732-235-8717; Fax: 732-235-7379.**

Rutgers, The State University of New Jersey, is an Affirmative Action/Equal Opportunity Employer, M/F/D/V

TO PLACE AN AD IN ACEP *NOW*'S CLASSIFIED ADVERTISING SECTION PLEASE CONTACT:

Kevin Dunn: kdunn@cunnasso.com

Cynthia Kucera: ckucera@cunnasso.com

Phone: 201-767-4170

Practice made perfect.

A Career You Can Be Proud Of.

FEATURED OPPORTUNITIES

Maria Parham Hospital
Medical Director
Henderson, NC
35,000 Volume

Baptist Memorial Hospital
Medical Director
Memphis, TN
65,000 Volume

North Vista Hospital
Las Vegas, NV
45,000 Volume

Jackson Purchase Medical Center - Medical Director
Mayfield, KY
23,000 Volume

Saint Joseph Hospital
Medical Director
Martin, KY
15,000 Volume

Newberry County Memorial Hospital
Newberry, SC
21,645 Volume

Twin County Regional Hospital
Galax, VA
23,000 Volume

West Valley Medical Center
Caldwell, ID
34,000 Volume

McLaren Flint
Flint, MI
65,000 Volume

St. Mary's Medical Center
Evansville, IN
64,000 Volume

Capital Regional Medical Center
Tallahassee, FL
80,000 Volume

West Florida Hospital
Pensacola, FL
60,000 Volume

Schneck Medical Center
Seymour, IN
30,000 Volume

Visit us in Las Vegas at ACEP booth #S2026, Oct. 16 – 19

Join our team
teamhealth.com/join or call **855.615.0010**

USACS Women's Dialogue Series presents

Soledad O'Brien at ACEP!

Empowering stories. Real-life discussion.

EMMY CNN NBC PBS NEWSHOUR HBO REAL SPORTS WITH BRYANT GUMBEL

Join us and be inspired! **As an Emmy award winning journalist, documentarian, news anchor and producer for networks including CNN, NBC, PBS and HBO, and her own production company Starfish Media Group, Soledad O'Brien** has traveled the world taking a challenging look at the often diverse issues of race, class, wealth, poverty and opportunity. Equally passionate about her career and family life, Soledad will share her personal wisdom as a mom balancing the joy of raising four children with an exciting, fulfilling career.

If you're interested in women's issues in emergency medicine, you don't want to miss this amazing free event–the first in the USACS Women's Dialogue Series!
Register at usacs.com/event

REGISTER NOW AT
usacs.com/event

Monday, October 17, 2016 | 5:30–7:00 pm,
Four Seasons Hotel Las Vegas, *(joined to Mandalay Bay)*
South Las Vegas Boulevard, Las Vegas, NV

USACS.com

acep Scientific Assembly LAS VEGAS 2016
Visit us at booth 2621

US Acute Care Solutions

Founded by ERGENTUS, APEX, TBEP, MEP, EPPH and EMP

RESUSCITATION FIRST AID GUIDELINES

CONTINUED FROM PAGE 12

Comment:

Dr. Stopyra: Further training to improve stroke identification is an extremely valuable step in improving access to health care and outcomes for patients. Emergency physicians can use simple scales outside of the hospital to describe stroke patients.

Toxic Eye Injury (FA 540)

Recommendation Author: G. Mike Hunihan, MD

Dr. Hunihan is a member of the Emergency Medicine Residency Training Class of 2018 at Warren Alpert Medical School of Brown University.

Question: Among adults and children with toxic exposure to the conjunctiva (P), does irrigation with isotonic saline, balanced salt solution, or commercial eye solution (I), compared to water (C), improve outcomes (O)?

Results: Although it features low-quality evidence, one animal in vivo observational study was deemed appropriate in addressing pH in the PICO. In this study, sodium hydroxide was applied to 16 rabbit corneas, irrigation trials were performed comparing different and equal escalating volumes of normal saline and water, and the pH was compared.

Outcomes: Irrigation with 0.5 L of water was found to significantly lower the initial pH versus 0.5 L of normal saline, but when 1.5 L of each were used, the difference disappeared. Importantly, pH remained elevated three hours after 1.5 L irrigation with either solution, indicating the dangers of alkali exposure. There was no evidence addressing the outcomes of intraocular penetration, corneal edema, intraocular pressure, or secondary glaucoma.

Discussion: Toxic exposure to the eye can result in severe morbidity if not treated quickly. It's generally acceptable to irrigate until pH normalizes, but there's no clear consensus on the optimal irrigation solution or volume. One paper was identified suggesting that water might lower the initial pH faster than saline, but at the large volumes required to normalize the pH, the difference disappears.

Recommendations: After chemical eye injury, first aid providers should continuously irrigate with large volumes of clean water and seek a professional health care provider. The local poison center should help identify chemicals involved in ocular injury.

Comment:

Dr. Smith: The caustic nature of alkali exposure to the cornea remains a threat to vision hours after irrigation. Large-volume irrigation and immediate evaluation in the emergency department are critical.

Control of Bleeding (FA 530)

Recommendation Author: Zachary Lipsman, MD

Dr. Lipsman is a member of the Emergency Medicine Residency Training Class of 2019 at Warren Alpert Medical School of Brown University.

Question: Among adults and children with bleeding, (P), does ice, elevation, and/or proximal pressure (I) versus direct pressure (C) change mortality, hemostasis, major bleeding, complications, or hospital length of stay (O)?

Results: For cold compression versus compression alone, there was very-low-quality evidence: One RCT was identified for the outcome of hemostasis comparing femoral hematoma after percutaneous coronary intervention (PCI), and one RCT was identified for the outcome of major bleeding following total knee arthroplasty. This study also addressed deep vein thrombosis formation and was deemed very-low-quality evidence. No evidence was identified addressing mortality or hospital length of stay.

Outcomes: Significant hematoma reduction was found using cold-pack compression versus compression alone following PCI. A significant decrease in total blood loss and extravasation volumes, and a nonsignificant decrease in DVT, was found using cold compression versus compression alone following knee arthroplasty.

Discussion: Caution must be used when applying postsurgical principles to first aid settings. Hypothermia is unlikely from using cold therapy, even in children, when applied to a small, closed area of bleeding.

Recommendation: Localized cold therapy with or without pressure may be beneficial in hemostasis for closed bleeding in extremities. There's inadequate evidence to recommend the use of proximal pressure points, cold therapy for external bleeding, or elevation for control of bleeding.

Comment:

Dr. Mell: You can use ice for small bruises, but the idea of controlling bleeding with elevation or pressure points isn't recommended. Direct pressure is the best method overall. A separate recommendation (FA 768) advocates tourniquet use when conventional methods fail to control bleeding.

For flu patients in the emergency department who may not be appropriate for oral treatment[1,2]

It only takes one dose to be done

treating the flu with Rapivab® (peramivir)[1]

The first and only full course of antiviral flu therapy in a single dose[1,2]

- Only one 15- to 30-minute IV infusion required
- Treats acute uncomplicated influenza in patients 18+ who have been symptomatic for no more than 2 days
- Appropriate for many patients, including those who cannot tolerate or may be noncompliant with oral flu treatment and those requiring IV hydration
- Can be used with OTC supportive therapies

Rapivab®
peramivir injection

One dose. Done.

Go to www.rapivab.com to learn more and view full Prescribing Information.

Important Safety Information

Rapivab® (peramivir injection) is indicated for the treatment of acute uncomplicated influenza in patients 18 years and older who have been symptomatic for no more than 2 days.

- Efficacy of Rapivab was based on clinical trials in which the predominant influenza virus type was influenza A; a limited number of subjects infected with influenza B virus were enrolled.
- Influenza viruses change over time. Emergence of resistance substitutions could decrease drug effectiveness. Other factors (for example, changes in viral virulence) might also diminish clinical benefit of antiviral drugs. Prescribers should consider available information on influenza drug susceptibility patterns and treatment effects when deciding whether to use Rapivab.
- Efficacy could not be established in patients with serious influenza requiring hospitalization.

Contraindications

Rapivab is contraindicated in patients with known serious hypersensitivity or anaphylaxis to peramivir or any component of the product. Severe allergic reactions have included anaphylaxis, erythema multiforme, and Stevens-Johnson syndrome.

Warnings and Precautions

- Rare cases of serious skin reactions, including erythema multiforme, have been reported with Rapivab in clinical studies and in postmarketing experience. Cases of anaphylaxis and Stevens-Johnson syndrome have been reported in postmarketing experience with Rapivab. Discontinue Rapivab and institute appropriate treatment if anaphylaxis or a serious skin reaction occurs or is suspected. The use of Rapivab is contraindicated in patients with known serious hypersensitivity or anaphylaxis to Rapivab.
- Patients with influenza may be at an increased risk of hallucinations, delirium, and abnormal behavior early in their illness. There have been postmarketing reports (from Japan) of delirium and abnormal behavior leading to injury in patients with influenza who were receiving neuraminidase inhibitors, including Rapivab. Because these events were reported voluntarily during clinical practice, estimates of frequency cannot be made, but they appear to be uncommon. These events were reported primarily among pediatric patients. The contribution of Rapivab to these events has not been established. Patients with influenza should be closely monitored for signs of abnormal behavior.
- Serious bacterial infections may begin with influenza-like symptoms or may coexist with or occur as complications during the course of influenza. Rapivab has not been shown to prevent such complications.

Adverse Reactions

The most common adverse reaction was diarrhea (8% Rapivab vs 7% placebo).

Lab abnormalities (incidence ≥ 2%) occurring more commonly with Rapivab than placebo were elevated ALT 2.5 times the upper limit of normal (3% vs 2%), elevated serum glucose greater than 160 mg/dL (5% vs 3%), elevated CPK at least 6 times the upper limit of normal (4% vs 2%) and neutrophils less than 1.0 x 10^9/L (8% vs 6%).

Concurrent use with Live Attenuated Influenza Vaccine

Antiviral drugs may inhibit viral replication of a live attenuated influenza vaccine (LAIV). The concurrent use of Rapivab with LAIV intranasal has not been evaluated. Because of the potential for interference between these two products, avoid use of Rapivab within 2 weeks after or 48 hours before administration of LAIV unless medically indicated.

You are encouraged to report negative side effects of prescription drugs to the FDA. Visit www.fda.gov/medwatch or call 1-800-FDA-1088.

References: 1. Rapivab [package insert]. Durham, NC: BioCryst Pharmaceuticals, Inc; 2014. **2.** Kohno S, Kida H, Mizuguchi M, Shimada J; S-021812 Clinical Study Group. Efficacy and safety of intravenous peramivir for treatment of seasonal influenza virus infection. *Antimicrob Agents Chemother.* 2010;54(11):4568-4574. doi:10.1128/AAC.00474-10.

Seqirus

Seqirus USA Inc.
King of Prussia, Pennsylvania 19406

September 2016

US/RIV/0816/0069