



EM Resident

Official Publication of the Emergency Medicine Residents' Association

April/May 2015

VOL 42 / ISSUE 2

**Full Arrest
Full Start
Early Cardiac
Catheterization**

**Landmark
Article Series**
GI Edition



20
YEARS

Founded 1994



Schumachergroup

Building on our past. Be part of our future.

Physician-led & owned, Schumacher Group's innovative approach to Emergency Medicine offers support & technology for providers who partner with us. Together with our Residency Resource Team (RRT), we are empowered to develop & strengthen lasting relationships with residents. With hospitals in 20 states, we have several opportunities waiting for you. Connect with us to learn how Schumacher Group fits into your future.

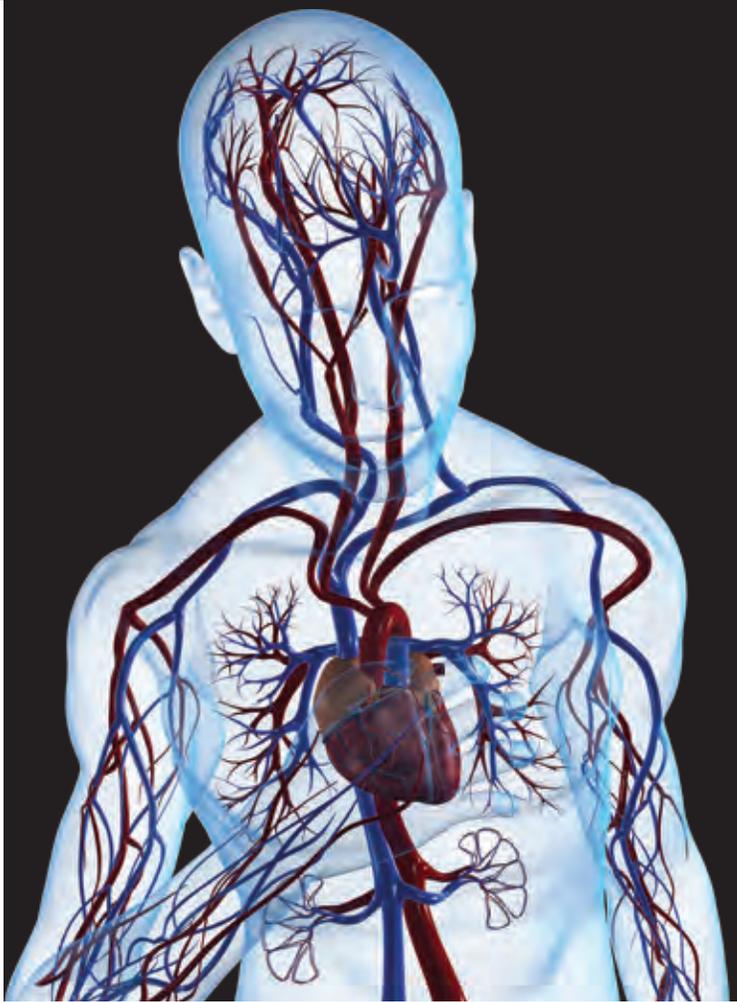


 @GrowWithSG

 facebook.com/schumachercareers

 schumachergroup.com/residency-resource-team

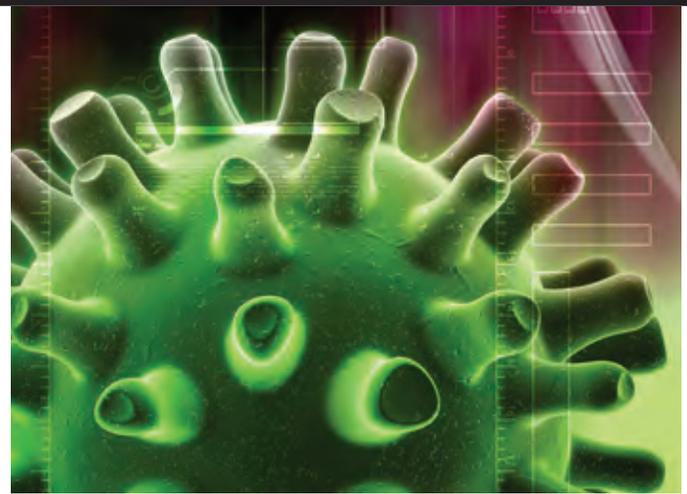
CONTENTS



34 Full Arrest; Full Start

Early Cardiac Catheterization and PCI in Cardiac Arrest with ROSC

Joshua Davis, MD



17 Biased and Infected

The Masquerading HSV Infection

Maryam Arshad, MD and Sajid Khan, MD



40 Establishing the Standard

ISAEM and the Push for Emergency Medicine Worldwide

Lance Adams, Larshan Perinbam and Anh-Nhi Thi Huynh, MD

- 3 PRESIDENT'S MESSAGE
- 4 SPEAKER REPORT
- 5 EDITOR'S FORUM
- 7 LEGISLATIVE REPORT
- 9 ADVOCACY
- 11 ULTRASOUND
- 13 MEDICAL STUDENT LIFE
- 16 INFECTIOUS DISEASE
- 19 MONEY MATTERS
- 21 CRITICAL CARE FELLOWSHIP
- 23 CRITICAL CARE
- 25 PEDIATRICS
- 27 PROCEDURAL GUIDANCE



29 Landmark
Article Series

- 29 LANDMARK ARTICLE SERIES
- 31 EDUCATION
- 34 CARDIAC CARE
- 37 EMRA EVENTS AT SAEM
- 40 INTERNATIONAL EM
- 43 CREATIVE CORNER
- 45 EM REFLECTIONS
- 49 VISUAL DIAGNOSIS
- 51 BOARD REVIEW QUESTIONS
- 52 PEARLS AND PITFALLS
- 53 PEDIATRIC PEARLS AND PITFALLS
- 54 REFERENCES AND RESOURCES

EDITORIAL STAFF

EDITOR-IN-CHIEF

Nathaniel Mann, MD
University of Cincinnati

MEDICAL STUDENT SECTION EDITOR

Kelsey Hills-Evans, MSIV
Stanford School of Medicine

CRITICAL CARE SECTION EDITOR

Maite Huis in 't Veld, MD
Michele Callahan, MD
University of Maryland

EKG SECTION EDITOR

Dyllon Martini, MD
SUNY Upstate

HEALTH POLICY SECTION EDITOR

Elizabeth Davlantes, MD
Emory University

PEDIATRICS SECTION EDITOR

Ashley Strobel, MD
University of Maryland

ULTRASOUND SECTION EDITOR

Kara Otterness, MD
New York University/Bellevue

EDITORIAL ADVISORY COMMITTEE

Zach Jarou, MD, Vice Chair
Denver Health

Erin Brumley, MD
University of Louisville

Marvinia Charles, MD
Rutgers NJMS

Lucia Derks, MD
University of Cincinnati

Aaran Brook Drake, MD
St. Luke's--Roosevelt NYC

Jennifer Beck-Esmay, MD
NYU

Elizabeth Gorbe, MD
University of Virginia

Melvin Ku, MD
SUNY Upstate

Ari Lapin, MD
St. Luke's--Roosevelt NYC

Mithil Patel
Chicago College of Osteopathic Medicine

James Paxton, MD
Detroit Medical Center

Timothy Snow, MD
Icahn SOM, Mt Sinai New York

BOARD OF DIRECTORS

Matt Rudy, MD

President
University Hospital
Augusta, GA
president@emra.org

Ramnik Dhaliwal, MD, JD

President Elect
Hennepin County Medical Center
Minneapolis, MN
presidentelect@emra.org

Jordan Celeste, MD

Immediate Past President
Florida Emergency Physicians
Winter Park, FL
immedpastpres@emra.org

Alison Smith, MD, MPH

ACEP Representative
University of Utah
Salt Lake City, UT
aceprep@emra.org

David Diller, MD

Academic Affairs Rep
Oregon Health Sciences University
Portland, OR
academicaffairsrep@emra.org

Nathaniel Mann, MD

Secretary/Editor, EM Resident
University of Cincinnati
Cincinnati, OH 45219
emresidenteditor@emra.org

Anant Patel, DO

Speaker of the Council
John Peter Smith Health Network
Fort Worth, TX
speaker@emra.org

Nida Degesys, MD

Vice Speaker of the Council
University of California
San Francisco, CA
vicespeaker@emra.org

Jasmeet Dhaliwal, MD, MPH

Legislative Advisor
Denver Health
Denver, CO
Legislativeadvisor@emra.org

Brandon Allen, MD

RRC-EM Representative
University of Florida
Gainesville, FL
rrcemrep@emra.org

Nupur Garg, MD

Informatics Coordinator
Mount Sinai
New York, NY
informaticscoord@emra.org

Zachary Jarou, MD

Membership Development Coordinator
Denver Health
Denver, CO
membershipcoord@emra.org

David Reid, MSIV

Medical Student Council Chair
Kansas City University of Medicine
and Biosciences
Kansas City, MO
msgc@emra.org

Ashley Guthrie, DO

Member-at-Large
St. Joseph's Regional Medical Center
Paterson, NJ

EMRA STAFF

Cathey B. Wise

Executive Director
cwise@emra.org

Leah Stefanini

Meetings & Advertising Manager
lstefanini@emra.org

Linda Baker

Marketing & Operations Manager
lbaker@emra.org

Chalyce Bland

Project Coordinator
cbland@emra.org



MISSION STATEMENT

EM Resident is the official print and online publication of the Emergency Medicine Residents' Association. Targeted towards practitioners of emergency medicine, it is distributed to a global audience of physicians-in-training, medical students, and medical educators. With the intent to promote the lifelong learning and personal development necessary for a fulfilling practice in emergency medicine, *EM Resident* provides education on current topics and policy, medical reviews, career development, and updates from the organization.

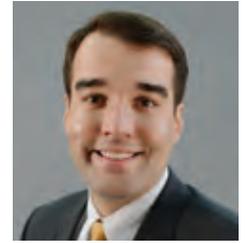


1125 Executive Circle
Irving, TX 75038-2522
972.550.0920 / Fax 972.692.5995
www.emra.org

EM Resident (ISSN 2377-438X) is the bi-monthly magazine of the Emergency Medicine Residents' Association (EMRA). The opinions herein are those of the authors and not those of EMRA or any institutions, organizations, or federal agencies. EMRA encourages readers to inform themselves fully about all issues presented. *EM Resident* reserves the right to review and edit material for publication or refuse material that it considers inappropriate for publication.

Everything We Wish We Learned in Residency

We are confronted with non-clinical challenges that can indirectly have a significant impact on happiness, job satisfaction, and overall wellness.



Matt Rudy, MD
EMRA President
University Hospital
Augusta, GA

No matter where you are completing your EM residency, a solid clinical education and the opportunity to care for, and learn from, diverse and critically ill patients is essentially a given. Thanks to the dedication of our program directors and guidance from the ABEM model of clinical practice and RRC, our teachers and mentors have worked hard to ensure that at the completion of residency we will be prepared to confidently step into roles as attending physicians competent and capable of providing life saving emergency care. That's the good news (to which I can personally attest, having just passed my ABEM written boards/qualifying examination!). There is only so much you can learn in residency and only limited time to do it! Our clinical education does come at some cost. We sacrifice time away from family, social pursuits, and other non-clinical endeavors to ensure we have the skills we need to recognize an emergency and save a life.

Even before we complete residency, we are confronted with non-clinical challenges that can indirectly have a significant impact on happiness, job satisfaction, and overall wellness as young physicians. From deciding what type of practice to join (academic vs. democratic group vs. independent contractor), to knowing what insurance we need (disability, life, malpractice, umbrella), to investment and retirement planning, to deciding to buy or rent a home, we are suddenly

faced with major decisions that many of us feel less than prepared to handle. Making the wrong decisions in some of these areas can be extremely costly, both financially and emotionally. In limited time, with limited knowledge, we are making decisions that set the foundation for when we may be able to retire (and with what revenue stream), as well as how we will spend our professional lives. Many for-profit corporations and advisors with the potential for bias have become rich by sometimes taking advantage of physicians who don't know what questions to ask or what services or products they really need.

Depressing, right? What can we do to bring our financial and professional knowledge up to par with our solid clinical skills?

Here's the good news! EMRA, working closely with the ACEP Young Physicians

Section and our ACEP board liaison, Dr. Paul Kivela, plan to work to empower us and fill in the knowledge gap we face when starting our first "real job" as independent practicing physicians.

We realize one size doesn't fit all and that unique situations regarding debt, family, personal goals, and career aspirations make providing relevant information to our membership a lofty goal. Our vision is to provide you with content experts and experiences from successful leaders who are as diverse in their situations as you are. We want you to decide what experiences and goals resonate with you, and to feel free to reach out to the authors. More importantly, we want to hear from you if there are areas beyond those I've outlined here that we can champion for you. E-mail me and tell us what you want to know. Alumni members, tell us what you wish you knew when starting out in practice.



This project is still evolving, but you can expect a series of articles in *EM Resident* (online and in print), as well as highlights in *What's Up*, and live programming at our conferences to begin to tackle our goals and empower you with the right questions to ask when choosing a financial advisor, buying a home, joining a practice, etc.

What do you think? Please share your ideas and feedback with our team by e-mailing me to help us make this project as beneficial to you, our members, as it possibly can be! ★



Anant Patel, DO
EMRA Speaker of the Council
John Peter Smith
Health Network
Fort Worth, TX

One of the strengths and one of the challenges of EMRA will always be its changing membership. Senior residents will soon be graduating and becoming attending physicians and a new crop of interns eagerly await their transition to residency.

Before that becomes a reality, I want to give existing residents and members a preview of the upcoming spring meetings and activities. For senior residents, this may be the last chance to enact change through EMRA. For current interns, maybe you are finally getting used to this “residency thing” and are looking to define your role in your specialty. EMRA exists to give everyone a voice and a channel in which to participate in the future of emergency medicine.

SPRING MEETING PREVIEW

Legislative Advocacy Conference and Leadership Summit

May 3-6, Washington, DC

If you have ever wanted to know how policy is made, this is the meeting for you! This conference is packed with high-yield results. To start, we have a training and education session lead by our Health Policy Committee to introduce you to the goals of the week. There will be congressmen and senators addressing attendees on hot-topic issues within medicine and our specialty. These sessions prepare you to meet with your local congressman/congresswoman. On Tuesday, we storm Capitol Hill as a unified group of EM physicians, and work side-by-side with ACEP leaders to advocate what is best for our specialty and for our patients. You will have the opportunity to personally address senators, representatives, and aides. It is an invaluable experience where you learn firsthand the meaning of “get involved or get left out.”

www.emra.org/Events/Leadership-and-Advocacy-Conference

SAEM

May 12-15, San Diego, CA

The SAEM conference will be full of EMRA activities which includes the spring Representative Council meeting. For our program representatives, this will be a very important Rep Council session to attend. Rep Council activities will begin with our Reference Committee meeting on Wednesday, May 13. We will discuss important resolutions, one of which will add bylaws regarding qualifications for membership for those in fellowship programs that will be voted on the following morning during the Council meeting.

Immediately after, we will hold a town hall meeting where we discuss important topics for the association and its members. We will discuss the annual nature of the Rep Council meetings, and we need you there to voice your opinion! There are many pros and cons that were discussed on this topic by the EMRA Board during its annual retreat; however, this change can only be made if it is the will of our members and representatives—so please contribute to the conversation!

If you are a program rep, be sure to attend the pre-SAEM conference call that will help you present topics to your fellow residents so their thoughts are represented in your votes and Council discussion. In the event you cannot attend the Rep Council meeting at SAEM, I strongly suggest you find an alternate representative. The Council can only truly represent EMRA when we have as many program reps as possible attending.

An organization like EMRA can only continue to succeed because of members like you who contribute to its cause! I look forward to see you at future meetings! ★

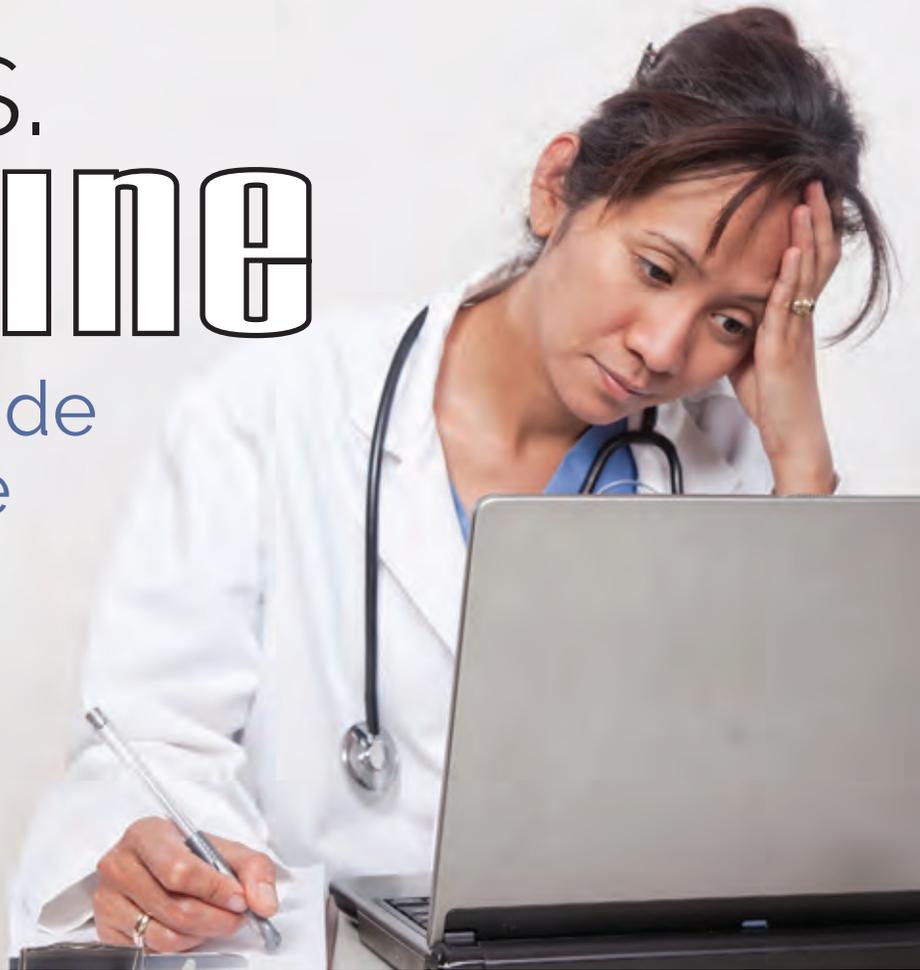
FOR A FULL LIST OF EMRA EVENTS AT SAEM PLEASE SEE PAGE 37

Man vs. machine

Balancing bedside and screen time



Nathaniel Mann, MD
Editor-in-Chief, EM Resident
University of Cincinnati
Cincinnati, OH



**We need to
rehumanize
people in
medicine.**

**Touching people
will make us better
physicians, if
for nothing else,
because we are
trying harder.**

Computer screens burn my eyes. But patients expectantly staring at me from a distance while I interact with a machine is even more uncomfortable. Entering medicine, I envisioned spending time with people, getting to know them, sharing stories, laying hands on them – making connections. Sometimes though, I feel like I make more connections during a shift with my “F” and “J” keys, and that I spend more time sharing my thoughts with my computer’s microphone.

The advent of EMRs and electronic integration into medicine has brought some huge advances and provides many benefits. “I’m on some sort of blood thinner, doc, but I don’t know what it’s called.” It makes a big difference in patient care when your electronic record spells out “warfarin” in black font, as opposed to you scrounging through hundreds of loose-leaf papers just to find that the patient’s on a baby aspirin. There are benefits. But there are drawbacks.

I often feel like an electron in the ED—busily spiraling around the department trying to avoid other spinning objects, but always drifting back towards my oppositely charged computer station nucleus. Do I have time to check reflexes on that patient with back pain? How much will that cut into my documentation time? We’ve all seen residents and attendings who meticulously document every detail of a patient encounter. It makes for great reading later; it may help protect you legally; it might improve patient care at the next visit. Heck, if you do it right, it might even increase the size of your paycheck. But what about the physicians who spend their extra time at the bedside, instead of in front of a screen? Rather than focusing on how many items there are in their typed review of systems, they’re actually **doing** a review of systems. They’re weighing in favor of improving patient care now, and probably still protecting themselves legally, because people like you more when you show

you're doing the best you can for them. That's hard to do when you're on the other side of a curtain staring at pixels instead of petechiae. There is less art in crafting an ornate note than there is in creating quick personal rapport and understanding. **Our specialty is not about desk-sitting; carpal tunnel syndrome is not becoming of us.** It can be depressing when you start to view each new patient as another note to be done as opposed to an opportunity to familiarize yourself with someone new and tend to their concerns. Our calling as physicians is to care for others, not to create paperwork.

As medicine progresses into the era of ever increasingly easy-to-obtain advanced imaging, we are slowly starting to slip into a comfort with less physical interaction with patients. Remember when you were taught in medical school that appendicitis was a clinical diagnosis? I do. But now it seems that few appys are admitted or taken to surgery without some obligatory radiation, or at a minimum an ultrasound

triage. **Mechanized medicine is pushing the physician's skill out of care.** While I recognize that my hands will never diagnose epiploic appendagitis, or a host of other specific abnormalities, **a reliance on technology to tell us what we need to know does some disservice to our patients.** Patients are made up of more than just organic diseases we can fix with a wave of a hand and a few keystrokes. There are still many needs that cannot be met by a CT scanner.

Our physical exams are falling by the wayside. It's becoming a lost art and increasingly looked down upon. A thorough exam is something the "old school" guys do. There have been several studies suggesting that the sensitivity and specificity of most physical exam findings are actually quite low. This is extrapolated by many to mean that they are worthless. We're busy; it's easy to cut corners, especially if we think they're low-yield. I've done it – most of us have. No reason to trust egophony or excursion when

we have X-rays. It's not to say that time should be given where it isn't needed; just a reminder to invest time when it is needed. There are times when our physical exams will be less important in providing good patient care. The concern should arise when we find ourselves automatically slotting patients like cogs in a wheel that turns the machine of health care and our department. **We need to rehumanize people in medicine.** Touching people will make us better physicians, if for nothing else, because we are trying harder.

Our interactions are in a balance between man and machine. It's important to distribute our intellectual weight evenly, but sometimes the scale tips too far to one side. Those events may be hard to avoid, but I think that when all things are said and done, adding extra load to the patient side of the meter is the better way to go. Medicine may involve a lot of algorithms, math, and deduction, but **in the end, we're humans, not machines.** *

EMERGENCY MEDICINE RESIDENTS' ASSOCIATION

Plan Your Transition Now!



EMRA DISABILITY INSURANCE PROGRAM

An Approved Member Benefit Program

Just for Emergency Medicine Residents

Important highlights of this program are:

- Up to \$7,500 monthly tax-free benefit with no financial disclosure
- Specialty Specific definition of disability – 6 options in most states
- Personalized comparison of plans, taking advantage of regional, GME or association discounts as available to you
- Easy, online application process

An individual, long-term disability insurance program designed for EMRA students, residents and alumni.



You take care of them.

We'll take care of you.



A sound disability insurance program is best developed while still in residency.

Obtain your disability protection NOW!

Visit the dedicated EMRA webpage: integratedwealthcare.com/physician-strategies/emra-members



On the Health Policy Horizon



Jasmeet Dhaliwal, MD, MPH
EMRA Legislative Advisor
Denver Health Residency
Denver, CO

2015 ACEP Legislative Advocacy Conference and Leadership Summit

The first day of spring has passed, and that means the **2015 ACEP Legislative Advocacy Conference and Leadership Summit** (previously known as LAC) is just around the corner. This year's revamped Conference will be held in Washington, DC from May 3-6 and will be jam-packed with informative lectures, skills sessions, networking events, Capitol Hill visits, and a new one-day leadership summit. Whether you've previously attended or are new to the meeting, this year's conference will be high-yield and well

worth your time. The conference kicks off at noon on Sunday, May 3 with Leadership and Advocacy Essentials (formerly the Residents and First Timers Track). This half-day of programming hosted by EMRA and the ACEP Young Physicians Section will feature a veritable who's who of leaders in health policy, and will provide essential information on regulatory and legislative topics. Monday will feature more expert lectures as well as small group networking events, while Tuesday will be the day for hill visits and in-person advocacy with legislators. The

final day of the conference (Wednesday) will mark the first annual LAC Leadership Summit featuring interactive sessions on leadership development. All in all, the conference will no doubt build your policy knowledge base and inspire you to get involved in advocacy.

So what are some of the hot topics that will be discussed at the Essentials sessions on May 3rd?

A quick introduction to the topics and information about the corresponding conference session.

Mental Healthcare

Session: Stop the Madness! Treating Patients with Mental Illness in the ED

Presenter: Dr. Aimee Moulin, MD, FACEP

The combination of EMTALA and the movement in the 1980s and 1990s to deinstitutionalize patients with severe mental illness has had some unintended consequences. Inpatient psychiatric facilities have shuttered their doors over the last three decades, and as a result, emergency departments have seen an increasing number of patients presenting with acute psychiatric needs. Left with fewer and fewer appropriate venues for acute psychiatric care, emergency departments have resorted to the “boarding” of psychiatric patients who are unsafe for discharge, but cannot be adequately treated in the emergency department. Boarding of psychiatric patients has become such a large problem in some areas of the country that the courts have intervened. In August of 2014, the Washington state Supreme Court ruled that boarding of psychiatric patients was unconstitutional as it violated the state’s Involuntary Treatment Act. The ruling has forced the state to quickly expand psychiatric resources in order to abide by the court’s ruling, improve psychiatric care, and maintain public safety. States across the country will be grappling with the same issue in years to come. What are some solutions to the problem? How do we fulfill our mandate under EMTALA, provide high quality emergency psychiatric care, and protect patients’ civil rights?

Health Insurance Reform

Session: Health Policy Journal Club — How Health Insurance Policy Changes Affect Emergency Department Utilization

Presenter: Jeremiah Schuur, MD, MHS, FACEP

One of the principal mechanisms by which the Affordable Care Act (ACA) increased access to healthcare was the expansion of Medicaid eligibility. Though a Supreme Court decision in 2012 allowed states to opt out of Medicaid expansion, enrollment in the program has increased by about 7 million. The economic argument for Medicaid expansion is that if more low-income individuals are insured, they will be more likely to obtain preventive and primary care. By doing so, they will be less likely to utilize the emergency department unnecessarily, thereby saving money for the health care system. In order to further reduce unnecessary health care utilization among the poor, some states have incorporated cost-sharing mechanisms such as small co-pays into the Medicaid program. The idea here is that if patients have some skin in the game they will seek medical attention only when they actually need it. So does expanding Medicaid actually reduce ED utilization and cost? Do cost-sharing programs for the poor further reduce utilization and cost?

Health Care Spending for the Elderly

Session: Health Care Spending in our “Senior Years”

Presenter: Dr. Tony Cirillo, MD, FACEP

Between 2010 and 2050, the population of Americans over the age of 65 years will double, while the population over 80 and 90 will triple and quadruple, respectively.¹ Recent data indicates that national per capita expenditures on health care are 3 to 5 times greater for those over 65 years than for children and younger adults.² Put those two pieces of data together and it’s easy to see why many in the health policy world are examining how to make health care for the elderly less costly. What are the best strategies for reducing these costs while providing high quality care? What role will emergency physicians have as care coordination and end-of-life care are prioritized within the health care system?

Payment Reform and Care Coordination

Session: Who has Time to Coordinate?: Sensible Strategies for Reforming our Delivery System and Ending Fragmented Care

Presenter: Aisha Liferidge, MD FACEP

In late January, Health and Human Services (HHS) Secretary Sylvia Burwell announced an aggressive timeline for the replacement of Medicare’s traditional fee-for-service payment model with one that incorporates quality and value metrics.³ HHS has stated it aims to tie (1) 50% of its payments to alternative payment models (e.g., accountable care organizations, primary care medical homes, and bundled payments), and (2) 90% of its payments to quality or value metrics by 2018. Moreover, HHS plans to work with Medicaid programs and private insurers to expand the reach of alternative payment models far beyond Medicare. Accountable care organizations (ACOs) have already popped up around the country as part of demonstration projects, and though they have not consistently demonstrated cost-savings, they are here to stay. Similarly, prospective, bundled payments for episodes of care are also being integrated into Medicare reimbursement. Both ACOs and bundled payments are meant to increase care coordination among primary care and specialty providers, thereby reducing redundancy and inefficiency (e.g., duplicative tests, poor follow-up, unplanned return visits). What will be the role of emergency medicine providers within a healthcare system that increasingly emphasizes care coordination? What should care coordination from the ED look like?

These are just a few of the lectures and topics that will be addressed at this year’s Legislative Advocacy Conference and Leadership Summit. We hope to see as many EMRA members there as possible. Your EMRA Board will be there advocating, and we hope that you join us. ★



“Accept the status quo, or take responsibility for implementing the change you want to see.”



Joshua Enyart, DO
Lehigh Valley Health Network
Bethlehem, PA

a call to **Advocacy**

As my shift is about to start, I look at the board to see what’s new and what may be signed out. There’s a drunk patient in bed 5, a psychotic patient in 19 in restraints, over in 9 is an elderly lady who lives alone, here for her 4th fall in 2 months. The code in bed 12 didn’t make it. He was 45. Family is on their way in. The homeless guy in the hallway doesn’t have anything really wrong, other than acute resource deficiency. I’ve seen the frequent flyer in 8 whose chronic belly pain is only cured by some drug that starts with a D. Fool me once, shame on you. Fool me twice, shame on me. In the background, I hear a medic unit calling in a baby being brought in for respiratory distress. Dare I take a quick look at the waiting room? There are 27 out there. Not too bad, it’s a typical day.

Scenes like this are routine; are just part of the job. **But what we do really isn’t just a job.** From time to time, perhaps on the drive home, or frequently when speaking to people outside of medicine, I recall the novelty of what we do. It’s what drew me to the specialty in the first place. Each of these people has a story, and for a brief time, I get to play a supporting role, become entwined in their unique narrative. As providers in the ED, we share this remarkable privilege that provides us a perspective shared by few others in medicine or society in general. **Day in and day out, indiscriminately and unceasingly, we bear witness to the extremes of the human condition.** We are the gateway to the healthcare system and the safety net for those who fall through the cracks. More

than any other specialty, we deal with the uninsured and underinsured, the homeless, and the victims of injustice or circumstance. Frequently on an individual basis we are able to do some good, to help people. **But the ills of society and the shortcomings of our healthcare system are readily apparent every day.** As such, it’s all that much more important that we as emergency physicians make our voices heard and take the lead in shaping the healthcare landscape. ACEP’s Principles of Ethics for Emergency Physicians states in article II, section D, paragraph 1:

“The emergency physician owes duties not only to his or her patients, but also to the society in which the physician and patient dwell. . . Emergency physicians

ADVOCACY

should be active in legislative, regulatory, institutional, and educational pursuits that promote patient safety and quality emergency care.”

The way I see it, we have two choices. Accept the status quo, or take responsibility for implementing the change you want to see.

EM originated as a specialty in 1961 when James Mills Jr., MD, along with a group of fellow internists, gave up private practice in Alexandria, VA, to solely focus on care in the ED.¹ These pioneers were tasked with finding solutions to difficulties in coverage for an expanding patient population and providing better care for those who needed it most. Sound familiar? Our specialty is rooted in a legacy of advocacy spearheaded by a few diligent innovators. You can help to continue that tradition. But how, you may ask. Frequently, there is a desire to contribute but uncertainty as to how to go about it. Thus follow some basics for establishing yourself as an advocate for your patients, your profession, and for the public good.

1 Get Educated

Visit the EMRA website, and specifically the health policy committee page for tons of Powerpoints, articles, and more. *The EM Advocacy Handbook* is available for free download. EMRA has a medical student rotation and a mini-fellowship in Washington, DC, available for residents. ACEP likewise has a great number of resources for advocacy, and you can look to the various other state and national professional societies as well. Join the 911 Network for important EM-relevant legislative updates. Social media can be an excellent resource for having important policy updates delivered to you daily. If you are interested in the nuts and bolts, you can go right to the source. All legislation is freely available via the Library of Congress THOMAS system. Using a tool called *govtrack*, you can get daily updates on important state and federal legislative issues pertaining to healthcare sent to your e-mail. This is also a great way to keep track of key committee meetings. Another fantastic resource is an app called *Congress*, which centralizes all the information about representatives into one place. You can see how your reps voted, see their contact info, bills they've sponsored, co-sponsored, etc. Clearly, technology has made it incredibly easy to gain knowledge if you just know where to look.

2 Donate

There are a great many political issues that have direct impact on medicine, and EM specifically. The Sustainable Growth Rate, GME funding, primary care shortages, ED crowding, and EMTALA are just a few. The easiest and quickest way to offer your support is by contributing financially to the professionals who represent our interests. Give a shift to NEMPAC – our own political action committee – or donate to the EM Action fund or other state EM PACs.

3 Sign up

Join the Health Policy Committee. Get involved in resident and hospital committees, local agencies, ACEP, EMRA, or other professional societies. Nearly every state ACEP chapter has resident opportunities. All these can be educational, great networking opportunities, and provide the chance to have a voice in the process of shaping how health care is delivered in the future.

4 Communicate

Start locally – spread the word within your own program. Offer to do a policy or advocacy lecture during didactic time. Again, social media can be useful for reaching a wider audience, as can letters to the editor and articles for publications like this one.

5 Step it up

Make time to go to the Legislative Advocacy Conference and Leadership Summit. Write letters and make calls to your representatives. Lobbying is simply a matter of building relationships and sharing your unique insight to help those who shape policy do so in the most informed and effective way possible. This is what we do every day in the ED, just in a different context.

There are opportunities at every level, and we should see it as our duty to contribute as we are uniquely positioned and able to provide an important perspective to the debate. The fact is, change will continue to happen. It is up to us to ensure the right information gets to the right people so that change can be guided to the best interests of our specialty, our patients, and our communities. It is up to us ensure our representation. To borrow a quote from Gandhi:

“The future depends on what we do today.” *

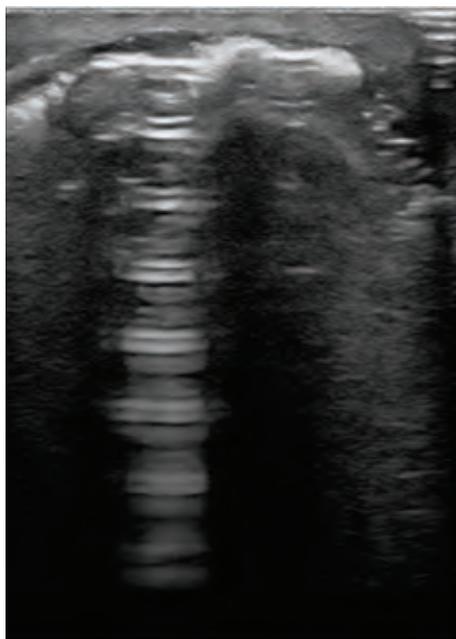


Image 1. Reverberation artifact originating from the patient's upper extremity soft tissue.

DISCOVERING the ARTIFACT

Introduction

Mastering point-of-care ultrasound image interpretation takes not only knowledge of anatomy and pathology, but also knowledge of basic physics, including sonographic artifacts. Artifacts are parts of the image that do not really exist. Often artifacts are thought of as nuisances that are in the way of the anatomy we are attempting to visualize. However, identifying artifacts and understanding why they exist can at times rule out pathology or point towards important diagnoses.

Reverberation artifacts occur when two interfaces with high acoustic impedance bounce the ultrasound waves between them. A common example is the “A-lines” visualized on thoracic ultrasound. A-lines are the reverberated ultrasound waves that have bounced between the parietal and visceral pleura. Comet tail artifacts are another type of reverberation artifact originating from the pleural surface. Another example of reverberation artifact is known as ring-down artifact and typically originates from small metal objects or air bubbles.¹

A-lines are part of the normal sonographic thoracic exam, but reverberation artifacts in other anatomic regions can be pathologic and point toward life-threatening diagnoses.

Reading Between the Lines in Point-of-Care Ultrasound

Case 1

A 38-year-old male presents with worsening arm pain and swelling. You suspect the patient is intoxicated from methamphetamines. He denies IV drug abuse. His right arm demonstrates evidence of significant cellulitis and possible abscess near the antecubital fossa. A bedside ultrasound is performed, followed by a plain radiograph.

The ultrasound (*Image 1*) demonstrates an impressive reverberation, ring-down artifact, concerning for a retained metal foreign body versus free air. The radiograph confirms free air without retained foreign body. A diagnosis of necrotizing fasciitis is made, and the patient is taken to the operating room for debridement.

Case 2

A 45-year-old homeless male with history of alcohol abuse presents for abdominal pain and altered level of consciousness. He quickly becomes unstable and requires both intubation and inotropes before his evaluation can be completed. His abdomen appears soft and mildly distended. A bedside ultrasound is completed to assist in his abdominal pain evaluation. A CT scan was completed after initial stabilization of his vital signs.

This patient demonstrates diffuse abdominal A-lines in all abdominal quadrants. His CT scan demonstrates intestinal pneumatosis of unclear etiology



Michael Schick, DO, MA
Ultrasound Fellow
UC Davis
Sacramento, CA

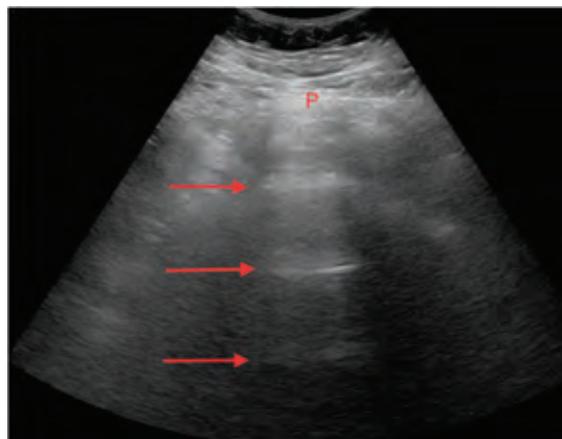


Image 2. Ultrasound of the abdomen demonstrating reverberation artifact originating from the abdominal peritoneum.

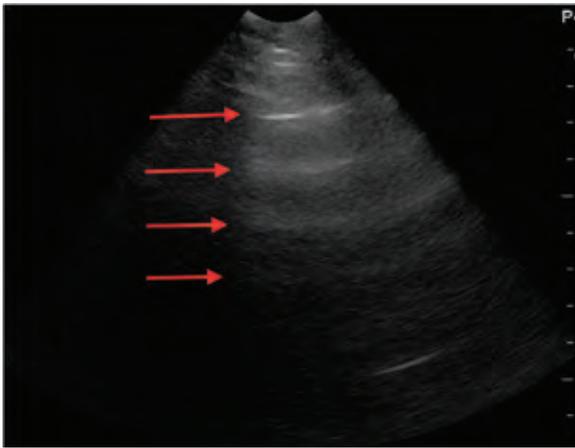


Image 3. Ultrasound of the abdomen demonstrating reverberation artifact originating from the abdominal peritoneum.

(Image 2). Emergent laparotomy is performed, further demonstrating ischemic gut requiring resection.

Case 3

A 54-year-old female with a history of gastric cancer presents for diffuse abdominal pain and worsening distention over the past six hours. The patient is stable, but uncomfortable. Her abdomen is diffusely tender, distended, and tympanic on exam. A bedside ultrasound of the patient is shown (Image 3).

The ultrasound demonstrates diffuse reverberation artifacts in all quadrants. This diffuse abdominal A-line pattern is concerning for intra-abdominal free air, and is confirmed by plain radiograph. It

Often artifacts are thought of as nuisances that are in the way of the anatomy we are attempting to visualize.

is confirmed that this patient’s gastric malignancy had eroded through her bowel wall, and after discussions with the oncologic and surgical services she opts for comfort care measures.

Case 4

A 10-year-old male was “accidentally” shot in the foot with a BB gun by his older brother. You can visualize the entry wound, but cannot palpate the BB. A bedside ultrasound is performed and shown (Image 4).

A clear reverberation artifact (ring-down artifact) is seen originating from the BB. Locating the foreign body is essential for its extraction.

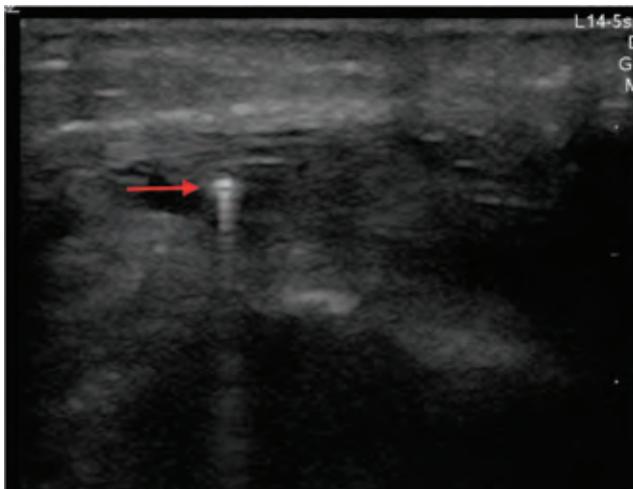


Image 4. A soft tissue ultrasound demonstrating the foreign body with associated reverberation, ring-down artifact.

Case 5

A 48-year-old female presents for right upper quadrant abdominal pain. She appears well, without jaundice, but has a fever and a positive Murphy’s sign. A bedside ultrasound is completed as shown (Image 5).

The patient is diagnosed with emphysematous cholecystitis and subsequently undergoes an uncomplicated cholecystectomy.

Conclusion

Point-of-care ultrasound is not the test of choice to rule out necrotizing fasciitis, all foreign bodies, or bowel perforation. The sensitivity of ultrasound for these diagnoses will likely never be adequate to be used as a screening tool. However, explicit knowledge of sonographic artifacts such as the reverberation artifact can identify unexpected emergent diagnoses.

It is unclear what role the identification of abdominal A-lines can play in patient management, as this can be a normal finding when loops of gas-filled bowel are adherent to the abdominal peritoneum. However, visualizing abdominal A-lines in every quadrant is concerning for bowel perforation in the cases presented. **More research is needed to know whether this finding is clinically relevant, but the prospects are looking bright. ***



Image 5. Gallbladder with several reverberation artifacts originating within the gallbladder wall.

PART 1 MSIV Reflections on Matching EM

What I Know Now That I Wish I Knew Then

From the EMRA Medical Student Council

Introduction

This time of year brings feelings of change to every medical student at every level. Most MSIs are getting ready for a much-deserved break, but wondering how anyone could possibly survive another year of fundamentals and “basic” sciences. MSIIIs have all but forgotten those days as they trudge through UWorld hoping everyone else is getting a 51% in immunology. MSIIIs are gearing up to finally spend some time in the ED (at least the ones reading this article are), but the pressures of VSAS, SLOEs, Step II, ERAS, and their COM deans are starting to get a little heavy. And finally, MSIVs are pumped for residency, but are trying to remember the last time they actually saw a patient and did a real H&P, or if they can actually answer a question that doesn't have five choices below it. They're starting to panic because they just saw the first episode of *Scrubs* on late night cable and they realized that they can't hide behind the short coat anymore because they're about to be...a doctor.

Whatever your stage in the game, remember that those who have gone before you and survived are great resources on how to jump through all the hoops of medical school with success. The EMRA Medical Student Council (MSC) has put a primary focus on mentorship, and that includes student-to-student advice. And while every EM applicant's experience will be different, being as prepared as possible for the ups and downs of fourth year and the interview trail can save you a little time, hassle, money, and most importantly, stress. With that in mind, our panel of MSIV Council members presents what we wish someone had told us at this time a year ago. The next issue of *EM Resident* will feature more advice from the MSC, more focused on the interview process, and will serve as a primer for that stressful time. Stay tuned for more in June.



Crystal Irwin-Singh
Touro University Nevada
MSC Osteopathic Coordinator
Matched: University of
Southern California, Los Angeles, CA

EM away rotations are an essential step of not only assuring that EM is the correct specialty choice for you, but are also a decisive part of the residency application. Program directors put a great deal of weight in a student's performance on EM rotations. When deciding who to interview, program directors have rated the SLOE as the number one deciding factor, while EM rotation grades were second.¹ This information leaves many students pondering how they can perform well on their EM rotations. Luckily, there's an abundance of online and printed articles that focus on this topic, and you should become familiar with these resources.

In addition, keep in mind that this will most likely be a completely different experience than what you have encountered thus far in medical school. A third-year student typically function as a recorder, gathering information from patients and presenting to their residents and attendings. On an away rotation you will be expected to take the next step. Students should not only be able to perform a concise and accurate history and physical but also present a complete differential, including life-threatening and emergent conditions, as well as the most likely diagnosis. Students will also be expected to articulate what they would like to order and why for both therapeutic and diagnostic purposes. A fourth-year medical student is still an early learner but should be familiar with common complaints in emergency medicine and how to elicit "red flag" symptoms and

physical exam findings from their patients. One excellent resource for this type of information is the *EM Basic Podcast* by Steve Carroll, DO.

Remember that the interview process has a dual purpose. Not only do you need to present yourself well, but you also need to gather essential information about a program that will be used later for ranking. Without this mindset, the abundance of information that will be presented to you during residency season can quickly become confusing and overwhelming. In order to better process this information it is helpful to have some concrete goals in mind. Deciding what particular qualities you are looking for in a residency program early on can be helpful.

Also, consider shadowing at every possible opportunity. The best way to get to know a program is to spend some time in the emergency department. Here you can learn about the patient population, ED flow, interactions between faculty and residents, and how bedside teaching occurs. You will gain great insight into a program by spending a couple of hours in their ED.

Do not be afraid to contact a program that you are seriously interested in after receiving a rejection or a perceived "silent rejection." I certainly would not recommend this for every program you do not receive an invitation from, but if there is a particular program that you have a strong interest in, I would not hesitate to contact the program director. E-mailing a sincere letter of interest letting them know why you feel that you are a good match for that particular program can certainly not hurt you if you've already been rejected.

Remember that ACGME accreditation standards for EM are very high and therefore all accredited programs consistently provide good training. The nuances of deciding on a residency are not necessarily whether a program is "good or bad," but rather just finding the right fit. This has to do with some combination of an individual's career goals, gestalt, and geographical preferences. Therefore, the best program for you may not be the best program for someone else. Heed this when taking advice from other applicants, as their goals may not be the same as yours.



Katherine Raczek
Florida International University
MSC Southeast Coordinator
Matched: Texas Tech University
Health Sciences Center, El Paso, TX

I'm coming from a new medical school (third graduating class) in southern Florida where there are no allopathic EM residencies and limited EM advising resources.

So I knew I would have to do my own research from the start! This is the main advice I would give to anyone considering emergency medicine — start early, do your research (EM is unique in a few ways...), and stay on top of deadlines!

For away rotations, start looking really early so that when VSAS opens all you have to do is push "send." By the end of May, I had two away rotations completely squared away while some of my friends had just barely gotten one, and therefore the process was much less stressful for me. I then started researching the programs and their specific requirements early on. You need to be aware that some programs require affiliation agreements, special lab work, and even additional background testing. And not every program is in VSAS!

Try to pick different types of training programs (county vs community, for example) so that you can see what environment fits your learning style better. When interviews come, be prepared to discuss why you rotated there (being clear about a geographical draw is helpful). When you are on away rotation, remember that this is your audition. Come early, stay late, give concise presentations with a thorough but intelligent differential, and never ever say no to procedures! Remember to be nice to everyone — it seems obvious but there will be times when you are exhausted and perhaps

someone got under your skin. Remember that in EM many of us get cumulative evaluations at the end so everyone's observations and opinion of you will count! Go to any social event that the residents may invite you to, and definitely all the journal clubs and didactics.

For your application — again, start early! As soon as ERAS opens in July, you should start filling out the simple but important stuff that's basically transcribed from your CV. If you don't have one yet, make one now! Avoid silly typos, errors, and inconsistent dates. Properly cite any abstracts or publications you may have. Be ready to send your application the first day possible, even if you are still waiting on a letter or a score.

When you are on an interview, be sure to know the program and know your own application — anything is fair game! Try to attend the pre-interview social, do not be late to the interview, and again, be friendly to everyone! The interview days can be long and honestly more boring sometimes than stressful, especially towards the end of the season. Just try to be positive and attentive, and you'll stand out above some of the competition. One of my interviewers thanked me for looking so interested during her talk!

Lastly, don't try to be someone you're not. Throughout the whole process — the aways, the ERAS application, and especially the interviews — remember that they are trying to recruit you as much as you're trying to impress them. It really is all about finding the best fit for both the program and the applicant. EM is full of interesting, kind, funny, and compassionate people who are excited to teach you and welcome you into the field. Be enthusiastic, humble, and hard working and you will succeed! Best of luck in all your future endeavors!



Archana Shah
Texas Tech University
MSC West Coordinator
Matched: University of Chicago,
Chicago, IL

I started planning for visiting rotations fairly early in the process, around January of my third year.

I met with my mentor and he helped me figure out a list of potential places. I applied early on and met with faculty at the SAEM conference in May, which I feel helped me learn about the culture of the programs. Overall, I feel very lucky in the opportunities I received because my rotations were incredible learning opportunities and experiences I treasure tremendously. I built my foundation, made lifelong friends, and established relationships with new mentors. However, there were several things I wish I had understood better.

The process of applying to away rotations is fairly stressful — you often apply as early as February and do not hear about whether you are accepted until May or June. If you are planning to rotate in July, that makes planning for travel and accommodation rushed. I made the mistake of not having a car and not living in the safest neighborhood in a city where public transportation and pedestrian travel were not viable options; although it worked out very well

for me in the end, do a thorough job of researching the area before moving there for a month! Also, make sure to check out the medical student clerkship website for the program and its curriculum. I found that those rotations with good and current information on their websites were extremely well organized, and were the places I was given the autonomy to develop both my medical decision making as well as my procedural skills. Go to everything and experience everything — all the didactics, resident conferences, journal clubs, social events, and just explore the city itself! You have invested so much time and so many resources into getting to this place in your career that you should make the most of it.

When it came time to apply to programs in ERAS, I only applied to residency programs in places I could actually see myself living. I have no magic number to suggest, but please be realistic about the competitiveness and desirability of certain geographic regions and adjust your list accordingly. I planned my interviews by geographic region and stayed in each region with friends or family rather than flying back home after every interview. It saved me a lot of money as well as the stress of air travel during the winter months.

My learning curve included the art of packing lightly: you really only need a carry-on with two suits, a couple of shirts, and a few casual outfits for the socials. Not having to check a bag (and wearing nice business casual but comfortable clothes) when traveling reduces the risk of not having an outfit ready when you need it. Get to know the staff, faculty, and residents on interviews (and have a few anecdotes ready to break the ice) but also take the time to meet your fellow applicants — these are people with similar interests and goals, future colleagues, and friends that you can lean on who will help through a fairly busy time and also prepare you for future interviews. You're not going to be eating or sleeping well during interview months so try to be as healthy as possible. Pack workout clothes and exercise when you get a chance, and be safe! Unexpected things are bound to happen so just adjust and have faith that things will work out. ★

Whatever your stage in the game, remember that those who have gone before you and survived are great resources on how to jump through all the hoops of medical school with success.



HSV encephalitis is a notoriously difficult diagnosis to make, and should be considered in any patient presenting with fever, headache, and/or neurological changes.



Maryam Arshad, MD
Resident Physician
Emory University
Atlanta, GA



Sajid Khan, MD
Clinical Assistant Professor
Department of EM
University of Missouri-
Kansas City
Kansas City, MO

Biased and Infected

“Physicians should be reminded to pursue alternate or additional diagnoses when the patient’s symptoms cannot be readily explained by a single diagnosis.”

The Masquerading HSV Infection

Case Presentation

Your next patient is a 36-year-old female with fever, body aches, and headache. She has been ill for four days with a temperature of 101° F at home. She is afebrile now though, and her only complaint is a headache, similar to her previous migraines. Her family members note that she was confused and repeating questions earlier. Physical examination is unremarkable without photophobia, meningismus, or confusion. You administer intravenous fluids and pain medication. A CBC, BMP, and an influenza swab are all negative. She is discharged home, but returns to the emergency department 48 hours later lethargic and following commands only intermittently. A stat CT head demonstrates cerebral edema with some midline shift (Image 1). She is admitted to the ICU on acyclovir, and is discharged one week later with a diagnosis of herpes encephalitis. Unfortunately, she has persistent speech and motor deficits requiring assistance with activities of daily life.

HSV encephalitis can affect patients of all ages, but its distribution is not equal across all age groups. Approximately 33% of patients with this condition are less than 20 years old, and half of all cases occur in patients greater than 50 years old.¹ **HSV encephalitis is a notoriously difficult diagnosis to make, and should be considered in any patient presenting with fever, headache, and/or neurological changes.** These neurological changes can range from subtle behavioral changes to seizures or lateralizing neurologic deficits. In fact, another way to summarize the symptoms of HSV encephalitis is ‘fever + stroke-like symptoms.’ In one study, a viral prodrome of fever, headache, and nausea/vomiting was found in 90% of patients. In 71% of patients, neurologic

impairments manifested as behavioral changes, 67% suffered one or more seizures, and 33% had focal neurologic deficits.²

The differential diagnosis for herpes encephalitis is broad, including stroke, meningitis, subarachnoid hemorrhage, and intracranial abscess. Fortunately, most of these conditions can be ruled in or out with a combination of lumbar puncture and MRI. Other encephalitides should also be considered. Anti-NMDA receptor antibody encephalitis causes a similar viral prodrome, with fever and neurologic symptoms. It is caused by an autoimmune reaction against NMDA receptors in the brain and is frequently (though not always) found in patients with concurrent ovarian tumors. Other causes of viral encephalitis include HIV, CMV, and influenza.

Confirmation bias is a type of cognitive bias in which one has the tendency to search for or interpret data in a way that confirms his or her preconceptions. Confirmation biases contribute to overconfidence and can lead to poor decision-making.³ Further, Occam’s razor dictates that among competing hypotheses, the one with the fewest assumptions should be selected. In other words, the most likely explanation is usually the right one. However, physicians should be reminded to pursue alternate or additional diagnoses when the patient’s symptoms cannot be readily explained by a single diagnosis. Thinking broadly also helps prevent the most common cognitive error in medicine: satisfaction of search. Satisfaction of search refers to the tendency to stop looking once something is found. This can easily be demonstrated by the provider who discovers and admits a patient with acute kidney injury based on creatinine alone. But stopping there, the patient’s underlying rhabdomyolysis is overlooked.

In the clinical vignette above, the patient presented with vague symptoms and an unremarkable physical examination, despite the family’s claims of transient altered mental status. At the time, all national key flu indicators were elevated and about half of the country was experiencing “high flu” activity. The CDC had reported that the United States was in the midst of a flu epidemic.⁴ Thus,

confirmation bias and satisfaction of search led to the patient being diagnosed with a simple viral syndrome and discharged without receiving a lumbar puncture on her initial visit. Even if the patient had tested positive for influenza (a notoriously unreliable test), her symptoms would still not be completely explained by this diagnosis. Offering supportive care for influenza and failing to make the diagnosis of HSV would have yielded the same unfortunate results.

Lumbar puncture with CSF analysis is essential to the diagnosis of HSV encephalitis. The significance of performing a lumbar puncture cannot be emphasized enough. **Studies have consistently demonstrated a lack of self-confidence in residents performing lumbar punctures.**⁵⁻⁸ This can be due to many reasons, including a lack of exposure during medical school, improper or inadequate training during residency, patient body habitus, or time constraints. Furthermore, **improvements in the quality of CT scanners and increased rates of vaccination for *Neisseria meningitidis* have provided some degree of comfort to providers** in deferring this invasive and often painful procedure. **However, failing to perform a lumbar puncture can result in misdiagnosis and lead to catastrophic consequences for the patient**, as in this case. Characteristic CSF findings for viral encephalitis include an increased lymphocyte count and normal glucose levels, with or without RBCs.

HSV encephalitis is one of the few viral encephalitides for which there is an accurate diagnostic test readily available. HSV PCR is 98% sensitive and 94% specific for the diagnosis, making it the gold standard for diagnosis, along with an MRI.⁹ The high sensitivity and specificity of PCR for HSV leads physicians to rely on this test for making or excluding the diagnosis, although false-negative results can occur. It is worth noting that HSV PCR levels may be undetectable early in the course of the disease. If clinical suspicion remains high, treatment should be started and the inpatient team can consider

repeating a lumbar puncture after 3 days. **Levels should remain elevated for 5-7 days after antiviral therapy has been started.**

Herpes encephalitis is associated with a relatively poor long-term prognosis. Without treatment, the mortality rate is nearly 70%, and those that do survive will likely suffer severe neurological damage.¹⁰ Even with treatment, the mortality rate remains high at approximately 33%, and more than 50% suffer long-term neurological damage. Only 2.5% of survivors completely regain normal brain function.¹¹

Patient outcomes can be improved by treatment with 10 mg/kg intravenous acyclovir every eight hours, preferably initiated within 48 hours of symptom onset. There is relatively little downside to empiric treatment. **Acyclovir is often either vastly underused, or herpes encephalitis is not being considered nearly enough.** Appropriate supportive care measures should also be undertaken, including airway management,

control of seizures, and monitoring for increased intracranial pressure. If bacterial meningitis is also being considered, empiric antibiotics should be administered. The duration of treatment with acyclovir is 14-21 days, and even individuals who are adequately treated can have a relapse of infection weeks to months later.

Conclusion

Herpes encephalitis can be a very difficult diagnosis to make, and should be considered in anyone presenting to the ED with fever and neurologic complaints. Attempts should be made to avoid confirmation bias and satisfaction of search, as this disease can easily disguise itself as other conditions, especially early in its course. A thorough workup should be performed, including an MRI and lumbar puncture, if there is any concern for this condition. HSV encephalitis carries a significant morbidity and mortality rate, which makes early administration of antiviral therapy of utmost importance. ★

"Confirmation biases contribute to overconfidence and can lead to poor decision making."

Image 1. A stat CT head demonstrates cerebral edema with some midline shift.



April and May often lead to discussion regarding the subject of transition. Whether upgrading PGY status in June, or finally planning to break free of “house-staff living,” there are three topics that can contribute the greatest value to your future financial well-being. If done properly, they can truly improve your net worth by hundreds of thousands of dollars over the course of your career:

- Obtain adequate disability insurance, at the most competitive price.
- Go all-in on your employer-provided retirement plan.
- Consider refinancing your student loans.

I hope that the following summary offers confidence, education, and awareness as you make decisions for yourself and your families.

Disability Insurance for Emergency Residents

There are plenty of good opportunities for disability insurance in today’s marketplace. However, misinformation is abundant.

The bottom line is that, for most states, the field of emergency medicine has six very competitive contracts. Each of these contracts has everything you need, including:

- **Own occupation definition of disability** – Each of these contracts will consider you totally disabled if you cannot perform the substantial and material duties of *your* occupation, regardless of outside income or earnings. An own occupation contract does not guarantee that you will receive full benefits in every situation, but it does offer the most comprehensive, flexible level of income protection in the most diverse set of potential claim scenarios.
- **Specialty benefit limits** – This is where current residents really benefit. Currently, a resident or fellow within the last six months of training can obtain up to \$7,500 of tax-free monthly income protection. Obtain this prior to completing training and you may be able to start in practice with greater than 100% of your net income insured. This is well above the normal industry guidelines and the opportunity expires as soon as you complete your training.

- **Two important supplemental benefits** – All six of these companies offer the ability for you to increase your disability benefit in the future, with no new medical qualification, and also allow your benefit to increase annually if disabled. These provisions are called a Future Purchase option and Cost of Living Adjustment, respectively.

What is the important differentiator?

- **Out-of-Pocket Cost** – The industry is hyper-competitive right now with six companies fighting for your business. Females pay significantly more than males in most cases, but there are some programs that allow the rates to be blended, reducing male rates by 14% and female rates by 44%. This can result in annual savings of \$350 for men and \$2,400 for women. Over a 30-year period, these same savings add up to \$10,500 and \$72,000, respectively!

A competent disability advisor will be able to compare multiple contracts, design an appropriate strategy, and negotiate the terms of the contract. For more detailed information on this topic, review the Disability filter video, located at www.integratedwealthcare.com/physician-strategies/emra-members.

Retirement Planning

Regardless of your status as of July 1, recognize that retirement planning opportunities are based on a calendar year, not the academic year that you are accustomed to. Here is how to make the most of the current law:

- **SEP IRA** – If you moonlight at an outside ED and have 1099/self-employment income, if you are starting practice as an independent contractor, or if you are in practice and do case review or other legal work, you need to understand the SEP IRA. It allows you to defer +/- 25% of your self-employment income, saving you an average of \$0.34 in tax per \$1.00 invested. Many CPAs will not proactively advise you of this. Make sure you request it!
- **Employer-based plans** – If you are starting practice and have the ability to fund a 401(k), 403(b), 457,

Radical Financial Gains

Disability Insurance,
Retirement Planning,
and Refinancing
Student Loans



M. Shayne Ruffing
CLU, ChFC, AEP
Managing Director
Integrated WealthCare

866.694.6292
sruffing@integratedwealthcare.com
www.IntegratedWealthCare.com

Securities offered through Triad Advisors, Inc. Member FINRA/SIPC. Investment Advisory Services are offered through Capital Wealth Management, Inc., a registered investment advisor; they are not affiliated.

Misinformation is abundant...The bottom line is that, for most states, the field of emergency medicine has six very competitive contracts. Each of these contracts has everything you need.

or other such program, you may be able to contribute between \$18,000 to \$36,000 per year before taxes.

Enroll immediately the day you start in practice by taking the annual amount that you can contribute and dividing it by the number of remaining pay periods. This will fully fund the plan, provide maximum tax savings, and get you accustomed to a standard of living that already includes disciplined savings.

- **Invest appropriately** – Try to achieve maximum growth with minimal risk. The industry term is “asset allocation.” This can be a complex topic, so if you are not comfortable making your own investment decisions, pay someone for their expertise.

Between tax savings, contributions, and potentially higher and more consistent rates of growth, you can significantly improve your current and future standard of living. It is your money, make it work for you.

Student Loan Refinance

This is a developing topic, as several banks and lenders have recently decided to develop this as a business model. Currently, there are at least two financial institutions that offer reconsolidation loans with attractive rates. We have just started to work through this with clients, but here are some tips that I have learned:

- You must have a signed contract to be eligible.
- It is important to understand the

lender's debt-to-income ratio, and what goes into it. To save a lot of time, ask this up front and work through it.

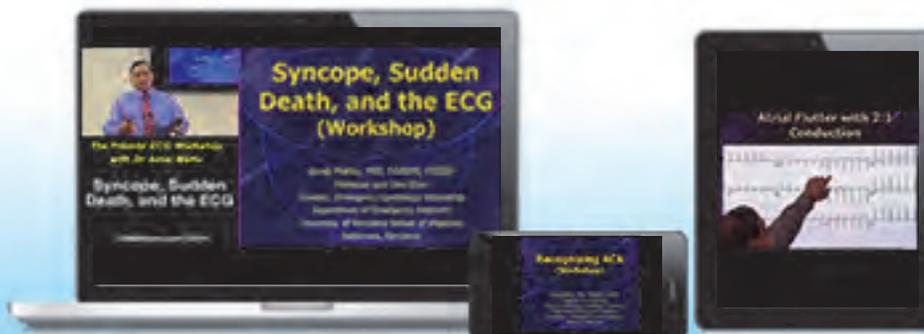
- You can structure a “basket” of loans, refinancing some of your loans, but not all, based on the varying interest rates. The lender will only show you the terms for a complete refinance, but if you have eight different loans, only three of them may be appealing for refinance. Because this is a developing business model, it is not an all-or-nothing game and there is significant room for negotiation.

I wish you the very best in your endeavors. Please do not hesitate to reach out if our firm may be of service to you. ★



The Premier ECG Workshop with Dr. Amal Mattu

Over 7 hours of personal instruction by Amal Mattu, MD



Sign up now for an advanced workshop that will affect the rest of your career!

EMRA Residents: Sign Up For Half Price!

www.EMedHome.com

The Homepage of Emergency Medicine since 2000

Pathways to Critical Care

The Fellows' Perspective

Fellowship Training

Panel Discussion, ACEP14

Ann Tsung, MD. Ann is from the University of Florida and has matched at Washington University in St. Louis for an anesthesia critical care (ACCM) fellowship beginning July 2015.

Cindy Hsu, MD. Cindy is a first year at University of Maryland/Shock Trauma Center (STC) in a two-year surgical critical care (SCCM) fellowship.

John Greenwood, MD. John is in his final year of a two-year medical critical care (IM-CCM) fellowship at the University of Maryland.

The following is taken from our critical care fellow panel discussion at ACEP 2014. See Virtual ACEP14 at <https://bookstore.acep.org/en/virtual-acep14-314014>. Full text transcription can be found on the EMRA Critical Care Division website at www.emra.org/committees-divisions/critical-care-division.

Q Each of the fellowship tracks have particular quirks associated with them. Can you all discuss the application timeline, prerequisites, and fellowship structure as it pertains to your specific track?

Ann: For ACCM, you need to determine your career path pretty early on. My year was the first year that anesthesia filled their spots though a match, the SF match. I didn't find out until March that the match list was due in May. I was pretty late to the process. At that time there were 13 approved programs (now there are 16) and that's how I narrowed my search.

John: For the IM-CCM track, there are prerequisites of six months of internal medicine rotations. Three have to be done in the medical ICU and three others outside the MICU setting. Coming from a three-year program, I had to be efficient with my elective time. I spent one month with the infectious disease team in the ICU. When I started fellowship, I only had five months of prerequisites out of the six. If you are able to knock them out during residency, it is helpful.

Cindy: The inherent hesitancy many people have applying to an SCCM pathway rests in the first year. People are afraid that they may get dumped on with scut instead of learning what you need to know to work in the ICU. When I went to Shock Trauma, I knew it was a group of surgeons who were dedicated to teaching EM candidates. Three months of the first year are in the ICU and we have two months of trauma surgery, acting as the fellow. The rest are surgical rotations where you act as an intermediate trainee. Every other day you operate and the other days you hold the pager and manage the service. In cardiac surgery, you help cannulate for V-V ECMO, and you get to learn from the perfusionists.

Q What are some tips for making yourself a successful critical care fellowship applicant?

Ann: I got the advice in my intern year to ask for letters right after my rotations. I obtained one from my MICU attending and the SICU director after each of my rotations.

John: I got a letter from our ED Medical Director who is active in critical care, our EM program director, and one letter from an attending I had on a trauma ICU rotation. Even though it was a trauma ICU letter for an IM-CCM program, I felt like getting it from someone who can write you a strong letter and has a relationship with you will benefit you.

Lilian Emlet (Program Director, University of Pittsburgh IM-CCM Program): I'm glad you brought up this point. When asking for letters, it probably won't matter if Judy Tintinalli wrote your letter. The letters should come from intensivists. It doesn't matter greatly if it is Pulm/CCM, Anesthesia CCM, or Surgery CCM. If I get three EM letters, I won't interview that candidate.

Brian Wessman (Program Director, Washington University ACCM Program): A program director letter is necessary because they know you in a longitudinal fashion. If I get a letter from someone I know, that goes a long way. I agree it is important to get letters from intensivists.

Cindy: My advice is to do a senior level ICU rotation. Go back to whatever unit you enjoyed. Advocate for yourself if there is flexibility within your residency program to do a senior rotation, even if it is not set up within the standard curriculum.

“People are afraid that they may get dumped on with scut instead of learning what you need to know to work in the ICU.”

John: That’s an awesome point. If the ability to do senior level rotations in various ICUs isn’t built into your curriculum it can be challenging. My colleague wanted to act as a senior resident in the medical ICU and met some initial resistance. But she was smart and persistent, and she had developed some relationships that helped her ultimately obtain that rotation.

Q How are the curriculums of the different fellowship tracks different?

John: In IM-CCM, you need 12 months of critical care to meet ABIM requirements. We get much of that done in our first year. In our second year, we do six months critical care and six month elective. It gives you flexibility to do more research or to create your own track with elective time. I’ve created a cardiology and cardiac surgery track for myself with that time.

Brian Wessman: In our ACCM program’s curriculum, we have 18 months of ICU time. Six months in a medical ICU, nine months in a surgical ICU, one month in the Neuro ICU, and one month of CCU. We also have elective time for things like nutrition and bronchoscopy. There is also room for research or other electives like renal and infectious disease. Medicine programs, the way they are set up, may give you more time to do research. The way the surgical and anesthesia programs are set up emphasize clinical electives over research elective.

Cindy: The first year for SCCM I spoke about earlier. The second year is more traditional surgical critical care, where you can do months in the medical ICU, and in a critical care resuscitation unit, which acts like an ED ICU/receiving ICU. It is a clinically heavy training program. The downside of this pathway is the lack of elective time if you were really interested in something like research. ★

EMRA Resident SIMWars

Seven Teams Battle. One Will Be Victorious.

SAEM Annual Meeting, San Diego
Thursday, May 14

THE UNIVERSITY OF KENTUCKY FIGHTS TO KEEP THEIR TITLE!

THE CHALLENGERS

Navy Medical Center San Diego
University of Michigan/St. Josephs
University of Pittsburgh
Rutgers – NJMS
University of Maryland
Northwestern University

EMRA RESIDENT SIMWARS. A high fidelity simulation competition in front of a live audience! No pressure there! The competition is a head-to-head single elimination bracket with some really smart residents! Come see on **THURSDAY, MAY 14 FROM 8 AM – NOON.** Drop in when you can, watch the fun and learn something too!



On Track

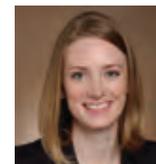
Creating the Critical Care Track in Your EM Residency

Care of the critically ill patient is central to the education of the emergency medicine resident. Each residency delivers this education to their residents through its own combination of clinical rotations and various other educational experiences. To meet the needs of those residents with a particularly strong interest in critical care medicine, some programs have created critical care tracks within the residency curriculum. Many of these tracks are created and run by residents.

With the formalized process for co-sponsored board examinations established and under way, the critical care fellowship is becoming more and more popular and competitive among EM residents. Currently, though, there are three ACGME board-eligible critical care fellowship pathways: anesthesiology, surgery, and internal medicine. The neurological critical care fellowship, also available to EM residents, offers certification through the United Council for Neurologic Subspecialties (UCNS).

Internal medicine-based fellowships are unique because they require six months of internal medicine rotations, three of which must be in a medical ICU, to be completed during residency prior to starting the fellowship. The surgical, anesthesia, and neurological critical care fellowships do not require completion of additional clinical prerequisites during residency. EM residents entering the surgical critical care fellowship need to complete one year as an advanced preliminary surgical resident, however this is completed during the first year of fellowship.

Creation and completion of residency critical care tracks can help enormously to make residents more competitive applicants through clinical ICU experience, fellowship prerequisites, letters of recommendation, mentorship, and experiences in research and didactics. Additionally, the presence of a critical care track helps to increase the exposure of residents to critical care as a specialty career option.



Jenelle Holst, MD
Resident Physician
Denver Health Medical Center
Denver, CO

With these examples and suggestions, you can help prepare or improve your own residency's critical care track.

CRITICAL CARE

WASHINGTON UNIVERSITY IN ST. LOUIS

Mentorship	Clinical Rotations	Didactics	Track Meetings
<ul style="list-style-type: none"> ✓ EM-CCM dual boarded faculty (6) in the residency ✓ EM boarded faculty with EM-CCM special interest (5) 	<ul style="list-style-type: none"> ✓ 6 months ICU embedded in standard curriculum 	<ul style="list-style-type: none"> ✓ Resident-led lectures based on a critical care textbook, article or topic of interest ✓ Faculty-led lectures ✓ Procedure labs: bronchoscopy, ultrasound ✓ SICU fellow lecture series, journal club and M&M ✓ Access to SCCM's resident ICU lecture series 	<ul style="list-style-type: none"> ✓ Meet monthly during conference ✓ Central website repository for all materials

Contact: Chris Holthaus, MD (holthaus@wusm.wustl.edu)

UNIVERSITY OF IOWA

Mentorship	Clinical Rotations	Didactics	Track Meetings
<ul style="list-style-type: none"> ✓ Mentored by track director and internal EM-CCM faculty ✓ Research mentorship 	<ul style="list-style-type: none"> ✓ 4 ICU months embedded in standard curriculum 	<ul style="list-style-type: none"> ✓ Critical care themed lectures 25-30 hours per year ✓ 2 skills labs ✓ Journal club 2-3 times per year 	<ul style="list-style-type: none"> ✓ Quarterly mentor meetings

Contact: Nicholas Mohr, MD (nicholas-mohr@uiowa.edu)

UNIVERSITY OF ARIZONA, TUCSON

Mentorship	Clinical Rotations	Didactics	Track Meetings
<ul style="list-style-type: none"> ✓ Mentored by associate fellowship and residency director and internal colleagues ✓ Dedicated research project 	<ul style="list-style-type: none"> ✓ 4 months ICU embedded in curriculum Optional elective in "critical care topics" ✓ Senior resident MICU rotation (fellowship preparation) ✓ Sub-fellow rotation in the ICU 	<ul style="list-style-type: none"> ✓ Resident created grand rounds ✓ Monthly journal club ✓ Quality Improvement projects ✓ Monthly faculty lecture 	<ul style="list-style-type: none"> ✓ Quarterly track meetings

Contact: Jarrod Mosier, MD (JMosier@aemrc.arizona.edu)

"How to" create a critical care track at your EM residency – the bullet points:

- ✓ Find faculty mentors and research opportunities in critical care.
- ✓ Work with departments of surgery, medicine, anesthesiology, and neurology to establish ICU rotations.
- ✓ Create extracurricular didactic opportunities such as journal clubs, skills labs, simulation, lectures.
- ✓ Formally meet with members of the track regularly.

Critical care tracks are not only of interest to residents planning to pursue a critical care fellowship, but also residents who are simply interested in additional, focused education on caring for the critically ill.

Although there is no established or agreed upon content for what a critical care track should contain, successful tracks seem to frequently have a few similar components: mentorship with critical care faculty, research support, clinical rotations caring for critically ill patients, critical care didactic curriculum, and scheduled track meetings.

Mentorship is key to successful career navigation for the potential EM intensivist. Some residencies have readily available critical care mentors on staff; however, the pool of EM-critical care medicine

(EM-CCM) faculty is small and many institutions do not have mentors who are easily accessible. To help address this, the American College of Emergency Physician's (ACEP) Critical Care Section has created the Virtual Mentorship Program that matches residents with EM-CCM mentors around the country (to participate, visit www.emccmfellowship.org/mentorship.php). Mentors are essential to help answer questions about career paths, as clinical critical care instructors and knowledgeable teachers for didactic curricula, and to recruit residents to participate in critical care research.

Clinical rotations for exposure to the critically ill patient can be created in the ED with resuscitation electives, in departments with ED ICUs, or in inpatient

ICUs. Experience in the ICU not only as an intern but also later in residency as a senior resident is the ideal plan for the well-rounded, longitudinal critical care education and creates a strong foundation necessary to prepare the EM resident for his/her role as a fellow. The ACGME has limitations on EM senior residents supervising interns of other specialties, but creating a combined senior and intern EM team within the ICU is one solution to this problem. Often this is the best place to obtain letters of recommendation for future fellowship applicants.

The didactic curriculum for a critical care track has many creative options. Thematic critical care journal clubs, lectures given by residents in the track, EM-CCM faculty lectures or invited speakers during conference or separate meeting times, simulations and skills nights (ventilator trouble shooting, cadaver labs, ultrasound, etc.), and critical care themed morbidity and mortality conferences are some examples. Often, EM residents can also attend educational sessions for critical care fellows at their home institution.

Regularly meeting as a track is essential for creating a sense of community among the members and ensuring the strength and sustainability of the track. It is an opportunity for development of leadership and administration skills when residents design the track and continuously modify and improve it. It is also a way to facilitate involvement in national meetings including the ACEP Critical Care Section, Emergency Medicine Residents' Association Critical Care Division, Society of Critical Care Medicine (SCCM), and other critical care organizations. During these track meetings, residents and faculty can communicate the regional and national happenings of these organizations to their home residency.

If your home institution does not currently have a critical care track, consider creating one. Often the strongest and most sustainable tracks are resident created and run. Represented here are a few examples from around the country of particularly successful critical care tracks. Hopefully with these examples and suggestions, you can help prepare or improve your own residency's critical care track. ★

THE PEDIATRIC BURN PATIENT

A Simplified Approach

Burns are a fairly common occurrence among the pediatric population. While most burns are limited and require only localized wound care and outpatient follow up, severe burns can be quite a challenge to care for and treat. Of the three types of burns – thermal, electrical, and chemical – the most common by far is thermal, which includes direct exposure to fire or flame, scalding injury, and contact burns.¹ Emergency physicians at both tertiary centers and community EDs should feel confident and prepared to perform the

initial assessment of burns, initiate fluid resuscitation,

provide adequate analgesia, and arrange for the next level of care. Although burn patients can provoke anxiety, even for experienced practitioners, *don't get rattled*. Use the

ATLS™ Primary Survey to guide your initial management.

A Look for signs of airway compromise – facial burn, singed brows or eye lashes, soot in the nose or mouth, a hoarse or absent cry or voice, low oxygen saturation with no visible outer injury, or, in the case of chemical burn due to ingestion with aspiration, there may be residual toxin on lips or tongue.² If the airway is compromised or the child is unable to protect their airway, intubation should not be delayed. If your department is equipped, having fiber optic bronchoscopy at the bedside is recommended as airway inflammation and edema can obscure direct laryngoscopy and complicate intubation. Some of these patients may require a surgical airway.³ Along with managing the airway, there should be no delay in providing pain relief, and if IV access becomes a challenge, intranasal fentanyl (3 mcg/kg) and midazolam (0.2 – 0.3 mg/kg) can be given.^{4,5} When IV access is established, you may choose to continue with procedural sedation (if not already intubated and sedated) for further debridement with any number of sedating agents, including fentanyl and midazolam, ketofol, or ketamine. As an outpatient, pediatric analgesia can often be achieved with acetaminophen or ibuprofen.⁶



Megan J. Cobb, MD, DPT
Pediatrics & Emergency
Medicine Residency
University of Maryland
Medical Center
Baltimore, MD

BThe primary cause of burn injuries in patients under five years of age is scalding. Inhalation is less prevalent than in adults, but in the setting of structure fires children are less capable of escaping from confined spaces, and therefore are more susceptible to inhalation injury.¹ When there is concern for inhalation injury, a carboxyhemoglobin level should be measured, and an assessment for concomitant cyanide toxicity performed. Carboxyhemoglobin elevations should at least prompt consideration for hyperbaric oxygen therapy at the nearest facility with such capabilities. Patients should be maintained on 100% FiO₂ by non-rebreather. Monitor for airway edema during fluid resuscitation, as the large volumes these patients need for repletion may precipitate swelling. There is also the risk of pneumonitis with chemical aspiration or inhalation burns, which often declare themselves later in the course of illness.

Although, burn patients can provoke anxiety, even for experienced practitioners, **don't get rattled**.

HOT TOTS

Take a minute to provide anticipatory guidance on burn prevention, because the best burn is the one that never happens.

The assessment of circulation starts with the external exam, looking for circumferential limb burns that may threaten perfusion to the distal limb. With contraction, a circumferential burn can cause ischemic injury that may precipitate irreversible nerve and muscle damage. Perform frequent neurovascular exams, and be prepared for emergency escharotomy. It is crucial to determine the percentage of total body surface area (%TBSA) of second and third degree burns to plan appropriate fluid resuscitation. Several techniques can assist in this estimation, including the hand technique (1%TBSA per patient palm size), Lund Browder chart, or the free online tool found at www.SageDiagram.com. In any pediatric patient with >10% TBSA, the classic teaching includes using the Parkland formula. This involves administration of 4 mL/kg x %TBSA burned, with 50% given in the first eight hours **from the time of injury**, and the second half given over the next 16 hours.⁷ The %TBSA is frequently overestimated outside of certified burn centers.⁸ Of late, there has also been concern that the

Parkland formula may not provide a correct estimation. Under-resuscitation can lead to organ failure, but over-resuscitation can lead to “fluid creep,” which leads to airway edema/ARDS, pleural or pericardial effusions, deep conversions of burns, and limb or abdominal compartment syndromes.⁹ During the resuscitation, titrate fluid according to the patient’s urine output, with a goal of 1-2mL/kg/hr. Crystalloids are the most frequent choice in the acute setting. Lactated Ringer’s is cited as a preferable fluid option, however head-to-head crystalloid fluid efficacy studies are lacking in pediatric burn patients.^{10,11} Early initiation of enteral nutrition has shown improved outcomes in pediatric burn patients, so be proactive and place the NG tube to feed the gut.^{12,13}

Don’t forget to look for other injuries sustained at the time of the burn or during escape from the burning environment. Non-accidental trauma should be considered, with special attention paid to the mechanism of injury and the stage of child development. Clues such as delay in seeking care, unwitnessed injury, and suspicious burn patterns (i.e., submersion scalds, irons, or punctate cigarette burns) should prompt further evaluation and a child protective services referral.¹⁰

Exposure, in the case of burns, includes complete disrobement *and* express transfer to the pediatric regional burn center. The American Burn Association has burn center referral criteria.¹⁷ There are eight states in the country without a regional burn center, so no matter where you practice, it is important to be familiar with your facility’s resources and the nearest next level care. If the child can be discharged, outpatient follow up should be arranged with return instructions for fever >38.5C° after 72 hours from the time of injury, inability to take good PO, or abnormal behavior between pain control. Parents should be educated about dressing changes and keeping the area clean and dry. Children with a concurrent viral or bacterial illness will often have their illness exacerbated with the SIRS response from the burn. Lastly, take a minute to provide anticipatory guidance on burn prevention, because the best burn is the one that never happens. ★

TABLE 1. Burn Center Referral Criteria

1.	Partial thickness burns ≥10% TBSA
2.	Burns that involve the face, hands, feet, genitalia, perineum, joints, or are circumferential.
3.	Full thickness (3rd degree) pediatric burns.
4.	High voltage injury.
5.	Chemical burns.
6.	Inhalation injury.
7.	Burn injury in patients with preexisting medical disorders that could complicate management, predispose to infection, prolong recovery, or affect mortality.
8.	Any patient with burns and concomitant trauma (such as fractures) in which the burn injury poses the greatest risk of morbidity or mortality.
9.	Burned children in hospitals without qualified personnel or equipment for the care of children.
10.	Burn injury in patients who will require special social, emotional, or rehabilitative intervention.

Excerpted from Guidelines for the Operation of Burn Centers (p 79-86), Resources for Optimal Care of the Injured Patient 2006, Committee on Trauma, American College of Surgeons.

HOLDING TIGHT



Joshua Bucher, MD
Co-Chief Resident
Emergency Medicine
Rutgers - RWJMS
New Brunswick, NJ

The Case for Prehospital and ED Use of Tourniquets

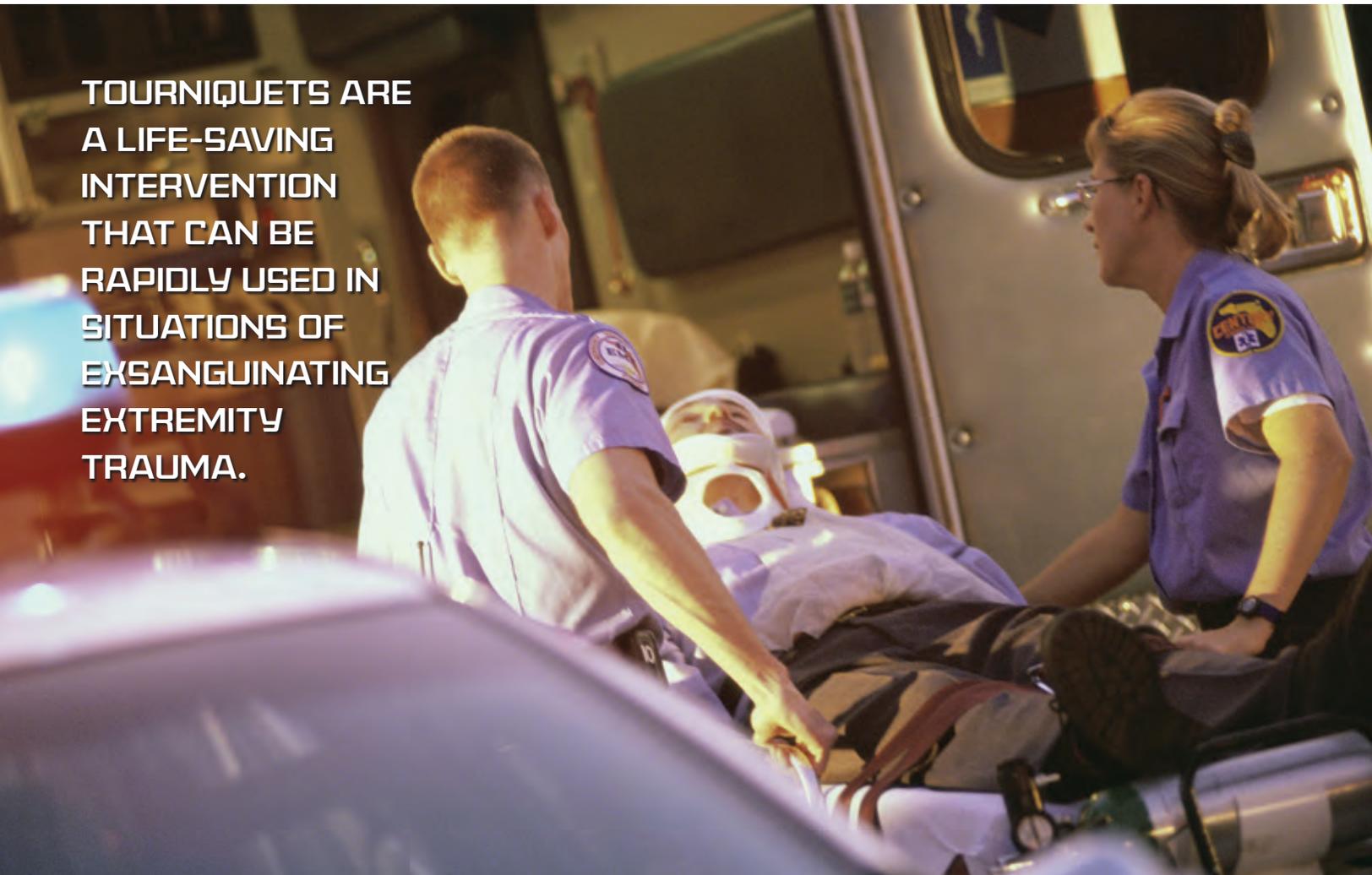
A 27-year-old male is brought in by ambulance after experiencing a gunshot wound to the mid right thigh. At the time of his arrival with EMS, he is pale, diaphoretic, and has pulsatile bleeding from his right leg. His vitals are a HR 135, BP 96/70, RR 30, and SpO₂ 100%. The intern applies direct pressure to the site, but the blood continues to pulse between his fingers and around his hands pooling on the floor. What do you do next?

Extremity bleeding is an important cause of traumatic injury in the prehospital

environment. Although severe extremity bleeding is not seen as frequently in the civilian world as it is in the military environment, it is important to implement treatments proven to improve patient outcomes when treating life-threatening extremity injuries.

The first step when addressing bleeding of any nature is direct pressure, as long as the site is accessible. If the bleeding is not controlled with direct pressure, a pressure dressing can be applied. Pressure dressings should be applied to a small area in order to not diffuse the applied force. Cast your

**TOURNIQUETS ARE
A LIFE-SAVING
INTERVENTION
THAT CAN BE
RAPIDLY USED IN
SITUATIONS OF
EXSANGUINATING
EXTREMITY
TRAUMA.**



mind back to pre-med physics and recall that pressure equals force divided by area, the greater the area, the lower the applied force. If these steps are unable to control the bleeding, a tourniquet should be applied.

Tourniquets are a device that can be used to rapidly apply proximal pressure, exceeding the patient's systolic blood pressure, to an injury in order to stop bleeding. They can be applied quickly in busy and frenetic surroundings, generally in less than a minute.

One of the more commonly used tourniquets is the Combat Application Tourniquet. It is the tourniquet currently utilized by the United States Armed Forces, and is increasingly finding its way into the civilian prehospital environment. It's application is essentially effortless, and can be applied by the patient on themselves one-handed, if need be. A loop is placed proximal to the injury and pulled tight with Velcro. Afterwards, a rod attached to an inner lining is turned until the device is tight and bleeding is stopped. This is placed within a small clip and fastened.

Another more-specialized type of tourniquet is the junctional tourniquet. This tourniquet has been designed to address the problem of hemorrhage at proximal sites like the axilla and upper groin, which are not amenable to traditional tourniquets. They are designed to be placed considerably more proximally than other tourniquet devices, and to apply pressure over the subclavian or iliac arteries. While increasing in use, there is still some debate about their efficacy.

There has been a misunderstanding often promoted in popular culture suggesting that the use of tourniquets will cause permanent ischemia and damage. This has not been demonstrated by the evidence. Because of these concerns, the use of tourniquets was, until quite recently, not part of EMS training.

There is little risk of adverse effects due to the application of a tourniquet. The literature is replete with examples of the benefits provided by tourniquet placement. While there are concerns about prolonged vascular occlusion – including venous thrombosis and thromboembolism, permanent neurologic damage, and tissue ischemia – most studies show these complications to be less frequent than originally thought, and demonstrate a distinct life-saving benefit which overcomes the potential harms. In many instances where there was harm associated with tourniquet use, it is unclear if this harm was the result of the tourniquet itself, or of the original traumatic injury.¹ The real dangers of tourniquet application appear to arise when they are placed without clear indication for their use, which only risks adverse outcomes without benefit to the patient.

Further adding to the argument for their safety profile when appropriately used, tourniquet devices are quite commonly employed in the operating room for extended periods of time by many surgical specialties. While this anecdotal evidence from the operating room cannot be directly extrapolated to our use in the ED and prehospital environment, it adds to the known safety profile of these devices.

EXTREMITY BLEEDING IS AN IMPORTANT CAUSE OF TRAUMATIC INJURY IN THE PRE-HOSPITAL ENVIRONMENT.

The data also indicates the tremendous opportunity for these devices to save lives. A retrospective Canadian study which looked at isolated extremity injuries in the civilian prehospital sector found that of 190 injuries, six patients died, all due to exsanguination which could have possibly been prevented with earlier application of a tourniquet. They found eight patients who received early tourniquet use, all

of whom survived.² A review paper in *Prehospital Emergency Care* examined the use of tourniquets in all environments. They recommended that tourniquets be moved to first line therapy in any mass casualty incident, which is in accordance with Advanced Trauma Life Support (ATLS) training.³

Kragh, in a review of extremity trauma in the military environment, found that patients were more likely to survive if they had a tourniquet applied. Additionally, they found a tremendous clinically significant decrease in mortality if it was applied prior to the onset of hemorrhagic shock. Like other studies, they also noted a very low complication rate.⁴

There are many barriers to adoption of tourniquet use. Although there is concern that the injuries sustained are different in the military and civilian populations, the cause of death – exsanguination – is the same. There is still a large population of providers who believe tourniquets to be dangerous due to the risks of significant complications, including limb ischemia, which have not been borne out in the literature.

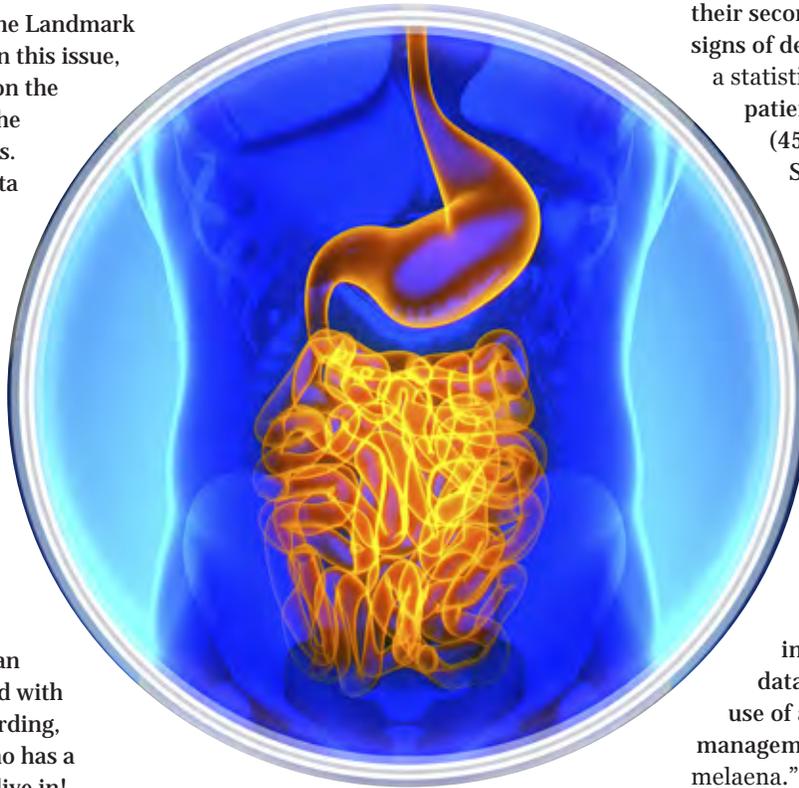
Lastly, the National Association of EMS Physicians (NAEMSP) released their guidelines for prehospital hemorrhage treatment. They recommend the use of tourniquets as the next step in hemorrhage control, should direct

pressure or pressure dressings not control hemorrhage.⁵

Tourniquets are a life-saving intervention that can be rapidly used in situations of exsanguinating extremity trauma.

They have a low risk for adverse events when applied correctly, and should be used by EMS in correct indicated circumstances. Tourniquets can also be used in the ED to free up a provider or to stop bleeding not responding to direct pressure. The chances are your application of a tourniquet will decrease your patient's overall morbidity, and may even save their life. ★

Welcome back to the Landmark Article project! In this issue, we are focusing on the gastrointestinal tract, and the care of two major conditions. We examine some of the data behind the use of proton pump inhibitors (PPIs) in upper GI bleeding, and the usefulness of leukocytosis and fever in diagnosis of appendicitis. What is the evidence that providing a PPI will affect patient outcome? Should they really be such a focus-heavy intervention? What does the presence of leukocytosis suggest about that patient with moderate periumbilical pain? What can we say about the 10-year-old with severe abdominal pain, guarding, and rebound tenderness who has a normal white count? Let's dive in!



their secondary end point of endoscopic signs of decreased GI bleeding revealed a statistically significant decrease in patients treated with omeprazole (45% vs. 33%, with a $P < 0.0001$). So the patients looked like they bled less, but the use of PPIs during acute upper GI bleeding did not lower their mortality. Or rebleeding. Or need for blood. Daneshmand's conclusion? "Omeprazole failed to reduce mortality, rebleeding, or transfusion requirements, although the reduction in endoscopic signs of bleeding suggests that inhibition of acid may be capable of influencing intragastric bleeding. Our data do not justify the routine use of acid inhibiting drugs in the management of haematemesis and melaena."



Tiffany Le'Shann Scott, MSIV
University of Texas
Medical Branch
Galveston, TX

GI Edition

LANDMARK ARTICLE SERIES

One of the controversies among the standard of care for upper GI bleeding is the administration of proton pump inhibitors (PPIs). As many EM physicians recognize, this can sometimes be a small point of controversy. Your call to the consultant may often sound like this: "Hey, I've got a GI bleeder for you. He had massive hemorrhage on arrival, his pressure was 60/40, hemoglobin of 5.5. I've typed and screened him, started 2 units of O negative blood up front, intubated him for airway protection and placed a Blakemore tube, started him on levophed, and given a bolus dose of **octreotide.**"

Consultant, "Great, but did you start a PPI?"

Way back in 1992, the *BMJ* published a paper by Daneshmand, et al, who performed a randomized control trial of omeprazole versus placebo for the treatment of acute upper GI bleeding. They examined outcomes that included rates of transfusion, rebleeding, need for operation, and, oh yeah, the minor outcome of death. As it turned out, 5.3% of patients in the placebo group died, and 6.9% in the PPI group died, though a noticeable divergence between the groups was noted at about day 12, with patients in the PPI group showing increased mortality, and neither group followed past 27 days. This difference was justified by confounder analysis. Statistically, there was ultimately deemed to be no difference between either group for any of their predefined end points. However,

So that was just one paper from the 90s. If only we had something looking at a pooling of data from this century... and enter the 2010 Cochrane review by Sreedhaan, et al. Their group performed a meta-analysis that included six studies evaluating 2,223 patients, reviewed by two researchers. Their primary outcomes included the same parameters of mortality, rebleeding, and need for surgery, all measured at 30 days. They also secondarily looked at incidence of stigmata of recent hemorrhage at time of endoscopy (clots, active bleeding, or visible vessel). This time more patients, same end points, and same outcome – no statistical difference in either group for mortality, surgery, or rebleeding rates. However, again noticed was that PPI treatment significantly reduced the

LANDMARK ARTICLE SERIES

amount of patients with stigmata of recent hemorrhage (OR 0.67, 95% CI = 0.50 vs 0.93), and as a result, reduced the need for direct intervention at time of endoscopic therapy (OR 0.68, 95% CI = 0.50 vs 0.9). The conclusion is drawn that if you give a PPI, the patient outcome is unchanged, but the endoscopist will do less work.

It's important knowledge, but maybe not something to bring up on your oral boards.

Shifting gears a little and travelling distally down the intestines, we reach the appendix, our next GI topic. While there is less controversy in the management of acute appendicitis, the utility of the total WBC count and temperature to support the diagnosis of appendicitis hasn't ever really been established, despite our surgical colleagues frequently relying on it. Coming from our own literature in Academic Emergency Medicine, a study performed by Cardall, et al, enrolled 293 emergency department patients to determine the discriminatory value of a total WBC and the temperature in patients presenting to the emergency room with signs and symptoms suggesting

appendicitis. All age ranges were included, with the youngest patient being 7 years old, and the oldest 75. If admitted, the patients were followed to a clinical outcome (i.e., surgery or hospital discharge), and if discharged from the ED, 2-week phone follow up was performed.

They discovered that a total WBC count >10,000 had a sensitivity of 76% (95% CI = 65% to 84%) and a specificity of 52% (95% CI = 45% to 60%). Similarly unreliable were the PPV of 42%, NPV of 82%, positive likelihood ratio of 1.59, and negative likelihood ratio of 0.46. With the results, the authors conclude, "An elevated total WBC count >10,000 cells/mm³, while statistically associated with the presence of appendicitis, had very poor sensitivity and specificity and almost no clinical utility."

But what about a temperature? It was found that a temperature > 99.0°F had a sensitivity of 47% (95% CI = 36% to 57%), specificity of 64% (95% CI = 57% to 71%), PPV of 37%, NPV of 72%,

positive likelihood ratio of 1.3, and negative likelihood ratio of 0.82 (95% CI 0.65 to 1.01). Again, this temperature lacks desired sensitivity or specificity. It would have been interesting to see the conclusions drawn with higher values, say a WBC of >15,000 or a temperature >100.5 °F. But, neither value alone is likely to actually support the diagnosis or exclusion of acute appendicitis. This study did not evaluate what implications any combination of the two values had in making the diagnosis, however.

All three of these studies suggest the importance of not always relying on the prevalent practice in use, and instead focusing more on individual case presentations. Physicians should be wary of relying on parameters such as WBC count and temperature to indicate whether or not a patient has acute appendicitis. In addition, physicians should not heavily rely on the administration of PPIs to treat GI bleeding and instead should feel justified in focusing on resuscitative efforts to ensure adequate perfusion and the cessation of bleeding. PPIs might make for cleaner endoscopic evaluations, there is no evidence to suggest that they will benefit patient outcomes.

It is important to remember that all studies have some limitations, confounders, and biases, and therefore results should be taken in context. In assessing the use of parameters of WBC and temperature the physicians were not blinded, which could possibly sway clinical judgment and workup. In addition, the study looked at the total WBC count, and did not analyze differential components like the neutrophil count. The double-blinded study of PPI treatment versus placebo was limited due to the use of IV mannitol for the IV placebo, which could unintentionally affect results. Above all, it is most important to remember to take into consideration the entire picture of the patient. No one sign or finding should dictate diagnostic decision making in these scenarios.

We hope you enjoyed this month's dive into a few big papers in the GI literature. Better knowledge equals better patient care. Stay tuned for more in upcoming issues of *EM Resident!* ★

Who is the best resident lecturer in the country?
Let's find out at this exciting
EMRA EVENT!

**ACEP15
Boston**

Let's
talk
Emergency
Medicine!

DETAILS AT
EMRA.ORG/EVENTS

Apply by July 1 • Selection Process Starts Soon!

Thank You, EM:RAP for your
generous support of this event

EM:RAP
Emergency Medicine : Reviews and Perspectives



Handling the Hand-Off



Nicholas Governatori, MD
Resident Physician
Mount Sinai St. Luke's/
Roosevelt Hospital Centers
New York, NY

As residents we play a key role in producing behavioral and cultural changes within our specialty.

A Call for Formalized Training in Hand-Off Procedure

7 pm arrives. Your stomach is growling. You realize you haven't taken a bathroom break in the past twelve hours, and it's already time to sign out. Your co-resident arrives, freshly showered, with a large, steaming hot latte in hand. "You ready to talk?" he asks in a chipper manner that makes you shudder inside, knowing that you have at least ten more things to do, several patients to sign out, a lumbar puncture to perform, and a laceration to repair. The bustling from the ED makes you even more anxious as you hand off your patients and run for the door.

Three hours later, your co-resident is approached by one of the nurses. "Did you order a CT scan on Mrs. Pope? She finished her contrast over an hour ago!" she pleads. He quickly runs through his patient list. Mrs. Pope...which one was she? Oh, right, follow up on her CT scan – but there is no CT scan ordered. He quickly enters it into the computer. Another two hours pass and he gets a call from radiology. "Well, the patient doesn't have appendicitis... but she is pregnant." Frantically scanning through the lab results your colleague looks for a urine bHCG. There is none. He runs over to the

The bustling from the ED makes you even more anxious as you hand off your patients and run for the door.

patient room, apologizing along the way. He has an unfortunate conversation with the patient about the implications of the CT scan and effects of radiation on her unborn fetus. It is not a discussion he ever wanted to have, and he hopes to never have it again.

This type of scenario is all too common in our field. Could this situation have been prevented? As physicians, we all desire to provide safe care. After all, we know the ethic of *nil nocere*, or do no harm. It has been ingrained in our brains since medical school, yet there are often other factors that come into play during the perilous time we call signing out. Acuity of sick patients, department volume, teaching obligations, and background noise are all part of a much longer list of variables we all know well.¹ In spite of these confounders, important information must be passed quickly between providers, which leaves plenty of opportunity for error. As ED crowding worsens and more detailed evaluations become the standard, the number of patient hand-offs is only likely to increase in the future.²

The need for a standardized hand-off process has been well established in the literature by both policymakers^{2,3} and residency training programs,^{4,5} yet less than half of emergency physicians reported a formalized hand-off procedure.⁵ Seventy percent of residency program directors felt that a standardized sign-out system would improve communication and reduce medical error.⁴ There remains, however, no standardized method of giving sign-out.

Not only is there a lack of standardization, but also of a formal training program.⁵ In a recent survey of program directors in Academic Emergency Medicine, only 25% of the training programs reported

a formal didactic session, and only 10% had a written hand-off policy.⁴ This data is surprising, given that the Accreditation Council for Graduate Medical Education (ACGME) requires that training programs “must ensure and monitor effective, structured hand-over processes to facilitate both continuity of care and patient safety.”⁶

In my training program, I learned by the trial-by-fire method. My intern year, I distinctly remember receiving hand-off from a second year resident. Six patients. I was overwhelmed. I did not know what was important. I had no idea what to write down. I will admit that I made mistakes that day, but none of them were too serious — as far as I know. But I honestly believe that learning how to hand off patients — or even having a dedicated system to do so — would have decreased the number of errors I made.

Some say that no one can teach you how to sign out, that there are too many variables at play. When something goes wrong they contribute it to the lack of knowledge of the prior physician, or even the system itself. As outlined by Dr. Donald Berwick, administrator for the Centers for Medicare and Medicaid Services (CMS), “blame and accusations are not the answers. Teamwork and improvement are the answers. Commercial air travel didn’t get safer by exhorting pilots to please not crash. It got safer by designing planes and air travel systems that support pilots and others to succeed in a very, very complex environment. We can do that in healthcare, too.”⁷

The truth of the matter is that we desperately need a better system for signing out. The Joint Commission reported that the majority of all sentinel medical error events arise from

communication breakdowns, and half of these errors occur during the hand-off of care.³ Our current hand-off process is highly variable in both content and effectiveness secondary to each person’s unique practice styles and individual preferences.⁸

Other specialties have had success with improving the process. The Pediatric I-PASS program has been shown in a large, multicenter study to reduce the number of adverse events with an improvement in communication and overall workflow.⁹ An electronic hand-off tool for patients admitted from the emergency department to the medicine ward was found to improve the efficiency of sign-out; it failed, however, to show a decline in the rates of reported adverse events.¹⁰

Perhaps a form is not the answer, but rather a systematic approach. In 2013 the Council of Emergency Medicine Residency Directors (CORD) transitions of care task force developed an algorithm based on five steps:¹¹

1. setting the stage
2. assembling the team
3. identification of high-risk patients
4. shift sign-out
5. closing the loop

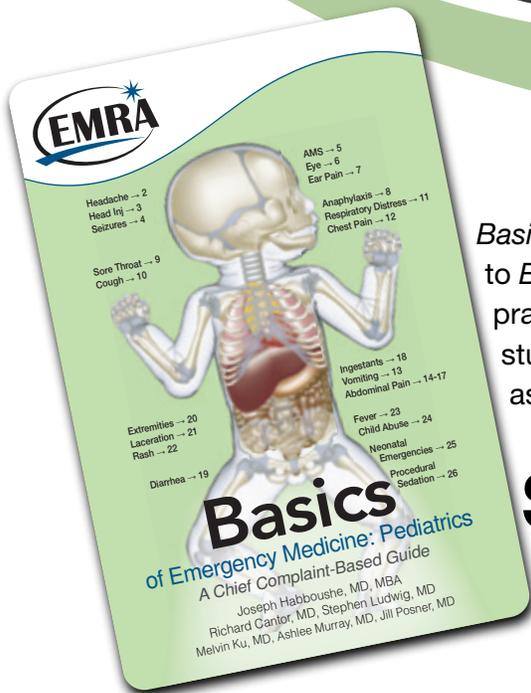
Focusing on these key transitions streamlines the hand-off process. Furthermore it can be used in conjunction with any tool or written template that already exists. The algorithm serves as a solid foundation to improve our ability to sign out safely and effectively.

As residents we play a key role in producing behavioral and cultural changes within our specialty. Until we all accept the fact that hand-off can be improved, we will continue to make errors. We should advocate for both a consistent hand-off system, as well as a formal training course to be adopted by all residency programs. Standardization would not only allow residents to focus on the development of best practices, it would also reduce the variability of the hand-off process, ultimately leading to safer and more efficient patient care. ★



A Baby Bundle from EMRA!

Find these
great products at
bookstore.acep.org



Basics of Emergency Medicine: Pediatrics, a companion piece to *Basics of Emergency Medicine*. Handy pocket guide outlines practical solutions to treat young patients. Ideal for interns, medical students, off-service rotating residents, nurse practitioners, physician assistants, nurses. ACEP Member Price **\$12**; List Price **\$15**.

\$9 EMRA Member Price



"FUTURE EMRA MEMBER" BABY SCRUBS

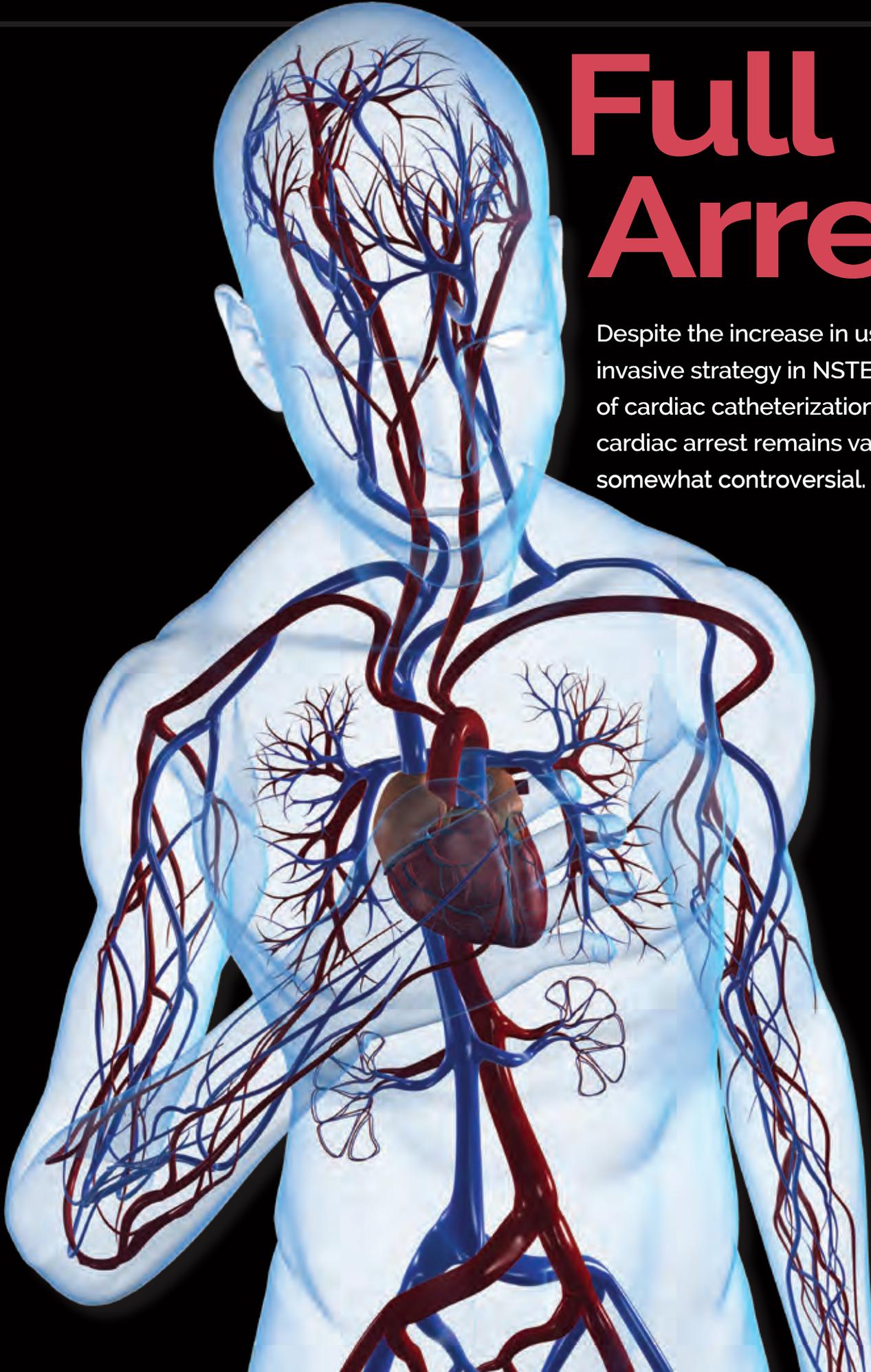
Your little ones will be stylish and comfortable! Just like the ones mom, dad or grandparents wear in a wee size (fits 6–12 months). **A great gift!**

\$29⁵⁰ 100% cotton, machine washable. Available in pink and blue.

COMING SOON! EMRA Peds Med App for iOS

This app lets you do what others don't. Edit, create, and organize medications. Includes accurate weight for age estimation based upon CDC data, the ability to share your customized formulary, in-app video tutorials, plus reference information, including normal vitals and ETT sizes for age. Find it in the App Store soon.

\$16⁹⁹



Full Arrest

Despite the increase in use of early invasive strategy in NSTEMIs, the use of cardiac catheterization in NSTEMI cardiac arrest remains variable and somewhat controversial.

Full Start

Early Cardiac Catheterization and PCI in Cardiac Arrest with ROSC

We all know early recognition and early CPR is important for out-of-hospital cardiac arrest patients; however, what is the optimal care when the patient has return of spontaneous circulation? Therapeutic hypothermia is a reasonable first thought, but early coronary catheterization, even in the absence of ST elevation, has been gaining traction, and has been shown to improve outcomes. Several articles published within the last year support the AHA class I guideline that early coronary angiography is the treatment of choice for patients with evidence of STEMI who had an out of hospital cardiac arrest.¹ Two recent studies also add to the body of research supporting its use in NSTEMI cardiac arrest patients as well. These studies confirm that earlier cardiac catheterization improves both survival to discharge and increases the number of patients with favorable neurologic outcomes.

What Does the Data Say?

In a retrospective subgroup analysis of a study of 16,875 total participants, patients who had an out-of-hospital cardiac arrest and ROSC who received a PCI within 24 hours of admission had a significantly better odds of survival to discharge (aOR = 1.69; 95%CI = 1.06-2.70) and discharge with a favorable neurologic outcome (aOR = 1.87; 95%CI = 1.15-3.04) than those who did not.² A favorable neurologic outcome was defined as a modified Rankin Score <3. These same improved outcomes were also associated with therapeutic hypothermia and a composite of patients who received reperfusion with PCI or fibrinolytics.

One recent meta-analysis of 15 primary studies looking at 1,800 events also confirms that early cardiac catheterization improves survival to discharge (OR = 2.77; 95%CI = 2.06-3.72) and favorable neurologic outcome (OR = 2.20; 95% = 1.46-3.32).³ In this meta-analysis, they separated out studies on cardiac catheterization in STEMI patients only, which showed an overall survival to discharge of 67.4%, with 68.4% having a favorable neurologic outcome. When including studies with both STEMI and NSTEMI patients, overall survival was slightly less, at 47.5%, and discharge with favorable neurologic outcome was also lower, at 50.4%. This shows that early catheterization improves outcome when considering STEMI and NSTEMI patients combined, though not as much as in STEMI patients alone.



Joshua Davis, MSII
Sidney Kimmel Medical College
Thomas Jefferson University
Philadelphia, PA

What about NSTEMI Patients?

There has been a recent push for more aggressive care of patients with NSTEMI. Currently, the AHA recommends the use of an early invasive strategy in high-risk NSTEMI and unstable angina patients with an MI without other contraindications.⁴ A review of 6.5 million patient records from 2002 to 2011 showed an increase in the use of early invasive strategies (coronary angiography with or without PCI or CABG) in NSTEMI patients and an associated decrease in hospital length of stay and in-hospital mortality.⁵ In the nearly 4 million patients with NSTEMI, the use of an early invasive strategy doubled over the study period. The use of an early invasive strategy on day 0 or 1 increased from 27.8% in 2002 to 41.4% in 2011. Over this same time period, hospital length of stay decreased from 5.7 to 4.8 days and overall in-hospital mortality decreased from 5.5% to 3.9%. Notably, those patients who received an early invasive strategy on day 0 had the biggest drop in length of stay and a non-significant drop in in-hospital mortality from 2.5% to 2.0%.

Despite the increase in use of early invasive strategy in NSTEMIs, the use of cardiac catheterization in NSTEMI cardiac arrest remains variable and somewhat controversial. The study mentioned above

CARDIAC CARE

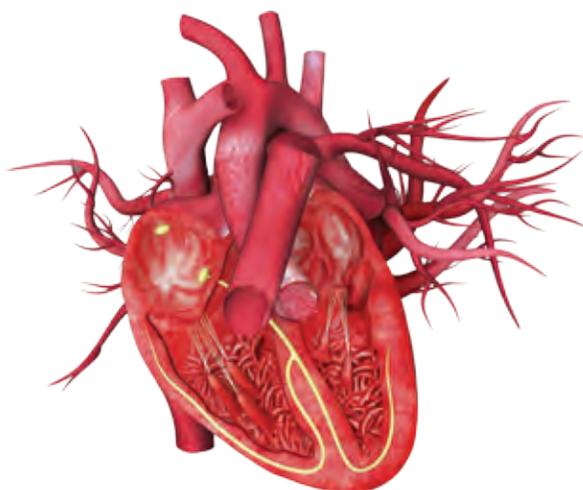
of 16,875 patients with out of hospital cardiac arrest notes that only 12% of patients with NSTEMI received cardiac catheterization.²

Another retrospective study of 269 patients with NSTEMI cardiac arrest showed that, of those with ROSC, those who had early cardiac catheterization (on admission or while inducing hypothermia) with or without PCI survived to discharge significantly more (aOR = 2.86; 95%CI = 1.43-5.56) than those who did not have a catheterization or did not have it as early.⁶ Notably, this study excluded patients with arrhythmias other than ventricular tachycardia or ventricular fibrillation, and those with unknown arrhythmias. This study also supports that even patients with NSTEMI post cardiac arrest can benefit from early catheterization. Indeed, of these NSTEMI patients, 66% of them ended up having a PCI during their cardiac catheterization. This study also showed a higher use of cardiac catheterization (60.5%) during the period they examined (2005 to 2011) than the other two studies already mentioned.^{2,4}

What Does All of This Mean?

All of this data works to confirm the AHA guideline¹ that coronary angiography should be initiated immediately in patients who have ROSC after an out of hospital cardiac arrest with evidence of STEMI. They also suggest that NSTEMI patients who survive out of hospital cardiac arrest may also benefit from immediate cardiac catheterization as well. While these studies defined “early” catheterization very differently (immediately on admission or up to 24 hours after admission), it still appears that catheterization within 24 hours of admission is associated with improved survival, and survival with good neurological outcome. As with most treatments in cardiac arrest patients, it appears the earlier you start, the better the outcome.

In addition to therapeutic hypothermia, immediate cardiac catheterization should be incorporated into hospital protocols and clinical management of patients with ROSC after cardiac arrest. Nearly all studies to date have shown improved outcomes in patients with STEMI and ROSC. Although far from irrefutable evidence, it appears that NSTEMI patients who survive out of hospital cardiac arrest also benefit from early catheterization, though maybe to a lesser degree. Consider the importance of time to catheterization in all of your cardiac arrest patients with ROSC. The data suggests that we should be liberal with getting the interventionalists involved, and by so doing, my improve the outcomes of our patients. ★



What are the Risks of Cardiac Catheterization?

Cardiac catheterization is a common medical procedure. It rarely causes serious problems.

However, complications can include:

- Bleeding, infection, and pain at the catheter insertion site
- Damage to blood vessels. Rarely, the catheter may scrape or poke a hole in a blood vessel as it's threaded to the heart.
- An allergic reaction to the dye that's used during coronary angiography.

Other, less common complications include:

- Arrhythmias (irregular heartbeats) — these irregular heartbeats often go away on their own. However, your doctor may recommend treatment if they persist.
- Kidney damage caused by the dye used during coronary angiography
- Blood clots that can trigger a stroke, heart attack, or other serious problems.
- Low blood pressure
- A buildup of blood or fluid in the sac that surrounds the heart. This fluid can prevent the heart from beating properly.

As with any procedure involving the heart, complications sometimes can be fatal. However, this is rare with cardiac catheterization.

The risks of cardiac catheterization are higher in people who are older and in those who have certain diseases or conditions (such as chronic kidney disease and diabetes).

Studies confirm that earlier cardiac catheterization improves both survival to discharge and increases the number of patients with favorable neurologic outcomes.

EMRA ACTIVITIES

2015 SAEM ANNUAL MEETING

MAY 11-15, 2015



SAN
DIEGO



Monday, May 11, 2015

4:00pm-6:00pm EMRA Finance Committee Meeting,
Shutters/Bay Tower-Lobby Level

Tuesday, May 12, 2015

8:30am-5:00pm EMRA Board of Directors Meeting, Marina Room 2

Wednesday, May 13, 2015

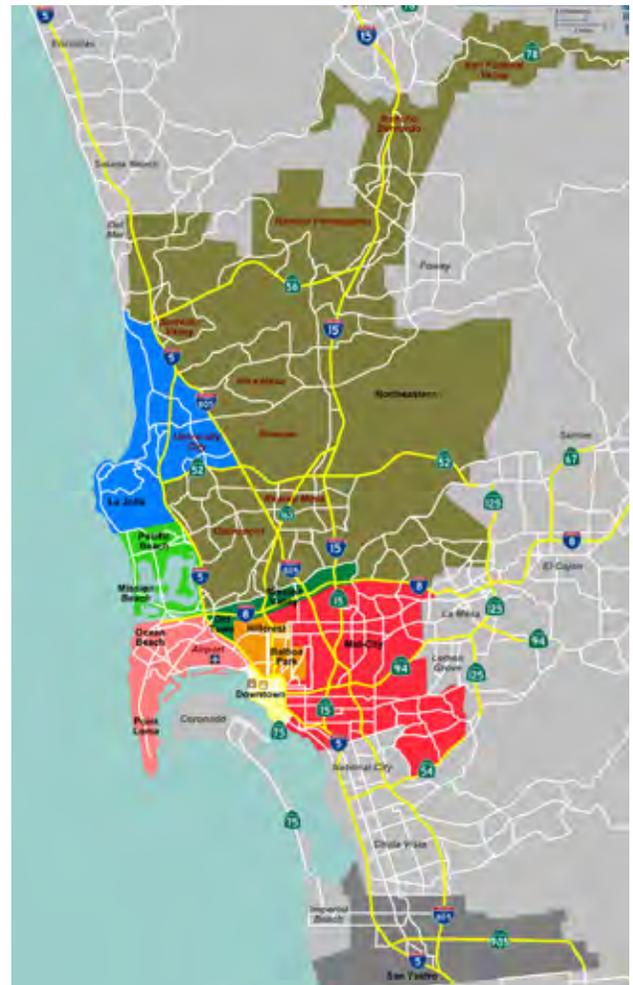
9:00am-12:00pm EMRA Board of Directors Meeting, Marina Room 2
 1:30pm-2:30pm EMRA Committee Chair/Vice Chair Orientation, Room 411
 1:30pm-2:30pm EMRA Regional Representative Committee, Room 415
 1:30pm-5:00pm EMRA Medical Student Governing Committee, Room 511
 2:30pm-3:00pm EMRA Conference Committee Orientation,
Coronado Room A
 3:00pm-4:00pm EMRA Reference Committee Public Hearing,
Coronado Room A
 4:00pm-5:00pm EMRA Reference Committee Work Meeting,
Coronado Room A
 5:00pm-7:00pm EMRA Quiz Show Contest, Catalina Ballroom

Thursday, May 14, 2015

8:00am-8:30am EMRA Rep Council Welcome Breakfast & Registration,
Coronado Room AB
 8:30am-12:00pm EMRA Rep Council Meeting/Town Hall,
Coronado Room AB
 8:00am-12:00pm EMRA/SAEM Sim Academy Resident Sim Wars
Competition, Pavilion
 1:30pm-3:30pm EMRA International Division, Room 411
 1:30pm-3:30pm EMRA Research Committee, Room 511
 1:30pm-3:30pm EMRA Critical Care Division, Room 514
 1:30pm-3:30pm EMRA Informatics Committee, Room 515
 1:30pm-3:30pm EMRA Toxicology Division, Marina Room 3
 1:30pm-3:30pm EMRA Awards Committee, Room 415
 1:30pm-3:30pm EMRA Pediatric EM Division, Marina Room 1
 3:30pm-5:30pm EMRA Sports Medicine Division, Marina Room 3
 3:30pm-5:30pm EMRA Simulation Division, Marina 4
 3:30pm-5:30pm EMRA Health Policy Committee, Room 415
 3:30pm-5:30pm EMRA Education Committee, Room 411
 3:30pm-5:30pm EMRA EMS Division, Room 511
 3:30pm-5:30pm EMRA Wilderness Medicine Division, Room 514
 3:30pm-5:30pm EMRA Editorial Advisory Committee, Room 515
 3:30pm-5:30pm EMRA Ultrasound Division, Room 518
 6:00pm-7:00pm EMRA Spring Awards Reception, Coronado Room AB
 10:00pm-2:00am EMRA Party

Friday, May 15, 2015

8:30am-12:00pm EMRA Board of Directors
Breakfast, Marina Room 1
 12:00am-5:00pm EMRA Board of Directors
Committee Updates Luncheon,
Marina Room 2



Special EMRA Resident and Medical Student Member Pricing

Get the emergency medicine titles you want while on sale! Pick up a copy of ACEP's sought-after emergency medicine books at deep discounts, or any of the indispensable clinical references you need right now. Take advantage of these **discounted prices** today on the ACEP Bookstore.



Make The Most Of Your Book And Education Funds!



AMERICAN COLLEGE OF EMERGENCY PHYSICIANS
BOOKSTORE



SPECIAL SALE PRICES –APRIL 1 THROUGH JUNE 30, 2015

Item Number	Item Description	EMRA PRICE*	LIST PRICE
479807	APLS: The Pediatric Emergency Medicine Resource, 5E	\$69	\$93.95
517615	Cardiovascular Emergencies	\$79	\$159
479888	Clinical Procedures in Emergency Medicine, 6E	\$210	\$239
406500	Critical Decisions In Emergency Medicine (<i>online ed. only</i>)	FREE	\$334
572615	Critical Images in Emergency Medicine	\$59	\$119
479936	CURRENT Diagnosis & Treatment in EM 2015	\$73	\$85
479456	ECGs for the Emergency Physician 1	\$48	\$54.95
479680	ECGs for the Emergency Physician 2	\$64	\$72.95
557000	Electrocardiography in Emergency Medicine	\$59	\$117.95
508000	Emergency and Primary Care of the Hand	\$18	\$43.50
560000	Emergency Department Resuscitation of the Critically Ill	\$89	\$139
479645	Goldfrank's Manual of Toxicologic Emergencies	\$64	\$71
590002	PEER VIII Online	\$149	\$299
590000	PEER VIII Print Edition	\$149	\$299
479929	Strange and Schaefermeyer's Pediatric Emergency Medicine	\$172	\$199
479877	Tintinalli's Emergency Medicine, Just the Facts, 3E	\$73	\$83
479782	Tintinalli's Emergency Medicine, 7E	\$198	\$232
479833	Tintinalli's Emergency Medicine Manual-Pocketbook	\$68	\$75
512000	Ultrasonography in Trauma: The FAST Exam	\$18	\$25



*Emergency medicine education whenever **you** want it*

Plus, Remember To Check Out The “First Friday” Free Lecture Series!

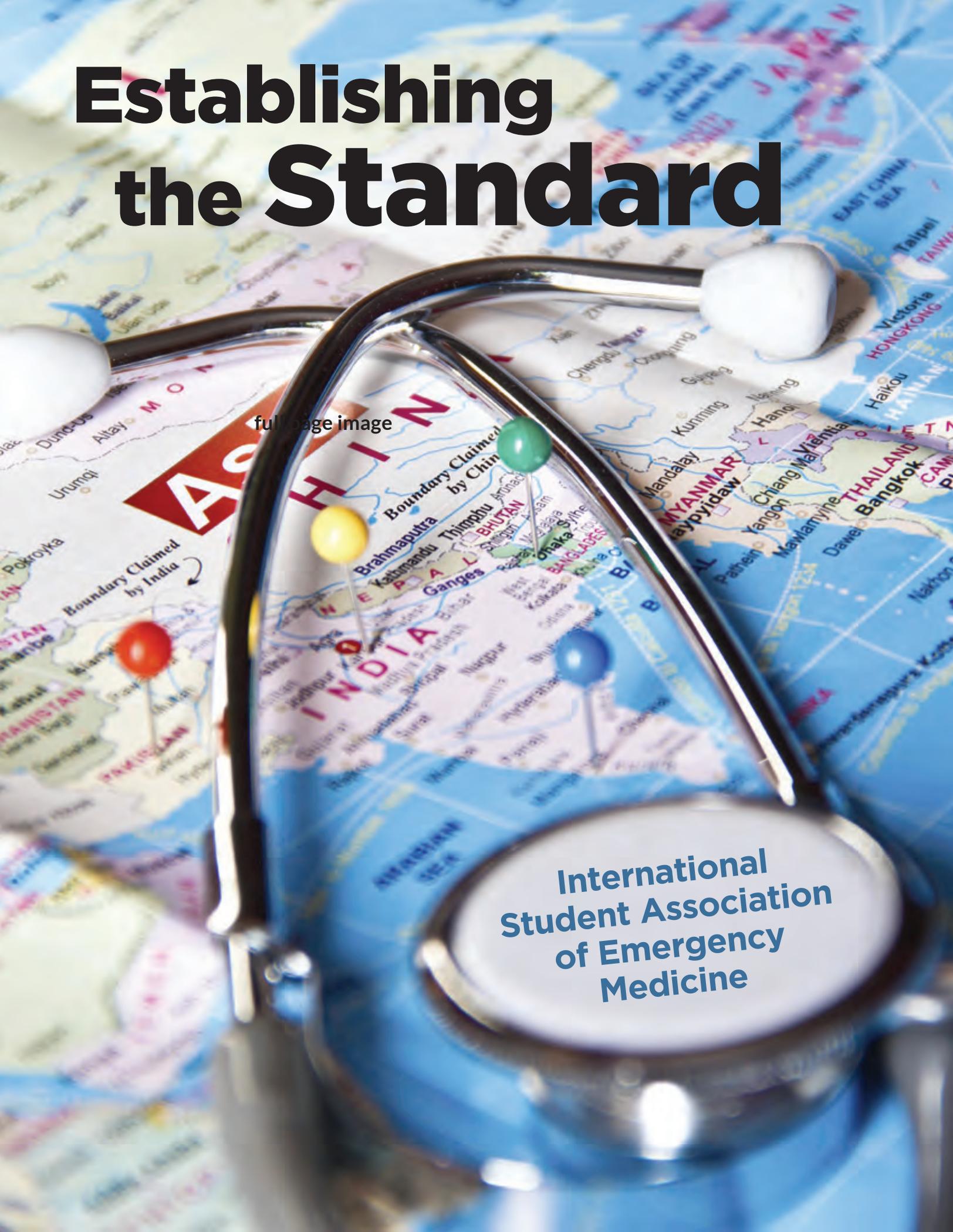
This series of lectures from ACEP's faculty is provided free of charge to ACEP Member Residents

acep.org/acepeCME

Phone...800-798-1822, ext. 5 or **ONLINE...**bookstore.acep.org/residents

Establishing the Standard

full page image

A close-up photograph of a silver stethoscope resting on a world map. The map is the background, showing various countries and cities. Several pushpins of different colors (red, yellow, green, blue) are stuck into the map. The stethoscope's chest piece is in the foreground, and its tubing loops across the map. The text 'International Student Association of Emergency Medicine' is overlaid on the chest piece.

International
Student Association
of Emergency
Medicine

To many EMRA members, it may come as a surprise that the specialty of emergency medicine is a foreign term, and in many countries outside the U.S. the specialty simply does not exist. In these countries, the emergency department staff is reminiscent of the system in the United States back in the early 70s, before EM became an official specialty. Just as then, these departments are staffed by cardiologists, urologists, general practitioners, and surgeons who are reluctantly fulfilling their “time” in a department that they would never call their home. This lack of enthusiasm and interest in the ED causes unnecessary harm to those who stumble through the emergency department doors.

International Student Association of Emergency Medicine (ISAEM) is the medical student voice with the goal of creating a universal acceptance for the specialty of emergency medicine throughout the world, as well as helping medical students get greater exposure to advanced emergency care training. ISAEM was recently recognized by EMRA as a supporting partner and has dedicated EMRA MSC involvement to help move its goals forward. ISAEM is at the forefront in its attempts progress emergency medicine to full integration as a specialty in countries where it does not yet exist.

ISAEM was established in Denmark in October 2013 by a pair of students with



Lance Adams
ISAEM US Ambassador
MSC International Representative
Ross University School of Medicine
Dominica, West Indies



Larshan Perinpam
President of ISAEM
Aarhus University, Denmark



Anh-Nhi Thi Huynh, MD
Vice President of External Affairs
ISAEM
Akutafdelingen Regionshospitalet
Herring, Denmark

ISAEM and the Push for Emergency Medicine Worldwide

This is in stark contrast to the many individuals in countries where EM is a specialty, where oftentimes vibrant personalities and an enthusiastic approach to emergency care influence patient outcomes. For the most part, those who make emergency medicine their career love their job, and look forward to the crazy, random, and bizarre things can occur with each shift.

Physicians, legislatures, and especially students in those countries lacking dedicated emergency physicians are seeking full acceptance of emergency medicine as an official specialty in their home countries. They are reaching for a helping hand of opportunity from those physicians and individuals who may have tread these waters before, regardless of their nationality. The ability to call the emergency department your home is something that is sought after world wide, but is not yet attainable by all physicians and students in training.

a fervent desire to become EM physicians and to connect EM student interest groups throughout the world. The membership of ISAEM has now grown to include EM student interest groups that include Denmark, the Netherlands, Brazil, the Dominican Republic, as well as the United States. Its membership is projected to exceed 20,000 international students by the end of 2015.

ISAEM is working fervently toward establishing hundreds of hospitals that are willing to allow international students to experience an EM exchange program. This initiative attempts to create a learning environment towards establishing a universal understanding and approach to emergency care, which is crucial for the young and budding international student interested in emergency medicine.

For those that already have a strong curriculum of emergency medicine, ISAEM provides an opportunity for

the learner to step into a world of rudimentary EDs that utilize creative approaches when faced with extremely limited resources and oftentimes even the absence of a consistent staff of physicians.

ISAEM is now in the process of expanding its network of hospital affiliates throughout the world and extending an invitation to all hospitals and institutions for involvement. Such involvement could exist from simply an advocate of international EM exchanges to acceptance of international medical students in your ED. Involvement can occur by simply becoming an advocate for international EM exchanges, or by accepting international medical students as rotators in the ED. Ambassadors for each country are continually being established to act as liaisons to the executive board, and this provides an opportunity for additional involvement.

If you would like to assist in this exciting new organization, or would like more information on what we do, please do not hesitate to contact us at www.isaem.net, Facebook www.facebook.com/ISAEM13, Twitter twitter.com/ISAEM13 or e-mail larshan@isaem.net.

ISAEM truly believes the axiom “alone we can go fast, but together we will go far.” We look forward to assisting the generation of international emergency medicine physicians throughout the world, and hope that you can in some way be part of our team. ★

Dogs **Don't** Understand the Concept of Moving. Armstrong Relocation **Does.**

Here's How Dogs React to Change.

① Become aware that there is a problem.



② Wait 19 seconds



③ If problem persists, begin making high-pitched sounds.



④ Continue making high-pitched sound until problem is fixed



Artwork reproduced by permission from the hilarious blog, Hyperbole and A Half, <http://hyperboleandahalf.blogspot.com>

A New Approved EMRA Benefit Moving Relocation Services

- ✓ 40% discount on household good moves
- ✓ 15% discount on motor vehicle shipments
- ✓ 50% discount on storage in transit
- ✓ Need to move a beloved pet? Armstrong handles the details
- ✓ Much more to make your move smooth

Armstrong Relocation. Building Trust.
Reducing Stress. Delivering Reliability.

Moves can be stressful for everyone. Whether you're moving across country or across town, Armstrong Relocation moves all of your precious household goods and can even help you move your pets. We're bringing you a brand new benefit to save on your move! Armstrong Relocation is a leading agent for United Van Lines, one of the country's most prominent long haul movers.



ARMSTRONG RELOCATION
& COMPANIES



For details, visit
www.emra.org/benefits



Briana Tully, MS, RN, LP
 Medical Student
 UNTHSC | Texas College
 of Osteopathic Medicine
 Fort Worth, TX

This poem is intended to bring to life the inner turmoil and conflict that so many of us live with on a daily basis, day in and day out, as we see so many patients with chronic, preventable diseases visit our emergency department in duress. It is a humanitarian piece reflecting the emotional conflict to which we all stand witness.

TRAIN TRACKS

Shaman. Apothecary. Healer.
 Medicine man. Physician.
 I have many names.

Understanding of this art is held to the inner society:
 “Lay” explanations can elude me often.

Your steadfast position on train tracks has become your home.
 How my soul has grown weary in repercussion.

You Pink Puffers and Blue Bloaters
 My heart breaks, as your lungs strive for breath, every time you visit me.

I stand here clamoring to ease your suffering but my orifices burn from the acrid odor of your continued tobacco treatments.

You stand on train tracks and have been there for ever and a day
 Have you not grown weary and exhausted?

I feel the rumbling through my feet of a large locomotive in the distance:
 Is it on your track?
 You lost your fine feeling many years ago so you don't know.

Can you see what I see? Those large puffs of black smoke in the distance.

You have seen patches of black for many years now; a long awaited



consequence of your postponement of change.

For years I have pulled on you with all my might but you won't let go; you scream “I can't!”

For years I have yelled at the top of my lungs that you need to move out of the way but you won't budge an inch; your knuckles are white from your tight grip.

I keep getting an awkward sensation in the back of my throat and my eyes well up with tears.

I cannot stand the idea of the aftermath when metal meets flesh.
 I have seen it too many times before.

I fear that the aftermath is more for even my expertise to bear and you will be gone.

I yell.
 I pull.
 You stand fast.

As I toss in the night, I see pictures with bleak endings. The scenes are unbearable: patients, trains, and train tracks and I am not strong enough to move any of them.

When I awaken, the mirror holds my distorted reflection
 Black circles from sleepless nights,
 long gone is the passion that once filled my eyes
 The joy of the art has left me.

From here it is terminal for both of us:
 there has to be a better way.

No more sleepless nights
 Who am I to force anyone to change?
 I understand now, you want your free will as we all do in one form or another.

I will share my sense of that train heading your way and answer your questions.

I will describe the broken shells and the horses and men that will be needed.

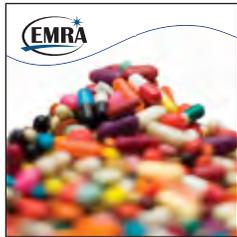
I will offer my hand to help you down from those tracks
 But unlike others before I will not abandon you: come what may.

If you choose to stand fast
 In the aftermath, I will sound the reveille and will be the first at your side.
 I am your physician and I will be blind.

Well.
 I'll try. ★



Tap these EMRA Apps!



2015 ABx App

ABx for android and iOS for sale now! Check your local app marketplace for this necessity! Searchable for virtually every type of infectious disease covered for outpatient management and admission.

Sponsored by



2015 PressorDex App

Critical Thinking. Critical Care. A must-have to treat critically ill patients, the newly revised and updated EMRA PressorDex app for iPhone and iPad.

\$16⁹⁹
per app

What EM physicians say about EMRA apps

"Awesome."

"Helps your own BP too!"

"I use an EMRA app at least once a shift."

"Now THIS is what I've been looking for...!"

"Recommended for physicians, PAs, NPs and nurses."



Like us on Facebook
[facebook.com/emresidents](https://www.facebook.com/emresidents)



Follow us on Twitter
twitter.com/emresidents



“Introduction to Research” at SAEM

Initiating clinical research in emergency medicine can be a daunting task, especially for residents, junior faculty, fellows, and other early career investigators. To address many of the challenges that arise, the SAEM Research Committee has created an “Introduction to Research” curriculum to take place on a rotating basis over the next three SAEM Annual Meetings.

The curriculum is designed to provide yearly didactics in four discrete areas:

1. “Getting Started” will teach you how to foster collaborations, obtain mentors, deal with the internal review board, and find grant funding in order to leverage your research idea into a successful product.
2. “Methods” will introduce you to research methods that are highly relevant to early career researchers: retrospective chart reviews, studies using electronic databases, and mixed methods, such as surveys and qualitative research.
3. “Analysis” will introduce you to the basics of biostatistics and epidemiology. This series will cover foundation concepts such as *P* values and precision, but will also introduce methods to recognize and deal with potential bias and confounding.
4. “Dissemination of Information” will familiarize you with basic concepts related to abstract and manuscript writing, publication, the perspective of peer reviewers, and writing for the lay public.

The SAEM Annual Meeting in San Diego in May 2015 will inaugurate this “Introduction to Research” series. The initial presentations in each of these four areas will cover topics especially relevant to junior investigators. They are all scheduled for **Thursday May 14, 2015**.

EMRA

Quiz
SHOW

SAEM San Diego
Wednesday, May 13
5-7 pm

Come Play With Us!
Guaranteed Fun!

Open Letter from the 2014 Champs

To Our Esteemed Quiz Show Challengers,

Seriously? You think you can beat us?

We have a lot of **EMRA Quiz Show** experience, and we’re determined to defend our title!

In 2014, we took home the championship after five rounds of tough questions. In 2013, we place second and **that** required a dance-off between our residency and a team of attendings (okay — that wasn’t too hard!).

We’re just warming up — and fully intend to take **2015 EMRA Quiz Show** bragging rights back home to Charlotte!

From the Talented and Awesome Residents,
Carolinas Medical Center



ACEP
RESEARCH
FORUM



ABSTRACT SUBMISSIONS

Abstracts due
April 24, 2015

This year, the ACEP Research Committee will also present awards for best medical student paper and best resident paper.

The Best Medical Student Paper Award will be given to a medical student who is the primary investigator of an outstanding abstract presentation.

The Best Resident Paper Award will be given to a resident who is the primary investigator of an outstanding abstract presentation.

Awards will be presented
at the
2015 ACEP Research Forum
October 26-27, 2015
Boston, MA

A group of seven EMS personnel, including paramedics and firefighters, are standing in front of a red fire truck. The truck has "SAN DIEGO EMS DISTRICT" and "PARAMEDIC" written on it. The scene is lit with red emergency lights.

EMS STRONG

**EMS Week 2015
May 17-23**

To order your
EMS Week Planning Guide
go to www.emsweek.org

CALLING ALL EM RESIDENTS

Submit an abstract to *Annals of Emergency Medicine*

The *Residents' Perspective* section in *Annals of Emergency Medicine* is made up entirely of articles written by Emergency Medicine (EM) residents.

The Residents' Perspective section is now in its 17th year. The purpose of the column is to create a forum for the discussion and analysis of topics affecting trainees in EM. They are written as informative instructional pieces, educational research, referenced position papers, or uniquely resident perspectives on current EM topics.

Examples of previous articles

- Meguerdichian DA, Heiner JD, Younggren BN. Emergency medicine simulation: a resident's perspective. *Ann Emerg Med.* 2012 Jul;60(1):121-6.
- Morton MJ, Korley FK. Head computed tomography use in the emergency department for mild traumatic brain injury: integrating evidence into practice for the resident physician. *Ann Emerg Med.* 2012 Sep;60(3):361-7.
- Jones CW, Platts-Mills TF. Understanding commonly encountered limitations in clinical research: an emergency medicine resident's perspective. *Ann Emerg Med.* 2012 May;59(5):425-431.e11.

- Reiter DA, Lakoff DJ, Trueger NS, Shah KH. Individual interactive instruction: an innovative enhancement to resident education. *Ann Emerg Med.* 2013 Jan;61(1):110-3.
- Taira BR. Public health interventions in the emergency department: one resident's perspective. *Ann Emerg Med.* 2013 Mar;61(3):326-9

Invitation. If you are a current resident in EM and have an idea that you would like to discuss in the Residents' Perspective section, I would like to invite you to submit an abstract outlining the background and significance of the topic to EM residents. Authors of promising abstracts will be invited to submit a full manuscript for peer review.

Topic Areas. Abstracts on any topic are welcome. Below is a list of themes that we are particularly interested in for this year:

- Resident perspective on our future in EM in the context of health care reform and the Affordable Care Act
- How the new generation of emergency physicians will approach risk, error-tolerance, medical decision-making, and acceptable miss rates

- Resident perspective on the emerging field of social EM and the role of the emergency department on the front lines of the interface between society and health
- Coming of age as an emergency physician in the era of both customer service medicine and resource utilization review
- Resident perspective on medico-legal fixes: special courts, safe harbors, requirements for expert witness testimony, and more
- Resident perspective on the interaction of the ED with the homeless
- An EM residents' response: "Your generation of doctors are losing their physical exam skills and relying on the CT scanner as a crutch"

Submission Instructions. Abstracts are limited to 300 words and should be double-spaced. Submit your abstract to sara.crager@gmail.com as a Microsoft Word document email attachment. Email subject should read "Resident Perspective Submission – author's last name." The deadline for abstract submission is rolling. Invited manuscripts will undergo the same peer review process as all other submissions to *Annals*. ★

www.annemergmed.com/content/categories/residentsperspective



Questions should be directed to
Larene Schiltz
Editorial Assistant
Annals of Emergency Medicine
at 800-803-1403 x3223
or by email at lschiltz@acep.org

Annals of Emergency Medicine

Resident Editorial Board Fellowship Appointment

The Resident Fellow appointment to the Editorial Board of *Annals of Emergency Medicine* is designed to introduce the Fellow to the peer review, editing, and publishing of medical research manuscripts. Its purpose is not only to give the Fellow an experience that will enhance his/her career in academic emergency medicine and scientific publication, but also to develop skills that could lead to later participation as a peer reviewer or editor at a scientific journal. It also provides a strong resident voice at *Annals* to reflect the concerns of the next generation of emergency physicians.

Please visit *Annals'* Web site at www.annemergmed.com for a copy of the complete application.

Due date is July 13, 2015



American College of
Emergency Physicians®
ADVANCING EMERGENCY CARE

Legislative Advocacy Conference and Leadership Summit

Grand Hyatt | Washington, DC
May 3-6, 2015

**REVAMPED
FOR 2015**

- **Advocate for your specialty**
Policy and advocacy training Monday, followed by an entire day on Capitol Hill visiting with Members of Congress on Tuesday
- **Don't book an early flight home!**
ALL-NEW Leadership Summit on Wednesday for CME and the leadership training you need
- **Meet your EM heroes**
Small-group networking at Dine Arounds with EM leaders

REGISTER TODAY!
WWW.ACEP.ORG/LAC



First Timers Leadership and Advocacy Essentials

**Legislative Advocacy Conference
and Leadership Summit**
Sunday, May 3, 2015

SIX INCREDIBLE SESSIONS

- Health Policy Basics
- Treating Patients with Mental Illness
- Healthcare Spending in "Senior Years"
- Journal Club
- Reforming Delivery Systems
- Roadmap to Getting Involved

ONE FANTASTIC RECEPTION

Hobnob, network, meet your colleagues!
See full agenda at emra.org/events

ADVOCACY ESSENTIALS SPONSORED BY



UPCOMING EVENTS

- May 3-6** Legislative Advocacy Conference and Leadership Summit
Washington DC
- May 12-15** SAEM Annual Conference
San Diego, CA
- May 17-23** National EMS Week
- June 6-10** AMA Annual Meeting of House of Delegates
Chicago, Ill
- June 13** EMRA Mid-West Medical Student Symposium
Columbus, OH
- July 1** EMRA 20 in 6
Applications Due

Anisocoria

Visual Diagnosis Case 1.

The Patient

A 61-year-old female complains of sudden onset right eye pain, headache, blurred vision, and vomiting 2 hours prior to coming to the ED. Physical examination reveals a patient who is alert and in pain. Vital signs are normal. Visual acuity: Can count fingers at three feet OD, 20/30 OS. Extraocular movements are normal. See **Image 1** for additional eye exam findings.

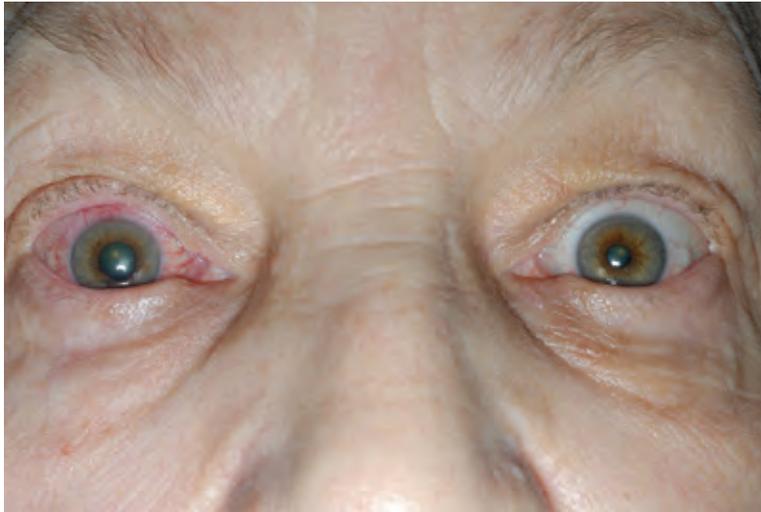


PHOTO COURTESY OF R. JASON THURMAN, MD

What is the diagnosis?

Visual Diagnosis Case 2.

The Patient



A 65-year-old male with sarcoidosis complains of gradual onset left eye pain and photophobia. These symptoms have occurred previously. Consensual and direct photophobia is present. Physical examination reveals a patient who is alert and in pain. Vital signs are normal. Visual acuity: 20/25 OD, 20/200 OS. Intraocular

pressure is 13 mmHg OD, 16 mmHg OS by tonopen. Extraocular movements are normal. White blood cells are seen in the anterior chamber of the left eye on slit lamp examination. See **Image 2** for additional eye exam findings.

What is the diagnosis?

PHOTO COURTESY OF LAWRENCE B. STACK, MD

R. Jason Thurman, MD
Lawrence B. Stack, MD
Vanderbilt University
Nashville, TN

See the
DIAGNOSES
on page 50

The Diagnoses

Case 1. The Diagnosis.

Acute angle-closure glaucoma.

The patient's nonreactive midrange dilated right pupil, irregular cornea, conjunctival injection, and elevated IOP with eye pain, headache, blurred vision and vomiting strongly suggests acute angle-closure glaucoma (ACG). Intraocular pressures (IOP) were measured at 52 mmHg OD and 19 mmHg OS. ED treatment of ACG includes immediate ophthalmology consultation and administering medications to decrease aqueous humor production and increase aqueous outflow, and administering osmotic agents to decrease intraocular pressure.

Case 2. The Diagnosis.

Acute iritis or uveitis.

Inflammation of the anterior uvea (iris and ciliary body) is synonymous with acute iritis. Iritis is manifest by eye redness and pain, photophobia, miosis, limbic injection, and inflammatory cells and/or protein accumulation ("flare") in the anterior chamber. Treatment depends on the cause. Common causes include traumatic iritis and infectious causes such as bacterial keratitis, CMV, tuberculosis, toxoplasmosis, syphilis, and cat-scratch disease. Inflammatory diseases with associated iritis include the spondyloarthritides, sarcoidosis, Behçet's disease, SLE, Crohn's disease, and ulcerative colitis. Ophthalmology consultation is needed to manage the ocular complications of iritis while the etiology is determined. Iritis in this patient was secondary to his sarcoidosis. ★

EMF Resident VIP Club

**A \$100 tax-deductible
gift will place you
in the prestigious
Resident VIP Club.**

emfoundation.org
469-499-0296

Thank you
for supporting the
Emergency Medicine
Foundation.

Join TODAY!

to receive

- ✓ One invitation to EMF VIP Reception at ACEP15
- ✓ Special EMF Resident VIP Club Donor ribbon distributed at ACEP15
- ✓ One All-Access Pass to the EMF Major Donor Lounge during ACEP15
- ✓ Listing in the year-end EMF *SCOPE* Newsletter

EMF Emergency
Medicine
Foundation
research • education • patient care



Like EMF
on Facebook

Board Review

QUESTIONS

Provided by *PEER VIII*. *PEER (Physician's Evaluation and Educational Review in Emergency Medicine)* is ACEP's gold standard in self-assessment and educational review. These questions are from the latest edition of *PEER VIII*. For a complete reference and answer explanations for the questions below, visit emra.org under the *Resources* tab. To learn more about *PEER VIII*, or to order it, go to www.acep.org/bookstore.

1. Which of the following clinical features is more likely to be seen in an elderly patient with dehydration than in a pediatric patient?
 - A. Dry mucous membranes
 - B. Postural hypotension
 - C. Reduced skin turgor
 - D. Sunken eyes
2. A 60-year-old man with a history of cirrhosis presents with abdominal pain and tense ascites. Paracentesis is performed, and the ascitic fluid granulocyte count is 275 cells/mm³. What is the appropriate next step?
 - A. Discharge with a prescription for pain medications
 - B. Obtain surgery consultation
 - C. Start ceftriaxone
 - D. Wait for culture results
3. A 21-year-old man presents with lacerations over the second and third metacarpophalangeal joints of his right hand after being involved in a fistfight the previous evening. Which of the following statements regarding his treatment is correct?
 - A. Absorbable sutures should be used because he might not get follow up care
 - B. Antibiotics are not indicated because the likelihood of infection is low
 - C. Delayed primary closure or healing by secondary intention is appropriate
 - D. First-generation cephalosporins should be used as first-line treatment
4. Which of the following dysrhythmias is associated with commotio cordis?
 - A. Asystole
 - B. Atrial fibrillation
 - C. Pulseless electrical activity
 - D. Ventricular fibrillation
5. A 50-year-old woman presents complaining of a funny feeling in the back of her throat when she swallows; she thinks she has fish bone stuck in her throat. She has no respiratory distress or stridor, and her voice is normal. What is the next step in management?
 - A. Barium swallow
 - B. Bronchoscopy
 - C. Discharge home
 - D. Plain radiographs

RISK MANAGEMENT PITFALLS

ED Management of Calcium-Channel Blocker, Beta Blocker, and Digoxin Toxicity



From the February 2014 issue of *Emergency Medicine Practice*, “EMP – Emergency Department Management of Calcium-Channel Blocker, Beta Blocker, and Digoxin Toxicity.” Reprinted with permission. To access your EMRA member benefit of free online access to all *EM Practice*, *Pediatric EM Practice*, and *EM Practice Guidelines Update* issues, go to www.ebmedicine.net/emra, call 1-800-249-5770, or send e-mail to ebm@ebmedicine.net.

- 1 “I’ll just wait on the digoxin level to guide my treatment.”**
Patients with acute digoxin overdose may be asymptomatic despite an elevated digoxin level if the blood is drawn before it has equilibrated in the tissues. They may manifest toxicity despite a drop in the level when the drug has entered the cell. Clinical evaluation is the most important parameter.
- 2 “The bradycardia and hypotension did not resolve after administering digoxin immune Fab. I’ll just give more.”**
Do not forget to rule out other cardiotoxic medications as potential causes for the clinical scenario you are encountering. Particularly in patients with suicidal ingestion, multiple agents may be contributing to the clinical scenario.
- 3 “I thought for sure this was a poisoning!”**
Do not forget to rule out other etiologies of the patient’s clinical picture.
- 4 “Is there really any harm in administering calcium to the patient with digoxin toxicity?”**
Despite new evidence showing (potentially) no harm, treat these patients with digoxin-specific antibodies, and avoid the risk of calcium.
- 5 “I treated my patient with digoxin immune Fab, and now the serum level is higher than before! Now what do I do?”**
After administration of digoxin immune Fab, serum concentration measurements of digoxin are no longer useful. Use the patient’s clinical picture to guide whether the patient requires further digoxin immune Fab treatment.
- 6 “I was worried about giving so much insulin.”**
Patients with either calcium-channel blocker or beta blocker toxicity may require very high doses of insulin (up to 1 U/kg/h, which is 70 U/h in a 70-kg patient).
- 7 “The patient was acting bizarre and having vision changes, but he had a normal ECG. It couldn’t have been digoxin toxicity.”**
Do not forget the extracardiac manifestations with chronic digoxin toxicity, which may be the actual presenting complaint of the patient.
- 8 “Shouldn’t we have lipid emulsion as a rescue drug?”**
Be sure your ED has lipid emulsion in stock. If it is needed, it is needed quickly.
- 9 “The patient’s magnesium was low, but that shouldn’t have mattered, should it?”**
Remember the potential role of hypomagnesemia in chronic digoxin toxicity. Hypomagnesemia and hypokalemia can sensitize the myocardium, even at therapeutic levels of digoxin. Hypomagnesemia can also increase myocardial digoxin uptake, so it is critical to ensure normal serum magnesium levels. Magnesium should also be administered in patients presenting with sotalol toxicity and prolonged QTc before they go into torsades de pointes.
- 10 “I wasn’t sure who to call for help.”**
Cardiovascular medication poisonings are complicated to manage, and some treatment options are unfamiliar to the treating staff and physician. Call your local poison center or toxicologist for guidance. ★

RISK MANAGEMENT PITFALLS

Acute Hematogenous Osteomyelitis



From the February 2014 issue of *Pediatric Emergency Medicine Practice*, “PEMP – Emergency Department Management of Acute Hematogenous Osteomyelitis in Children.” Reprinted with permission. To access your EMRA member benefit of free online access to all *EM Practice*, *Pediatric EM Practice*, and *EM Practice Guidelines Update issues*, go to www.ebmedicine.net/emra, call 1-800-249-5770, or send e-mail to ebm@ebmedicine.net.

- 1** “The X-ray was normal, so I did not pursue a diagnosis of osteomyelitis.” X-rays are often normal in AHO, and non-specific changes are seen in only 15% to 58% of patients with AHO. X-rays have even less sensitivity in pelvic osteomyelitis. It typically takes ≥ 7 days for changes associated with osteomyelitis to be seen on X-ray.
- 2** “The WBC count and differential were unremarkable, so it couldn’t have been osteomyelitis.” WBC count is the least helpful of the inflammatory markers, with a sensitivity of 34% to 43% in AHO. ESR and CRP are most useful and are elevated in 73% to 100% and 70% to 100% of patients, respectively.
- 3** “I treated a six-month-old who had no MRSA risk factors with nafcillin and heard that his condition worsened the next day.” Although *S. aureus* is the most common cause of AHO, there are certain populations where gram-negative bacilli coverage is also indicated or should be considered. This includes children aged < 5 years, children who have not completed the Hib vaccine series, and children with sickle-cell disease.
- 4** “A young boy with abdominal pain, who had a negative CT scan three days ago, was discharged and then returned to the ED and was diagnosed with pelvic osteomyelitis.” Pelvic osteomyelitis may present as hip, thigh, or abdominal pain, which frequently leads to delayed diagnosis and misdiagnosis. Keep pelvic osteomyelitis on your differential for any patient presenting with abdominal pain, as a misdiagnosis of pelvic osteomyelitis has been shown to cause significant permanent disability.
- 5** “An adolescent patient who had a renal transplant one year ago presented with pain over her femur. Her blood work was completely normal, so I discharged her. When she came back to the ED, I found I had missed osteomyelitis.” Immunosuppressed patients are at risk for less common etiologies of osteomyelitis, such as fungal osteomyelitis. It is important to remember that markers of systemic inflammation are often normal in fungal osteomyelitis.
- 6** “I suspected osteomyelitis, but the CRP was normal, so I decided AHO was ruled out.” No marker of inflammation, including CRP, is 100% sensitive for AHO. Clinical suspicion should prompt further testing even if all blood work is normal.
- 7** “A patient presented with findings of cellulitis. I did not do any blood work and treated with cephalexin. The symptoms returned after the antibiotic course was finished and an MRI showed osteomyelitis.” Osteomyelitis can present with an overlying cellulitis with or without an abscess. These conditions can often be difficult to differentiate from one another. If there is any suspicion for deeper infection of the muscle or bone, emergency clinicians should get an initial plain radiograph and send a blood sample for measurement of CRP, ESR, and a WBC count with differential. Also consider obtaining CPK levels to rule out muscle involvement.
- 8** “A pediatric patient had a history of trauma at the site of leg pain, but the X-ray was negative. I sent him home with recommendations for ice, rest, and anti-inflammatory medicines. He returned later with worsening symptoms and was diagnosed with osteomyelitis.” A significant proportion of children with AHO have a history of trauma at the site of infection. Trauma to bone tissue may predispose it to hematogenous infection. A history of trauma should not deter emergency clinicians from further workup for osteomyelitis.
- 9** “My facility does not have MRI capability, so I referred a child with suspected osteomyelitis to a larger academic center.” Bone scan, ultrasound, or CT can aid in workup for osteomyelitis when MRI is not available. In most cases, clinical suspicion and a positive bone scan is sufficient evidence to support obtaining a bone sample for culture and to effectively treat AHO.
- 10** “I diagnosed osteomyelitis, recovered a microbe in blood and bone culture, and treated it with an effective antibiotic for six weeks. The patient returned several weeks after completion with recurrence at the same site.” Treatment failure is common in osteomyelitis, occurring in 4.7% of children in one study. Even in the absence of sequestra or abscess, appropriate treatment can fail for reasons that are poorly understood. ★

REFERENCES/RESOURCES

ULTRASOUND (P. 11)

Discovering the Artifact

1. Dawson, Mallin. Introduction to Bedside *Ultrasound*. 8.6;163-166.

PEDIATRICS (P. 25)

Pediatric Burn Patient

1. American Burn Association National Burn Repository 2014 Version 10.0
2. Cowan D, Ho B, Sykes KJ, et al: Pediatric oral burns: A ten-year review of patient characteristics, etiologies and treatment outcomes. *International Journal of Pediatric Otorhinolaryngology* 77:1325-28, 2013.
3. Sen S, Heather J, Palmieri T, et al: Tracheostomy in pediatric burn patients. *Burns* 41:248-251, 2015.
4. Goodwin SA, Burton JH, Gerardo CJ, et al: Clinical Policy: Procedural Sedation and Analgesia in the Emergency Department. *Annals of Emergency Medicine* 63(2): 247-258, 2014.
5. Pacheco GS, Ferayorni A: Pediatric Procedural Sedation and Analgesia. *Emergency Medicine Clinics of North America* 31:831-852, 2013.
6. Cowan D, Ho B, Sykes KJ, et al: Pediatric oral burns: A ten-year review of patient characteristics, etiologies and treatment outcomes. *International Journal of Pediatric Otorhinolaryngology* 77:1325-28, 2013.
7. Goutos I, Tyler M: Early management of paediatric burn injuries. *Paediatrics and Child Health* 23(9): 391-39,2013.
8. Swords DS, Hadley ED, Swett KR, et al: Total body surface area overestimation at referring institutions in children transferred to a burn center. *The American Surgeon* 81(1):56-63, 2015.
9. Jeschke MG, Herndon DN. Burns in children: standard and new treatments. *Lancet* 383: 1168-78, 2014.
10. Gonzalez R, Shanti CM: Overview of current pediatric burn care. *Seminars in Pediatric Surgery* 24(1):47-49,2015
11. Kraft R, Herndon DN, Branski LK, et al: Optimized fluid management improves outcomes of pediatric burn patients. *Journal of Surgical Research* 181:121-128, 2013.
12. Khorasani EN, Mansouri F: Effect of early enteral nutrition on morbidity and mortality in children with burns. *Burns* 36(7): 1067-71, 2010.
13. Mosier MJ, Pham TN, Klein MB, et al: Early enteral nutrition in burns: compliance with guidelines and associated outcomes in a multicenter study. *Journal of Burn Care Resuscitation* 32(1): 104-9, 2011.

LEGISLATIVE REPORT (P. 7)

On the Health Policy Horizon

1. Kaiser Family Foundation. The Rising Cost of Living Longer: Analysis of Medicare Spending by Age for Beneficiaries in Traditional Medicare. January 2015. Available at <http://kff.org/medicare/report/the-rising-cost-of-living-longer-analysis-of-medicare-spending-by-age-for-beneficiaries-in-traditional-medicare>.
2. Centers for Medicare and Medicaid Services. National Health Expenditure Data Fact Sheet. Available at <http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NHE-Fact-Sheet.html>.
3. HHS Press Office. Better, Smarter, Healthier: In historic announcement, HHS sets clear goals and timeline for shifting Medicare reimbursements from volume to value. January 26, 2015. Available at <http://www.hhs.gov/news/press/2015pres/01/20150126a.html>.

PROCEDURAL GUIDANCE (P. 27)

Holding Tight

1. Lakstein, D., et al., Tourniquets for hemorrhage control on the battlefield: a 4-year accumulated experience. *J Trauma*, 2003. 54(5 Suppl): p. S221-5.
2. Passos E, et al. Tourniquet use for peripheral vascular injuries in the civilian setting. *Injury*. 2014 Mar;45(3):573-7.
3. Doyle, G.S. and P.P. Taillac, Tourniquets: a review of current use with proposals for expanded prehospital use. *Prehosp Emerg Care*, 2008. 12(2): p. 241-56.
4. Kragh, J.F., Jr., et al., Battle casualty survival with emergency tourniquet use to stop limb bleeding. *J Emerg Med*, 2011. 41(6): p. 590-7.
5. Bulger, E.M., et al., An Evidence-based Prehospital Guideline for External Hemorrhage Control: American College of Surgeons Committee on Trauma. *Prehosp Emerg Care*, 2014. 18(2): p. 163-73.

LANDMARK ARTICLE SERIES (P. 29)

GI Edition

1. Daneshmend et al. Omeprazole versus placebo for acute upper gastrointestinal bleeding: A randomized double blind controlled trial. 1992 Jan 18;304(6820):143-7.
2. Sreedhaan et al. Proton Pump Inhibitor treatment initiated prior to endoscopic diagnosis in upper gastrointestinal bleeding. *Cochrane Database Syst Rev*. 2010 Jul 7;(7):CD005415.
3. Cardall T, Glasser J, Guss DA. Clinical value of the total white blood cell count and temperature in the evaluation of patients with suspected appendicitis. *Acad Emerg Med*. 2004. 11;10:1021-7.

CRITICAL CARE (P. 23)

On Track

HELPFUL RESOURCES

- EMRA Critical Care Division: www.emra.org/committees-divisions/critical-care-division
- ACEP Critical Care Section: www.acep.org/criticalcaresession
- EM-CCM Virtual Mentorship: www.emccmfellowship.org/mentorship.php

CARDIAC CARE (P. 34)

Full Arrest to Full Start

1. O'Gara PT, Kushner FG, Ascheim DD, et al. 2013 ACCF/AHA guideline for the management of ST-elevation myocardial infarction: A report of the American college of cardiology Foundation/American heart association task force on practice guidelines. *Circulation*. 2013;127:e362-425.
2. Callaway CW, Schmicker RH, Brown SP, et al. Early coronary angiography and induced hypothermia are associated with survival and functional recovery after out-of-hospital cardiac arrest. *Resuscitation*. 2014;85(5):657-663.
3. Camuglia AC, Randhawa VK, Lavi S, Walters DL. Cardiac Catheterization is associated with superior outcomes for survivors of out of hospital cardiac arrest: a review and meta-analysis. *Resuscitation*. 2014;85(11):1533-1540.
4. Jneid H, Anderson JL, Wright RS, et al. 2012 ACCF/AHA focused update of the guideline for the management of patients with unstable angina/non-ST-elevation myocardial infarction (updating the 2007 guideline and replacing the 2011 focused update): a report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines. *J Am Coll Cardiol* 2012;60:645-81.
5. Khera S, Kolte D, Aronow WS, et al. Non-ST-elevation myocardial infarction in the United States: contemporary trends in incidence, utilization of the early invasive strategy, and in-hospital outcomes. *J Am Heart Assoc*. 2014;3(4).
6. Hollenbeck RD, McPherson JA, Mooney MR, et al. Early cardiac catheterization is associated with improved survival in comatose survivors of cardiac arrest without STEMI. *Resuscitation*. 2014;85(1):88-95.

ADVOCACY (P. 9)**A Call to Advocacy**

1. Zink BJ: *Anyone, Anything, Anytime – A History of Emergency Medicine*, Mosby Elsevier, Philadelphia, 2006.

Resources**EMRA**

Health Policy Committee:

<http://www.emra.org/committees-divisions/Health-Policy-Committee>

EM Advocacy Handbook:

http://www.emra.org/uploadedFiles/EMRA/EMRA_Publications/Books/12013-3rdEd-AdvocacyHandbook-interactive.pdf

ACEP Advocacy Page:

<http://www.acep.org/advocacy>

911 Network: <http://www.acep.org/advocacy/becomeanadvocate>THOMAS: <http://thomas.loc.gov/home/thomas.php>Govtrack: <https://www.govtrack.us>Congress app: <http://congress.sunlightfoundation.com>NEMPAC: <http://www.acep.org/nempac> (requires login)EMAF: <http://www.acep.org>**EMActionFund**LAC: <http://www.acep.org/lac>**MEDICAL STUDENT LIFE (P. 13)****Reflections on Matching EM**

1. Love JN, Smith J, Weizberg M, Doty C, Garra G, Avegno J, Howell JM. The Council of Emergency Medicine Residency Directors Standardized Letter of Recommendation: Program Directors Perspective. *Academic Emergency Medicine*. 2014;21(6):680-687. <http://www.ncbi.nlm.nih.gov/pubmed/25039553>.

ADVISING RESOURCES**SLOEs**

<http://www.cordem.org/i4a/pages/index.cfm?pageid=3743>

Away Rotations

http://www.cdemcurriculum.org/assets/other/ms_primer.pdf

Advice from a Former Program Director

<http://med.wmich.edu/education/internshipresidency/emergency-medicine/advice-emergency-medicine-applicants>

Finding the Right Program

http://denverrem.org/index.php?option=com_content&view=article&id=14&Itemid=36

Making a Great CV

<http://www.emra.org/Content.aspx?id=774>

EM Match Advice from ALiEM

<http://www.aliem.com/category/non-clinical/em-match-advice>

EDUCATION (P. 31)**Handling the Hand-Off**

1. Gibson, Scott C., Jason J. Ham, Julie Apker, Larry A. Mallak, and Neil A. Johnson. "Communication, Communication, Communication: The Art of the Handoff." *Annals of Emergency Medicine* 55, no. 2 (February 2010): 181–83. doi:10.1016/j.annemergmed.2009.10.009.
2. Cheung, Dickson S., John J. Kelly, Christopher Beach, Ross P. Berkeley, Robert A. Bitterman, Robert I. Broida, William C. Dalsey, et al. "Improving Handoffs in the Emergency Department." *Annals of Emergency Medicine* 55, no. 2 (February 2010): 171–80. doi:10.1016/j.annemergmed.2009.07.016.
3. Joint Commission Resources. Hand-off Communication. National Patient Safety Goal. http://www.jointcommission.org/AccreditationPrograms/HomeCare/Standards/09_FAQs/NPSG/Communication/NPSG.02.05.01/hand_off_communications.htm. Accessed February 1, 2015.
4. Sinha, Madhumita, Jesse Shriki, Rebecca Salness, and Paul A. Blackburn. "Need for Standardized Sign-out in the Emergency Department: a Survey of Emergency Medicine Residency and Pediatric Emergency Medicine Fellowship Program Directors." *Academic Emergency Medicine: Official Journal of the Society for Academic Emergency Medicine* 14, no. 2 (February 2007): 192–96. doi:10.1197/j.aem.2006.09.048.
5. Kessler, Chad, Faizan Shakeel, H. Gene Hern, Jonathan S. Jones, Jim Comes, Christine Kulstad, Fiona A. Gallahue, et al. "A Survey of Handoff Practices in Emergency Medicine." *American Journal of Medical Quality: The Official Journal of the American College of Medical Quality* 29, no. 5 (October 2014): 408–14. doi:10.1177/1062860613503364.
6. ACGME Common Program Requirements. <http://www.acgme.org/acgmeweb/Portals/0/PFAssets/ProgramRequirements/CPRs2013.pdf>. ACGME approved focused revision: June 9, 2013; effective: July 1, 2013. Accessed Feb 1 2015.
7. New Patient Safety Initiative Stresses Teamwork, Not Blame. *Medscape*. Apr 12, 2011.
8. Dhingra, Kapil R., Andrew Elms, and Cherri Hobgood. "Reducing Error in the Emergency Department: a Call for Standardization of the Sign-out Process." *Annals of Emergency Medicine* 56, no. 6 (December 2010): 637–42. doi:10.1016/j.annemergmed.2010.02.004.

9. Starmer AJ, Spector ND, Srivastava R, et al. Changes in Medical Errors After Implementation of a Handoff Program. *NEJM*. 2014;371(19):1803-1812.
10. Gonzalo, Jed D., Julius J. Yang, Heather L. Stuckey, Christopher M. Fischer, Leon D. Sanchez, and Shoshana J. Herzig. "Patient Care Transitions from the Emergency Department to the Medicine Ward: Evaluation of a Standardized Electronic Signout Tool." *International Journal for Quality in Health Care: Journal of the International Society for Quality in Health Care/ISQua* 26, no. 4 (August 2014): 337–47. doi:10.1093/intqhc/mzu040.
11. Kessler, Chad, Faizan Shakeel, H. Gene Hern, Jonathan S. Jones, Jim Comes, Christine Kulstad, Fiona A. Gallahue, et al. "An Algorithm for Transition of Care in the Emergency Department." *Academic Emergency Medicine: Official Journal of the Society for Academic Emergency Medicine* 20, no. 6 (June 2013): 605–10. doi:10.1111/acem.12153.

INFECTIOUS DISEASE (P. 16)**Biased and Infected**

1. Sabah M, Mulcahy J, Zeman A. Herpes simplex encephalitis. *BMJ*; 344(2012):e3166.
2. Levitz R. Herpes simplex encephalitis: a review. *Heart Lung*; 27(1998):209–212.
3. Eli I. Clinical decision making – the danger of confirmation bias. *J Orofac Pain*; 26(4):265-6.
4. Centers for Disease Control and Prevention. (January 2015). What you should know for the 2014-2015 influenza season. Retrieved from www.cdc.gov/flu/about/season/flu-season-2014-2015.html
5. Lammers R, Temple K, Wagner M, et al. Competence of new emergency medicine residents in the performance of lumbar punctures. *Acad Emerg Med*; 12(7):622-8.
6. Augustine E, Kahana M. Effect of procedure simulation workshops on resident procedural confidence and competence. *J Grad Med Educ*; 4(4):479–485.
7. Kefe C, Weissman N, Allison J, et al. Identifying achievable benchmarks of care: concepts and methodology. *Int J Qual Health Care*; 1998(10):443-447.
8. Moorthy K, Jiwanji M, Shah J, et al. Validation of a web-based training tool for lumbar puncture. *Stud Health Technol Inform*; 94:219-225.
9. Adler A, Kadimi S, Apalco C, et al. Herpes simplex encephalitis with two false-negative cerebrospinal fluid PCR tests and review of negative PCR results in the clinical setting. *Case Rep Neurol*; 3(2):172–178.
10. Whitley RJ. Herpes simplex encephalitis: adolescents and adults. *Antiviral Res*; 71(2–3):141.
11. Whitley RJ, Gnann JW. Viral encephalitis: familiar infections and emerging pathogens. *Lancet*; 359(9305):507–13.

Advertise in **EM** Resident

Official Publication of the Emergency Medicine Residents' Association

GUIDELINES

The Emergency Medicine Residents' Association (EMRA) is the largest EM independent resident organization in the world. Founded in 1974, the association today boasts a membership of more than 12,000 residents, medical students, fellowship, and alumni – making it the second-largest organization in the house of emergency medicine. EMRA, which has championed member interests since its inception, strives to promote excellence in patient care through the education and development of emergency medicine residency-trained physicians.

All positions advertised in **EM Resident** must be limited to board-certified/board-prepared (BC/BP), residency-trained emergency physicians. For the sake of terminology consistency, the terms, "ED," "Emergency Department," and "Emergency Physicians" are preferable over the use of "ER" or any derivation. In addition, board-certified/board-prepared (BC/BP) is required over board certified/board eligible (BC/BE). **EM Resident** has the right to refuse an advertisement if such guidelines are not met.

DISPLAY ADS

Placement of all ads other than premium ads, is at the discretion of the publisher. All efforts are made to preserve advertising materials in their original condition; however, the publisher is not responsible for lost or damaged advertising materials after publication. All advertising is subject to the approval of EMRA. Payment must accompany order. All rates are non-commissionable. All cancellations must be in writing. Any cancellations received after space deadline will not be refunded.

CLASSIFIED ADS

Copy for classified ads must be submitted via email; space will not be reserved until payment is received. Classified ads are placed in alphabetical order by state, then city, or under a "Multi-State" heading.

Classified Ad Rates		Color Block Background	
1x		1x	
Up to 150 words	\$311	Up to 150 words	\$402
Up to 300 words	\$554	Up to 300 words	\$624
3x		3x	
Up to 150 words	\$260	Up to 150 words	\$347
Up to 300 words	\$485	Up to 300 words	\$589
6x		6x	
Up to 150 words	\$221	Up to 150 words	\$277
Up to 300 words	\$416	Up to 300 words	\$485

ADD LOGO ARTWORK TO CLASSIFIED

Black & White: \$75 or
Color: \$100 per listing/per issue

Placement/Size/Color	# of Runs		
	1x	3x	6x
Covers (4 color only)			
Inside front (IFC) 7.5" x 10"	\$3861	\$3162	\$2359
Inside back (IBC) 7.5" x 10"	3861	3162	2359
Outside back (OBC) 7.5" x 7.5"	4950	3795	2722
Four Color			
2-page spread	\$4455	\$3795	\$3358
Full page 7.5" x 10"	2598	1992	1620
1/2 page vertical 3.5" x 10"	1351	1195	1048
1/2 page horizontal 7.5" x 4.75"	1351	1195	1048
1/3 vertical 2.25" x 10"	1074	895	762
1/4 page 3.5" x 4.75"	796	597	476
Spot Color			
Add 25% to the black-and-white rates for each additional color.			
Black and White			
2-page spread	\$2970	\$2530	\$2238
Full page 7.5" x 10"	1733	1328	1079
1/2 page vertical 3.5" x 10"	901	796	699
1/2 page horizontal 7.5" x 4.75"	901	796	699
1/3 page vertical 2.25" x 10"	693	597	508
1/4 page 3.5" x 4.75"	485	398	317

Notes: Bleeds must be at least 9 points on each bleed side; all sizes are expressed width x length.

PRODUCTION MATERIALS

DIGITAL AD SPECIFICATIONS

High-resolution PDF formatted ads are preferred and may be emailed. If ads were designed in a page layout program, please send an EPS version (FTP available).

Other acceptable formats:

TIF (300 DPI; CMYK) JPG (300 DPI at 100% or larger print size)
EPS (300 DPI; CMYK) AI (embed images; text; CMYK)

- * If an ad is submitted in its native application program, all images and fonts will also need to be submitted **OR** all text converted to outlines and all images 'embedded'.
- * PDF files with embedded fonts and graphics at 300 DPI (resolution) will be accepted.
- * All images must be 300 DPI (resolution).
- * MS Word files are **not** acceptable as final display ads, however typesetting services are available at an additional charge of \$100.
- * **Web graphics are unacceptable** (resolution is too low) and will be discarded.
- * EMRA is available to assist in the production of your advertisement.

ADVERTISING DEADLINES

Issue	Space	Art
Dec/Jan	11-1	11-10
Feb/Mar	1-1	1-10
Apr/May	3-1	3-10
Jun/Jul	5-1	5-10
Aug/Sept	7-1	7-10
Oct/Nov*	9-1	9-10

ACEP Scientific Assembly issue: deadline subject to change based on meeting schedule.

 **Questions?** Contact Leah Stefanini at 866-566-2492 x3298 | or email lstefanini@emra.org



Get a career consult... Faster than you can get an on-call specialist!



It's your emergency medicine career and you need answers STAT! *EM Career Central* has been redesigned to connect you with more jobs in less time.

Visit **EMCareerCentral.org** now to:

- **Find The Right Jobs:** Look for hundreds of emergency medicine positions by location, keyword and company name.
- **Get Job Alerts:** Register for e-mail about jobs that match your skills and interests.
- **Connect At Events:** Use our improved Event Connection™ feature to see who's attending ACEP's *Scientific Assembly* and EMRA's Job Fair.
- **Sign Up For eNewsletters:** Employment best practices and job tips are as close as your inbox.
- **Find Career Advice:** Access the latest tips to help you land the right position.
- **Tie It All Together:** Upload your existing CV or build a new one, and easily keep track of job applications.

And *if you're hiring*, there's something for you too. The newly redesigned **EM Career Central** is attracting lots of attention from qualified applicants. Take advantage of the additional traffic and put more jobs in front of the right candidates.

**Are you ready for a career consult?
See what's new –
at EMCareerCentral.org today!**



ADVANCING EMERGENCY CARE 



CLASSIFIED ADVERTISING

ARIZONA

Casa Grande: Banner Casa Grande Medical Center is a full-service community hospital with an annual volume of 39,000 emergency patients. Excellent back up includes 24-hour hospitalists. Casa Grande is located just south of Phoenix and north of Tucson. Beautiful weather year round, unlimited outdoor activities and major metro areas are a short distance away, making this an ideal setting. EMP offers democratic governance, open books and equal equity ownership. Compensation package includes performance bonuses and comprehensive benefits with funded pension (additional 13.27%), CME account (\$8,000/yr.), and more. Contact Bernhard Beltran directly at 800-359-9117 or email bbeltran@emp.com.

Cottonwood and Sedona: Verde Valley Medical Center in Cottonwood and Sedona are state-of-the-art facilities seeing approximately 24,000 and 7,000 emergency patients respectively per year. Situated in a beautiful, scenic area in North Central Arizona, Cottonwood combines the charm and friendliness of a small community with easy access to the metropolitan

areas of Phoenix and Las Vegas and the charming college town of Flagstaff. Sedona is a beautiful tourist community located in Arizona's "Red Rock Country;" this outdoor paradise is surrounded by mountains, forests, creeks and rivers. Partnership opportunities are available for emergency medicine residency-trained and board-certified physicians. EMP offers democratic governance, open books and equal equity ownership. Compensation package includes performance bonuses and comprehensive benefits with funded pension (additional 13.27%), CME account (\$8,000/yr.), and more. Contact Bernhard Beltran directly at 800-359-9117 or email bbeltran@emp.com.

CALIFORNIA

Rancho Mirage: Partnership opportunity at Eisenhower Medical Center. Modern hospital has state-of-the-art 42-bed Emergency Department and an annual volume of 71,000 patients. The community is nestled at the base of the San Jacinto Mountains in the Palm Springs area and is truly an outdoor paradise with gorgeous weather year-round. Candidates must be



Medical Education Research Fellowship

The Brown Medical Education Research Fellowship is a two year mentored program sponsored by the Department of Emergency Medicine offering advanced training in medical education. Fellows complete a master's degree and develop the competencies to become an independent researcher and academic leader. The program includes the following experiences:

Professional Development. Fellows complete a master's degree in Medical Education, as well as other advanced training programs. Fellows receive support to participate in numerous national conferences. They gain experience with curriculum design, instructional techniques, and assessment.

Research. Fellows complete a mentored education project with generous research support.

Teaching. Fellows engage the full spectrum of medical learners and gain expertise in: small group facilitation, large group presentation, simulation debriefing, bedside teaching and procedural training. Opportunities exist with learners at all levels. Fellows are directly observed and receive feedback and critique on their teaching abilities.

Educational Project. Fellows complete a "change" project drawing on skills acquired through their master's coursework.

Clinical. Fellows are Clinical Instructors and gain practical experience teaching in a busy academic setting.

Administrative. Fellows serve on the residency program's curriculum committee and assist with the medical student elective. Opportunities also exist to participate on the medical school curriculum and faculty development committees.

How to apply. Graduates of accredited Emergency Medicine residency programs with demonstrated commitment to medical education will be considered. Applicants should submit a cover letter, curriculum vitae, and three letters of support to:

Brian Clyne, MD

*Vice Chair for Education, Associate Professor of Emergency Medicine
Alpert Medical School*

bclyne@lifespan.org

CLASSIFIED ADVERTISING

emergency medicine residency trained. EMP offers equal voting, partnership and profit sharing, plus democratic governance and open books. Outstanding compensation package includes comprehensive benefits with funded pension (additional 13.27%), CME account (\$8,000/yr.) and more. Contact Bernhard Beltran directly at 800-359-9117 or email bbeltran@emp.com.

Southern California, Moreno Valley: Excellent Compensation with full-time/partnership opportunities in a growing area and dynamic medical community. Moreno Valley Community Hospital is a modern, 101-bed hospital situated in the developing "Inland Empire" near Riverside. The ED sees 34,000 pts./yr. EMP offers a competitive hourly rate plus, democratic governance, open books, and excellent compensation/bonus plus shareholder status. Compensation package includes comprehensive benefits with funded pension, CME account (\$8,000/yr.) and more. Contact Bernhard Beltran directly at 800-359-9117 or email bbeltran@emp.com.

EMERGENCY MEDICINE PHYSICIANS

PENN HIGHLANDS HEALTHCARE is seeking **BC/BE Emergency Medicine Physicians** to join our **Penn Highlands DuBois Emergency Department**. We offer excellent salary, benefits and incentives. This position is full time with flexible scheduling.

- Sign on Bonus
- Relocation expenses reimbursed up to \$10,000
- CME reimbursement and time
- Malpractice and tail coverage paid
- Clinical hours required – 1,872/year
- Medical, Vision and Dental Insurance
- 403(b) Retirement Plan
- 25 PTO days/year; 10 Sick days/year
- Broad on-call specialty support including Cardiology, ENT, GI, Gen. Surgery, Hem/Onc, Ortho and Peds represented
- Entirely electronic

Candidates must be highly motivated, customer focused, and seeking to be part of a growing team. Emergency Medicine Residency Program under development. Academic minded and experienced physicians highly desired.

Just a short drive away from State College, Pittsburgh and Philadelphia - whether you enjoy the theatre or the beauty of our four seasons, we offer you a rewarding, challenging career and a well-balanced lifestyle.

Visit our website at www.phhealthcare.org.

Please send CV to
Wayne Saxton,
Physician Recruiter at
dwsaxton@phhealthcare.org
or call at 814-375-3793



CONNECTICUT

Meriden, New London and Stamford: MidState Medical Center is a modern community situated between Hartford and New Haven, seeing 57,000 EM pts./yr. Lawrence & Memorial is a Level II Trauma Center on the coast near Mystic seeing 50,000 pts./yr. The Stamford Hospital is a Level II Trauma Center seeing 49,000 ED pts./yr., located 35 miles from New York City near excellent residential areas. EMP is an exclusively physician owned/managed group with open books, equal voting, equal profit sharing, equity ownership, funded pension, comprehensive benefits and more. Contact Ann Benson (careers@emp.com), Emergency Medicine Physicians, 4535 Dressler Rd. NW, Canton, OH 44718, 800-828-0898 or fax 330-493-8677.

FLORIDA



emergency medicine professionals, p.a.

Atlantic Coast/East Central (Daytona Beach Area): Seeking Residency-Trained EM Physicians for desirable beachside Central Florida coastal area. Join our fully democratic group and become a partner in 18 months! EMPros serves 4 community hospitals with 170k total visits. Health, life, dental, disability and 401(k) provided. Visit www.emprosonline.com to learn more and submit your CV.

GEORGIA

Atlanta: EmergiNet, a progressive, well-established physician owned emergency group has positions available for BC/BP, EM residency trained physicians at multiple facilities in the Atlanta area. We work as a team emphasizing quality emergency care, dedicated customer service, professional and personal growth. Fee-for service based compensation, plus benefits, in the \$350K range. Malpractice and tail coverage are provided. Flexible scheduling, no non-compete, and much more. E-mail CV to Neil Trabel, ntrabel@emerginet.com; fax 770-994-4747; or call 770-994-9326, ext. 319.

CLASSIFIED ADVERTISING

ILLINOIS

Chicago Heights/Olympia Fields: Franciscan St. James Health (2 campuses seeing 34,000 and 40,000 pts./yr) is affiliated with Midwestern University's emergency medicine residency program. Situated just 30 miles south of Chicago, the location makes a variety We are an exclusively physician owned/managed group with open books, equal voting, equal profit sharing, equity ownership, funded pension, full benefits and more. Contact Ann Benson (careers@emp.com), Emergency Medicine Physicians, 4535 Dressler Rd. NW, Canton, OH 44718, 800-828-0898 or fax 330-493-8677.

Chicago-Joliet: INCREASED PAY and LOAN REPAYMENT PROGRAM! Presence Saint Joseph Medical Center (70,000 pts./yr.) is a respected hospital SW of Chicago proximate to the Hinsdale and Naperville suburbs. Join a dynamic new director and supportive staff in our exclusively physician owned/managed group. Enjoy open books, equal voting, equal profit sharing, equity ownership, funded pension (\$34,500/

yr.), CME/expense account (\$8,000/yr.), family health/dental/vision, life and EM disability insurance, and more. Contact Ann Benson (careers@emp.com), Emergency Medicine Physicians, 4535 Dressler Rd. NW, Canton, OH 44718, 800-828-0898 or fax 330-493-8677.

NEVADA

Las Vegas: Full time opportunities for Pediatric Emergency Medicine Physicians. Children's Hospital of Nevada at UMC is the main teaching hospital of the University of Nevada School of Medicine and serves as the region's only Pediatric Trauma Center and Burn Center. Our 20-bed department cares for 30,000 pediatric patients annually. There is excellent subspecialty coverage with 24-hour in-house intensivist coverage and a level 3 NICU. EMP is an exclusively physician owned/managed group with open books, equal voting, equal profit sharing, equity ownership, funded pension, comprehensive benefits and more. Please contact Bernhard Beltran at 800-359-9117 or email bbeltran@emp.com.

VEP
HEALTHCARE



Join our STRIKE TEAM

See the country while earning top dollar...

- > Practice emergency medicine across the country
- > Premium hourly rate, travel & license reimbursement
- > Guaranteed shifts with two weeks off each month



925-225-5837
vpehealthcare.com

VEP Healthcare has provider opportunities in over 30 hospitals throughout the United States. We are a fast growing, provider-owned company looking for dynamic, flexible physicians to join our national strike team. Visit beautiful destinations while earning top dollar and become a part of the VEP family! For more information and to apply, please contact our strike team recruiter Alison Dimmer at alisondimmer@valleyemergency.com.

CLASSIFIED ADVERTISING

NEW YORK

Albany area: Albany Memorial Hospital has a newer ED that sees 44,000 pts/yr. and hosts EM resident rotations. Samaritan Hospital in Troy is a respected community hospital, minutes from Albany, which also treats 45,000 ED pts/yr. Outstanding partnership opportunity includes equal profit sharing, equity ownership, funded pension, open books, full benefits and more. Contact Ann Benson, (careers@emp.com), Emergency Medicine Physicians, 4535 Dressler Rd, NW, Canton, OH 44718, 800-828-0898 or fax 330-493-8677.

Cortland: Cortland Regional Medical Center is a modern, full-service facility situated in the Finger Lakes Region between Syracuse and Ithaca. A broad mix of pathology makes up 33,000 ED pts/yr., and there is strong support from medical staff and administration. Outstanding partnership opportunity includes equal profit sharing, equity ownership, funded pension, open books, full benefits and more. Contact Ann

Benson, (careers@emp.com), Emergency Medicine Physicians, 4535 Dressler Rd, NW, Canton, OH 44718, 800-828-0898 or fax 330-493-8677.

NORTH CAROLINA

Charlotte/Statesville: Iredell Memorial Hospital is a respected community hospital situated north of Charlotte and seeing 41,000 ED pts./yr. Statesville is easily commutable from desirable north-Charlotte suburbs like Mooresville (highly regarded schools), with access to lakeside, small town and rural residential options as well. The dedicated ED physicians are part of EMP which is exclusively physician owned/managed group with open books, equal voting, equal equity ownership, funded pension, comprehensive benefits and more. Contact Ann Benson (careers@emp.com), Emergency Medicine Physicians, 4535 Dressler Rd. NW, Canton, OH 44718, 800-828-0898 or fax 330-493-8677.

Our experience will make yours better.

Hospital Physician Partners' Residency Relations Team understands how important your decision about where to practice will be and how much you have to consider. We've been a trusted resource to physicians during this process and beyond for more than 20 years.

Much of what we have to share with you as you make important decisions are the things that have shaped the course of our physicians' careers and lives, including:

- o Independent contractor vs. employee status
- o Benefits and taxes
- o The business of medicine
- o Contract negotiations
- o Visa program
- o Onboarding process
- o Equitable scheduling
- o ED/Hospital integration
- o Regional cost of living index vs. income potential
- o Ambassador Travel Team
- o Moonlighting opportunities during your residency



Toni Corleto and her team are here to help:
800.815.8377 Ext. 5263
Tcorleto@hppartners.com
www.hppartners.com

HELP CELEBRATE OUR 40TH BIRTHDAY!

Akron General Medical Center is a Level One trauma center, accredited chest pain, stroke center and home to the nation's oldest community-based EM residency. We are expanding our EM clinical teaching faculty to match our newly expanded residency and patient volume.



Join our happy, successful, supportive and long-tenured single hospital system democratic group. We staff four state-of-the-art ED's, allowing you to both teach and practice. We have excellent compensation and benefits, a very supportive administration and wonderful residents. We function as an academic faculty, yet we enjoy private practice benefits.

Interested?

Nicholas Jouriles, MD

Chair, Emergency Medicine, Akron General Medical Center
Professor and Chair, Emergency Medicine, Northeast Ohio Medical University
Past President, American College of Emergency Physicians

Nick.Jouriles@akrongeneral.org

330-344-6326

CLASSIFIED ADVERTISING

Morehead City: Modern community hospital on the Atlantic coast minutes from Atlantic Beach! This 135-bed facility sees 39,000 emergency pts./yr. and is active in EMS. Outstanding partnership opportunity includes equal profit sharing, equity ownership, funded pension, open books, full benefits and more. Contact Ann Benson (careers@emp.com), Emergency Medicine Physicians, 4535 Dressler Rd. NW, Canton, OH 44718, 800-828-0898 or fax 330-493-8677.

New Bern: Respected 313-bed regional medical center located at the intersection of the Trent and Neuse Rivers just off the central coast, 70,000 ED pts./yr. Outstanding partnership opportunity includes equal profit sharing, equity ownership, funded pension, open books, full benefits and more. Contact Ann Benson (careers@emp.com), Emergency Medicine Physicians, 4535 Dressler Rd. NW, Canton, OH 44718, 800-828-0898 or fax 330-493-8677.

NEED A ROAD MAP TO FIND A JOB?

Get ESP's Resident Job Search Toolkit

Everything a graduating emergency medicine resident needs to know:

- Resident Road Map
- Top 10 Mistakes that EM Residents Make
- Interviewing Tips for Medical Residents
- Resident Employment Timeline



Visit us online at
www.eddocs.com/residents
to request your report!



Emergency
Service
Partners, LP

Learn about our opportunities for graduating EM residents at
www.eddocs.com/residents

EMA, an established fourteen-hospital, regional, democratic, physician-managed group seeks full and part-time BC or BP Emergency physicians to practice in Maryland, Northern Virginia, Washington, D.C. and West Virginia. Since 1971, EMA has offered our physicians an unmatched quality-of-life with the security of our 100% contract stability!

- Physician-owned/managed group
- Democratic partnership structure
- Quality-of-life centered practice
- Administrative & clinical opportunities
- Initially five weeks of paid time off per year
- Full benefits package for physicians and family

Send CV: Emergency Medicine Associates, P.A., P.C.
 Phone: 1-800-942-3363
 Fax: 240-686-2334
 Email: Recruitment@EMAonline.com
www.EMAonline.com



LIVE, WORK & PLAY WITH US!



OUTSTANDING EM OPPORTUNITIES

- ⇒ Programs for residents—inquire for details
- ⇒ Career development/advancement opportunities
- ⇒ Sites commutable from New York City
- ⇒ New sites in Westchester County
- ⇒ New rates with RVU incentives at most sites

For additional information please contact Joe Ferdinando

careers@medexcelusa.com

845-787-0962



CLASSIFIED ADVERTISING

OHIO

Springfield: INCREASED PAY and LOAN REPAYMENT PROGRAM! Springfield Regional Medical Center is a brand new, full-service hospital with supportive, new administration committed to emergency medicine, is 45 miles west of Columbus and 25 miles northeast of Dayton. 75,000 emergency patients are treated annually. EMP is an exclusively physician owned/managed group with open books, equal voting, equal equity ownership, funded pension (13.27% in addition to pay), CME/expense account (\$8,000/yr.) plus comprehensive health benefits and more, including \$60,000 loan repayment/bonus. Contact Ann Benson (careers@emp.com), Emergency Medicine Physicians, 4535 Dressler Rd. NW, Canton, OH 44718, 800-828-0898 or fax 330-493-8677.

Urbana: Mercy Memorial Hospital services the SW Ohio region's residents in Champaign County, the facility treats approximately 18,000 emergency pts./yr. EMP is an exclusively physician owned/managed group with open books, equal voting, equal equity ownership, funded pension, comprehensive benefits and more. Contact Ann Benson (careers@emp.com), Emergency Medicine Physicians, 4535 Dressler Rd. NW, Canton, OH 44718, 800-828-0898 or fax 330-493-8677.

Lancaster: INCREASED PAY and LOAN REPAYMENT PROGRAM! Located 30 minutes SE of Columbus, Fairfield Medical Center sees 55,000 emergency patients per year. Modern facility, excellent back up, and dedicated partners make this a great place to live and work. Outstanding partnership opportunity physician owned/managed group with open books, equal voting, equal equity ownership, funded pension (13.27% in addition to pay), CME/expense account (\$8,000/yr.) plus comprehensive health benefits and more, including \$60,000 loan repayment/bonus. Contact Ann Benson (careers@emp.com), Emergency Medicine Physicians, 4535 Dressler Rd. NW, Canton, OH 44718, 800-828-0898 or fax 330-493-8677.

IT'S ABOUT WHAT MOVES YOU.

*As a Questcare Emergency Medicine Physician,
you will reach your peak professionally and have the
time to explore your personal passions.*

**PHYSICIAN-OWNED AND OPERATED
EMERGENCY MEDICINE GROUP**



Michael Carrasco, MD // emergency physician / adventurer

What moves you? Is it the opportunity to grow with a group of medical professionals who are serious about their work AND play? As an integral part of Questcare, you will find a platform and philosophy that are conducive to creating the work/play balance that you have the power to choose.

Let's talk about what moves YOU.
jobs@questcare.com or (972) 763-5293

www.questcarecareers.com



facebook.com/questcare



twitter:@questcare

**JOIN US AS WE
GROW!**

**EXCITING EMERGENCY
MEDICINE OPPORTUNITIES
AVAILABLE IN
TEXAS AND OKLAHOMA**



**AS A QUESTCARE
PARTNER:**

- You become an owner of your EM group
- Group decisions are made by you and doctors like you
- You will have scheduling flexibility to enjoy what moves YOU



questcare
EMERGENCY MEDICINE



After your residency, make balance a priority.

Residents can find a refreshing career opportunity at MedExpress, a national leader in urgent care medicine. As a physician-led organization, we're a great option for residents who are ready for an experience delivering high-touch, personalized patient care. We offer:

- **Regular, flexible schedules** with as few as 14 days per month, providing you with more balance
- The opportunity to **focus on patient care** instead of administrative tasks
- A **varied and challenging case load**, with patients of all ages, in a fully equipped, state-of-the-art center
- More than **135 full-service centers** in Arkansas, Delaware, Florida, Indiana, Maryland, Michigan, New Jersey, Pennsylvania, Tennessee, Virginia and West Virginia

Take the next step. Contact us to learn more about our generous compensation, benefits and relocation package.

- Call 304-225-2500
- Email physicianrecruiting@medexpress.com
- Visit medexpress.com/physicians.aspx



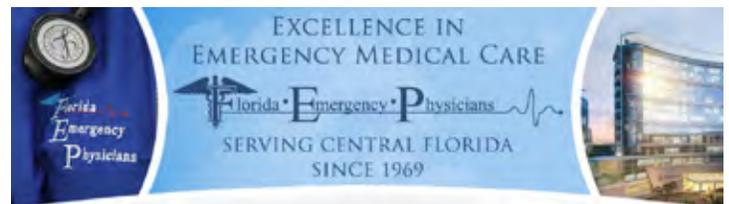
medexpress.com   

Note: In Delaware, MedExpress is referred to as MedExpress Walk-in Care. ©2014, Urgent Care MSO, LLC

CLASSIFIED ADVERTISING

Cincinnati: Mercy Hospital-Anderson is located in a desirable suburban community and has been named a "100 Top Hospital" ten times. A great place to work with excellent support, the renovated ED sees 43,000 emergency pts./yr. Outstanding partnership opportunity includes performance pay, equal equity ownership, equal voting, funded pension, open books, comprehensive benefits and more. Contact Ann Benson (careers@emp.com), Emergency Medicine Physicians, 4535 Dressler Rd. NW, Canton, OH 44718, 800-828-0898 or fax 330-493-8677.

Concord, Madison and Willoughby: INCREASED PAY and LOAN REPAYMENT PROGRAM! Lake Health is situated in the eastern Cleveland Suburbs. TriPoint Medical Center was built in 2009 and treats 31,000 emergency pts./yr. The Madison Medical Campus hosts a freestanding ED seeing 12,000 pts./yr. West Medical Center is a state-of-the-art acute care hospital serving 37,000 ED pts./yr. Outstanding partnership opportunity includes \$60,000 bonus/loan repayment, performance pay, equal equity ownership, equal voting, funded pension (\$34,500/yr.), open books,



GREAT WORK GREAT REWARDS

- \$60-\$65/HR PLUS INCENTIVE COMPENSATION
- 1-2 YEARS EXPERIENCE DESIRED
- NIGHT DIFFERENTIAL COMPENSATION
- FULL-TIME BENEFITS INCLUDE:
 - ▶ 138 HOURS/MONTH
 - ▶ 100% EMPLOYER-PAID HEALTHCARE
 - ▶ 401K CONTRIBUTION
 - ▶ RELOCATION ASSISTANCE PROVIDED
 - ▶ FDA, CME, PROFESSIONAL MEMBERSHIP
 - ▶ DUES AND LICENSING FEE ALLOWANCE



Please submit your resume and cover letter to Susan Yarcheck at syarcheck@floridaep.com

 FEPcareers  @FEPDOCS
www.FloridaEP.com

CLASSIFIED ADVERTISING

comprehensive benefits and more. Contact Ann Benson (careers@emp.com), Emergency Medicine Physicians, 4535 Dressler Rd. NW, Canton, OH 44718, 800-828-0898 or fax 330-493-8677.

OKLAHOMA

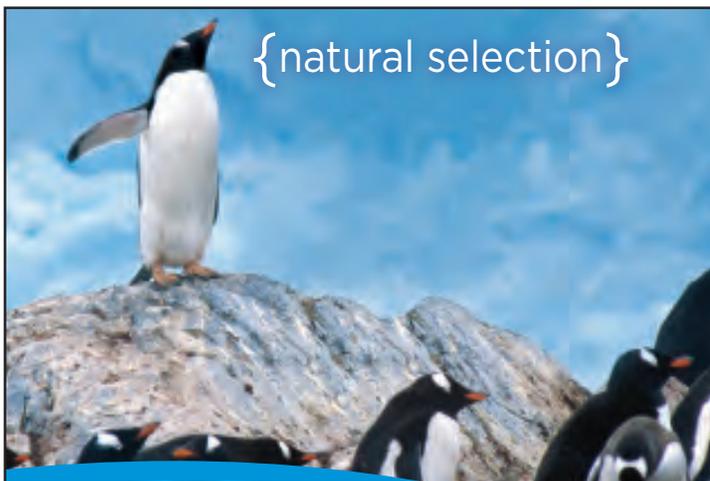
Tulsa: Brand new, state-of-the-art, 85-room ED opened Fall 2014! Saint Francis Hospital is a modern 971-bed regional tertiary care center seeing 96,000 ED patients per year, with broad pathology, high acuity, modern facilities and supportive environment. Outstanding partnership opportunity includes equal profit sharing, equity ownership, funded pension, open books, full benefits and more. Contact Ann Benson (careers@emp.com), Emergency Medicine Physicians, 4535 Dressler Rd. NW, Canton, OH 44718, 800-828-0898 or fax 330-493-8677.

Tulsa: Saint Francis Hospital South is a modern community hospital built in 2007 near the desirable Broken Arrow, Bixby and Jenks communities. 28,000

emergency patients are treated annually, and a full continuum of care is supported by the St. Francis system. Outstanding partnership opportunity includes equal profit sharing, equity ownership, funded pension, open books, full benefits and more. Contact Ann Benson (careers@emp.com), Emergency Medicine Physicians, 4535 Dressler Rd. NW, Canton, OH 44718, 800-828-0898 or fax 330-493-8677.

OREGON

Salem: Partnership opportunity with independent, democratic, and well established group at 95K annual volume Salem Hospital, Level II trauma center with excellent specialty support. New ED built in 2009, EPIC EMR with scribes, extensive leadership opportunities. Benefits include flexible scheduling, CME stipend, malpractice, medical, 401K, and more. Must be EM BC/BP. Salem is located 45 minutes south of Portland, in the heart of Oregon's wine country. We love it here and you will too. Send CV, cover letter and recent photo to sepspc@salemhealth.org or call us at 503-561-5634.



{natural selection}

In professional life, as in nature, there is a natural order of things.

There are born leaders with inherent skills to succeed, those that work diligently to maintain their place at the top. Infinity HealthCare inspires and rewards that diligence.

Contact us to learn more about your future possibilities with Infinity HealthCare in both Wisconsin and Illinois.



infinityhealthcare.com | 414.290.6700 | WI / IL

Emergency Medicine Physicians

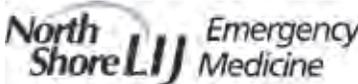


North Shore-LIJ is America's third largest, non-profit, secular health system, with a network of 17 hospitals serving the greater **New York metropolitan area**. Our Department of Emergency Medicine Services includes the Emergency Departments of five tertiary care teaching hospitals, a children's hospital, several community hospitals, urgent care centers and our new Freestanding Emergency Department in Greenwich Village.

If you're a BC/BP Emergency Medicine-trained physician with outstanding skills, we want you to join our growing team. Whether you're an experienced physician, a new graduate or an experienced EM leader seeking a Chair or Associate Chair position, there are exciting opportunities throughout the health system for you.

Recent salary increases, along with a generous benefits package, make this a very exciting time to join our EM team.

We offer a competitive salary and benefits package. For further information and to apply, please contact: **Laura Screeney, FASPR, Corporate Director, Office of Physician Recruitment, lscreeney@nshs.edu, (888) 685-7545**. To apply, please visit www.nsljEMPhysicians.com



An Equal Opportunity Employer. M/F/D/V



SIGN EARLY AND MAKE UP TO



\$24,000.00
before you
GRADUATE



We are now looking for excellent EM physicians to join our stable and well established group at the following locations...

UH Richmond Medical Center
Richmond Heights, OH - 22k

UH Ahuja Medical Center
Beachwood, OH - 35k

UH Bedford Medical Center
Bedford, OH - 20k

UH Conneaut Medical Center
Conneaut, OH - 13.5k

UH Geneva Medical Center
Geneva, OH - 14k

UH Twinsburg Medical Center
Twinsburg, OH - 16k

UH Geauga Medical Center
Chardon, OH - 19k

St Elizabeth Health Center
Boardman, OH - 50k
Austintown, OH - 31k
Youngstown, OH - 50k

St Joseph Health Center
Warren (Eastland), OH - 43k

St. Joseph HC Urgent Care:
Howland, OH - 13.5
Warren, OH - 11.5

**St Joseph Family
Medical Center**
Andover, OH - 7.5k

Sign Now

RECEIVE \$1,000 A MONTH UNTIL YOU GRADUATE

Outstanding Compensation Package Includes:

- | | |
|--------------------------------|-----------------------|
| Signing Bonus & Incentive Plan | HSA Contribution |
| Full Paid Family Health Plan | Malpractice with Tail |
| Long & Short Term Disability | CME Reimbursement |
| 100% 401k Match, 6% Earnings | Paid Life Insurance |



4MEMERGENCY

To learn more about joining our practice, please contact Erin Waggoner via email at ewaggoner@4mdocs.com or Jeff Mirelli at jmirelli@4mdocs.com.

Reach us by phone at (888) 758-3999 or visit us online at www.4MDOCS.com.



MEDICINE MANAGEMENT MENTORING MISSIONS

CLASSIFIED ADVERTISING

PENNSYLVANIA

Sharon: Sharon Regional Health System has an extremely supportive administration/medical staff, newer ED, and full service capabilities making this a great place to work with 37,000 patients treated annually. Small city setting offers beautiful housing and abundant recreation less than an hour from Pittsburgh and Cleveland. Outstanding partnership opportunity includes equal profit sharing, equity ownership, funded pension, open books, full benefits and more. Contact Ann Benson (careers@emp.com), Emergency Medicine Physicians, 4535 Dressler Rd. NW, Canton, OH 44718, 800-828-0898 or fax 330-493-8677.

Pittsburgh and suburbs, Canonsburg, Connellsville, New Castle and Erie: Allegheny Health Network and Emergency Medicine Physicians have formed Allegheny Health Network Emergency Medicine Management (AHNEMM), which offers

"Our group allows our physicians to have a challenging career & maintain a high quality of life"

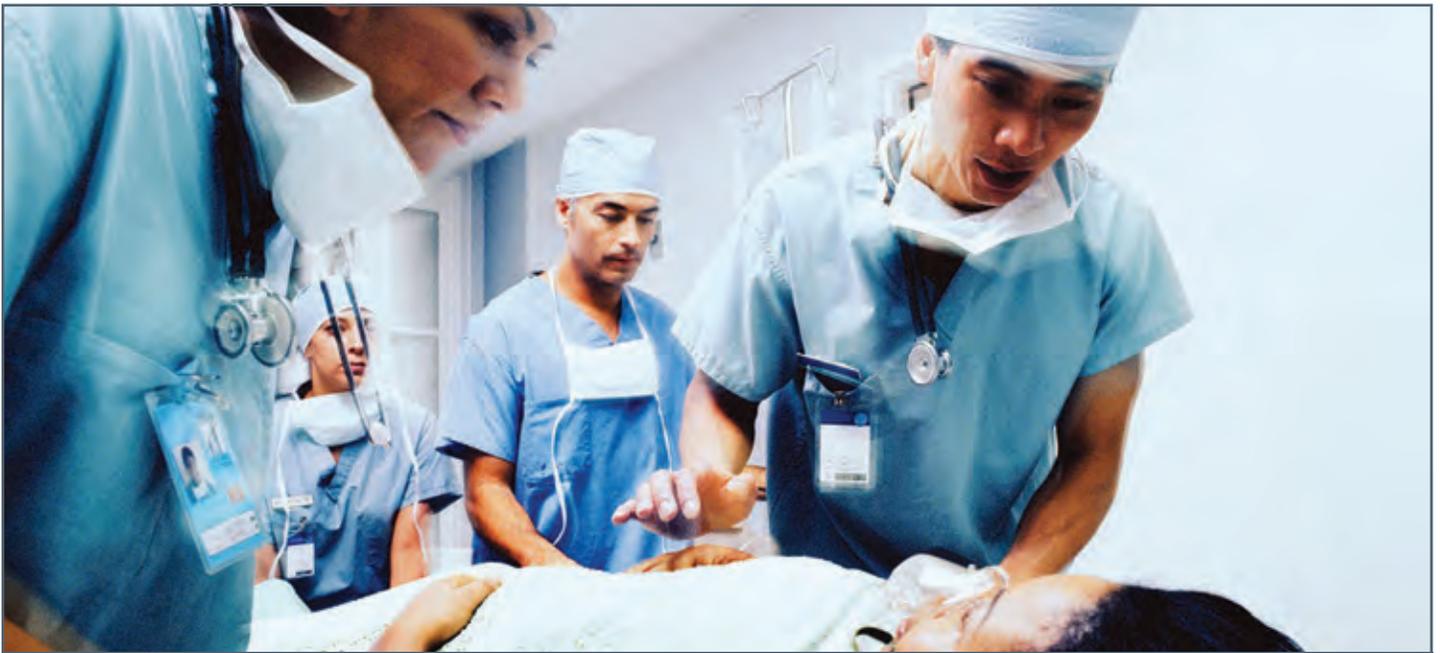
- Abigail Adams, MD
Assistant Medical Director
& EMPros Partner



Live & Work
Where **MOST**
Vacation!

- ◆ Independent democratic group in business for over 35 years
- ◆ 3 East Central Florida Hospital ED's & 2 urgent care centers
- ◆ Health, Life, 401K, Disability & CME Account
- ◆ Partnership opportunity in 18 months

EMPROS
emergency medicine professionals, p.a.
emprosonline.com



Looking for a rewarding career opportunity in emergency medicine?
You just found it.

Pennsylvania's Leader in Emergency Medicine

ERMI is Pennsylvania's largest emergency medicine physician group and is part of UPMC, one of the nation's leading integrated health care systems. ERMI is a physician-led company that offers unmatched stability, and a host of other advantages:

- Multiple sites in Pittsburgh/Western Pennsylvania
- Suburban, urban, and rural settings
- Coverage averages less than two patients per hour
- Excellent compensation and benefits
- Employer-paid occurrence malpractice with tail
- Employer-funded retirement plan
- CME allowance
- Equitable scheduling
- Abundant opportunities for professional growth

For more information about joining Pennsylvania's emergency medicine leader, contact our recruiter at 412-432-7400 (toll-free 888-647-9077) or send an email to ermicareers@upmc.edu.



Quantum One Building, 2 Hot Metal Street, Pittsburgh, PA 15203 • Telephone: 888-647-9077 • Fax: 412-432-7480

EOE: Minority/Female/Vet/Disabled

72298 TACS 01/15



Emergency Physician

Cambridge Health Alliance, Cambridge MA

Cambridge Health Alliance, a nationally recognized, award-winning health system is seeking a full-time board certified/board eligible Emergency Physician to join our exceptional team. The Cambridge Health Alliance Department of Emergency Medicine staffs three community Emergency Departments located in the Greater Boston offering varied practice environments. We provide outstanding and innovative care to a diverse patient population. Our team of almost thirty physicians and thirteen physician assistants serves approximately 100,000 patients annually across the three sites and has lead us to become a national model for patient flow.

We are looking for a dedicated physician who excels in a collegial environment, is willing to grow professionally and help shape future clinicians. As a Harvard Medical School teaching affiliate, we offer ample teaching opportunities with medical students and residents. We have an electronic medical record, and offer a competitive benefits and salary package.

Please send CV's to: **Benjamin Milligan, MD, FACEP, Chief, Department of Emergency Medicine**, Cambridge Health Alliance, 1493 Cambridge Street, Cambridge MA 02139. **Email:** bmilligan@cha.harvard.edu. EOE. www.challiance.org

GR14_194

CLASSIFIED ADVERTISING

a professional arrangement unlike that previously available in the region. Equal equity ownership/partnership, equal profit sharing and equal voting will now be available to the emergency physicians at Allegheny General Hospital in Pittsburgh, Allegheny Valley Hospital in Natrona Heights, Canonsburg Hospital in Canonsburg, Forbes Regional Hospital in Monroeville, Highlands Hospital in Connellsville, Jameson Hospital in New Castle, and Saint Vincent Hospital in Erie. Comprehensive compensation package includes performance bonuses, funded pension (13.27% in addition to gross earnings), CME/business expense account (\$8,000/yr.), family health/dental/vision plan, occurrence malpractice (all physician partners own the company and share in its success), short and long-term disability, life insurance, 401k, flex spending program, and more. Contact Jim Nicholas (jnicholas@emp.com), Emergency Medicine Physicians, 4535 Dressler Rd. NW, Canton, OH 44718, 800-828-0898 or fax 330-493-8677.



HARSH BHAKTA, DO
*Baylor Medical Center at McKinney
McKinney, Texas*

Quality people. Quality care. Quality of LIFE.

For nearly half a century EmCare has been patient-focused. As a physician-led company, we take pride in hiring the best in the medical profession. Offering the locations, positions & lifestyle you want nationwide:



○ EmCare locations

855.367.3650

Search jobs at emcare.com/careers





I DON'T WANT TO BE JUST ANY DOCTOR.

“TeamHealth supports emergency medicine physicians with great scheduling, compensation, leadership opportunities and work/life balance.”

Matt Krauthamer, DO

Emergency Medicine National Director – Special Ops East

TEAMHEALTH SPECIAL OPS PHYSICIAN TEAM

- > First-class experience with first-class pay
- > Practice across your region but live where you want
- > Preferred scheduling
- > Work 120 hours a month
- > Leadership training and opportunities
- > ABEM or AOBEM EM residency trained
- > Exciting travel and reimbursement for licensure and certifications
- > Stipend for benefits available at most locations

**TO JOIN THIS ELITE GROUP, CONTACT TINA RIDENOUR
AT 865.985.7123 OR TINA_RIDENOUR@TEAMHEALTH.COM.**

TEAMHealth®
SPECIAL OPS

888.861.4093

www.teamhealth.com

www.MYEMCAREER.com

physicianjobs@teamhealth.com



PRESBYTERIAN

Albuquerque, NM & Ruidoso, NM

Presbyterian Healthcare Services (PHS) is New Mexico's largest, private, non-profit healthcare system and named one of the "Top Ten Healthcare Systems in America." Over 600 providers are employed by PHS and represent almost every specialty. PHS is seeking BE/BC Emergency Medicine trained physicians to work in our Emergency Medicine department in Albuquerque and will consider BC/BP Family Medicine, Internal Medicine or Emergency Medicine trained physicians in Ruidoso, NM.

Albuquerque thrives as New Mexico's largest metropolitan center with a population of 700,000. Albuquerque has been listed as one of the best places to live in the United States by Newsweek, U.S. News & World Report, Money and Entrepreneur magazines! Albuquerque is considered a destination city for most types of outdoor activities with 310 days of sunshine.

Ruidoso is a mountain community at seven thousand feet altitude with snow skiing in the winter and horse racing in the summer. The community is best surveyed from the Chamber website at ruidosonow.com. We currently have six Family Practitioners, one General Surgeon, one Radiologist, two Internists, two Obstetrician/Gynecologists, three Orthopedic Surgeons as part of a group practice with Podiatrists, two inpatient Hospitalists that cover 24/7, four Emergency Room physicians and four nurse practitioners. We are part of the Presbyterian Healthcare Services network and are a twenty-five bed Critical Access Hospital. Emergency Medicine physicians will enjoy a flexible work schedule a monthly requirement of twelve, 12 hour shifts with midlevel support.

These opportunities offer a very competitive salary, sign on bonus, relocation; CME allowance; 403(b) with contribution and match; 457(b); health, life, AD&D, disability ins, life; dental; vision; pre-tax health and child care spending accounts, occurrence type malpractice insurance, etc.

For more information regarding Albuquerque, contact Kelly Herrera, kherrera@phs.org; 505-923-5662; For more information regarding Ruidoso, contact Aracely Pena, apena6@phs.org; 505-604-7590.

Visit our website at www.phs.org.

AA/EOE/VET/DISABLED. PHS is committed to ensuring a drug-free workplace



UNIVERSITY of ROCHESTER MEDICAL CENTER

The Department of Emergency Medicine of the University of Rochester Medical Center has open **Emergency Medicine Faculty positions** for work at our primary academic site, as well as our community affiliates and our free-standing emergency department.

Seeking Faculty positions in:

- Academic Faculty Positions
- Regional & Community Faculty Positions
- Regional Medical Director

Our Department includes a well regarded EM Residency Program, Research and Fellowship programs. Our main site, Strong Memorial Hospital, is the regional referral and trauma center.

We are seeking BC/BP candidates with dynamic personalities who are interested in a diverse Emergency Medicine experience with great potential for career development, promotion, and career longevity within our department. With these sites, there is also ample opportunity to become involved in academics and administration.

Rochester, New York is located in upstate New York offers excellent schools, low cost of living, many opportunities both professionally and personally, and easy access to Canada, including metropolitan Toronto and the northeast United States.

Interested applicants please contact:
Michael Kamali, MD, FACEP
Chair, Department of Emergency Medicine
Michael_kamali@urmc.rochester.edu
585-463-2970

CLASSIFIED ADVERTISING



Philadelphia suburbs: Holy Redeemer Hospital – Outstanding opportunity for BC/ BP emergency medicine physician available in state of the art emergency department in the Philadelphia suburbs. The ED employs electronic charting/tracking and order entry. Annual volume of 30,000. There are 39 hours of EM physician coverage, 10 hours of pediatric physician staffing and 24 hours of mid-level coverage daily. In house obstetrics is available 24/7. Full benefits including health, dental, paid vacation, pension, stipend for cme/books/dues and subscriptions provided. For more information, contact: Michael Lucca, MD, FACEP, FAAEM at 215-938-2135 or mlucca3@gmail.com EOE.

RHODE ISLAND

Westerly: The Westerly Hospital is a 125-bed community hospital situated in a beautiful beach community in SE RI, 45 minutes from Providence and 1.5 hours from Boston. Modern, well-equipped ED sees 26,000 pts./yr. Outstanding partnership opportunity includes performance pay, equal equity ownership, funded pension, open books, comprehensive benefits and more. Contact Ann Benson (careers@emp.com), Emergency Medicine Physicians, 4535 Dressler Rd. NW, Canton, OH 44718, 800-828-0898 or fax 330-493-8677.

WEST VIRGINIA

Wheeling: Ohio Valley Medical Center is a 250-bed community teaching hospital with an AOA approved Osteopathic EM and EM/IM residency program. Enjoy teaching opportunities, full-specialty back up, active EMS, and two campuses seeing 27,000 and 20,000 pts./yr. Outstanding partnership opportunity includes performance pay, equal equity ownership, funded pension, open books, comprehensive benefits and more. Contact Ann Benson (careers@emp.com), Emergency Medicine Physicians, 4535 Dressler Rd. NW, Canton, OH 44718, 800-828-0898 or fax 330-493-8677.

Emergency Medicine Physicians Opportunities

Geisinger Health System (GHS) is seeking Emergency Medicine Physicians for multiple locations throughout its service area.

Geisinger Wyoming Valley Medical Center

Join a growing team of Emergency Medicine staff Physicians at Geisinger Wyoming Valley Medical Center (GWV) located in Wilkes-Barre, Pa. Practice state-of-the-art medicine with excellent sub-specialty backup and additional coverage through the department's Advanced Practice Providers, Pharmacists, and Scribes. With over 54,000 visits annually, Physicians at GWV enjoy its high acuity, hands-on environment.

The Emergency Department at GWV houses a total of 32 beds including: 24 acute, 3 trauma, and 5 acute/isolation. In addition, providers have access to 24 hour imaging services, point-of-care lab services, pharmacist coverage, and care management all within the department. The hospital is currently an accredited Level II Trauma Center and holds a Level I Heart Attack Program.

Geisinger-Shamokin Area Community Hospital*

Join a growing team of Emergency Medicine staff Physicians and Advanced Practice Providers at Geisinger-Shamokin Area Community Hospital (G-SACH), located in Coal Township, Pa.

Practice state-of-the-art medicine in a facility that handles over 18,000 visits annually. Teaching opportunities exist with 3rd year EM residents rotating through the department. G-SACH is a licensed 70-bed community hospital with 45 acute, 15 skilled and 10 gero-psychiatry beds. Enjoy the latest in surgical and health information technology.

**G-SACH is a campus of Geisinger Medical Center, Danville.*

Geisinger-Bloomsburg Hospital

Join a growing team of Emergency Medicine staff Physicians and Advanced Practice Providers at Geisinger-Bloomsburg Hospital (G-BH), located in Bloomsburg, Pa.

Geisinger-Bloomsburg Hospital's Emergency Department, which was recently renovated, houses 13 beds and handles approximately 16,500 visits annually. At the hospital, surgery, OB, hospitalists, a psych unit, and radiology with ultrasound, CT, x-ray, and MRI are available 24 hours a day. Geisinger Medical Center (GMC), located in Danville, Pa., is just miles down the road for complicated cases, trauma, STEMI, and pediatrics.

In 2015, Geisinger will celebrate 100 years of innovation and clinical excellence. There's never been a better time to join our team.

For more information visit geisinger.org/careers or contact: **Miranda Grace, Department of Professional Staffing, at 717-242-7109 or mlgrace@geisinger.edu.**

THE CENTENNIAL CELEBRATION
GEISINGER 100

Follow us:  |  **LinkedIn**



I WANT TO BE THE BEST PHYSICIAN POSSIBLE.

“TeamHealth helps me improve my skills as a doctor constantly and provides the support I need with great scheduling, compensation and leadership opportunities.”

Jeremy Bearden, DO

Emergency Medicine National Director
Special Ops West

TEAMHealth® **SPECIAL OPS**

888.861.4093
www.teamhealth.com
www.MYEMCAREER.com
physicianjobs@teamhealth.com



TEAMHEALTH SPECIAL OPS PHYSICIAN TEAM

- > First-class experience with first-class pay
- > Practice across your region but live where you want
- > Preferred scheduling
- > Work 120 hours a month
- > Leadership training and opportunities
- > ABEM or AOBEM EM residency trained
- > Exciting travel and reimbursement for licensure and certifications
- > Stipend for benefits available at most locations

**TO JOIN THIS ELITE GROUP, CONTACT TINA RIDENOUR
AT 865.985.7123 OR TINA_RIDENOUR@TEAMHEALTH.COM.**



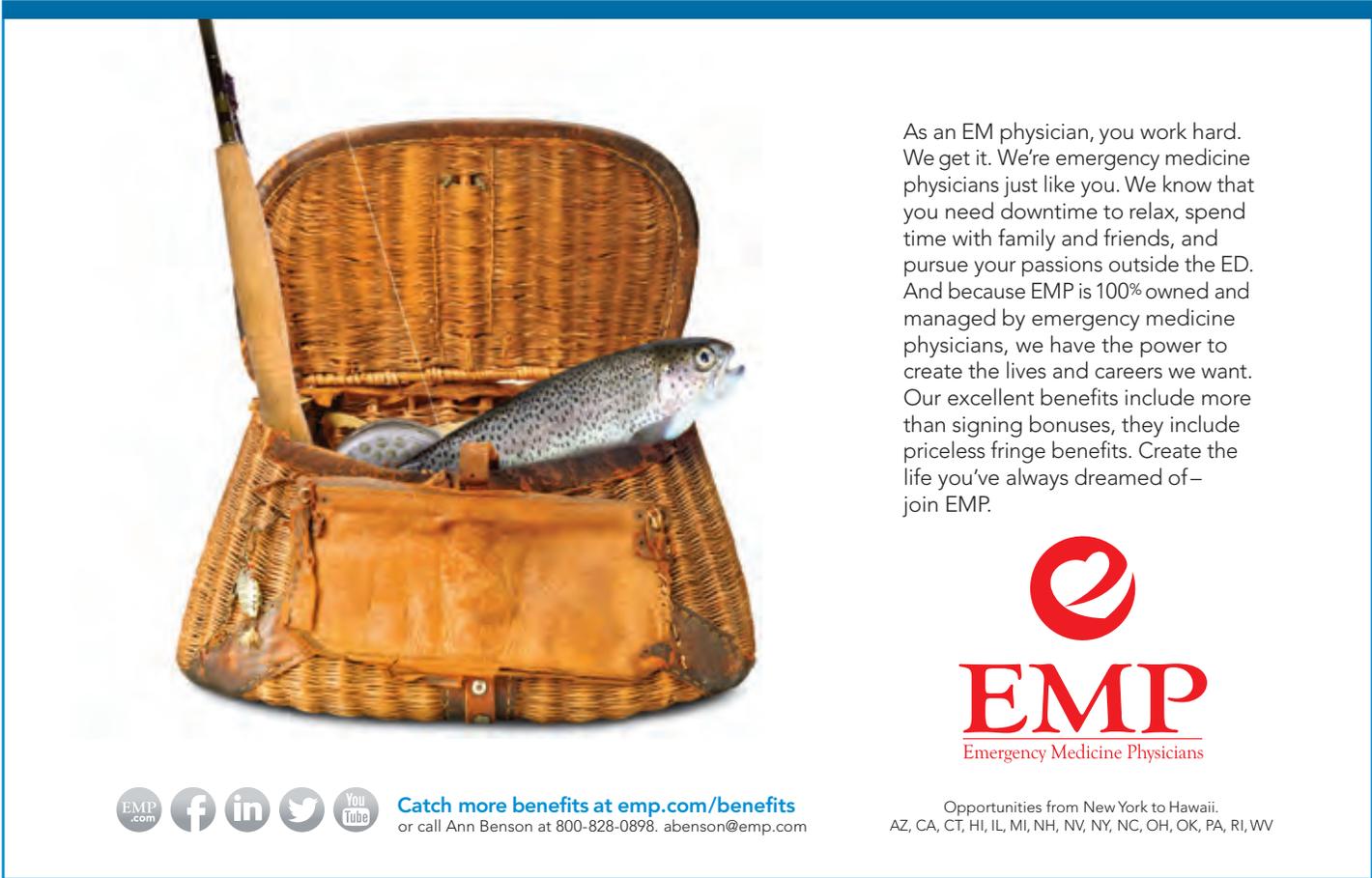
Emergency Medicine Residents' Association

1125 Executive Circle
Irving, Texas 75038-2522
972.550.0920
www.emra.org

PRSR STD
U.S. POSTAGE PAID
BOLINGBROOK, IL
PERMIT NO. 467



Fringe benefits.



As an EM physician, you work hard. We get it. We're emergency medicine physicians just like you. We know that you need downtime to relax, spend time with family and friends, and pursue your passions outside the ED. And because EMP is 100% owned and managed by emergency medicine physicians, we have the power to create the lives and careers we want. Our excellent benefits include more than signing bonuses, they include priceless fringe benefits. Create the life you've always dreamed of – join EMP.



Catch more benefits at emp.com/benefits
or call Ann Benson at 800-828-0898. abenson@emp.com

Opportunities from New York to Hawaii.
AZ, CA, CT, HI, IL, MI, NH, NV, NY, NC, OH, OK, PA, RI, WV