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The New Medical Education

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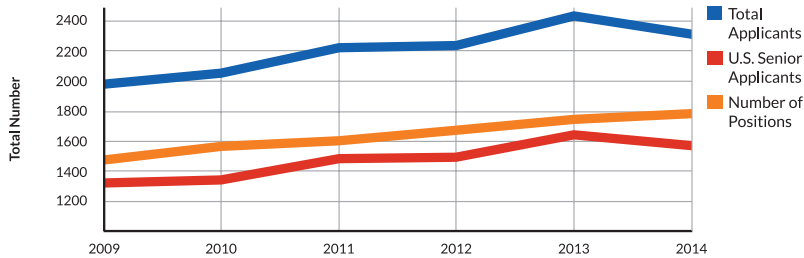
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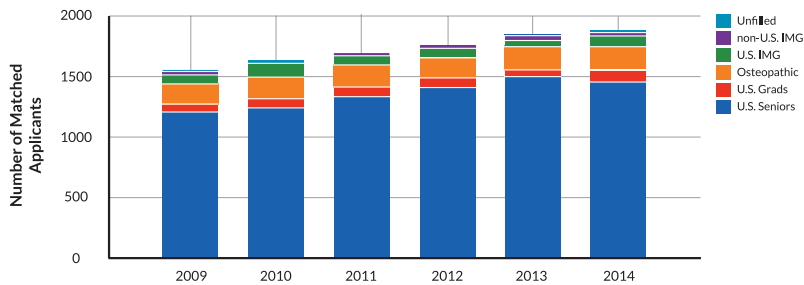


CONTENTS

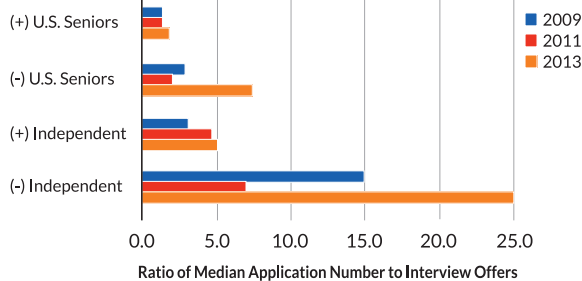
Application Trends Over Time



Matches by Applicant Type Over Time



Applications per Single Interview Offer



19

Eye to the Problem

Jessica L. Leduc, DO and Andrew S. Gurwood, OD
Emergency Department Evaluation of Blunt Orbital Trauma.



28

SMALL but Deadly

Danish S. Malik, MD and Jason Chu, MD
Part 2. Household Products: Nine Pediatric Toxic Ingestions That Can Be Fatal at Low Doses.

11

DIAGNOSING The Match

Zach Jarou, MD and Adam Kellogg, MD
Applicant Selection Process Recent Trends

- 3 PRESIDENT'S MESSAGE
- 4 NEW EMRA BOARD
- 6 SPEAKER REPORT
- 7 LEGISLATIVE REPORT
- 9 FIRST PERSON
- 11 MEDICAL STUDENT NEWS: MATCH
- 15 MEDICAL STUDENT LIFE
- 17 RESEARCH
- 19 TRAUMA
- 23 CRITICAL CARE: SEPSIS
- 25 PEDIATRICS
- 28 PEDIATRIC TOXICOLOGY

23

ARISE and ProCESS
Sepsis Management



- 30 ULTRASOUND
- 33 EMPOWER
- 37 HEALTH POLICY 101
- 39 HEALTH POLICY 102
- 42 20-IN-6 COMPETITION
- 43 BOARD REVIEW QUESTIONS
- 44 EMRA'S ACEP14 SPONSORS
- 45 VISUAL DIAGNOSIS
- 47 EM REFLECTIONS
- 50 PEARLS AND PITFALLS
- 51 PEDIATRIC PEARLS AND PITFALLS
- 52 REFERENCES/RESOURCES

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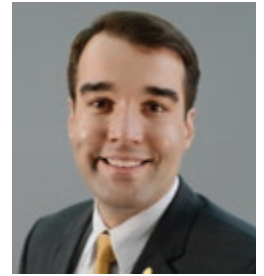
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EMRA at 40

Leaders in the Field



Matt Rudy, MD
EMRA President
University Hospital
Augusta, GA

EMRA celebrated its 40th anniversary during ACEP14 in Chicago this October, and we were fortunate to welcome one of our founders, Joe Waeckerle, MD, to participate in our meetings and our fall awards reception and special 40th anniversary celebration (read his speech featured in this month's **EMPower**). Honorary membership was presented to Drs. Pam Bensen, Bruce Janiak (the first EM resident), and Greg Henry. Reconnecting with past EMRA leaders was heartwarming, and it was equally impressive to see where EMRA leadership has taken our alumni members.

For residents just beginning careers in emergency medicine, it is easy to take for granted the vast array of career opportunities at our fingertips. If you spoke to a physician practicing in an emergency department 40 years ago, it would have been hard to imagine that now we have not just one, but five, pathways for EM physicians to become board certified in critical care medicine. Critical care is just one example, and as emergency medicine physicians continue to demonstrate their unwavering commitment to patients, our value to the health care system is unquestionable. We interact with virtually

all other medical specialties through our day-to-day (and night-to-night) work, and as a result, it is now not uncommon to see EM physicians as leaders in hospitals, health care systems, and beyond.

The 2014 midterm elections saw the successful re-election of two emergency medicine physicians to Congress: Dr. Joe Heck (R-NV) and Dr. Raul Ruiz (D-CA). In 2015, Dr. Steven Stack is set to become the first EM physician to serve as the President of the American Medical Association. Emergency medicine physicians have emerged as leaders in academic medicine, with Dr. Art Kellerman appointed Dean of the Uniformed Services Medical School in 2013 and Dr. John Prescott serving as Chief Academic Officer of the Association of American Medical Colleges as just two examples.

We are fortunate to have such an indomitable cadre of colleagues and leaders in our specialty, as the challenges before us today are no laughing matter. Health disparities continue to affect our patients; increasing medical school tuition and debt weigh heavily on physicians and their families; and the economics of health care proves daily that our current system of delivery

and reimbursement is non-sustainable. While daunting, these and other challenges before us have the opportunity to be tackled, thanks in part to the leaders our specialty has helped develop.

Professional hockey player Wayne Gretzky is the leading point scorer in NHL history. When asked to reflect on what made him so successful, Gretzky replied, "I skate to where the puck is going to be, not where it has been." EMRA is working to proactively offer opportunities to our members and remain not just relevant, but essential, to your success. We are constantly reevaluating the benefits and opportunities available to you to ensure they provide the diverse professional and educational opportunities our 13,000 members need to succeed not just today, but for decades of future practice. We are skating to where the puck will be.

I challenge you to be a visionary for our specialty and help EMRA look ahead to the next 40 years. Push us to remain the organization needed for you to succeed not just in today's health care system, but also position us to prepare our members to thrive in the dynamic health care landscape of tomorrow. ★



Reconnecting with past EMRA leaders was heartwarming, and it was equally impressive to see where EMRA leadership has taken our alumni members.

EMRA's New Leaders



Nida Degsys, MD
Vice-Speaker
of the Council

*University of California
 San Francisco, CA*

Nida Felicija Degesys is a resident at the University of California San Francisco/San Francisco General Hospital. She graduated with AOA and GHHS from the Northeast Ohio Medical University (NEOMED). Previously, she served as an economic development and health volunteer in the U.S. Peace Corps in Panama helping a women's cooperative gain sustainability and teaching children oral hygiene and nutrition.

Prior to her election as vice-speaker, she served as the president of the American Medical Student Association. Nida has lectured on various topics, including conflict of interest and medical education, as well as testifying in front of the FDA and the USTR. Nida has also served on various boards, including as a Trustee on the NEOMED Board of Trustees where she was appointed by the Governor of Ohio to serve from 2010-2012.

Nida is also actively involved in her residency program, serving as a co-resident liaison to the Emergency Medicine Student Interest Group (EMIG), where she is helping EMIG leaders develop and coordinate the Northern California EM medical student conference.

Nida has also presented her research on topics ranging from patient safety and students' attitudes towards disabilities to educational pedagogy, both nationally and internationally. ★



Nupur Garg, MD
Informatics
Coordinator

*Mount Sinai
 New York, NY*

Nupur Garg, born in Ireland, was brought up mostly in the panhandle of Florida, where she graduated from an international baccalaureate program. She then went on to MIT, where she double majored in chemical engineering and biology and double minored in biomedical engineering and management. She continued her studies at Yale Medical School, where she did an extra research year and completed a thesis on the system of underrepresentation of females in academic medicine. During medical school she served as the EMIG president and organized the New England EMRA Medical Student conference at Yale. She is currently a resident at Mount Sinai in NYC.

Nupur has been heavily involved in informatics research during her residency. She also has interests in entrepreneurship, systems engineering, and technology. She won the 2014 MIT Hacking Medicine Grand Hackfest Telemedicine track. She was also involved in organizing the first emergency medicine hackathon, co-organized by EMRA, ACEP, Chicago Health 2.0, and MIT Hacking Medicine. ★



Leonard Stallings, MD
RRC-EM
Representative

*East Carolina University,
 Greenville, NC*

Leonard Stallings was born in Chicago, IL, and considers himself a native of both Chicago and River Forest, IL. He is currently a PGY-4 in the combined emergency medicine/internal medicine/critical care medicine (EM/IM/CCM) program at East Carolina University/Vidant Medical Center in Greenville, NC, where he also serves as a chief resident of the Global Health & Underserved Populations Program.

Leonard earned his BS in operations and strategic management and a BA in philosophy from Boston College in Chestnut Hill, MA, in 2006. Thereafter, he pursued his medical degree from Loyola University Chicago-Stritch School of Medicine where he graduated with an MD with honors in research in 2011.

Leonard has been a member of EMRA throughout his residency career and is very excited to serve as the EMRA RRC-EM liaison. He has previous experience with the ACGME through his work with helping to set up the CCM component of his own program, and through various ACGME reviews of other programs at his institution. ★



Ramnik (Ricky) Dhaliwal, JD, MD
President-Elect

*Hennepin County
 Medical Center
 Minneapolis, MN*

Ricky Dhaliwal was raised in Fort Collins, CO. After high school he headed to Washington, DC, where he graduated from George Washington University with his BBA and MS in information technology in 2003. He then worked as an IT consultant before changing courses and pursuing his joint law and medical degree from the University of Colorado. He graduated in 2011 with his wife Danielle and his brother Jasmeet.

During medical school he was involved in the Colorado Medical Association, working on the legislative board and also leading a coalition that passed conflict of interest legislation in Colorado. He and Danielle couples matched in Minneapolis. He is now a fourth-year in the EM/IM program at Hennepin County Medical Center, while his wife is completing a pediatric ICU fellowship.

Ricky has been involved with MN ACEP as one of the resident board members and as an appointed member of the Health Policy Council for the Minnesota Medical Association. For the last three years, he's been the EMRA rep for his program and a member of the Health Policy Committee. ★

**EMRA is thrilled to announce its new 2014-2015 Board members.
Five stellar emergency medicine physicians were elected
into the organization at ACEP13 in October.**

PLEASE JOIN US IN WELCOMING THEM!

Alison Smith was born and raised in Nevis, MN (population 350). She traveled frequently with her family while growing up, developing a passion for traveling and a love of adventure. During her time at St. Olaf College, Alison studied abroad in Tanzania and Ecuador while majoring in biology and women's studies. On graduation from college, Alison started graduate school to earn her master's degree in global health (MPH) from Emory University's Rollins School of Public Health. During her time at Emory, she conducted research projects in Zambia and Mali. Her Zambia research, studying fertility and financial decisions of HIV-positive couples, inspired her to seek a career in HIV/AIDS. After a three-month backpacking trip around the United States and South America, Alison began work as an epidemiologist at the Centers for Disease Control and Prevention in Atlanta, GA.

Her work at the CDC took her to more than 15 countries, primarily in Africa and SE Asia, to coordinate and conduct studies to assess the HIV burden among high-risk populations in impoverished nations. During her fifth year at the CDC, she worked for the malaria division as a public health advisor to Malawi, Uganda, and the Democratic Republic of Congo. In 2010, she started medical school at Mercer School of Medicine in Savannah, GA, where she was her medical school class president. Currently, she is an intern at the University of Utah and very excited to be living out west. ★



Alison Smith
ACEP Representative
*University of Utah
Salt Lake City, UT*

Jasmeet Dhaliwal grew up in Fort Collins, Colorado. He completed his undergraduate studies at Harvard University before completing a combined MD-Master of Public Health program at the University of Colorado. As a medical student, he was involved in medical school curriculum development, diversity initiatives, quality improvement, and health systems research.

After graduating from medical school (in the same class as his older brother, Ramnik), Jasmeet completed an internship in internal medicine at the University of Colorado prior to changing specialties to emergency medicine. He is currently a third-year emergency medicine resident at Denver Health Medical Center. His interests include critical care, cardiovascular medicine, resident education, and health policy.

Jasmeet first became involved with EMRA as a program representative. After attending the ACEP Leadership and Advocacy Conference as a second-year resident, he was moved to renew his interest in health systems policy and now plans to pursue a fellowship in health policy after residency. As EMRA's legislative advisor, Jasmeet will focus on expanding resident awareness and involvement in health policy issues while advocating for the protection of resident clinical education as GME funding and payment reform move forward. ★



Jasmeet Dhaliwal, MD
Legislative Advisor
*Denver Health
Denver, CO*

Zach Jarou was born in Flint, MI. He completed his undergraduate and medical education at Michigan State University in East Lansing, MI. He is currently completing his intern year of residency training at Denver Health Medical Center and the Department of Emergency Medicine at the University of Colorado School of Medicine.

As a medical student, Zach was involved early on with his school's emergency medicine interest group (EMIG) and the American Medical Association-Medical Student Section (AMA-MSS), serving as EMIG Chair and Region 5 AMA-MSS Secretary Treasurer. He eventually joined EMRA late in his second year of medical school, being selected to serve on EMRA's Medical Student Governing Council as both Web-technology coordinator and chair, the latter of which allowed him to serve on the EMRA Board of Directors during his fourth year of medical school. Before leaving Michigan, Zach also partnered with the Michigan College of Emergency Physicians (MCEP) to found the inaugural MCEP Medical Student Council and medical student programming track at the annual MCEP Midwest Winter Symposium.

Zach has been previously selected to serve as vice chair of EMRA's Editorial Committee, where he has been involved with the launch of www.EMResident.org, and also as a member of ACEP's National Chapter Relations Committee. ★



Zach Jarou, MD
**Membership
Development
Coordinator**
*Denver Health
Denver, CO*



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

Representative Council Highlights

During my intern year, I was offered the chance to become our EMRA program representative. As I attended the EMRA Representative Council Meeting later that year and became aware of the numerous ways that EMRA is always working on behalf of its members, **I quickly came to the realization that I needed to stay informed and get involved, or I would be left out.**

It is hard to believe that day was two years ago and that just a few weeks ago marked 12 months of my service as your vice-speaker. It is a true privilege to have been with EMRA so long. One of the benefits of having been your vice-speaker, and now speaker, is the opportunity to meet so many of our talented members. EMRA remains the largest — and in my opinion, the greatest — residency organization in the world. With just under 13,000 members, every chance I get to meet a member for the first time, my message remains the same: “Thank you for what you do for EMRA!” The success of EMRA remains a direct credit to the work of its members.

Over the past year, I have enjoyed working with, and being mentored by, your outgoing speaker, Dr. Ije Akunyili. We wish her luck as she transitions out of her official role with EMRA. Although it is hard to summarize everything that the EMRA Representative Council has done over the past year, following are some of the highlights.

May 2014

Representative Council Session: Four resolutions were discussed in open forum. The Representative Council ultimately passed resolutions to oppose changes that would negatively affect new residents’ accessibility to medical insurance and ability to qualify for certain loan-forgiveness programs.

Leadership and Advocacy: Your board was able to attend and advocate for emergency medicine, GME funding, the SGR fix (see *Health Policy 101* in this issue), and several other issues alongside leaders from ACEP.

June 2014

AMA/RFS Annual Meeting: Three EMRA members won elections for positions with the Resident and Fellow Section Council.

Board Elections

We also elected several new members to the EMRA Board of Directors who will continue to lead and direct our organization forward (see *EMRA’s New Leaders*, pages 4-5). As part of our new board elections, the Representative Council chose Dr. Nida Degesys of UCSF as our new vice-speaker! She is a passionate individual who will serve EMRA well. ★

October 2014: ACEP

ACEP14 Recap — Representative Council Session

We passed two resolutions in response to concerns from our members.

1. There is a growing number of those who train in emergency medicine moving on to fellowship positions that are currently not ABEM co-sponsored. Our bylaws previously limited the type of membership these individuals were allowed to have with EMRA. The Representative Council voted to strike previously written bylaws limiting fellow membership to those in ABEM-sponsored fellowships. Any bylaws change requires a two-thirds majority and the Representative Council spoke clearly that they wanted to offer full membership to those who are emergency medicine trained and in a fellowship program. This is a growing area in our specialty and the Representative Council also tasked the board to provide a written report during our Spring 2015 Representative Council session on the needs of members transitioning to residency and how EMRA can better address those needs.
2. Many of us have crossed paths with individuals who have chosen to use their medical talents to serve in our military. Many of them are planning to train in emergency medicine, but may initially be commissioned as a graduate medical officer in the military. During this time, they previously did not qualify under our bylaws to be EMRA members. The Representative Council voted unanimously to modify bylaws offering full benefits and membership to those who serve in our military as graduate medical officers, but who are planning to train in emergency medicine.



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

What's All the Fuss About?

Mandatory Quarantines of Health Workers

Responding to public fears regarding Ebola transmission, governors in New York, New Jersey, Connecticut, Illinois, Georgia, Florida, California, and Maine have recently issued public health orders requiring mandatory quarantines for asymptomatic health care workers returning from West Africa.¹ President Obama and aid groups have decried these orders, arguing that quarantines will discourage health care workers from travelling to West Africa and worsen the Ebola crisis in the long term.²

There has also been legal opposition to the quarantine orders. Kaci Hickox, a nurse who recently returned to Maine after working with Médecins Sans Frontières (MSF) in Sierra Leone, was the first person to challenge the quarantine orders in court.³ Though she was asymptomatic on arrival to the U.S., Hickox was quarantined at the Newark airport, in line with New Jersey's new quarantine policy. She was then allowed to travel home to Maine after testing negative for Ebola and remaining asymptomatic during 24 hours of observation. On her arrival home, she was mandated by the Maine Department of Public Health to remain under house quarantine until she had been asymptomatic 21 days removed from contact with Ebola patients.

Referencing the CDC's Ebola guidelines, her attorneys argued in Maine District Court that because she was asymptomatic and had no signs of Ebola virus disease (EVD), she was not infectious. As such, they claimed that quarantine was not "necessary to protect other individuals from the dangers of infection." The judge in the case agreed, and, in accordance with CDC guidelines, Hickox was released from quarantine but placed under "direct active monitoring," submitting to daily temperature checks and home visits from public health officials.⁴ The case highlights the complex interplay between personal liberties and public health mandates. It is also an example of how our nation's federalist history has led to a lack of coordination between local, state, and federal public health agencies. Following is a summary of how we got to our current state of affairs.

A quarantine is the "separation of an individual or group reasonably believed to have been *exposed* to a quarantinable communicable disease, but who is not yet ill (not presenting signs or symptoms), from others who have not been so exposed, to prevent the possible spread of the quarantinable communicable disease."⁵ Quarantine differs from "isolation," which refers to the separation of a person or group believed to be *infected* with a communicable disease. **Both federal and state agencies have the power to quarantine and isolate.**⁶

The federal government derives this power from the Commerce Clause of the Constitution. The Public Health Service Act of 1944 clarified the federal government's role by giving the Secretary of Health and Human Services the power to act to stop communicable diseases from spreading from other countries to the United States and from one state to another.

Health and Human Services subsequently delegated this responsibility to the CDC in 2000 and that is why the CDC carries out this function today. **The CDC has legal authority to quarantine and isolate people as they travel into the United States and between states. However, save for rare instances, they do not have the authority to dictate quarantine and isolation practices within a state.** The CDC may offer material support and guidance, but a state can follow the beat of its own drummer. State governments naturally have differing philosophies on the balance between public health concerns and individual liberties. As a result, quarantine and isolation laws vary across state lines.

This explains why states' quarantine policies in response to Ebola have differed. So if each state has the authority to dictate its own quarantine policies, why wasn't Maine able to keep Kaci Hickox quarantined? Is this decision a precedent for future challenges to mandatory quarantines?

Looking through Judge Charles LaVerdiere's court order,⁷ it seems as though the CDC's Ebola guidelines might serve as

LEGISLATIVE ADVISOR

essential evidence that mandatory quarantines are not a public health necessity and only act to limit personal liberty and dignity. As long as judges defer to the CDC for expertise regarding Ebola practices, state-ordered mandatory quarantines may be struck down.

To understand Judge LeVerdiere's decision, let's quickly review the CDC's most recent guidelines, which are available at www.cdc.gov/vhf/ebola. The guidelines are supported by epidemiologic data from outbreaks over the last 40 years that mimicked the clinical course and transmissibility of EVD seen in the 2014 outbreak. Specifically, data from those outbreaks show that human-to-human transmission occurs only from direct contact with bodily fluids from someone with *symptomatic* EVD. Data also show that despite 21 days being the accepted maximum incubation period, over 90% of those who develop EVD do so in the first 14 days after exposure. Accordingly, the CDC recommends a tiered approach to Ebola exposure assessment, dividing people into "no risk," "low risk," "some risk," and "high risk" categories. As a rule, the CDC recommends that anyone in a "low risk," "some risk," or "high risk" category that exhibits

signs or symptoms of Ebola be isolated immediately. **If recognition of signs or symptoms occurs at one of the five designated port-of-entry airports, isolation can occur immediately on arrival in the United States.** For the asymptomatic, they recommend monitoring and restriction based on risk. Those in the "high risk" and "some risk" categories should be subject to "direct active monitoring" for 21 days following their last possible exposure to Ebola. This amounts to daily visits from a public health official to confirm the absence of fever or symptoms. "Low risk" individuals should have "active monitoring," which differs from direct active monitoring only in that temperature and symptom assessments are done by the individual, not by a public health official. With respect to restriction, "high risk" individuals are placed on the federal "Do Not Board" list and should be prohibited from public transport, public gatherings, or workplaces.

As an asymptomatic health care worker who cared for Ebola patients in Sierra Leone while wearing appropriate personal protective equipment, Kaci Hickox would

fall into the "some risk" category. The CDC would recommend that she submit to "direct active monitoring" and have a public health official visit her daily until she is beyond the maximum 21-day incubation period to check her temperature and assess for EVD symptoms. Guidelines would defer the decision to restrict and coordinate travel to local authorities but would not recommend quarantine.

So where do we go from here? Irrespective of the constitutional basis for varied state policies on Ebola, public health experts have criticized the fractious nature of the response to Ebola in the United States, arguing that it has increased public confusion and has taken much needed focus away from West Africa.^{8,9} Now that state quarantine policies have been successfully challenged in court, we may be at a point where standardized state policies (based on CDC guidelines) could be adopted across the country. The end of the midterm election cycle should also reduce the role of political positioning in the debate. By doing this, we can shift the public discourse beyond quarantines and focus more energy on working to end the epidemic in West Africa. ★

EMERGENCY MEDICINE RESIDENTS' ASSOCIATION

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A Perspective on Diversity From the Outside in Emergency Medicine Training

The Different Prospective

DIVERSITY

A word that carries as many definitions as emotions it engenders. Sometimes used as a pejorative; sometimes as a compliment, it has often been the central word in controversies in a variety of issues — perhaps because it draws on raw emotions related to affirmative action, racism, civil rights for gay people, immigration, and other ongoing political and social concerns. Or, perhaps it is its role that often confuses us. Should diversity be a consequential state of being, or should it be a goal to be obtained? Regardless of its definition, diversity has meaning in all situations.

Having spent the past six years living abroad and surviving the very emotional Match process as an international medical graduate (IMG), I've done a lot of reflection regarding the importance of diversity in emergency medicine. With the experience now behind me, **I feel there are still gains to be made toward promoting workplace diversity, particularly with regard to the role of IMGs in our field.**

Like many other North Americans, I chose to attend medical school overseas. There are numerous reasons others make the same choice, including family or religious heritage, cost, the opportunity to live abroad and work in a different culture and health system, and, for some, because it is so darn hard to get into schools in the United States and Canada. Many students don't have the time, money, or patience to take the MCAT over and over again and apply year after year. As for me, I was

working in Paris and thoroughly enjoying living abroad when I made the decision to study medicine at Trinity College, Dublin.

Trinity is well known globally, with famous alumni having coined the names of many major disease processes: Abraham Colles (Colles' fracture), Robert Smith (Smith fracture), William Stokes (Cheyne-Stokes respiration; Stokes-Adams syndrome), and Robert Graves (Graves' disease).

Ireland boasts a well-funded government-run health system, where every citizen has basic coverage and most have a reliable primary care physician to navigate their health and preventive treatments. Medical outcomes, including infant mortality, life expectancy, and maternal mortality, are among the best in the world and their health care costs (as a percent of GDP and per capita) are much lower than in the U.S.

Although I enjoyed my time spent in Europe, I, like many others, wanted to come back home to the States for residency. Our



Breanne Bailey, MD
Resident Physician
Emory Emergency Medicine
Residency Program
Atlanta, GA

country is fortunate to have expedited specialist training compared to most other places, where residency programs are a minimum of five years following at least three general "house officer" years after medical school. As one of only three Americans in my class at Trinity, **I knew I would be a unique applicant but that I would have some "informing" to do about the format of my Irish coursework, transcripts, and clinical training** when submitting my ERAS application. However, I did not expect the significant role the "unknown" factor would play in nearly every interview.

It can be surprising how many biases there are against IMGs (for both U.S. and non-U.S. citizens) in the Match process, particularly in the more competitive specialties like emergency medicine. In the recent Match, only 1.8% of new EM residents were IMGs — a very small percentage compared to other specialties: 42.7% in internal medi-

cine, 16.7% in family medicine, and 7.5% in pediatrics.¹ In 2013, emergency medicine had the lowest rate (28%) of U.S. IMG applicants getting their preferred specialty, compared to the overall rate of 48% (by contrast, anesthesiology had 59%).² **A majority of programs will not consider interviewing IMGs, regardless of work experience, volunteer activity, references, or academic credentials.** It is intriguing to read on programs' websites about their curricula boasting international electives and global EM, yet those same pages state they have never had IMGs in their programs. It seems that — despite the diverse applicant pool of countries and programs from which IMGs hail — in some places and programs, there is a general assumption that all IMGs are the same and somehow subpar choices as residents.

Many students don't have the time, money, or patience to take the MCAT over and over again and apply year after year.

This may be due to emergency medicine being a younger specialty, meaning IMGs do not have the same established credibility as they do in other specialties. Coupled with EM being increasingly competitive — even for U.S. seniors — IMGs just do not have a strong presence. Similar to other minority groups that traditionally have not had as large a role in medicine or EM, IMGs may seem “different,” but likely have unique perspectives and experiences to bring to the table.

America is a melting pot of different races, cultures, and nationalities, founded by immigrants on the principles of self-reliance, hard work, and innovation. And yet for residency there can be a great deal of reluctance to hire someone whose path was a bit outside the conventional.

My experience with the Match is what you might call an “aha moment.” *This is*

why people have been fighting to institute diversity in the workplace. As long as people from different backgrounds are not included, the default bias is that they are less desirable, less strong, and less valued. I was crushed when I heard feedback from one program coordinator after my interview: “Bree, people really liked you; one interviewer even wrote you were made for their program. However, unfortunately, we just don't know about the Irish training, so we can't rank you.” Here it was clear as day: discrimination was still quite present in the workforce, despite the gains society has made.

To some degree, we all prefer the familiar; the “known commodity.” Generally, we enjoy working with others who are like us, and often we are reluctant to trust what is new and different. Preferences and biases are human and come from many influences, including our upbringing and values, our experiences in the world, and our interactions with others from backgrounds similar and dissimilar to our own. But the emergency department is a different kind of workplace. As physicians, we need to put aside those preferences and biases and be as objective as possible. We deal with patients of all ages and from every cultural, economic, and religious persuasion. We have to be open to change and different ways of doing things. This had already been introduced to many of us in medical school through cultural competency classes. **There is already recognition that regardless of where we end up practicing, with the current global economy we all will be treating patients from cultures and backgrounds different than our own.**

While accepting that patients may be different than us, an ongoing challenge in medicine is incorporating cultural competence toward our physician colleagues. There are IMG physicians throughout the United States in all medical specialties. It fits with Thomas Friedman's notion of a global economy that he presented in *The World is Flat* and it is a good thing for our country. Many IMG doctors apply to the U.S. Match having at least one year (if not many more) of valuable practical clinical experience — often while working with dramatically fewer clinical resources. **Some have completed entire medical**

residencies in their own countries before starting over again at the bottom rung in the U.S.

I have visited many programs that accept students from Saudi Arabia into their residencies as a part of an agreement with the Saudi Arabian Cultural Ministry. Program directors often sing praises of these residents, who are frequently among the hardest working and well trained in their residency classes. U.S. residents commonly say how enriching it is having the Saudi residents in their programs — not only for the diversity they bring, but also because (despite different cultures and geographic origins) there are actually many similarities between young, tired, and hardworking residents. **Perhaps if we worked regularly with more physicians from culturally diverse backgrounds we would not need those culture competency classes in medical school.** Life and experience alone would serve as our instruction.

Being able to finally come home to join an emergency medicine residency program has been truly amazing. Despite the difficulties, there has been tremendous mentorship from EM faculty from around the country and support from fellow applicants and other residents. Most of these people have been overwhelmingly positive and interested in learning about my unique Irish experience.

Each year, EM is getting increasingly more competitive, even for U.S. seniors, and it is a difficult argument to make that more spots should go to IMGs, or to any other underrepresented group, for the sake of diversity. But perhaps we should challenge ourselves as a specialty to put aside preferences and biases during the application process and consider every applicant as an individual. No two applicants are the same. Every candidate has unique qualities and perspectives to bring to our workforce based on their backgrounds and training. By promoting unique perspectives and valuing diverse training experiences, we are going to improve the practice of emergency medicine.

Diversity in the physician pool not only helps us more accurately reflect the globalization of our patient population, but it also helps us see that while cultural differences do exist, our similarities are what will stand out in the end. ★

Recent Trends in the Applicant Selection Process

Application Trends Over Time

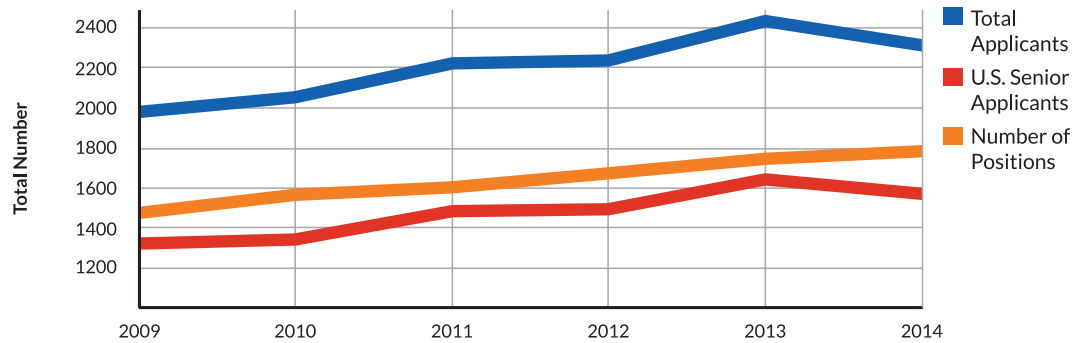


Figure 1. Number of PGY-1 emergency medicine positions, total applicants, and U.S. senior (MD, 4th year) applicants in the years 2009 through 2014. Total applicants include U.S. grad (non-4th year), osteopathic, U.S. IMG, and non-U.S. IMG types.

DIAGNOSING The Match



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Diagnosis — “to know between.” It’s something we do daily as medical care providers, especially in the emergency department as we are faced with a never-ending stream of undifferentiated patients. Each piece of their histories, along with the clues we uncover with our physical exams, laboratory results, and imaging, help point us in the right direction. However, diagnosis is not simply related to medical disease. Each year, graduating medical students are faced with the difficult task of figuring out which residency programs to apply to and, most importantly, how to rank each of the programs where they have interviewed. But perhaps an even more arduous task lies with the residency programs themselves, which often have to sift through thousands of applications to fill a dozen or so positions each year. As emergency medicine becomes an increasingly competitive specialty, how do programs diagnose — know between — their applicants, and vice versa?

The number of applicants and positions is increasing

In the 2014 NRMP Match, there were 1,786 positions offered by 170 residency programs for PGY-1 spots in emergency medicine — a number that has steadily increased from 1,472 positions offered by 141 residency programs in 2009 (prior to 2012, there were also PGY-2 starting positions in EM that were not accounted for in this data). The number of U.S. senior medical students and the total number of applicants appears to have roughly paralleled this increase (Figure 1).

As displayed in Figure 2, the majority of NRMP EM Match positions have consistently been filled by U.S. (MD) seniors — roughly 75-80% in the past six years. However, there still appears to

be room for osteopathic students and a handful of U.S. graduates (non-4th year) and U.S. citizen international medical graduates (U.S. IMGs). Opportunities are fewer for non-U.S. IMGs. Additionally, over the past six years, there has been an average of only 8.5 positions per year that weren’t matched, including 2012, a year in which there were no unmatched spots.

The (over) application phenomenon

You probably applied to too many programs. We know you did, because everybody else did too. But what other choice did you have? This was the safe move. In 2009 and 2011, U.S. seniors who matched had a median of 26 applications to get a median of 17 interview offers. By 2013, the median number of applications

had risen to 33 (a 27% increase) to get the same 17 interview offers. This trend has been even more substantial for the independent applicants (non-MD seniors) who matched. In 2013, they applied to a median of 40 programs and got a median of 8 interview offers (Figure 3).

Perhaps the picture is most grim for those who didn’t match, where it appears that no matter how many applications those folks submitted, their chances of matching were seemingly insurmountable. Looking at the ratio of median number of applications to interview offers, it took unmatched independent applicants 25 applications to receive a single interview, compared to the 1.9 it took for matched U.S. seniors or the 5 it took for matched independent applications (see Figure 4).

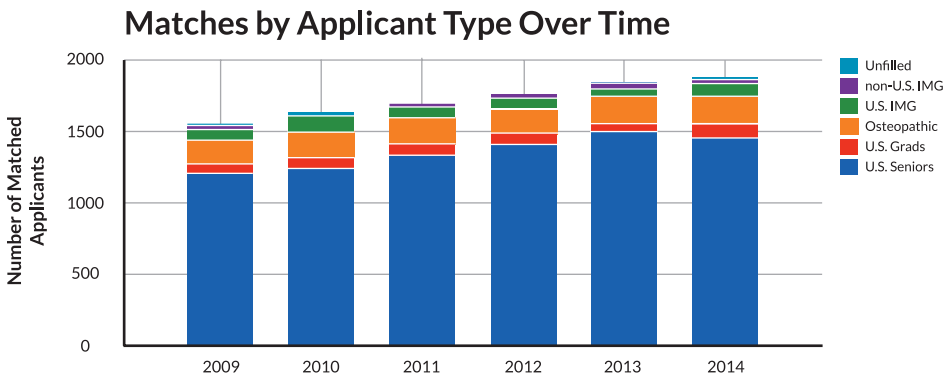


Figure 2. Total number of available PGY-1 positions and number of matches by applicant type over time. The non-U.S. IMG category also includes a small number (2-3) of Canadian and Fifth Pathway applicants each year.

The magic number is twelve

According to the NRMP’s 2014 “Charting Outcomes in the Match” report,¹ regardless of the number of applications you submit and interview offers you receive, what really determines your chances of matching is the number of programs that you rank after interview season. For U.S. seniors, ranking 12 programs is associated with a 99% chance of matching (ranking 7

programs gives you a 90% chance). Each interview completed and ranked after that does not increase your chances of matching (unless you are in a couples Match).

For independent applicants, ranking 12 programs is associated with a 95% chance of matching. Keep in mind that “Charting Outcomes” doesn’t stratify by Match status, so if you’re an independent applicant, don’t be worried if you don’t hit the

magic number. As previously presented, the median number of programs ranked by matched independent applicants in 2014 was 7 (for all independent applicants, this represents an 80% chance of matching). Any program that brings you in for an interview wants to rank you on their list.

Most importantly, do not forget that the Match is still a student-weighted algorithm. For U.S. seniors applying to all specialties in 2014, 50% of students matched to their first choice program, and approximately three-quarters of students matched to one of their top-three program choices.

Program directors respond

At the 2014 Council of Residency Directors in Emergency Medicine (CORD; www.cordem.org) Academic Assembly, Drs. Diane Rimple and Michael Van Meter from the University of New Mexico Emergency Medicine Residency presented some enlightening survey data collected from faculty in residency program

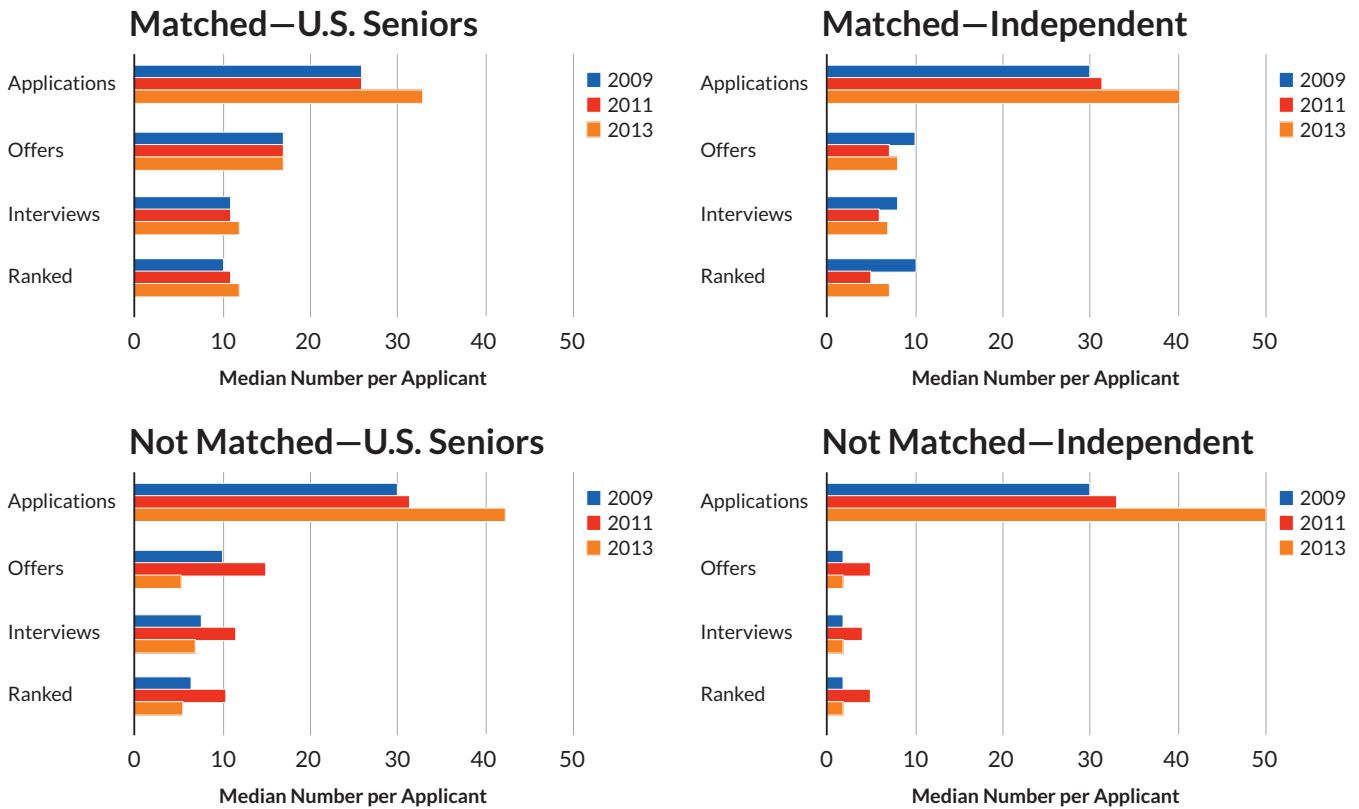
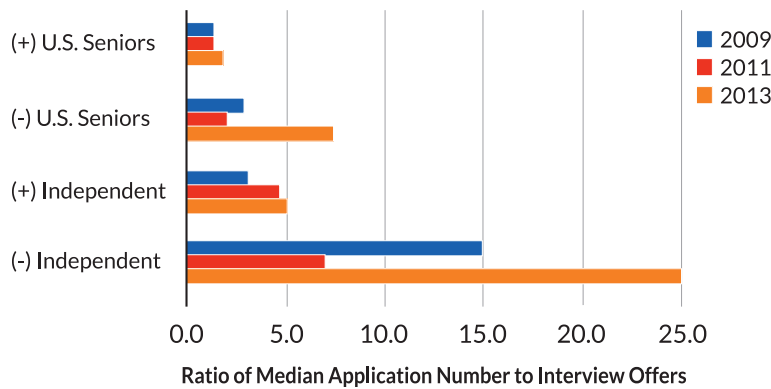


Figure 3. Median number of applications, interview offers, accepted interviews, and programs ranked by match status (matched vs. not matched) and applicant type (U.S. seniors vs. independent applicant).

Figure 4. Trend in the ratio of the median number of applications per single interview offer by match status and applicant type. (+) = matched; (-) = unmatched.

Applications per Single Interview Offer



not filtering are the ones that give them serious consideration (see Figure 6).

The potential dangers of automatic filters

Screening might be efficient, but the filters used by each program are highly variable and can easily lead to arbitrary exclusion of otherwise competitive candidates. When we fail to recognize that applicants are more than the sum of their grades, the potential for collateral damage is real. Each program is looking for different qualities in their applicants. Even within the same program each member of the residency leadership can have different versions of the ideal candidate. And most also have their own ideas of what a “diamond in the rough” looks like as well.

Relative Frequencies of Screening Filter Type by Programs that Report Using Them

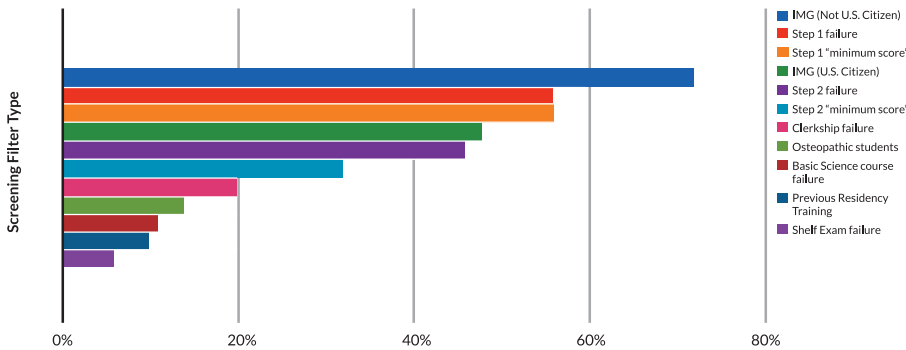


Figure 5. Relative frequency of filter type by the 55% of programs that report using automatic filters.

leadership positions.² This shed some light on how each program is dealing with this unprecedented increase in the number of applications they are receiving.

The use of automatic filters

The rapid rise in the number of applications each residency program is receiving has not been met with a parallel increase in the number of program directors and other faculty available to review applications. At many programs, this has inevitably led to the increased use of automatic filters to reduce the number of applications subject to further consideration (see Figure 5).

While most would not be surprised by the filters above, osteopathic students and IMGs will see that the matched numbers of these applicant types have been relatively stable. The programs

For example, an otherwise “perfect” candidate, with great SLOEs and a 250 U.S. MLE Step 2 score, would not have their application reviewed by as many as 40% of programs if their Step 1 score was less than 210. This seems crazy. And it is. A Step 1 score may, or may not, end up being very important to program directors in creating their final rank list, but it is an easy, objective thing that can be screened to make the number of applications to review more manageable.

Matches by non-U.S. Senior Applicant Type

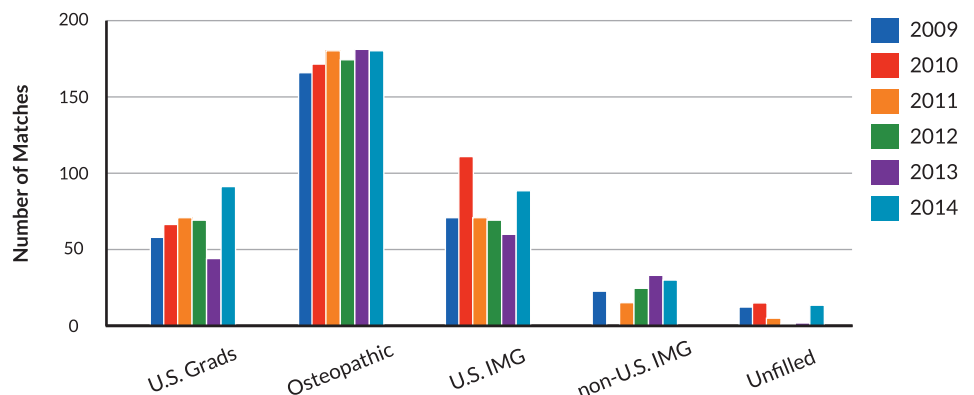


Figure 6. Number of matches by non-U.S. seniors each year by applicant type. The non-U.S. IMG category also includes a very small number (2-3) of Canadian and Fifth Pathway applicants each year.

(All raw data for chart creation taken from data released online by the NRMP)

Assessing the situation

Roughly the same number of students are applying for the same number of positions. Opportunities remain for both MD seniors and independent applicants. The number of applications per student has gone up without a rise in the number of interviews offered. However, the majority of students already had more interviews than they actually needed once the whole process shook out. Programs are getting more applications and some are compensating by using automatic filters to screen applicants. This practice appears to have led to a smaller subset of applicants getting the majority of the early interview offers. The rest of the applicant pool are worried they won't get enough interviews. What can be done at this point?

What an applicant can do now

At this stage, there is little you can change about your application and interviews are in full swing. If you find yourself in the group without enough interview offers, there are still things that you can do.

- 1. Don't panic.** Most programs hold spots or work off a wait list. There is a small group of students holding most of the interviews right now. As these fortunate folks sort out their schedules, they will start cancelling or declining interviews, opening up spots for others. This is a rolling process. That median of 17 interviews was for the entire season, not just for October and early November.
- 2. Be available.** It may be prudent to clear your January schedule for short-notice interviews. These interviews count just the same as the ones done at the beginning of the season. Getting in the door is what matters, not when you do it.
- 3. Show interest.** To get those late-opening interview spots you need to stand out from the rest of the applicant pool. You should politely contact a few programs that you are particularly interested in visiting. Contacting every program you have not heard

from with a generic e-mail is a waste of time. You need to have something to share with them that wasn't in your application. The best example is a local tie or connection that is not clear from the application. Other possibilities are a late-arriving SLOE, or that you are going to be in the area and would be available for any last minute openings.

- 4. Make a back-up plan.** Being an emergency physician is all about having back-up plans and being prepared. Start now. Using the SOAP process to get an EM spot is unlikely. If you have been advised that you are a borderline candidate, or if you are not getting enough interviews, you should be making an alternative plan for what to do next year.

Lessons for next year:

Apply strategically to avoid a competitiveness mismatch

The programs that use the most filters are likely those that get the most applications. From an applicant's perspective, this is probably the most important measure of a program's competitiveness. Gauging your own competitiveness can be difficult, even with the help of an experienced advisor. This is because programs have a huge variability in what they are looking for in an applicant. You may be the ideal "fit" for one program while getting no consideration from another. You can probably also make some educated guesses as to which programs get the most applications – but these are still guesses. You are far better off applying to a diverse group of programs, in case *your* assessments of them or *their* assessment of you is off.

According to survey data collected by Rimple and Van Meter (2014),² 55% of EM faculty have advised a qualified student who did not match into EM, but on the flipside 88% also report advising marginal students who successfully matched. The common reason for both? Strategic applying, or — in the case of the unmatched and qualified student — not applying strategically. Only 53% of students "ranked a mix of both competitive and less competitive programs." Having both types of programs on your list will increase your likelihood of matching. Apply smarter; not harder. ★

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Residency programs don't often emphasize the teaching of communication because house staff are supposed to learn it as medical students.

What Do You Say?

How Interprovider Communication in the ED Affects More than What You Think



Joshua Davis, MSII
Sidney Kimmel Medical College
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Medicine is full of communication. We must communicate effectively with our patients and with other professionals on the care team. Duty-hour limits have also increased the number of shift-to-shift handoffs among residents and trainees, making communication even more critical. In addition, emergency medicine is perhaps the specialty that engages in the most inter- and intra-professional communication. On any given shift, we are not only communicating with an active care team of nurses, pharmacists, and others, but we also take reports from pre-hospital paramedics, consult with inpatient services, and coordinate with primary care physicians for follow up.

As individuals, we tend to think we are good communicators, but that may not necessarily be the case.

We generally do not follow up with patients after they leave the ED, and that means we likely do not always hear about the outcomes of our patients and how poor communication may have played a role. Consider, however, the last time you got a poor sign-out from a colleague going off shift or incomplete information on an inter-hospital transfer. The information you get then can drastically change the patient's course. Whether or not the patient was actually harmed, the potential for harm was clearly there.

It should be no surprise, then, that a breakdown of communication between

physicians is one of the most commonly cited reasons for medical errors, which contributes to a significant number of deaths each year. The landmark 1999 report, *To Err is Human*, estimated preventable medical errors caused between 44,000 and 98,000 deaths per year, with EDs cited as one of the areas with significant risk for patients.¹ The Joint Commission also estimated that in 2014, more than two-thirds of serious preventable adverse events were due to communication errors.²

Communication is also one of the most valuable characteristics that program directors look for during interviews. Handoff communication is one of 12

entrustable professional activities (EPAs) that a residency director should expect an intern to be able to complete independently on day one of residency. Interns, however, overestimate their communication skills, and many medical schools are still lacking a formal handoff curriculum.

It is no wonder that poor communication is such a common problem. Residency programs don't often emphasize the teaching of communication because house staff are supposed to learn it as medical students; yet, interns did not learn it well in medical school. We know that our poor communication can affect our patients negatively and that we can do better. It is time to find a home for communication skills across the spectrum of medical education. Currently, it is expected that interns can conduct a safe, effective handoff on the first day of residency. That is a reasonable expectation for a physician who is managing a patient's care. Standardization of communication training, therefore, needs to be a part of all medical curricula, and really should begin as an undergraduate.

The Accreditation Council for Graduate Medical Education (ACGME) also requires all residency programs to "monitor effective, structured handover processes to facilitate both continuity of care and patient safety."³ Also, programs must ensure that residents are competent in communicating with all team members.³ However, there is little guidance from the ACGME or consensus among programs on how to do this, or whether a residency program is responsible for merely assessing communication skills, or for a formal curriculum. There are also very few tools validated for evaluating resident competency in communication skills.

Communication is clearly a vital component of emergency care, yet research in this area is lacking.⁴ Some would argue that communication is a skill and cannot be taught. However, curricula do exist for various aspects of emergency medicine communication and there is research from other specialties showing that handoff communication training can prevent errors.⁵ The I-PASS curriculum from inpatient pediatrics is one of the newest curricula, and it has shown

positive results in a large, multi-center study.⁵

One of the major issues with developing a successful curriculum in emergency medicine is that there are many different types of communication in the ED that are unique to emergency medicine. There are mnemonics and checklists for communication from other specialties, and some within emergency medicine; yet these are very context-specific and cannot adequately address all areas of communication an emergency physician sees on a daily basis.

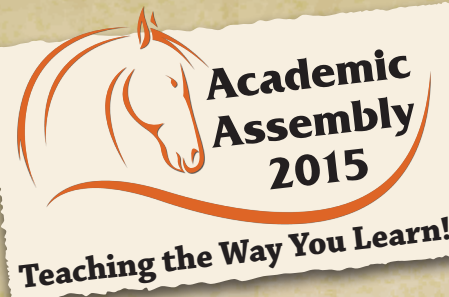
An ideal curriculum needs to focus on communication during shift-to-shift handoffs; with paramedics and out-of-hospital staff; during trauma and resuscitation; for consults and admitting patients; and with staff during a shift. Simulation has been suggested as a way to adequately train residents in communication skills, but there is limited patient outcome data to show that this has been effective. A didactic lecture can be an adjunct in a comprehensive curriculum but has been suggested as a poor way to teach communication skills. Retention of communication skills is also important, as it may wane as physicians progress through training and their careers. Periodic reinforcement and the use of continuous feedback may help long-term retention of communication skills.

Emergency physicians frequently shy away from the more nebulous areas of

research like communication for more "emergent" issues like cardiac arrest, airway management, and neurologic emergencies. Think, though, of the number of patients you saw on your last shift with a stroke or an MI and compare it to how many patients were brought in by EMS, admitted to the hospital, or signed out to another physician at the end of your shift. With the sheer number of handoffs we do per shift, and the number of adverse events and deaths tied to poor communication, this really is a topic in which quality research could significantly improve patient outcomes. Emergency medicine should become a research leader in this field. Research should focus on developing an effective emergency medicine curriculum in communication training, validating assessment tools, and evaluating effectiveness of resident training using patient outcomes.

Whether you're thinking about it or not, some of the most critical aspects of your patient care come not from your thoughtful analysis or actions, but from the simple words you speak and the way you communicate with those around you. As a specialty, we are in a prime position to make a world of difference through how we interact and communicate. With more effort on our part, we can greatly increase patient safety and become excellent examples of communicators in medicine. ★


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The IRB



TIPS on getting your research off the ground



Joshua Bucher, MD
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Undertaking a brand new research project can be a daunting task. Part of this process may involve submitting a proposal to your local Institutional Review Board (IRB) for approval to perform human-subject research. While this is only a small portion of the entire process, it can often be a source of frustration as you receive multiple comments, requests for revision, or a rejection notice. There are a few proofreading steps you can take to help avoid the headache of IRB revisions.

One of the best steps to start with is to have someone who is familiar with

research protocol design review your proposal. More experienced researchers have frequent interactions with IRB staff. They appreciate the intricacies of writing a proposal and may be able to identify areas of your protocol that require revision prior to submission.

Make sure there are no glaring errors that would cause a patient-safety issue or loss of patient confidentiality. If you are performing a prospective trial involving humans, there needs to be a clear safety plan for any anticipated and unanticipated side effects or adverse reactions to the therapy being studied.

If you submit a protocol with obvious safety errors or situations in which loss of confidentiality is an issue, the IRB will more highly scrutinize the rest of your protocol because it would be seen as a careless error.

During your proofreading, when you are reexamining all of your comments and wording, verify that every plan is 100% clear. Statements, such as “data will be recorded in a form,” need to be clarified. For example, you can have a written or electronic data form. The type of form, information on the form, location of the form, format, where it will be stored, and what security measures are protecting it all need to be addressed in addition to a sample of the actual form you plan to use.

That leads into the next point – ensuring that all required documents are included with your application. All e-mails, recruitment material, flyers, data-collection sheets, medical record forms, surveys, and other documents are required with your application. Ensuring these are available in the beginning of the application will prevent it being returned to you for revisions.

Attending an open IRB meeting, and listening to the comments made, is one of the best opportunities to learn how it scrutinizes and evaluates each proposal. I attended two of the sessions at my institution, and I left with a greater understanding of what they require from applications and why they need it. The IRB must independently evaluate every study proposal, and it is their responsibility to ensure that all aspects are accounted for. They will scrutinize each proposal literally, word for word. Attending the sessions was a great learning opportunity for me, and I would strongly encourage anyone interested in performing research to attend one.

Lastly, nothing should be left open to interpretation or assumption. A statement like “participants will be monitored in a controlled setting” is leaving the “controlled setting” open to interpretation. As long as everything in your IRB application is clearly specified, you should have no trouble with approval.

The process of submitting your proposal through the IRB can be daunting and is often fraught with frustration. These few simple tips may save you some headache to help you push through the IRB so you can get back to what fuels your research interests. ★

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The sequelae of blunt orbital trauma fall over a broad spectrum from simple, isolated soft tissue contusions to frank globe rupture.



Image 1. Left lid ecchymosis and edema after blunt orbital trauma. This patient reported tripping and falling forward onto the corner of the kitchen counter, resulting in swelling, discoloration, decreased vision, and inability to open the lids.

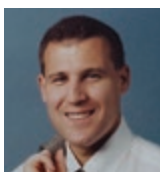
Eye

to the Problem

Emergency Department Evaluation of Blunt Orbital Trauma



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Introduction

More than 2.5 million eye injuries occur each year.¹ According to information gleaned from the Healthcare Cost and Utilization Project (HCUP), there were 636,619 emergency department visits related to eye injuries in 2008, representing an average of 1,744 ED visits daily.² Blunt orbital trauma is a significant cause of ocular morbidity and among the common preventable causes of monocular blindness in developed countries, and is encountered in the ED on a regular basis.^{3,4,5} An efficient, organized approach to

the assessment of blunt orbital trauma in the ED is essential.

Epidemiology

The statistical brief compiled from the HCUP reports that men sustained eye injuries more commonly than women. This was specifically true in men younger than 44 years old.² The most common eye injury seen in the ED was to the superficial cornea. The most common cause of eye injury seen in all 2008 ED visits was the result of the eye being struck by, or against, an object. This was followed by falls and then burns as the second and third most common causes of injury. Patient injuries requiring admission to the hospital were most commonly the result of falls, motor vehicle accidents, or the eye being struck by or against an object, in that order.² Recently, Cheung, et al, analyzed injury data and noted that a conservative lifetime prevalence of eye injury in the general population is 14.4%.⁴ This study found the most common cause of hospital-based ocular emergencies was motor vehicle accidents followed by falls.⁴ They found that in their study population

the most common diagnoses were ocular contusions with underlying orbital fractures, orbital trauma, and posterior segment disease.⁴

Emergency department evaluation of blunt orbital trauma

Emergency department evaluation of any orbital trauma should begin with the history. The patient should be queried about the nature of the injury, the mechanism, and the circumstances under which the injury occurred. The timing of the injury is also important and may change the management and disposition. The patient should be asked about visual changes following the event, his or her pain level, and if there are any entoptic phenomena (new onset of flashing lights, floating spots, or positive scotomata). The physician should gather history of previous eye injury or eye disease. Additional pertinent history includes the use of contact lenses or spectacles, any history of previous ocular surgeries, any regular use of ocular medications, a general health history, and a history of known allergies.



Image 2. The same patient from Image 1. Because of the severe lid edema, a lid retractor is used to visualize the globe.

A general impression or external inspection can be made during the interview. Make note of adnexal lacerations, incisions, eyelid ecchymosis, eyelid abnormalities, globe displacement, extraocular muscle motility limitations, subconjunctival hemorrhage, conjunctival injection, or corneal abrasions.

The sequelae of blunt orbital trauma fall over a broad spectrum from simple, isolated soft tissue contusions to frank globe rupture. Adjuncts such as radiographic imaging should be used where applicable to facilitate diagnosis and timely, appropriate ophthalmologic disposition.

Be prepared

You will need some basic tools to effectively evaluate the injured eye in the emergency department (*Table 1*).

Table 1. Basic Tools for ED Eye Exam

- Snellen eye chart or pocket
- Transilluminator (penlight)
- Handheld Wood's lamp
- Slit lamp
- Handheld, direct ophthalmoscope
- Tonometer
- Fluorescein dye, anesthetic drops (alcaine, tetracaine)
- Metal or plastic eye shield
- Tape

Visual acuity

Visual acuity should be tested in every patient who presents with any eye complaint. This is the eye's vital sign. Acuity should be documented just after the history (*Table 2*). If the patient cannot

open their eyes because of photophobia, blepharospasm, or lid edema, the acuity must still be attempted, but if unable to be adequately assessed, it should be documented as such. In these cases, instillation of a topical anesthetic to allow for improved patient comfort can sometimes facilitate the exam.⁶

External inspection: Soft tissues, facial bones, orbital rim

External inspection should include the periorbital soft tissues, the lids, and the orbital bones, noting any lacerations, abrasions, contusions, or edema. All involved areas should be palpated for subcutaneous emphysema or crepitance.⁷ The facial and orbital bones should also be palpated to determine extension of injury. The presence of epistaxis may suggest a medial wall intrusion.⁷ Orbital wall fractures have the capability of inducing bleeding and subsequent proptosis secondary to increased orbital fluid volume. The globe may be proptotic secondary to orbital fat herniation, or it may be enophthalmic secondary to extraocular muscle entrapment. This may or may not be obvious on external exam.

In any ocular trauma, it is important to evaluate the nerves of the face for sensory deficits, specifically in the V2 distribution (the maxillary nerve).⁷ This nerve is in a particularly vulnerable position as it exits from the infraorbital rim. Often, the increased intraorbital pressure in trauma, in concert with a weak orbital floor, allows for herniation of the orbital soft tissues into the maxillary sinus below. A study by Kreidl, et al, investigated the significance of intraocular sequelae following blunt orbital trauma. They found that there was a higher rate of significant intraocular sequelae in patients who did not sustain orbital fractures, suggesting that the orbital floor, or "blow out," fracture may in fact be protective for the globe.^{3,8} Previous studies did not share this data and conclusion, however.³

Many times, the lid and periorbital soft tissue edema is so severe that the lids cannot be easily or adequately retracted, making assessment of the globe and surrounding structures difficult (*Image 1*). A Desmarres lid retractor (*Image 2*) or a retractor improvised from a paper clip can be used to raise the superior lid.⁶ Ocular ultrasound (US) may be useful in this setting and

may be a more comfortable approach to evaluating structures behind the edematous lids.⁹ Excess pressure on the globe should be avoided during the exam.

The use of the swinging flashlight test to assess the visual system for a relative afferent pupillary defect (RAPD, or Marcus Gunn pupil) is important early in the examination process.⁶ This test compares one eye's afferent prechiasmatal pathway to the efferent pathway of the other eye. When a light is shined into one eye, constriction is expected in the contralateral pupil. This serves primarily as a stimulus-protective response. It occurs via the consensual reflex nerve pathway which connects via the Edinger-Westphal nucleus in the midbrain. When the flashlight is swung between the two eyes, the direct response of each eye can be seen. Contralateral pupillary dilation indicates that the pathway on that side is sending less stimulation into the system than the eye where the flashlight just was. This objective test cannot be manipulated by the patient and demonstrates the existence of true ocular pathology.

Cornea and conjunctiva

The emergency physician can begin ocular structure assessment with gross inspection of the conjunctivae. Complete inspection includes eversion of the superior lid. Any superficial foreign bodies, including contact lenses, should be removed. The slit lamp with a cobalt blue filter or Wood's lamp can be used in combination with fluorescein dye to evaluate the cornea and conjunctiva for defects. If there is suspicion for corneal perforation, the Seidel test should be performed. This is done by painting the lesion with fluorescein dye. If the dye is displaced inferiorly by fluid moving away from the lesion, the test is positive for perforation (*Image 3*).

Subconjunctival hemorrhage (SCH) serves as a clue to the extent of trauma. The larger and more extensive the subconjunctival bleeding, the more extensive and severe the

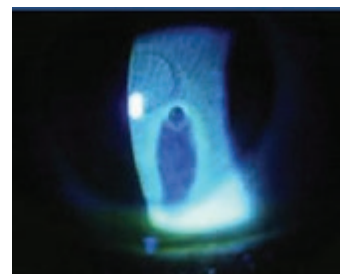


Image 3. Positive Seidel test. Fluorescein staining of the intraocular contents secondary to corneal perforation.

injury is likely to be.¹⁰ In instances of large SCH, where visual inspection is inhibited, more advanced imaging may be indicated to rule out globe rupture. The weakest portions of the globe are under the bellies of the recti muscles, at the limbus, and around the posterior scleral foramen.¹⁰

Anterior chamber, iris, and pupil

A slit lamp should be used when at all possible to evaluate the adnexa and anterior chamber. The evaluation should include examination for foreign material, lacerations, hyphema (blood in the anterior chamber), anterior chamber inflammation (cells and flare), iridodialysis (the “D”-shaped pupil), iris tears (polycoria, ectopic pupillae), penetrating iris injuries (the “peaked” pupil), abnormalities of the angle (cyclodialysis), dislocated lens (luxation), or a lens entrapped in the pupil.

Patients with hyphema may present with the classic signs of uveitis, including painful photophobia, conjunctival hyperemia, blurred vision, throbbing eye pain, lacrimation, and blepharospasm.⁷ Intraocular pressure (IOP) should be assessed with a tonometer. Any time IOP is elevated following blunt traumatic ocular injury, a hyphema should be suspected, whether or not blood is visible in the anterior chamber. The colloquial term “eight-ball hemorrhage” connotes complete filling of the anterior chamber with blood and is so named because when an anterior chamber fills with clotted blood, it appears black, like a billiard ball. Complications of hyphema include corneal blood staining and hemolytic glaucoma secondary to angle blockage. While treatment is generally not complicated (cycloplegics, topical antibiotic and IOP control, and pain management),



Image 5. Maxillofacial imaging demonstrating a left lamina papyracea fracture from blunt orbital trauma. From the same patient seen in images 1 and 2.

variations in anatomy and need for follow up usually warrants ophthalmology consultation.

Posterior chamber

Examining the posterior chamber with the slit lamp or the ophthalmoscope can be difficult in uncomplicated conditions, let alone following significant ocular injury with accompanying blepharospasm. If there is presence of a relative afferent papillary defect, poor visual acuity, or lack of red reflex, there should be concern for a complication in the posterior chamber. Given the time-sensitive nature and complexity of these injuries, ophthalmologic consultation is a must.

Globe rupture

Globe rupture, also termed scleral rupture, can occur via direct penetrating injury or as the result of blunt force trauma that elevates the intraocular pressure and exceeds the limits of the shell. Some globe ruptures are obvious, with extrusion of intraocular contents (lens, iris, or vitreous fluid), while others may be more subtle (*Image 4*). Indicators of potential globe rupture include subconjunctival hemorrhages expanding beyond 270 degrees around the limbus, an irregularly-shaped pupil, vitreous hemorrhage, and proptosis.^{6,10} When a ruptured globe is suspected, manipulation of the eye should be withheld to prevent accidental prolapse of additional tissue.⁶ This is an obvious ophthalmologic emergency, and the eye should be protected with a plastic or metal eye shield.^{6,7}

Optic nerve injury

Traumatic optic neuropathy can occur directly or indirectly secondary to the closed compartment forces following injury-induced edema. Loss of vision, proptosis, visual field deficits, and relative afferent papillary defect are all suggestive signs.⁷

Retrobulbar hemorrhage

The bony orbit is composed of seven rigid bony walls (maxilla, frontal, zygomatic, ethmoid, sphenoid, lacrimal, and sphenopallatine). Anteriorly, the orbital septum and eyelids form another fairly inflexible boundary. The medial and lateral canthal tendons attach the eyelids to the orbital rim and limit the forward movement of the globe.¹¹ Bleeding from injured orbital vessels into this volume-limited orbit has the potential to increase the volume, and

Image 4. Globe rupture. Scleral defect (left) and close-up of the scleral rupture as seen by biomicroscopy (right).



thereby the intraorbital pressure. Pain, loss of vision (compressive optic neuropathy), and proptosis result as retro-orbital bleeding increases. This is termed orbital compartment syndrome, and it places the central retinal artery and vein at risk of collapse.^{6,11} It represents another absolute ophthalmologic emergency. Decompressive lateral canthotomy is the emergent treatment, and is within the scope of the ED physician, though it probably should be deferred to the ophthalmologist if they are readily available.⁶

Imaging

Maxillofacial CT scan, including the orbits, should be obtained for any presentation with significant mechanism of ocular injury (*Image 5*). In some busy emergency departments, there may be a delay in getting a CT scan due to department volume. Should this be the case, consider bedside ocular US. The use of the linear array probe to assess static orbital anatomy, as well as extra-ocular eye movements and pupillary reflexes, is described by Harries, et al.⁹ The literature also describes reviews of clinical cases in which the diagnosis of globe rupture, retrobulbar hematoma, lens dislocations, and retinal detachment were made through closed eyelids with use of the bedside US.^{12,13} Data continues to emerge for using bedside US as a determinate for intraocular pressure. Care should be taken not to exert undue pressure on the eye in case globe rupture is present.¹⁴ If your suspicion for rupture is high, US should probably be avoided.

Conclusion

Blunt ocular trauma presents a number of pathological entities that can have a profound and permanent effect on the patient's vision. Appropriate, logical, and systematic examination with proper first aid and timely consultation can reduce morbidity and provide for optimum recovery and outcomes. ★

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ARISE and ProCESS

*The Enlightened Era
of Sepsis Management*

Since the Surviving Sepsis Campaign (SCC) Guidelines came out in early 2013,¹ literature on sepsis management has expanded with not only the ProCESS trial,² but now the ARISE trial³ and other research. These new studies represent landmark updates affecting our specialty (*see the discussion of ProCESS in the June 2014 issue*). We will discuss how this new literature affects your ED management.

What is the ARISE trial, and how does it compare with ProCESS?

The ARISE trial is a prospective, randomized, parallel-group trial that hypothesized that early goal-directed therapy (EGDT) would improve mortality outcomes when compared to usual care.³ It enrolled 1,600 patients in early septic shock (defined as sepsis with either an SBP <90 mmHg or a MAP <65 mmHg after ≥1 L bolus in 1 hour or lactate ≥4 mmol/L) and stratified them into the EGDT versus usual care groups with intervention therapies given until six hours after randomization. Predictably, EGDT and its use of arterial and central venous catheters for continuous ScvO₂ measures resulted in significantly greater use of vasopressor infusions, blood transfusions, and volume of IV fluids versus the usual care group. However, EGDT had no difference in the primary outcome of 90-day all-cause mortality when compared to usual care (18.6% vs. 18.8%; RR 0.98, 95% CI 0.80-1.21). **Compared to usual care, EGDT did not improve mortality.**

The ProCESS trial involved 1,341 patients in early septic shock (same parameters

as ARISE) and stratified them into three groups (protocol-based EGDT, protocol-based standard therapy, and usual care) measuring 60-day in-hospital mortality as the primary outcome.² While the ProCESS trial involved multiple EDs in the United States, ARISE was multinational and incorporated not only academic centers, but also community hospitals and smaller institutions that might be more resource constrained.⁴ The ProCESS study design incorporated the nuance of three groups because they questioned whether a protocol approach might be different from usual care and, if so, which protocol was better. The terminology of the three groups from the ProCESS trial has been somewhat confusing to many readers.

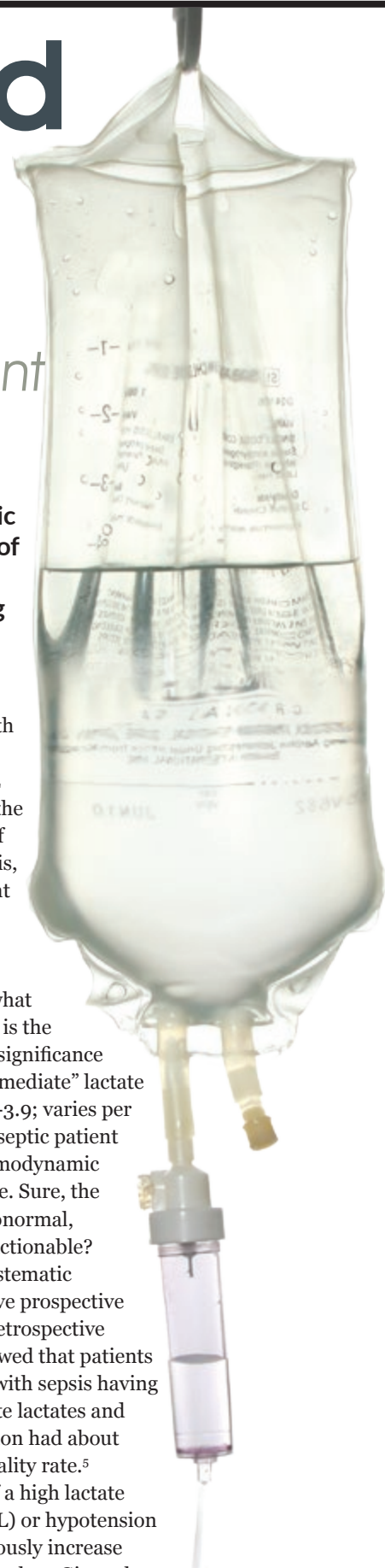
In short, individuals in the protocol-based EGDT group received pre-determined aggressive care as defined by the famous Rivers study. The protocol-based standard therapy was very similar, though use of central access was not required, nor was resuscitation fluid dictated. Patients in the usual care group received treatment completely left to the discretion of the treating physician and followed no preset protocols. Usual care was still aggressive care by most measures, however. Ultimately, ProCESS showed no difference in mortality outcomes at 60 days, 90 days, or at one year among all three groups.

Both the ProCESS and ARISE trials make it clear: usual care, as practiced in these studies, is non-inferior to EGDT in mortality outcomes for patients in early septic shock.

What are the prognostic qualities of lactate in managing sepsis?

We know that septic patients with a lactate >4 mmol/L qualify for the diagnosis of severe sepsis, independent of hemodynamic measures.

However, what is less clear is the prognostic significance of an “intermediate” lactate (range: 2.0-3.9; varies per study) in a septic patient without hemodynamic compromise. Sure, the lactate is abnormal, but is this actionable? A recent systematic review of five prospective and three retrospective studies showed that patients diagnosed with sepsis having intermediate lactates and normotension had about a 15% mortality rate.⁵ Presence of a high lactate (>4 mmol/L) or hypotension would obviously increase mortality further. Given that



these sepsis patients with intermediate lactates could progress to septic shock, they should receive overall aggressive care. Compared to mortality rates of other acute emergencies like myocardial infarction (5%), nonmassive pulmonary embolism (~15%), and ischemic stroke (12%), an intermediate lactate value in a septic patient without hemodynamic compromise still warrants critical concern, and reevaluation based on lactate clearance should be considered.⁵

Are there any updates on blood transfusion parameters?

Currently, the Surviving Sepsis Campaign (SSC) recommends RBC transfusion if the Hgb is less than 7.0 g/dL, with a target range of 7.0-9.0 g/dL. This excludes additional extenuating circumstances like myocardial infarction, severe hypoxemia, acute hemorrhage, or ischemic coronary artery disease.¹ However, with the limited data published so far, there is still controversy regarding the risks and benefits of transfusion in patients with septic shock. The recent Transfusion Requirements in Septic Shock (TRISS) multicenter clinical trial involved 998 septic shock patients who were administered RBC transfusions upon reaching predetermined trigger values (lower-threshold group [Hgb \leq 7 g/dL] versus higher-threshold group [Hgb

\leq 9 g/dL]).⁶ **The lower threshold group had significantly fewer transfusions with similar 90-day mortality outcomes** (even accounting for age, chronic CVD, and acute physiologic parameters). **Secondary outcomes, including use of life support measures, severe adverse reactions, and ischemic events, were also similar.** This study helped to reaffirm that a Hgb $<$ 7.0 g/dL appears reasonable as a threshold for transfusion and that a liberal transfusion approach in septic patients should be scrutinized critically.

How time-dependent is antibiotic administration?

The latest SSC guidelines recommend “administration of effective IV antimicrobials within the first hour of recognition of septic shock and severe sepsis....”¹ The relationship between delay in antibiotics and worsened mortality in septic shock was cogently established by Kumar, et al, in 2006.⁷ A recent retrospective analysis by Ferrer, et al, expands this to include septic shock and severe sepsis patients. This study enrolled 17,990 patients in various ICUs in Europe, the United States, and South America.⁸ They showed significant harm if the time between patient

presentation and first antibiotic administration exceeded two hours. As expected, they found mortality steadily increasing with each hour of delay in antibiotic timing in the first six hours and beyond. Figure 1 shows the predicted percent mortality rate with 95% CI in relation to time to first antibiotic upon patient presentation in the United States.

So, there appears to be benefit to following the SSC bundle recommendations to administer broad-spectrum IV antibiotics within the first hour.

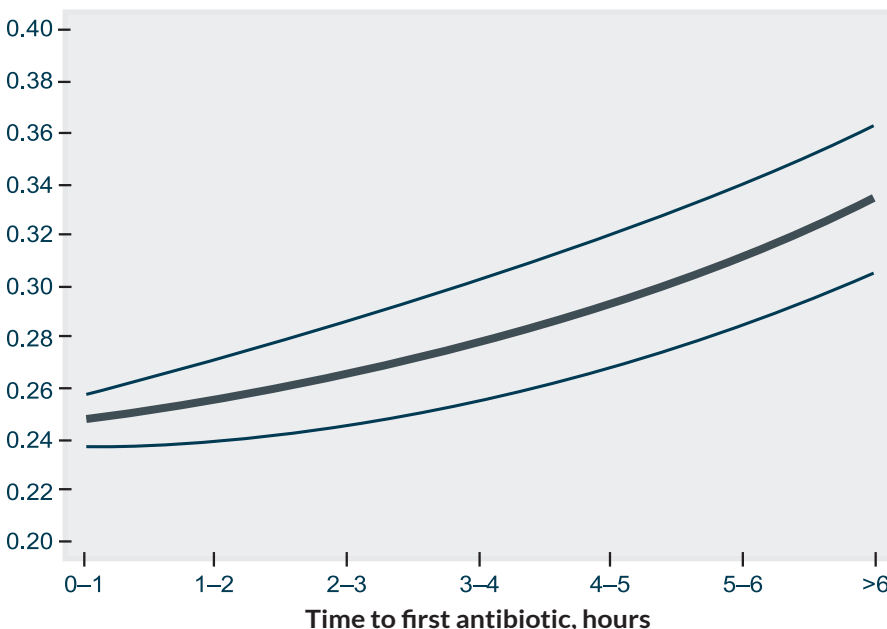
Should I consider other fluids beyond normal saline for resuscitation?

Though some data suggest a trend in mortality benefit with albumin, especially in larger volume resuscitations, IV crystalloids continue to be the de facto fluid of choice.¹ The guidelines recommend a 30 cc/kg fluid challenge in the context of sepsis-induced tissue hypoperfusion or suspicion of hypovolemia. There is recent literature suggesting that balanced fluids (e.g., lactated Ringer’s solution [LR]) should not be discounted.⁹ Benefits of LR include an electrolyte composition closer to plasma, whereas isotonic saline has supraphysiologic chloride content and leads to hyperchloremic metabolic acidosis. A recent retrospective cohort study evaluated the effects of balanced fluids in 6,730 septic patients requiring ICU admission and vasopressors.¹⁰ The study found a lower in-hospital mortality (19.6% vs. 22.8%; RR: 0.86; 95% CI 0.78-0.94) in those who received a fraction of balanced fluids (in most, balanced fluids represented $<$ 40% of total resuscitation fluids) compared to the non-balanced-fluid group. Also, there appeared to be a reduction in mortality with increasing proportions of balanced fluid use. Though there may be a suggested advantage of balanced crystalloids versus saline, the use of balanced fluids in resuscitation of septic patients still requires further randomized controlled trials to characterize its effect.

What’s the conclusion?

With all of the new data, some old practices may be put into question. A few things can be highlighted, however. Sepsis continues to be a time-dependent condition, just like myocardial infarction or stroke. Early recognition, hemodynamic resuscitation, broad empiric IV antibiotics, and source control are all critical actions. And remember, your “usual care” is probably just as good as EGDT. ★

Figure 1. Predicted Hospital Mortality for Time to First Antibiotic Administration



Adapted from “Empiric antibiotic treatment reduces mortality in severe sepsis and septic shock from the first hour: Results from a guideline-based performance improvement program.”⁸⁸



Up to 10% of all newborns will require some assistance to begin regular breathing, and just under 1% of newborns will require extensive resuscitative efforts.

Resuscitating the Neonate

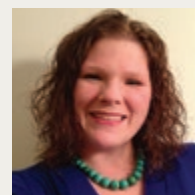
Introduction

The delivery of a newborn in the emergency department can be a very stressful experience, and even more so if the baby is premature or the result of a perimortem C-section. Recent data shows that the number of perimortem C-sections has increased as emergency physicians and obstetricians have become better trained in the procedure.¹ Per the CDC, there has also been a steady increase in the number of out-of-hospital births in the U.S. from 0.87% in 2004 to 1.36% in 2012, accounting for up to a staggering 6% of births in some states, increasing the likelihood that a neonate in distress may show up in an ED near you.²

Physiology

Taking care of the neonate requires some baseline knowledge of the rapid changes in physiology associated with birth. Up to 10% of all newborns will require some assistance to begin regular breathing, and just under 1% of newborns will require extensive resuscitative efforts. There are three major changes that occur in the

neonate's lungs to allow for oxygenation: alveolar fluid absorption; increase in systemic blood pressure after clamping the umbilical cord from the placental circuit; and decreased pulmonary vascular resistance.³ The vast majority of all neonatal transition problems result from a disruption in one of those three processes. If there is inadequate ventilation (either



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Table 1. Permissive Hypoxia Oxygen Saturation Resuscitation Goals

Targeted Pre-Ductal SpO ₂ after Birth	
1 min	60-65%
2 min	65-70%
3 min	70-75%
4 min	75-80%
5 min	80-85%
10 min	85-95%

Adapted from: Kattwinkel J. *Textbook of Neonatal Resuscitation*. 6th Edition. Elk Grove Village, IL. American Academy of Pediatrics; 2011.

weak breaths or meconium blocking the airways) the baby will not be able to force the fluid out of the alveoli. If there is systemic hypotension, possibly due to blood loss or if neonatal hypoxia or ischemia results in bradycardia and poor cardiac contractility, the neonate will fail to have the anticipated increase in blood pressure. Finally, if the pulmonary arterioles fail to dilate or if the infant has persistent pulmonary hypertension of the newborn, the pulmonary blood flow will be restricted, limiting the systemic supply of oxygenated blood.

Initial assessment

It is important to know who to call for help when faced with a neonate in the ED for hands and appropriate equipment. Call the NICU and send someone to grab the department's "born on arrival" kit. Remember that more than 90% of all children transition to the outside without the need for resuscitation and only routine care. An ED physician may only need a warm towel and a bulb syringe to save the day! The initial steps of resuscitation involve asking three questions: 1) Is the baby a term gestation? 2) Is the baby breathing or crying? and 3) Does the baby have good tone? If the answer to all of these is "yes," then provide routine care and let the newborn stay with mom.

Initial resuscitation

If "no" is the answer to any of the three preliminary questions, the infant requires resuscitation. Remember, most neonatal cardiovascular compromise is respiratory mediated. The next steps of the resuscitation will take place in 30-second

increments. The clock starts as soon as the neonate is born or reaches your care. Hit the timer button on the radiant warmer or ask a colleague to start keeping time. The initial steps involve providing warmth under a radiant warmer; removing any wet or fluid-stained linens; opening the airway by placing the infant in "sniffing" position with a slightly extended neck, if necessary suctioning the mouth then nose; and stimulating the baby. By 30 seconds, feel for the pulse at the base of the umbilical cord. **The two numbers to remember in neonatal resuscitation are 100 and 60. If the infant has a heart rate of less than 100, is gasping, or apneic at 30 seconds of life, it is time to start positive-pressure ventilation (PPV).**

Optimize ventilation

Positive-pressure ventilation should be delivered to infants with a heart rate less than 100, who are in respiratory distress, or who are apneic at 30 seconds of life. Assure a good seal around the mask and monitor for adequate chest rise to adjust the breath volume. Breaths should be at a rate of 40 to 60 breaths per minute. **It is important to avoid hyperoxia. Oxygen saturation should guide resuscitation, so a pulse-oximetry probe should be placed on the infant's right (pre-ductal) upper extremity.** Start the resuscitation with 21% oxygen on the blender. Permissive hypoxemia is allowed in the first 10 minutes of life (Table 1). Neonates require similar tidal volumes as adults--only 4-6 mL/kg.³ If the infant has a heart rate over 100 and is breathing spontaneously but has persistent cyanosis or labored breathing, consider CPAP. If the baby improves, the heart rate rises above 100, and the infant has adequate spontaneous respirations, transition to post-resuscitative care. However, if after taking corrective ventilation steps and achieving appropriate chest rise and fall, the heart rate has fallen below 60, proceed to the next step of resuscitation and begin chest compressions.

Support circulation

If after 30 seconds of effective PPV an infant remains profoundly bradycardic with a heart rate less than 60, begin

compressions. The hands encircling the chest technique, with the thumbs placed on the sternum, is more efficacious than the two-finger technique. Compressions should be to a depth of approximately one-third the AP diameter of the chest with a ratio of three compressions to each breath at a rate of 120 events per minute (90 compressions and 30 breaths). It is helpful to say aloud "one-and-two-and-three-and-breathe" to coordinate your efforts. If the newborn requires circulatory support and continues to have a heart rate below 60 after 45-60 seconds of coordinated CPR, it is best to consider a definitive airway at this time.

Airway management

Intubation is a skill integral to emergency medicine, but there are some aspects of intubating a neonate that differ from the more commonly encountered adult intubations. Note that full-term neonates have sizable occiputs and a small shoulder roll may be required to attain proper airway alignment given the profoundly anterior larynx. Uncuffed ET tubes, Miller blades, and size variations based on birth weight and gestational age are standard (Table 2). Use of a stylet is optional. Neonates should not be paralyzed; remember that one may see closed or moving vocal cords. Be patient and wait for the neonate to breathe and open the cords before attempting to pass the tube. These babies have no reserve and will become hypoxic very quickly; intubation attempts should be no longer than 30 seconds in duration. Confirm placement as for an adult intubation.

Pharmacotherapy

If the baby has continued bradycardia <60 with adequate compressions and ventilation, the next step in resuscitation is pharmacotherapy. **The only medication to be used during a neonatal resuscitation is epinephrine.** The standard dosing of 1:10,000 epinephrine is 0.1-0.3 mL/kg, which amounts to 0.01-0.03 mg/kg. This may be given every 3-5 minutes as in PALS and ACLS. Epinephrine is preferentially given IV; however, access can be difficult to obtain. Venous access may be quickly achieved by placing an emergent umbilical venous line. Remember that the umbilical cord

should have two small arteries and one floppy vein. Attempt to sterilize the umbilical stump and place an umbilical tie around the base of the cord to avoid exsanguination. Use a 3.5 Fr catheter for neonates less than one kilogram and a 5 Fr for all other infants. In an emergent case, insert the catheter until you have blood return.

If the baby remains bradycardic, pale, or continues to have poor capillary refill after epinephrine, consider acute blood loss.

Initial volume expansion should be 10 mL/kg of crystalloid or non-crossmatched O blood. Avoid rapid pushes, as sudden fluid shifts have been associated with increased risk of intracranial hemorrhage in premature infants.⁴

Post-resuscitation care

Ideally, all neonates requiring resuscitation will respond well, begin breathing spontaneously with an improved heart rate, and can be transitioned to post-resuscitative care until pediatricians assume care. Unfortunately, not all infants respond well. Current literature supports the discontinuation of resuscitative efforts after 10 minutes of asystole, reporting poor likelihood of survival and severe disability in the rare survivor.³

Special considerations

Meconium aspirations

Meconium staining of the amniotic fluid places infants at risk for meconium aspiration syndrome. Though the data is still somewhat equivocal, infants who are born depressed and not crying will require endotracheal intubation with a meconium aspirator device attached to the endotracheal tube to allow suctioning of thick meconium from the trachea. Move to standard resuscitation when the infant becomes vigorous or cries with drying and suctioning.

Extreme prematurity

Preterm labor and precipitous delivery of an extremely premature infant may present first to the emergency department. Premature infants are vulnerable to rapid heat and moisture losses. **Resuscitation of these babies must focus on avoiding hypothermia.** That's right! Premature infants <29 weeks should be

Table 2. Endotracheal Tube Selection

Weight (g)	Gestational Age (wks)	Tube Size	Miller Blade
<1,000	<25	2.5	00
1,000–2,000	30	3.0	00 or 0
2,000–3,000	35	3.5	0 or 1
3,000–4,000	40	4.0	1

Adapted from: Kattwinkel J. *Textbook of Neonatal Resuscitation*. 6th Edition. Elk Grove Village, IL. American Academy of Pediatrics; 2011.

it is important to know who to call for help when faced with a neonate in the ED for hands and appropriate equipment.

wrapped in a gallon-sized, food-grade polyethylene plastic bag up to their necks to avoid moisture and heat loss.⁵ The most experienced provider in the room should be ready to quickly intubate these neonates. Handle these infants with care, as they are at increased risk for intraventricular hemorrhage and neurologic injury with rapid shifts in oxygenation, hydration, temperature, and pressures.

Hypoxic ischemic encephalopathy

Infants who experience significant hypoxic or anoxic injury are at risk for neurologic disability or death. An acute perinatal event, such as a precipitous delivery or placental abruption, contributes to hypoxic ischemic encephalopathy. Full-term infants with significant depression and acidosis may be eligible for therapeutic hypothermia. Hypothermia has been found

to be neuroprotective and associated with a decreased risk of death and neurologic injury.⁶ Full-body hypothermia must be performed in a higher level NICU with the capability to cool and perform continuous EEG monitoring, so NICU consultation for possible air transport may be necessary. The protocol must be initiated within six hours of birth (*Table 3*).

Conclusion

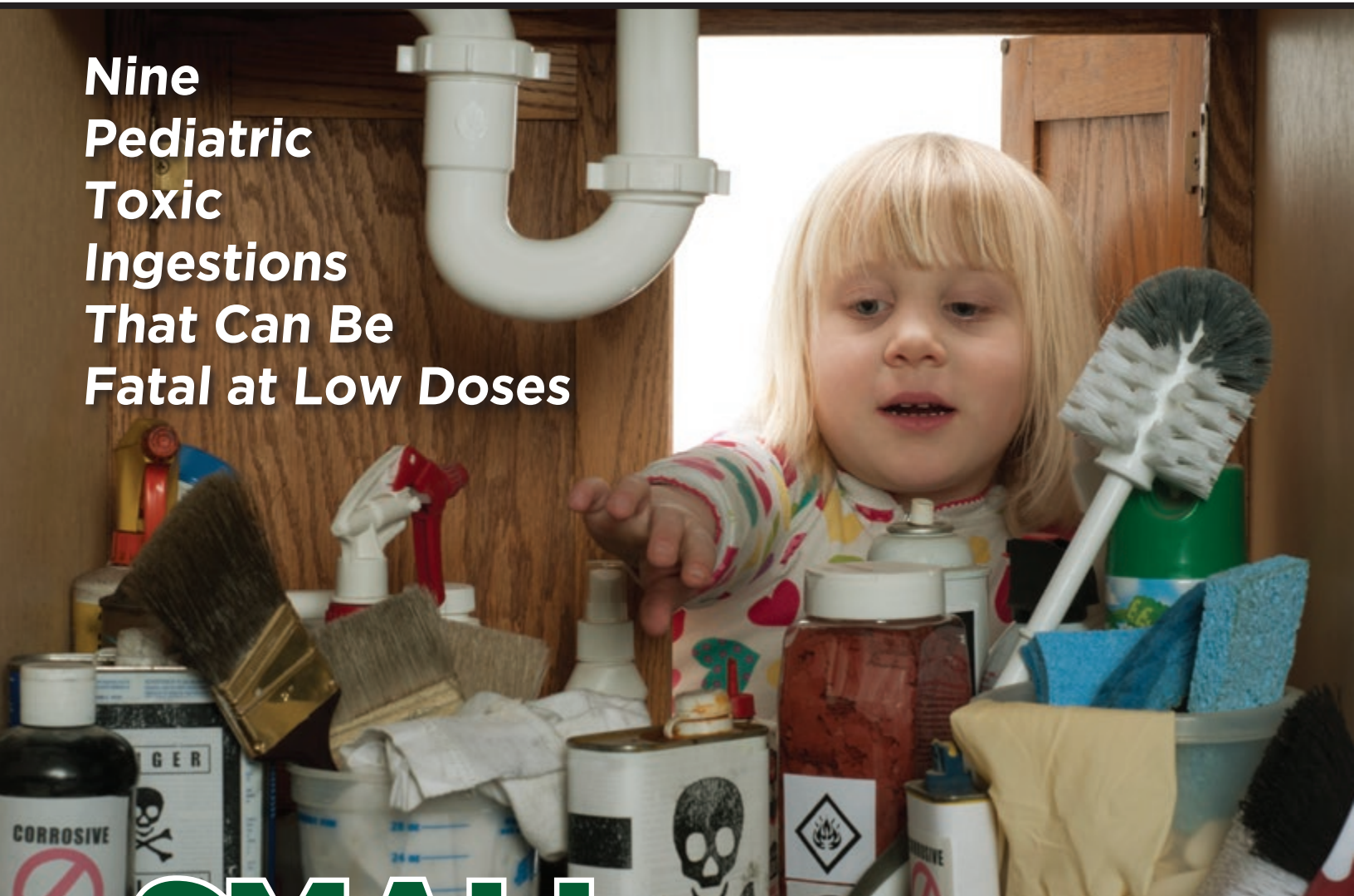
The presence of a neonate or precipitous delivery is likely to induce at least mild tachycardia in the most experienced of ED providers, but remember that 90% of infants do well with routine care and apart from some key exceptions, resuscitation is similar to adults:

1. Temperature matters. A plastic lunch bag could keep the baby warm.
2. Avoid cranking up the oxygen and allow permissive hypoxia guided by pre-ductal oxygen saturations.
3. Airway comes before circulation, as most instability is respiratory mediated in neonates.
4. A heart rate greater than 100 is the goal, and a heart rate less than 60 requires support (i.e., positive pressure ventilation and compressions in a 3:1 ratio).
5. IV access is difficult, so go for the natural access point: the umbilical vein.
6. Infants have a large occiput, anterior airway, and should not be paralyzed, so intubations are challenging.
7. Consider transfer to NICU for therapeutic hypothermia in full-term infants who suffered a significant perinatal insult. ★

Table 3. Hypoxic Ischemic Encephalopathy Cooling Criteria⁶

>36 weeks gestational age
Perinatal insult
Cord gas or ABG pH <7 or base deficit >16
APGAR <5 at 10 min
Continued resuscitation or ventilation at 10 min
<6 hours elapsed since birth
AND
Any of the following concerning neurologic symptoms:
Seizure
Abnormal neurologic exam (hypotonia, posturing, decreased level of consciousness, poor infantile reflexes, pupillary response abnormal)

**Nine
Pediatric
Toxic
Ingestions
That Can Be
Fatal at Low Doses**



SMALL but **Deadly** PART 2



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Remember that 22-month-old girl from the last issue? Well, armed with the information from the last article, you now feel ready to treat any of her potential medication ingestions. But what happens when you get to the bedside and discover that what she swallowed wasn't from a pill bottle, but instead was from a jug in the garage? Now what are you worried the most about?

HOUSEHOLD PRODUCTS

Camphor^{1,2}

Camphor is an organic compound that is often used in over-the-counter topical analgesics as well as for religious purposes (the Hindu religion uses it as the burning agent for a religious flame). While the mechanism is unclear, death is usually due to respiratory failure or status epilepticus. Symptom onset is typically within an hour of ingestion, with the most common initial symptoms being nausea and vomiting.

How it's treated

Help them breathe. Intubate if necessary for airway protection or in the event of profound respiratory depression.

Monitor their liver. Camphor is a potent hepatotoxin, particularly in children whose hepatic function is still not fully developed.

Watch for seizures. Initial treatment of seizures should be with benzodiazepines.

Methyl salicylates (oil of wintergreen)^{1,3}

Oil of wintergreen is present in several over-the-counter topical analgesics, but it can also be purchased as an essential oil. One teaspoon of 98% oil of wintergreen has the salicylate content of 7 grams of aspirin. Toxicity typically presents with nausea, vomiting, tinnitus, hyperventilation, and altered mentation, with more severe overdoses causing pulmonary and cerebral edema.

How it's treated

Check the level. The salicylate level should be checked regularly until the child is clinically improving *and* the level drops to below 30 mg/dL, which is considered the threshold for toxicity. Because of its pharmacokinetics, large overdoses may take 10 hours or more to peak.

Alkalinize the urine. By alkalinizing the urine, NaHCO₃ infusions will leave salicylates in their anionic form, which cannot be reabsorbed by the kidney. This will increase their rate of excretion.

Watch the potassium. Hypokalemia is common in salicylate toxicity and is a known side effect of NaHCO₃ infusion. If left uncorrected, it will prevent effective urinary alkalization.

Hemodialysis. There are certain clinical signs to look for that indicate the need for emergent hemodialysis. These include pulmonary edema, altered mental status, seizures, coma, renal failure, life-threatening acid-base or electrolyte status, lack of response to urinary alkalization, or a salicylate level >100 mg/dL in an acute overdose.

Toxic alcohols – methanol, ethylene glycol^{1,4}

Found in numerous household products from antifreeze to windshield-washer fluids, they often have a pleasant taste and attractive color. Both of their clinical presentations initially mimic ethanol intoxication. The metabolites are toxic alcohols, which are osmotically active agents. Thus, the laboratory abnormality to look for is an osmolar gap *and* anion gap metabolic acidosis. Methanol's terminal metabolite, formic acid, is responsible for retinal injury, which is classically described as "snow-storm" vision. While peak serum levels occur within 4 hours of ingestion, effects may be present for much longer. Ethylene glycol is metabolized into several organic acids, one of which is oxalic acid. It binds to calcium, forming calcium oxalate crystals that in turn cause acute tubular necrosis. Meanwhile, the aggregation of calcium into these crystals can cause hypocalcemia, which can lead to ECG changes and hypocalcemic tetany.

How it's treated

Think about them! There is often a significant delay in diagnosis due to their nonspecific symptoms. In the appropriate clinical setting, the presence of an osmolar gap should greatly increase the suspicion of toxic alcohol ingestion. Consider ordering serum levels of these toxins in addition to serum osmolarity studies whenever a lethargic or unresponsive child presents to the ED.

Give fomepizole or ethanol. Because the metabolites of these alcohols are the major toxins, preventing their formation is very beneficial. Alcohol dehydrogenase is the rate-limiting enzyme in their metabolism. Because ethanol is a more desirable substrate for this enzyme, and fomepizole acts as a competitive antagonist to alcohol dehydrogenase,

these two agents can prevent the formation of those dangerous metabolites.

Hemodialysis. Hemodialysis should be performed when the acidosis persists, despite aggressive treatment, or when the patient develops coma, seizures, or renal failure.

Laundry detergent pods⁵

Laundry pods are becoming increasingly common pediatric ingestions. Their colorful packaging is attractive to children, while their highly concentrated contents are potent toxins. A wide variety of symptoms have been reported, but the most common effects include vomiting, oropharyngeal inflammation, lethargy, and respiratory distress. Although the exact mechanism of toxicity is still unclear and varies based on the manufacturer, it is believed that the surfactants included in the detergent are responsible for most of the caustic effect on soft tissue, while the ethoxylated alcohols contribute to the CNS effects.

How it's treated

Protect the airway. The combination of gastrointestinal irritation and CNS depression leaves the child highly susceptible to aspiration pneumonitis and respiratory failure. Meanwhile, the caustic effect of the solvents can lead to life-threatening upper-airway edema. Maintain a low threshold to intubate symptomatic patients.

Consider steroids. Although not studied extensively, various case reports have demonstrated improvement in symptoms after administration of a short course of intravenous steroids.

Conclusion

Little children are often the subjects of toxic ingestions. Their proclivity for being "little scientists" leads them to explore the world in sometimes harmful ways. Having a good handle on which pharmaceutical and household ingestions are the most toxic and potentially lethal will help guide practice and management and may save a life.

In case you missed it, part one of this two-part series was published in the October/November issue of *EM Resident* and can be found at www.emresident.org/small-but-deadly. ★

The Tool's

in your hands

Ultrasound outperforms chest radiograph in nearly every situation when used by trained physicians.

Case

A 60-year-old male rolls in by EMS with a complaint of shortness of breath. He was discharged from prison two months ago, at which time he ceased all his medications. He believes he was on a “water pill” for his “kidney problem.” He smokes a pack a day. Additionally, he complains of mild chest pain and lower-extremity edema, worse on the left side. He is in moderate distress, tachypneic, tachycardic, and hypoxic with three-word dyspnea. You do not appreciate any JVD, but notice decreased lung sounds at the bases with a diffuse, mild expiratory wheeze. His heart is tachycardic but regular, without murmurs, rubs, or gallops. His abdomen is slightly distended, but soft and non-tender. His lower extremities have 3+ edema on the left and 2+ on the right. His initial EKG is nondiagnostic.

Discussion

Shortness of breath is a common chief complaint. The differential diagnosis is broad and the possibilities range from immediate life threats to those managed as an outpatient. As clinicians, we need a diagnostic tool that enables us to rapidly narrow the differential diagnosis and direct early management. Ideally, this tool will be readily available and have high sensitivities and specificities for the diseases we are most concerned about. For the patient with undifferentiated shortness of breath, ultrasound is that tool. So, while the X-ray tech is in another part of the emergency department and the nurse is attempting intravenous access for the third time, grab the ultrasound machine.

There is useful information to be gained from the chest radiograph, and it has the convenience of not requiring additional acquisition effort on the part of the physician. However, **ultrasound outperforms chest radiograph in nearly every situation** when used by trained physicians. Ultrasound is the ideal modality for evaluating for pleural effusions, pericardial effusions with tamponade, and deep vein thromboses.¹ Echocardiogram can screen for heart failure, wall motion abnormalities, and right heart strain. For pneumothorax, chest X-ray has a sensitivity of 40% and specificity of 99%, compared to bedside ultrasound, which has a sensitivity of 79% and a specificity of 98%.^{2,3} For pneumonia, chest X-ray has a sensitivity of 67% and specificity of 85% whereas ultrasound has a sensitivity of 98% and a specificity of 95%.⁴ Additionally, ultrasound can evaluate for response to therapy in real time. Ultrasound can demonstrate improvement of pulmonary edema, resolution of a pneumothorax, as well as minute-to-minute changes in cardiac function.⁵

There are a number of manuscripts in the literature describing how to use point-of-care ultrasound (POCUS) for the patient with undifferentiated shortness of breath. Lichtenstein, et al, created an algorithm titled “The Blue Protocol” that can be used with lung ultrasound to differentiate between etiologies.⁶ However, this protocol did not include echocardiogram as part of the evaluation, and for the novice sonographer the algorithm can be cumbersome. In another publication, Drs. Nagdev and Mantuani demonstrated how analyzing the heart, lungs, and IVC with ultrasound can differentiate



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heart failure from chronic obstructive pulmonary disease (COPD).⁷ Combining and simplifying these strategies creates a logical and high-yield approach.

First, look at the heart. Evaluate for a pericardial effusion to rule out tamponade (*Image 1*). If there is an effusion, view the heart in multiple windows, including the sub-xiphoid, parasternal long, parasternal short, and the apical four-chamber views to evaluate for right ventricular collapse during diastole, which serves as sonographic evidence of tamponade.⁸ If you are having difficulty appreciating systole versus diastole, try using M-mode. Aim the beam over the anterior leaflet of the mitral valve in the parasternal long axis. With this image you can easily appreciate the mitral valve opening during diastole as it swings up towards the interventricular septum. The right ventricular free wall will be visible as a hyperechoic line between the outer

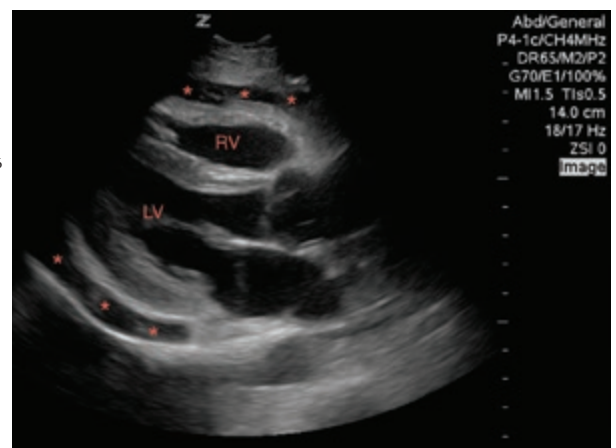


Image 1. A large pericardial effusion (*) with tamponade physiology.

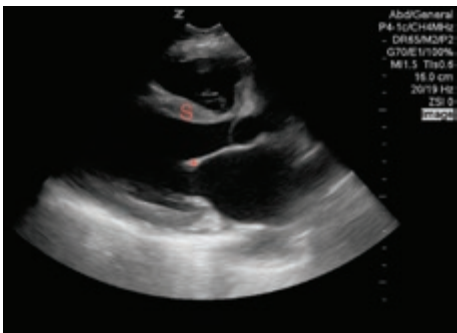


Image 2. A poorly contracting heart in the setting of decompensated heart failure. The anterior leaflet of the mitral valve (*) does not come close to the inter-ventricular septum (S) during diastole, demonstrating a severely depressed EF.

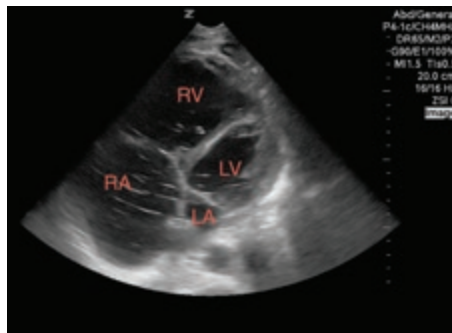


Image 3. A dilated right ventricle (RV) and atrium (RA), as compared to the left ventricle (LV) and atrium (LA). Seen in the setting of a pulmonary embolism.

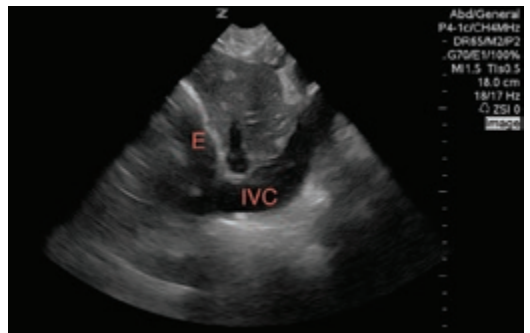


Image 4. A distended IVC with a pericardial effusion (E), consistent with tamponade physiology.

Breathing Easier With Point-of-Care Ultrasound

anechoic pericardial effusion and inner anechoic blood within the right ventricle. When the mitral valve opens diastole is occurring, and you can easily appreciate right ventricular wall collapse into the right ventricle.

While viewing the cardiac windows, gain a sense of the overall cardiac function and ejection fraction (EF). Emergency sonographers can categorize cardiac contractility as normal, depressed, or severely depressed and can identify a severely depressed left ventricular EF with nearly 100% sensitivity.⁹ **In a heart with a normal EF, the anterior leaflet of the mitral valve will touch, or nearly touch, the inter-ventricular septum.** You may choose to measure the distance during diastole from the anterior leaflet of the mitral valve to the inter-ventricular septum using M-mode. **A distance of less than 7 mm suggests a normal EF, whereas greater than**

7 mm is 100% sensitive for a severely depressed EF (Image 2). This is known as E-point septal separation, or EPSS.¹⁰ In the apical four-chamber view, compare the diameters of the right (RV) and left ventricle (LV). A normal RV is less than two-thirds the size of the LV. A dilated RV in the correct setting is 98% specific for right heart strain from a pulmonary embolism¹¹ (Image 3). You may also note a wall motion abnormality as evidence of an old or new myocardial infarction. Adding color to the exam in Doppler mode enables you to also identify valve incompetence.

While viewing the heart in the sub-xiphoid window, align the probe indicator toward the patient's head and reduce the angle of the transducer to evaluate the inferior vena cava (IVC). A pericardial effusion with a full, distended IVC is very worrisome for tamponade (Image 4). If there is respiratory variability, tamponade is excluded with few exceptions. Without

a pericardial effusion, a dilated IVC is consistent with fluid overloaded states. An IVC diameter that varies widely during respirations suggests an etiology other than heart failure.¹²

Next, move to the lungs. In a prospective study of 27 patients, **lung ultrasound was more sensitive than chest X-ray and as sensitive as computed tomography in identifying pneumothoraces.** Fluid in the lungs will fall to the dependent portions, whereas air rises to the superior and anterior chest. Most emergency physicians are familiar with the concept of lung sliding (Image 5). Start evaluating for this finding by placing the probe towards the lung apex, between the second and third intercostal space in the mid-clavicular line. Then move down through the sixth-eighth intercostal spaces. This may be done in an upright or supine position. In the setting of trauma, absent lung sliding generally

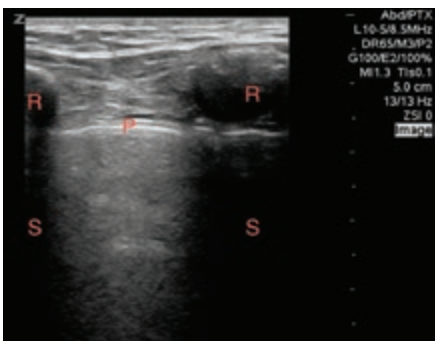


Image 5. With the linear array probe, the pleura (P) can be seen sliding between two ribs (R), which demonstrates posterior shadowing (S).

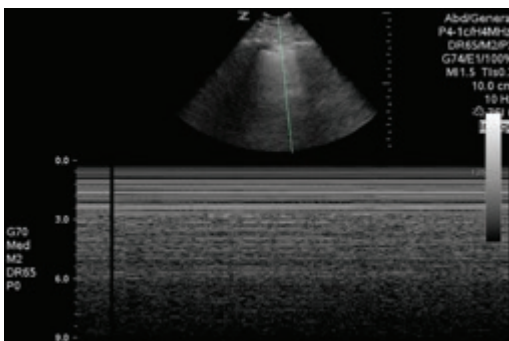


Image 6. The seashore sign with M-mode, demonstrating normal lung movement.

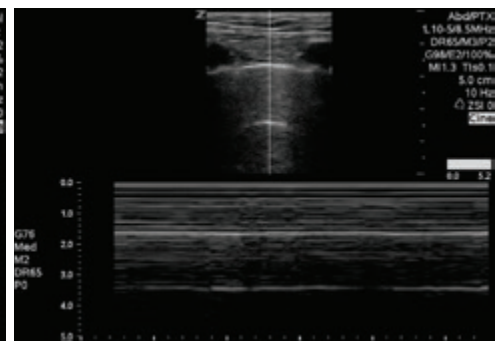


Image 7. The barcode sign demonstrating a pneumothorax with M-mode.

means a pneumothorax is present. If clinically permitted, examination of all lung segments may reveal a lung point, which is the point of separation of the visceral and parietal pleura. This is nearly 100% specific for a pneumothorax. M-mode may also be used to evaluate for pneumothorax. The classic “seashore sign” (*Image 6*) is present when there is normal lung sliding, as compared to the “bar code” sign (*Image 7*), which is characteristic of pneumothorax. The same technique and findings are also useful to determine main stem bronchus intubation, because one lung will not be ventilated.¹³

After ruling out a pneumothorax, divide each hemi-thorax into four segments bordered by the posterior axillary line, anterior axillary line, medial clavicular line and the inter-nipple line. Evaluate the lung in each quadrant for lung sliding, A-lines, B-lines, consolidations, and effusions. A-lines are regular horizontal hyperechoic lines that reverberate from the pleura and are indicative of a normal or hyperinflated lung (*Image 8*). **If all lung segments appear to have lung sliding and A-lines, then the patient’s differential is narrowed to that of a patient with a normal or hyperinflated chest X-ray.** This may include asthma, COPD, anemia, acidosis, neuromuscular disorders, and pulmonary embolism. If pulmonary embolism is suspected, performing lower extremity deep vein thrombosis (DVT) studies can confirm (but not rule out) the diagnosis. In a prospective, 47-patient study, a two-point compression exam at the femoral and popliteal veins was nearly 100% sensitive and specific for DVT.¹⁴

B-lines are hyperechoic vertical lines that originate from the pleural line, obliterate A-lines, and often run off the bottom of the image (*Image 9*). Three or more in the screen are indicative of an interstitial syndrome. A diffuse B-line pattern in all lung segments narrows the differential to those conditions that present with a diffuse interstitial lung pattern, such as pulmonary edema (cardiogenic and non-cardiogenic), multifocal pneumonia, and pulmonary fibrosis. **A focal B-line pattern in one or two lung segments suggests a focal interstitial process,**

such as pneumonia, pulmonary contusion, or pulmonary infarction.

Unless loculated, pleural effusions should be found in the dependent portions of the lung, and can most easily be visualized at the lower lung segments and costophrenic angles. Without effusions, a normal mirror artifact of the liver or spleen is seen reflecting above the diaphragm, and the spine should not be visible, as air scatters the ultrasound waves. However, when a pleural effusion is present, an anechoic pocket of fluid can be seen, and often the floating free edge of the lung can be visualized (*Image 10*). Since ultrasound waves are transmitted well through fluid, the spine may be apparent. This is called the “spine sign.” Consolidated lung appears like solid tissue on ultrasound and is often referred to as “hepatization” of lung, as it has a similar appearance to the liver (*Image 11*).¹⁵

Combining the cardiac, IVC, lung, and DVT POCUS exams rapidly narrows the differential diagnosis and results in early directed management. Ultrasound may cost you more time at the bedside, but the initial investment of time is well worth it when it enables you to identify important pathology, make critical diagnoses early, and save lives. Multiple studies demonstrated the relative ease and short period of time it takes to use these techniques effectively.¹⁶ However, even expert sonographers should understand their limitations and not hesitate to employ other diagnostic tools when necessary. The greatest limitations of POCUS are the operator’s expertise and the patient’s body habitus.

Case resolution

On ultrasound, the patient had a markedly decreased EF, dilated IVC, diffuse B-line pattern on lung exam, and negative DVT studies. Additionally, he had bilateral moderate pleural effusions and a modest amount of abdominal free fluid. His clinical picture was consistent with congestive heart failure and he improved with BiPAP, nitroglycerin, and diuretics. He was admitted to the cardiology service and was discharged two days later on a new medication regimen. ★

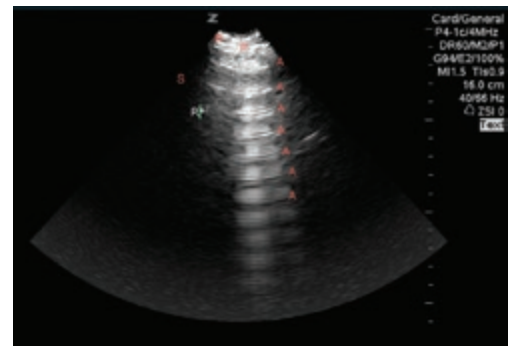


Image 8. Normal lung ultrasound, demonstrating A-lines (A) reverberating from the pleura (P) between two ribs (R).

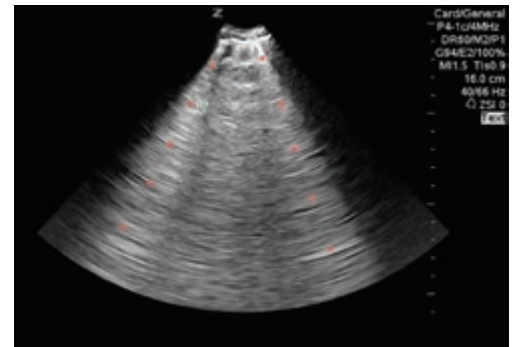


Image 9. Lung ultrasound on a patient with pulmonary edema and B-lines (*).

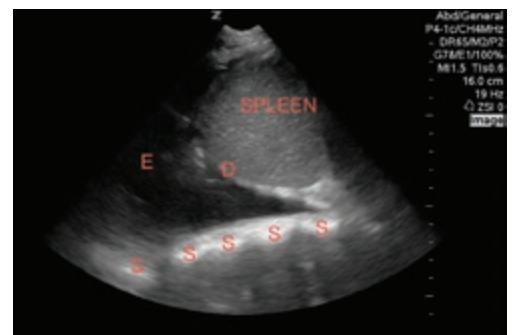


Image 10. A large pleural effusion (E) visualized above the diaphragm (D) with a spine sign (S). A floating lung is not visualized in this image.

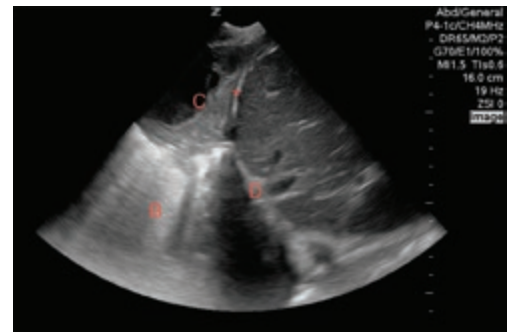


Image 11. A pulmonary consolidation (C) with a diffuse B-line pattern (B) visualized above the liver (L) and diaphragm (D).

empower

Sharing Our Stories

Joseph F. Waeckerle, MD, FACEP



This year we celebrated EMRA's 40th anniversary. Our organization has evolved with time, and has grown beyond what was ever anticipated at the time of its inception. Four decades ago, the Emergency Medicine Residents' Association was founded in a hotel bar in Dallas, Texas, by Joseph Waeckerle and a small handful of other residents. Since that time, Dr Waeckerle, who prefers the simpler moniker of "Joe," has continued to be a leader in our field. A Kansas City native, Joe obtained his medical degree from the University of Missouri, and completed an emergency medicine residency in Kansas City in 1975. Dr Waeckerle's passion for emergency medicine has driven him throughout his entire life, from being the first chief resident at Kansas City General Hospital to his work as the first emergency team physician for an NFL team. The following is a speech he gave at the EMRA council meeting at the ACEP14 this year in Chicago, in recognition of EMRA and its most important component — you, its members.

Your Time, Your Legacy

Good morning and thank you for inviting me here today. It is an extraordinary experience for me to be a part of this 40th anniversary of EMRA.

Ladies and gentlemen, colleagues, this is your morning, your time to look to your future, your time to consider your legacy-to-be. As you do, you most certainly envision a different world than we currently live in — a better world for you, your family and friends, your patients, and all of mankind. Your colleagues before you aspired to the same. Sadly, our generation hasn't really made the sweeping changes needed. Unfortunately, this world is not perturbed by the whimsical windmills of don Quixote. We have left you with even more formidable dilemmas than we inherited.

Today's medicine is beset by numerous and significant challenges:

- new and evolving diseases;
- moral and ethical dilemmas, including the duty to serve versus the duty to protect self;
- questions on the beginning of life, the right to life, the right to care, and the right to death;
- austere economic constraints;
- questions of privilege and obligation to insured, uninsured, and non-citizens;
- and dubious politicians who ironically will ultimately make our medical decisions.

Furthermore, our societies and our world are plagued by:

- social and economic inequities,
- religious zealots,

- racial intolerance,
- political and ideological radicalism,
- personal agendas,
- greed,
- and complacency.

Terrorism and war, murder and mayhem remain the solution du jour.

Not to mention:

- natural and man-made disasters,
- resulting displaced populations,
- and forecasted global calamities, including severe climate changes, rising sea levels, flooding, food and water shortages, and, more recently, asteroid strikes!

With this uplifting appraisal of our present challenges, we, and especially you, look to build a better future with proper solutions.

In the building process, it is always wise to first consider our past and appreciate our present. Leonardo da Vinci said "wisdom is the daughter of experience."

Let us look to past experiences that brought us here today. In the spring of 1974, during the latter half of my first year of residency in our new emergency medicine program, while caring for a trauma patient, I was again being belittled by the chief surgical resident for not being a **real** resident in a **real** training program for a **real** specialty.

- After all, the "ER" was being adequately staffed by the surgeons with a few other "minor" specialties.
- "Emergency room medicine" was not even a recognized discipline, much less a recognized specialty.

- Emergency room medicine had no definitive academic or research body of knowledge or core content.
- Emergency room medicine instructors and "professors" were certified in real specialties.
- There were very few other emergency room medicine programs, maybe two or three, and very few emergency room medicine resident peers, maybe ten or so.

The three of us, the first class of our program, were accustomed to this arrogance and belittlement but we remained resilient and resolute. We were here because we believed that there was a need and that we could and would fulfill that need. Our mission was noble and our chair was always supportive.

However, this surgical resident on this afternoon over this severely injured patient struck a chord of lingering concern. Indeed, I had resigned from a superior orthopedic program with a promising future to commit to an uncertain future. *Abandoning legitimacy, taking a leap of faith? Yes!*

I knew what I was and where I wanted to go, but the fact that I had little to no input into my future and the future of my chosen specialty-to-be troubled me greatly.

Nope; not going to happen!

Ironically, like the surgical resident, I also was an arrogant young lion filled with little knowledge, little experience, and little wisdom. Yet, fueled by passion and bravado, I was committed and determined.

I knew that I could make it better.

And that was the moment that my vision of EMRA was born. It came together later that spring as I met with four other “emergency room medicine” residents at the Sheraton bar at the UA/EM meeting in Dallas and presented my vision. Being like-minded, we all agreed to move forward together.

History documents the EMRA journey forward and here we are today:

- The Emergency Medicine Residents’ Association’s 40th anniversary.
- EMRA with nearly 13,000 “young lions.”
- EMRA with a respected voice sitting on every important organization in emergency medicine and many in the house of medicine.

Now, armed with some insight from whence you came, who are you at present?

You are very special. You are women and men of immense intellect, talent, and skill paired with sterling character and unwavering determination. You are women and men who care! You have rightfully earned the privilege to enter our world of emergency medicine, care for our patients, and shape our future.

I congratulate and admire you for your accomplishments to date.

However, there is more to making the world a better place than taking a leap of faith or founding an organization, no matter how successful. Emergency medicine bestows the noble privilege of attending to all in need. With that privilege comes great responsibility and duty, which will be defining moments in your life, personally and professionally.

You pledge to care for any person who requests your help for any unforeseen illness or injury, any unattended illness or injury, any unaddressed illness or injury, or any emotional upheaval at any time. You stand first at the door of medicine to protect and to serve.

By doing so, you vow to provide timely evaluation, diagnosis, treatment and — most importantly — disposition based on need and severity no matter what the malady or what the circumstances.

You vow to deliver your care any time, any place, and anywhere you are needed. You may proffer your talent and skills in the ED, a clinic, an EMS vehicle, a neighborhood backyard, an entertainment event, a disaster incident, or anywhere there is a need or you are called.

You vow to attend without regard to your patient’s character, attitude, personal or religious beliefs, or social or economic status. In some cases, without regard to personal risk.

You vow to offer worthy professional and personal service to your community, your country, and, in some instances, all of mankind as determined by others’ needs and your abilities. If you haven’t already, you will soon appreciate that this is no small pledge.

With that said, your time has come. You are now summoned to be our next leaders, so prepare to lead well! Leadership is from within. Others don’t make you a leader. They may give you opportunity, guidance, or example, but you make yourself a leader. Now it is your time to make a difference, so pursue with passion the cultivation of these requisite characteristics of distinguished leadership.

Commitment

It goes without saying that all of the cardinal precepts of leadership follow commitment. For without a cause, where are you going, what are you doing, and why? For your cause, you must first appreciate your present to better see your future.

The greatest honor you will ever receive is for a person to ask you to care for them or their loved one in their moment of extreme angst. This is the defining moment of your profession. While it is given to you routinely, it is given profoundly! Never, ever forget this is an honor! You hold in your hands the equilibrium of life. This is a sacred trust given to you. There is no greater expression of trust. Do not betray the trust. Acknowledge and respect that trust by your fierce commitment to always being the best you can be for all who ask of you.

Determination

In those defining patient encounters and in all of life, you will revel in your successes and be terribly burdened by your non-successes. Occasionally, you will make mistakes. You are, after all, human. There is always someone bigger, faster, stronger, and smarter, but there does not have to be someone more determined. You can do anything; you can be anybody if you want it! You will not always succeed in the attempt for success, but you must never quit attempting — be resolute.

Integrity

Always do the right thing! Be true to yourself, your family and friends, your patient, your staff, and all around you. Do not compromise your principles; honor and integrity should define your character in all you say and do! The honor in your words and your fidelity to honesty and fairness will allow you to be part of the solution, not just part of the problem. And, all others you encounter in life’s journey will be better for you.

Wisdom

Wisdom is a lifelong quest, and wisdom is a very personal quest. Michel de Montaigne once said, “We can be knowledgeable with other men’s knowledge, but we cannot be wise with other men’s wisdom.”

The history of our past experiences, successes, or failures — especially our failures — humbles and teaches us, and in that we gain greater wisdom. Find the wisdom in all that you say and do, in your thoughts, in your questions, in your listening, in your plan of action and its consequences, and in your decisions.

Knowledge is ever-changing but wisdom with humility is empowering and enduring.

Empathy

Treat all you meet with dignity and respect. Make every encounter personal and meaningful. Don’t lose your empathy and don’t lose your hope. More importantly, don’t ever take away hope from others!

You do not administer protocols or deliver technology; you do not manage satisfaction scores; you attend to people, your patients. Convey caring and preserve hope through your words of compassion, actions of kindness and tenderness, and labors to sooth and heal. Quality care delivered with compassion must ultimately prevail.

Knowledge

We often hear that knowledge is power. No, it is not! Knowledge is forceful. Knowledge is dynamic. But knowledge is not the sacred end-all; it is temporal. Knowledge advances, and, in the process, corrects itself often.

What we do with knowledge is the real power! Be thinkers; temper knowledge with wisdom and integrity and determination.

Especially remember: as physicians, know what you know, and, more importantly, know what you don’t know. Always admit your limitations and seek help when needed. Remain approachable, receptive, and teachable. Every person you encounter every

day of your life will offer you a moment of knowledge if you are attentive and receptive. Look for it, receive it graciously, and give knowledge back with enthusiasm and respect. This is the ultimate in professionalism.

Courage

Leaders are required to make decisions and take action. Have the courage to act on your commitments and to act with integrity and empathy. Take that first step and “keep on keeping.” Do even the little things well. Success, no matter how small, breeds success.

Also, recognize that deciding to not act when inaction is the best solution is, in fact, taking action and often the more difficult choice. In spite of all adversity, be steadfast in your courage to make the best decision and act on it.

Confidence

Believe in yourself; don't doubt yourself. Franklin Delano Roosevelt once said, “The only limit to our realization of tomorrow will be our doubts of today.” You are your greatest limitation. You set your expectations; aspire to lofty aspirations, then attain them. Don't wake up tomorrow failing to realize your goals of today.

Inspiration

To inspire, you must believe. To believe, you must have faith.

You will confront numerous difficult challenges in your personal and professional career, and in the process you will question and often find no answers. Accordingly, you will need a core belief system as many answers are unfathomable and, ultimately, all you have is your faith.

To doubt is very human. We all doubt; life is sometimes very mysterious, cruel, and inexplicable. So, define your faith, whether faith in your supreme being, faith in yourself, faith in your fellow man, or faith in the cosmos. Trust your faith; stay the course. And, as you travel your journey, rally others with your steadfast faith!

Interpersonal skills

Life's journey is not traveled alone. Surround yourself with brilliance and trust in it.

- Empower and respect your colleagues.
- Foster a constructive work environment and colleague cooperation.

- Build a team, share visions, and encourage creativity and flexibility.
- Listen and learn, communicate and compromise when needed, and then craft solutions.
- In the process, always give more than you take.

Ultimately, through your trust in others and skillful management, all involved with you will be rewarded and renewed greatly and, in that, you accomplish greatness.

Responsibility

Nurture your nature. The stresses of the practice of emergency medicine and the stresses of life are onerous and cumulative. Life is not fair.

You can do so much for so many in extreme situations, but, frequently, you can do so little despite Herculean efforts. Success

The Golden Rule states that you must love others as you love yourself. You are obviously committed to others. But, this rule implies that you must love and respect yourself first; for if you don't, you can't expect others to do so and follow.

By enhancing and enriching your personal lives, you will find strength and balance in your professional lives.

- Revere your soul.
- Cherish your life.
- Nurture your gifts: mind, body, and spirit.
- Seek opportunity and take advantage of it.

As a leader, you give others opportunity and you expect them to take advantage of the opportunity. As a leader, you must also demand of yourself that you take advantage



Joe at home on the sidelines of a Kansas City Chiefs game.

and failure are intertwined. There are no guarantees.

Your unwavering dedication and compassion makes you even more vulnerable to the inherent strains and tensions of emergency medicine. You are more vulnerable because of your empathy and caring for your fellow man! You are human.

As such, your chosen path extracts a heavy emotional and physical toll. No matter how dedicated, altruistic, and principled of character, you will waver in your course. We all have and we all will. But, appreciate that to whom much is given, more is expected. Only then, can you try harder and give more.

of opportunity. Do not stagnate in your personal development.

Your personal growth will be a guiding light to keep you in balance and harmony. It will allow you to better love your family and friends, and allow others to follow in dark and difficult times.

In conclusion, this is your time. This is the journey of your life. Now is the writing of your legacy and you are the author. Make your book of life meaningful through the development of exceptional talent and character. Then, be exceptional in your leadership.

We now place our trust in you. Go forward with excellence, achieve greatness, and make a difference. ★

2015 EMRA Reference Guides



Hilary L. Davenport
EMRA Medical Student Member



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MLR DSH GME DME RVU FPL CHIP SGR IME CMS Health Policy Introduction to 101 Terminology for the Policy Beginner

Health policy can be a bit of an alphabet soup, especially when it comes to the way that the government pays for care. Abbreviations abound; ever wonder what all those acronyms mean? Not sure how costs of care are calculated? Read on!

In general, many payment structures and formulas are set by the Centers for Medicare and Medicaid Services (**CMS**). Private insurance companies use a lot of what the federal government has already established and modify it for their own use.

The main way the government pays for health care is through **entitlement programs**, which include Medicare, Medicaid, and the Children's Health Insurance Program (**CHIP**). We are all aware that Medicare pays for the care of patients older than 65, but did you know that Medicare also covers people younger than 65 with ALS, ESRD, or certain other disabilities? Medicaid is a federal – state partnership to care for the indigent, providing health insurance to children, the parents of dependent children, pregnant women, the elderly, and the disabled whose incomes fall below a certain percentage of the federal poverty level (**FPL**) set by each state. The fact that both Medicare and Medicaid cover seniors means that some people are eligible for both programs, called **dual eligibles** (not really an abbreviation, but good to know anyway). A third way that

the federal government insures patients is through **S-CHIP** (the State Children's Health Insurance Program) or **CHIP**. CHIP uses federal and state funds to expand the number of children eligible for government health insurance beyond those covered by Medicaid.

Medicare is also responsible for paying for residency training, often referred to as graduate medical education (**GME**). CMS doles out these funds in two groups. Direct GME funding (**DME**) is paid to a hospital for direct support of residency training. This is for things like resident salaries, teaching physicians' salaries, accreditation fees, etc. Indirect GME funding (**IME**) is a little more nebulous. IME dollars go toward things that make a hospital a great place for residents to train, such as increased care costs related to treating more complex patients, standby capacity in burn and trauma centers, etc. In the current debate to cut GME funding, most of the attention is focused on IME as it represents the majority of GME spending, and the link between IME-funded programs and better resident education is not always clear.

But how do insurance agencies calculate the dollars and cents to pay for each episode of patient care? Medicare has come up with several different methods, which, as mentioned previously, generally get carried over into the private sector as well. One is the diagnosis-related



Elizabeth Davlantes, MD
Resident Physician
Emory University
Atlanta, GA

group, or **DRG**. This is a classification scheme that relates the types of patients a hospital treats to the costs incurred by that hospital. Medicare provides *prospective* payments to hospitals based on what DRG a patient falls into; reimbursement for treating essentially the same illness can vary widely based on these classifications (this is where our charting becomes really important!). Another payment formula is the relative value unit, or **RVU**, which defines how Medicare calculates reimbursement for various practitioner services. RVUs are based on the work of the practitioner, expense to the practice, and the cost of malpractice insurance. This system tends to reward procedure-driven specialties much more than primary care specialties, and the RVUs are set with input from the AMA (we're looking at you, Dr. Stack!). A third system is Disproportionate Share Hospital (**DSH**) payments. These are payments made by the federal side of Medicaid to hospitals that provide a larger-than-average amount of uncompensated care, intended to help these hospitals balance their books so they can continue to serve the uninsured.

Medicare is also responsible for paying for residency training, often referred to as graduate medical education (GME).

The Affordable Care Act significantly reduces this; the plan was for the loss in DSH payments to be compensated for by an increase in Medicaid payments for beneficiaries newly eligible under expansion. Since the Supreme Court made Medicaid expansion optional, however, the government is taking a second look at how to help keep safety-net hospitals afloat.

Probably the most famous payment formula is the sustainable growth rate, or **SGR**. The SGR is a formula intended to determine how payments to physicians should be adjusted to control costs. When instated in the 1990s, it was

meant to correct for inflation and ensure that the yearly increase in spending per beneficiary does not exceed the growth in GDP. However, the reality is that medical costs have risen much faster than growth in GDP, and providing reimbursement at SGR-predicted rates would result in huge pay cuts for physicians. Congress has instead been passing a series of laws for more than 10 years to bypass using the SGR, but it is loath to completely repeal it because of the perceived multibillion-dollar cost.

Finally, an acronym specific to the private sector is the **MLR**, or medical loss ratio. The MLR is the percentage of its premiums that an insurer must spend on health care services for its beneficiaries. The Affordable Care Act set the MLR at 85% for large-group insurers and 80% for small-group insurers (the remaining 15-20% goes to profits and overhead). Insurance companies claim that this restriction, along with all the changes in coverage requirements for their customers, will make it difficult for them to break even.

Understanding health policy can be difficult. Hopefully, with at least a

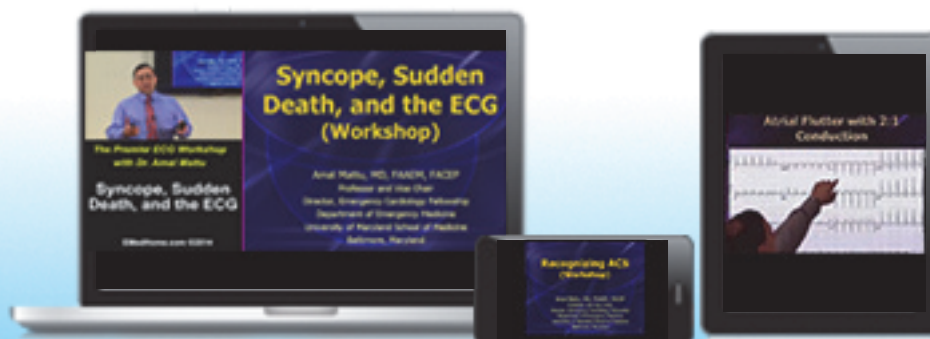
small foundation of the concepts and terminology that are a part of the field will arm you with the knowledge to have informed discussions and understand the broader scope of health policy. It is a topic that affects all of us — not just emergency physicians, but physicians in general, other health care providers, and, most importantly, our patients.

Want to learn more about health policy? Join the EMRA Health Policy Committee or check out our committee's Health Policy Basics for Residents and Medical Students (www.emra.org/committees-divisions/health-policy/health-policy-basics-for-residents-and-medical-students). You can also keep abreast of policy current events by joining the ACEP 911 Network (www.acep.org/911). There are multiple written resources as well, including the for-resident, by-resident *Health Care Handbook* by Askin and Moore, and EMRA's recently republished *Emergency Medicine Advocacy Handbook*. Most of all, stay tuned for more policy updates, as the political landscape is always changing! ★



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Health Policy Statistics 102

Medical Student Perceptions and Policy Education

Figure 1. Student Political Involvement

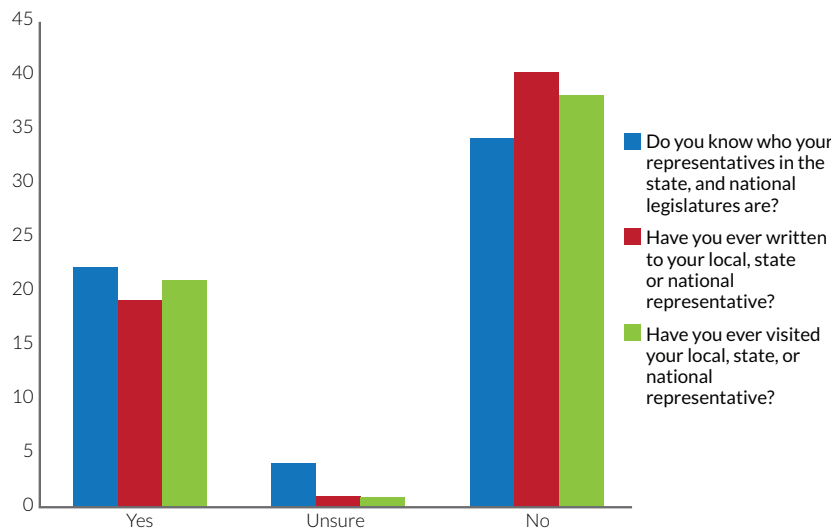
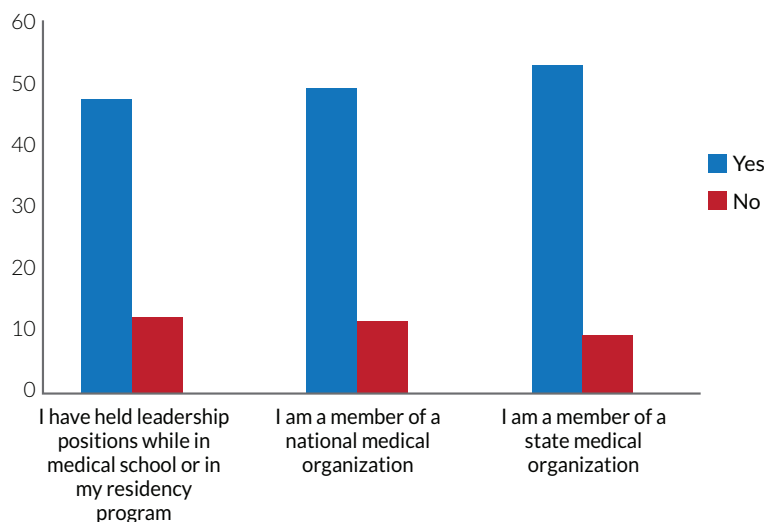


Figure 2. Student Leadership and Organized Medicine Involvement

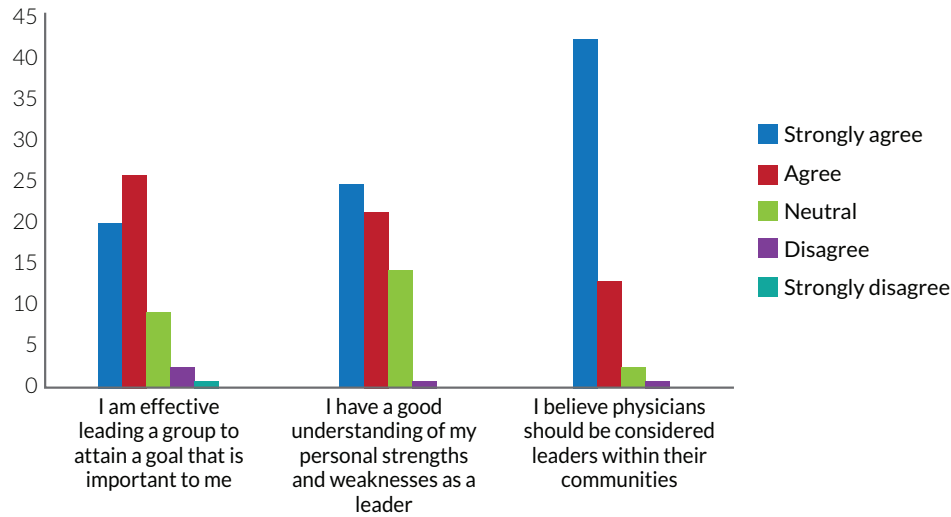


Previous data has shown that nearly half of graduating medical students felt that their medical school provided inadequate instruction in health policy related topics.¹ In fact, when asked about specific topics, only 59.6% of students reported that they received “adequate” training in health policy. When asked about other similar topics, “adequate” training was reported by 75.9% for public health, 64.35% for health care systems, 48.9% for law and medicine, and 35.5% for medical licensure and regulation.² When deans of medical schools were surveyed, only 24% reported that they required students to take courses in health policy, yet 58% believe that their school offered “too little” health policy education. Medical school deans listed quality improvement as the most important topic to be covered in the medical school curriculum, followed by health costs, Medicare and Medicaid, health care reform, physician reimbursement, and insurance design.³ Potential reasons policy education may be considered inadequate include the lack of time within the medical school curriculum; a lack of knowledgeable faculty members to teach these courses; and untested methods with which to teach these topics.⁴

As part of the Texas coalition attending the ACEP Leadership and Advocacy Conference last May, we became curious as to what medical student perceptions on topics related to leadership and health advocacy might be. We conducted a statewide survey of students involved in emergency medicine interest groups, which provided results that perhaps may be generalized to medical school education as a whole. Fifty percent of our respondents were female,

Only 59.6% of students reported that they received “adequate” training in health policy.

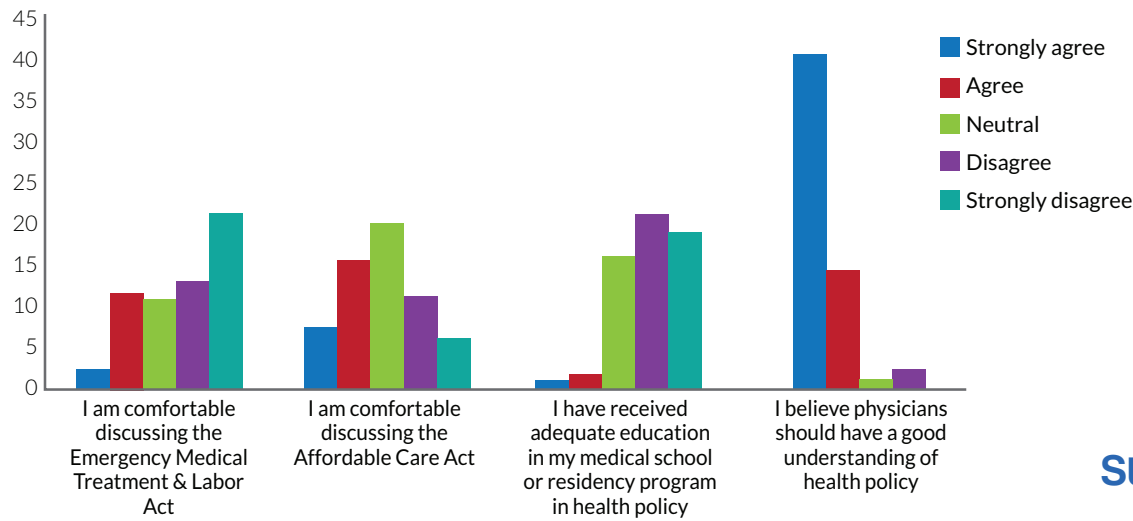
Figure 3. Medical Student Perceptions on Leadership



and as would be expected, 82% listed Texas as their home state.

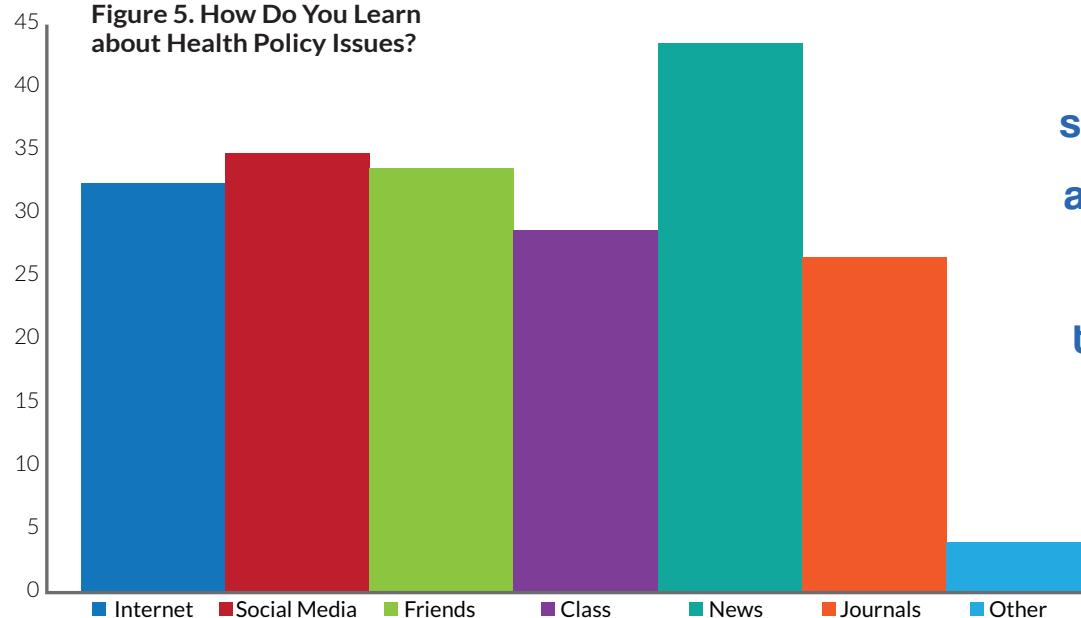
The first set of questions surveyed students' level of involvement in, and knowledge of, local, state, and national representation. Of those surveyed, 56.7% stated they did not know who their representatives in the state and national legislatures are; only 31.6% had ever written to a local, state, or national representative; and only 35% had ever visited a representative (Figure 1). However, a majority of students were involved with state and national medical organizations and held leadership positions within their medical schools (Figure 2).

Figure 4. Student Familiarity and Perceptions on Health Policy Education



Students are reaching out to other sources, such as the news and social media, to supplement their knowledge base.

Figure 5. How Do You Learn about Health Policy Issues?



When asked about leadership qualities, 76.6% agreed, or strongly agreed, that they were effective leaders; 75% felt they had a good understanding of personal strengths and weaknesses as leaders; and 90% felt physicians should be considered leaders within their communities (Figure 3). The data suggest that medical students view physicians as leaders and value leadership as an important personal value and a professional goal.

When asked about specific health policy topics, 48.2% agreed, or strongly agreed, with the statement, “I am comfortable discussing the Affordable Care Act,” and 34.9% felt the same about EMTALA. This reveals that perhaps we could do a better job educating students on nationally relevant health care topics. Additionally, only 4.9% agreed or strongly agreed that they had received adequate education during medical school in health policy, though 91.6% strongly believed physicians should have a good understanding of health policy (Figure

4). These last two questions very closely mimicked previously attained national data on the topic.²

Finally, when asked where students were receiving information about health policy related issues, 73.3% cited news sources, 58.3% social media, 56.7% friends, 55% internet blogs, 48.3% medical school, and 45% medical journals.

Potential reasons policy education may be considered inadequate include the lack of time within the medical school curriculum, a lack of knowledgeable faculty members to teach these courses, and untested methods with which to teach these topics.

Medical students clearly feel that improving their literacy in topics related to health policy is vitally important, yet believe that it is currently lacking in their medical schools. As such, students are reaching out to other sources, such as the news and social media, to supplement their knowledge base. Use of these alternate resources creates the potential

for bias in education based on the political ideology of the source. Alternate sources may not offer a physician’s perspective to students, and so the way the issues affect the medical field might be lost. When not explained from within the context of medical education, we risk losing the physician’s perspective among our future physicians.

As previously stated, one of the cited barriers to including health policy education in the medical school curriculum is the lack of time and knowledgeable faculty to lead classes.

Alternatively, if it is determined that the knowledge students gain from alternate resources is sufficient, medical schools could potentially refer students to these resources to supplement their policy education. In either scenario, a stronger commitment to health policy education and leadership development is needed if we are to become the community leaders that most of us think we should be. ★

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**“If you had... One shot...One opportunity...
To seize everything you ever wanted...
Would you capture it... Or just let it slip?”¹**

–Eminem

This may not be Eminem big, but it’s pretty big:

Debuting at ACEP Scientific Assembly 2015 in Boston, the EMRA Education Committee will be hosting a new resident lecture competition as part of the annual lineup of events at the conference.

Do you have a gift for public speaking? Have you been crushing your local grand rounds lectures? Are you ready to test your talent at the next level? Do these lyrics resonate with you?

“His palms are sweaty, knees weak, arms are heavy...

He’s nervous, but on the surface he looks calm and ready to drop bombs.”¹

“20 in 6” will feature sixteen residents from across the country, selected to compete with their 20-slide, 6-minute presentation on whatever topic they choose pertinent to emergency medicine. This is a chance for you to demonstrate your public speaking talent at the national level and for the rest of us to learn from some of the best resident lecturers in the country.

What do I get for competing?

Fame! Get the chance to stand out among your peers. 20 in 6 will be part of ACEP15’s EMRA programming, and you’ll be able to expose your talent to residents and attendings from across the country.



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Feedback! In addition to the opportunity to speak at a national conference, you get direct feedback on your lecture from our panel of judges who are notable leaders in the field of emergency medicine education. We can’t leak the specifics just yet... but let’s just say that you’ve likely heard of them!

I want in! How do I apply?

Of course you do. And here’s how – complete an online submission form with a brief summary of your proposed topic including up to three learning objectives for your lecture. Submissions will be accepted January 1 through April 15, 2015. Watch for an e-mail from EMRA with a link to the submission page, or talk to your EMRA program representative for more information. *

**“You own it, you better never let it go.
You only get one shot; do not miss your chance to blow.
This opportunity comes once in a lifetime!”¹**

1. *Lose Yourself*, written and produced by Eminem, Oct 2008.



BOARD REVIEW+

QUESTIONS

For a complete reference and answer explanation for the questions below, please visit www.emra.org.

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 – PEER VIII, which made its debut at ACEP's 2011 Scientific Assembly*. To learn more about PEER VIII, or to order it, go to www.acep.org/bookstore.

- A 74-year-old man presents with weakness. His wife says that he is otherwise healthy but has had a cold for the past 3 days. Laboratory test results include the following: serum sodium level, 152 mEq/L; BUN, 38 mg/dL; and creatinine, 1.6 mg/dL. Which of the following is the most likely etiology of the hypernatremia?

 - Iatrogenic sodium administration
 - Impaired renal concentrating ability
 - Impaired thirst drive
 - Loss of water in excess of sodium
- What is the most common cause of esophageal perforation in the United States?

 - Boerhaave syndrome
 - Chemical ingestion
 - Esophageal endoscopy
 - Foreign body ingestion
- Which of the following statements regarding complications of anterior shoulder dislocations and reductions is correct?

 - Avulsion fracture of the greater tuberosity of the humerus occurs in 10% to 15% of dislocations
 - Axillary nerve injury is assessed by testing sensation in the axilla
 - Bankart fracture is a compression fracture of the posterolateral humeral head
 - Hill-Sachs deformity refers to a fracture of the anterior glenoid rim
- Which of the following antihypertensive agents is paired with the appropriate indication?

 - ACE inhibitors—hypertension in pregnancy
 - Beta-blockers—acute MI
 - Beta-blockers—hypertension in cocaine toxicity
 - Short-acting dihydropyridine calcium channel blockers—acute MI
- Which lobe of the lung is most likely to be affected in aspiration of a foreign body?

 - Left lower
 - Left upper
 - Right lower
 - Right upper



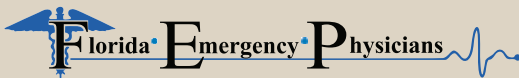
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Rash Findings



Case 1

The Patient

A 48-year-old male presents with a painful rash on his left chest, back, and in his axilla. He states that he developed worsening pain in the area for 3 days before the rash erupted, followed by the appearance of the findings seen in the images provided. He has no fever, no known exposures, and has never had anything like this before. He has no medical problems, takes no medications, and has no allergies.

What is the diagnosis and appropriate treatment?



PHOTOS COURTESY OF R. JASON THURMAN, MD



PHOTO COURTESY OF LAWRENCE B. STACK, M.D

Case 2

The Patient

A 9-month-old male is brought to the emergency department because of a fever to 103.0° F, and the skin eruption seen in the photograph. The patient was fussy and had decreased oral intake starting the day prior to the development of the rash and fever. The patient did not attend daycare and had no previous rash like this.

What is the diagnosis?

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

See the
DIAGNOSES
on page 46

The Diagnoses

Case 1.

The clinical findings in this patient are consistent with acute herpes zoster (shingles). Herpes zoster most often presents as a unilateral painful vesicular rash that follows along a dermatomal distribution, as demonstrated in this case (approximately T2-T3 dermatome). The condition results from a reactivation of the varicella zoster virus, and may occur at any time, but is especially common in times of stress or immunocompromised states. Herpes zoster ophthalmicus (V1 distribution) may involve the nasociliary branch of the trigeminal nerve and produce vesicles on the cornea or tip of the nose (Hutchinson's sign). Ramsay Hunt syndrome is associated with vesicles in the auricle along with a Bell's palsy. Therapy is primarily aimed at controlling the intense pain that may accompany the rash. Acyclovir or similar agents may hasten recovery and decrease pain if started early. Steroids are controversial, but may reduce the risk of post-herpetic neuralgia. Admission for IV acyclovir should be considered for patients with multi-dermatomal zoster, corneal involvement, or disseminated disease in immunocompromised patients.

Case 2.

The clinical findings in this pediatric patient are consistent with another case of acute herpes zoster. This eruption approximates the C6-C7 dermatomal distribution. A careful history reveals that the patient was exposed to varicella at age 3 months, but did not manifest a systemic illness from that exposure. Zoster, typically considered an adult disease, can occur in any child exposed to the varicella zoster virus or the vaccine. This condition might be confused with primary varicella or disseminated herpes zoster. Acyclovir is the primary treatment for zoster in children. The difficulty in this case is considering the diagnosis in a child. ★



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Calling all medical students!

Jump Start a Career in Academic Emergency Medicine

SAEM is looking for 25 energetic, self-starting, responsible, and enthusiastic medical students to work with the SAEM Program Committee at the Annual Meeting in San Diego, May 12-15, 2015. The Program Committee is responsible for the planning, coordination, and execution of SAEM's Annual Meeting. It comprises nearly 40 faculty members selected by the President of SAEM from emergency medicine programs all over the country.

Benefits for medical student committee members:

- Waiver of your registration fee to the SAEM Annual Meeting and to the Medical Student Symposium*
- Be paired with a member of the Program Committee to serve in an advisory capacity for future EM pursuits
- Learn much more about the current research and educational activities taking place in the field of emergency medicine
- Have the opportunity to form relationships with faculty members from EM programs around the country.
- A personal letter from the Committee Chair will be sent to your Dean of Student Affairs, acknowledging your contributions to the Program Committee.

Requirements and expectations of medical student committee members:

- Arrive in time to attend orientation and property tour on Monday, May 11, at 3:00pm and stay through 6:00pm on Friday, May 15.
- Attend daily Program Committee meetings
- Seeing to assigned tasks and responsibilities, which include, but are not limited to:
 - Approximately 6 hours of responsibilities per day.
 - Attend daily Program Committee meetings.

- Attend research and didactic sessions.
- Solicit evaluations from meeting participants and enter results into an online database.
- Assist in AV needs.
- Facilitate transitions between lectures.
- Be responsive and flexible to the needs of the Program Committee.

Interested medical students should submit their name and contact information to the SAEM office by e-mail to Elizabeth Oshinson at eoshinson@saem.org. Please

write "Medical Student Ambassadors" in the subject line and attach a CV and a statement of interest indicating your motivations for volunteering with the Program Committee (<150 words).**

Deadline is **February 1, 2015**.

Recipients will be notified by **February 20, 2015**.

*Travel and hotel will be the responsibility of the individual student; however, SAEM will provide the e-mails of other selected students to facilitate consolidating lodging expenses.

**PDF format preferred. Please combine your CV and statement of interest into a single document.

www.SAEM.org

ABEM to Update Initial Certification Examination Passing Scores



Emergency medicine has evolved over the last 35 years, and the examinations for board certification are evolving as well. Over the last several years, ABEM has been evaluating every aspect of the examination process, including evolving changes in the clinical practice of emergency medicine. ABEM conducted a survey of its diplomates to determine the appropriate test content for certification in emergency medicine. From this, a detailed description was compiled of what a board-certified emergency physician knows and is able to do. The most appropriate method for measuring the information gathered by the survey was then established.

Updated passing scores will be determined for initial certification examinations beginning with the fall 2014 qualifying examination. The intention of this revision is to create a passing score that accurately reflects the current standards for a cohort of ACGME-accredited emergency medicine residency graduates in 2014.

A standard-setting study will be conducted by a sample of clinically active, ABEM-certified physicians who will be selected to recommend a passing score. This group will evaluate each test question or oral examination case and determine how it believes the candidate who meets the ABEM standards will perform. The examination will continue to be "criterion referenced." If you know the subject matter, you will pass. Curves, quotas, or percentage passing will not be used to set the passing score.

The ABEM Board of Directors will review the results of the standard-setting study to determine the final passing score. They will also consider the type of errors they wish to minimize (such as passing unqualified candidates or failing qualified candidates) and the effect on the quality of the profession. The final passing score will be determined by a formal vote of the Board of Directors.

Candidates taking the fall 2014 qualifying examination will be scored using the updated passing score. Because the results of the examination are used to inform the new passing score, the new score cannot be determined until after the examination has been given.



It's nomination time for a coveted EMRA Award!

2015 EMRA Spring Awards

Nominate yourself or a colleague

The deadline for submission is February 15, 2015.

Please visit www.emra.org/awards for application instructions and full award descriptions. Awards will be presented in May at the EMRA Awards Reception during the SAEM Annual Meeting in San Diego. Apply today, and help us celebrate your achievements!

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- Chief Resident(s) of the Year
- EMRA Resident of the Year
- EMBRS Scholarship
- EDDA Scholarship
- Jean Hollister EMS Award
- LAC Travel Scholarship
- Local Action Grant
- Research Grant
- AEM Consensus Conference Scholarship
- Robert J. Doherty MD, FACEP Teaching Fellowship Scholarship
- SAEM Travel Scholarship

★ EMRA Application Deadlines February 15, 2015

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Don't miss this phenomenal opportunity to become more involved in the field of Emergency Medicine! Network with students and faculty from coast to coast — develop resources to assist fellow students navigate medical school and the residency application process. Sound like something you'd be interested in?

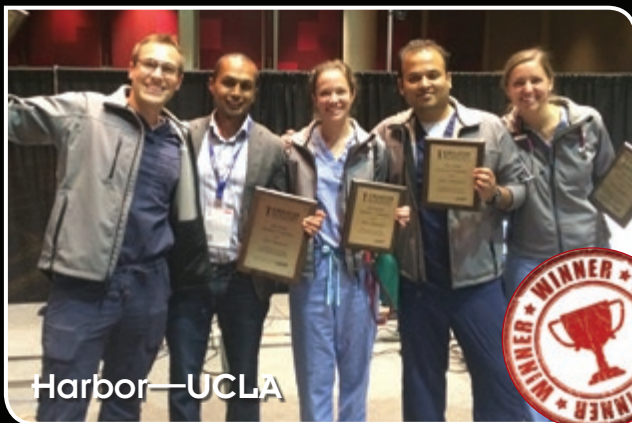
To find out more information on how to apply, visit www.emra.org/students/medical-student-council.

UPCOMING EVENTS

- Jan 3** CORD Faculty Development Scholarship Application Deadline
- Feb 15** EMRA Medical Student Council Application Deadline
- Feb 15** EMRA Spring Awards Deadline
- Feb 15** EM Residents' Appreciation Day Nationwide
- Mar 5** EMRA Committee & Division Application Deadline
- Apr 15** SAEM Annual Meeting San Diego, CA

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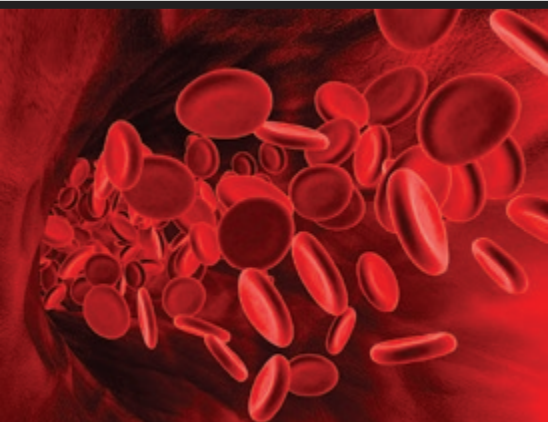
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RISK MANAGEMENT PITFALLS

Patients with Anemia in the Emergency Department



From the November 2013 issue of *Emergency Medicine Practice*, “Anemia In The Emergency Department: Evaluation and Treatment.” 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 “He didn’t say he was on warfarin, so why would I check an INR?”

Many elderly patients are poor historians secondary to dementia or polypharmacy. In an elderly patient being evaluated for anemia, the INR should be considered, as elderly patients are more likely to omit mentioning prescribed medications than their younger counterparts and are more likely to develop coagulopathies from other causes.

2 “Patients always exaggerate how much bleeding there is. Most is self-limited anyway.”

Bleeding (e.g., from the gastrointestinal tract and upper airway) can produce a significant amount of hemorrhage that may require admission to the hospital for observation.

3 “The patient with a gastrointestinal bleed was old, but he didn’t have any chest pain, so why would I get an ECG?”

Many older patients have major cardiovascular risk factors. With enough bleeding, there may be ECG changes to suggest cardiac ischemia secondary to supply or demand mismatch.

4 “The hemoglobin was 9 g/dL, so I didn’t think she needed a transfusion; I just gave her 1.5 L of normal saline for resuscitation.”

By initiating too much crystalloid, there is the possibility of dilution of

RBCs, causing decreased oxygen-carrying capacity and further injury (such as cardiac ischemia).

5 “The patient came in with a history of moderate gastrointestinal bleeding and a blood pressure of 90/60 mm Hg. I gave him 2 L of crystalloid. The blood pressure improved, but the bleeding restarted.”

While not true for every patient, it may be more advantageous to allow a patient to be mildly hypotensive as long as they do not show signs of tissue hypoperfusion. Increasing the blood pressure may disrupt primary hemostasis as hydrostatic forces within the blood vessels increase.

6 “The vital signs are normal, so he can’t be bleeding much.”

Many patients are on beta blockers or other atrioventricular nodal blocking agents that may falsely normalize the vital signs in the face of significant hemodynamic compromise.

7 “I gave the patient 4 units of packed RBCs, but she continued to bleed and deteriorate.”

When patients bleed, they lose more than just RBCs. Coagulation factors and platelets are also lost as hemorrhage continues, and dilutional coagulopathies can occur. Resuscitation with fresh frozen plasma (and possibly platelets) may be required, depending on the

degree of bleeding and amount of RBCs that are transfused.

8 “Because the patient’s hemoglobin was 11 g/dL with a low MCV of 78 fL, I figured the anemia was due to iron deficiency and I discharged him on iron supplements.”

Although iron deficiency is the most common cause of a microcytic anemia, other causes of a low MCV need to be considered. As it turned out, this patient had thalassemia minor, which is usually asymptomatic and does not require treatment.

9 “The hemoglobin was 9.8 g/dL; because it was <10 g/dL, I transfused the patient.”

No isolated threshold hemoglobin value has been shown to correlate with outcome of RBC transfusion. The use of blood transfusions should be based on whether the patient has clinical symptoms or signs suggesting a clinically significant anemia and not on a specific number.

10 “The parents said there was blood in their baby’s diaper, so I felt I needed to work up a potential coagulopathy and anemia.”

In infants with a history of rectal bleeding, the first step is to confirm that what the parents saw was really blood. Even if blood is not confirmed on the rectal examination, a laboratory screening for anemia and coagulopathy should be pursued. ★

RISK MANAGEMENT PITFALLS

Readiness for Pediatric Patients in the Emergency Department



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- 1 “We do not see many pediatric patients, so we do not have a physician or nurse coordinator for pediatric emergency care.”**
All EDs have the responsibility to care for patients of any age who present for care and treatment. Designating someone to serve as a champion for pediatric emergency care issues ensures that the needs of children are being met, resulting in enhanced pediatric readiness. While high-volume facilities may choose to assign this role to a full-time position, smaller hospitals may choose a part-time or shared role.
- 2 “Our quality improvement plan does not address pediatric-specific metrics.”**
In order to ensure that the care received is as intended, quality improvement plans must be in place to identify and correct systems-based errors. While quality improvement plans may be broad, such plans must target all populations, including children.
- 3 “Our patients’ vital signs are easily visible on the chart. Therefore, there is no need to notify the physician specifically.”**
Prompt physician notification of the presence of abnormal vital signs leads to more rapid assessment and intervention. Failure to institute policies to notify physicians of abnormal vital signs may lead to delays in care and increase the potential for adverse outcomes.
- 4 “We do not need a pediatric transfer plan or agreement because we rarely transfer pediatric patients.”**
While pediatric transfers may be rare occurrences for some facilities, it is important to have a transfer plan and agreement in place in order to expedite access to a higher level of care. Transfer plans may include mode of transport, communication elements, and other requirements. It is important to ensure all necessary communication and documentation is completed, as lack of agreements with outlying facilities may result in significant delays in care and a struggle to identify an appropriate receiving facility.
- 5 “Our health care providers choose what CME they complete. We do not have any specific pediatric CME requirements.”**
Pediatric patients account for approximately 25% of ED visits. When a pediatric patient presents in extremis, it is critical that providers are prepared to manage the child effectively and efficiently. Given the relatively infrequent encounters with critically ill pediatric patients, pediatric-specific CME becomes even more important in order to maintain the skills needed to treat the pediatric population. All providers caring for children should be encouraged to complete pediatric-specific CME annually.
- 6 “Our scale only weighs children in pounds.”**
Standard pediatric dosing is based on weight in kilograms. Weighing children in pounds requires the added step of converting weight to kilograms, which can create additional room for error. Also, using both pounds and kilograms may lead to errors in documentation. All children should be weighed only in kilograms, and weight should be recorded only in kilograms to avoid miscalculations.
- 7 “We do not require annual competency evaluations of our providers, as this is included in the certification process.”**
While recertification may test the current knowledge base, it is important that providers maintain pediatric-specific skills. This is particularly important when these skills are not practiced regularly. Annual competency evaluations provide a means for ensuring skills maintenance.
- 8 “We do not use a validated pediatric triage tool.”**
The use of a validated pediatric triage tool is important to help predict resource use. Triage tools used for adults may under- or over-triage pediatric patients, leading to a mismatch in prioritization. A higher triage category alerts physicians to the need for rapid assessment or intervention. Particularly in the setting of overcrowding, failure to use a validated pediatric triage tool may result in delays in care and poor patient management.
- 9 “We have a hospital-wide disaster preparedness plan, but no separate plan or inclusive guidelines for children.”**
Children are disproportionately affected during disasters. In addition, children have special needs that are often not considered when managing adult patients in the setting of a disaster. Specific needs include pediatric triage, a pediatric approach to decontamination, surge capacity, reunification services, medications, and supplies. Pediatric-specific elements must be included in a hospital-wide disaster plan. ★

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- Raw Data Sources Used to Generate Figures**
 NRMP Match Data — Applicant Surveys, Combined Years <https://docs.google.com/spreadsheets/d/1Jz34YFrZCj1x6MGkYpWxLE62MO4gpg0JWkflLuB-B8/edit?usp=sharing>
 NRMP Match Data — Results and Data, Combined Years <https://docs.google.com/spreadsheets/d/1VYomLo9GTG4cVJ-NEVOE5wyHidVRFn4Ma3YM9lgrU/edit?usp=sharing>
 Screening Filters Data <https://docs.google.com/spreadsheets/d/1sjsZlnUqDyuaxWdYg1UuW513aDCj94WvJYDnN1JbVs/edit?usp=sharing>

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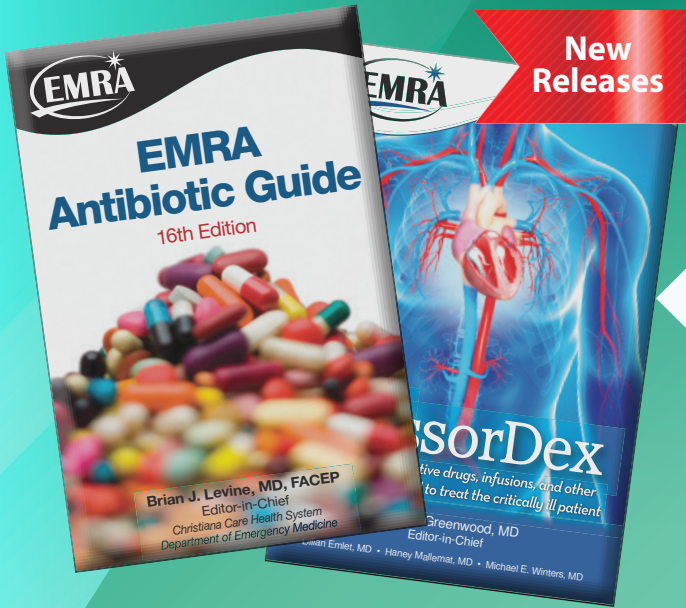
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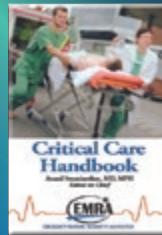
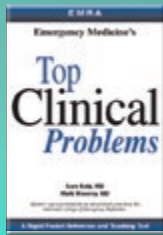
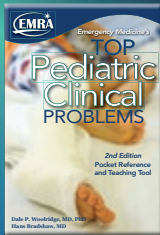
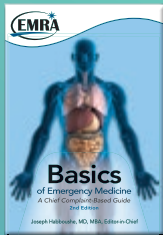
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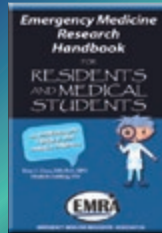
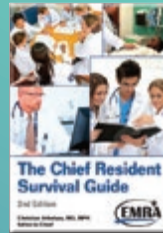
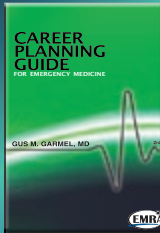
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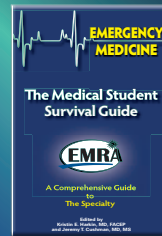
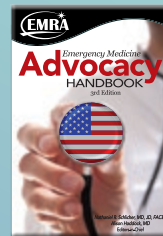
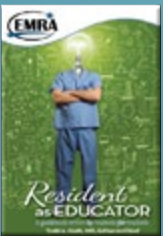
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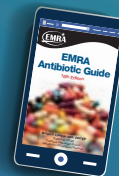
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Outside back (OBC) 7.5" x 7.5"	4950	3795	2722
Four Color			
2-page spread	\$4455	\$3795	\$3358
Full page 7.5" x 10"	2598	1992	1620
1/2 page vertical 3.5" x 10"	1351	1195	1048
1/2 page horizontal 7.5" x 4.75"	1351	1195	1048
1/3 vertical 2.25" x 10"	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

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ARIZONA

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.



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

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.

CALIFORNIA

Madera: PEDIATRIC EM – Excellent compensation package (\$300k/yr.) at Children's Hospital Central California. Join an outstanding team of fellowship-trained, board-certified pediatric emergency medicine physicians, with 100,000 pediatric emergency pts. treated annually, excellent backup, PICU, and in-house intensivist coverage. The ED physicians also staff the hospital-wide sedation service. The compensation package includes comprehensive benefits with funded pension (additional 13.27% up to \$34,500/yr.), CME account (\$8,000/yr.), family medical/dental/prescription/vision coverage, short and long term disability, life insurance, malpractice (occurrence) and more. Contact Bernhard Beltran directly at 800-359-9117 or email bbeltran@emp.com.

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 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% up to \$34,500/yr.), 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

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comprehensive benefits with funded pension up to \$34,500/yr, CME account (\$8,000/yr.), and more. Contact Bernhard Beltran direct at 800-359-9117 or email bbeltran@emp.com.

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 50,000 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.

Plainfield: Day Kimball Hospital - Want to have control of your schedule, make 300+K, working only 12 shifts a month? Come join this progressive, democratic group located in the bucolic region of Northeast Connecticut. Brand new, state of the

art, 24 bed Emergency Department, facile EMR with EMpower, bedside ultrasound, fiberoptic laryngoscopy, fiber optic nasopharyngoscope, EZIO, and mobile computers all at your disposal to make your work easier and more enjoyable. Perfect area to raise a family, and an incredible environment for the outdoor enthusiast looking for hiking, biking, fishing and skiing. One hour commute from Boston, Providence and Hartford. Offering a \$10,000 signing bonus, or monthly stipends for current Emergency Medicine Residents. Please contact Jennifer Hughes at Jennifer.hughes@neshealth-care.com or call 800-394-6376 # 209 for more information.

Plainfield: Day Kimball Hospital Plainfield Walk-in: Looking for PA's, APRN's, and emergency physicians to work at this brand new, state of the art facility seeing low acuity patients in an urgent care environment. Bedside testing, full x-ray availability, and EMR with Athena. Weekend differential offered. Must feel comfortable seeing patients alone in this single coverage environment with physician backup at Day Kimball Hospital Emergency Department. Please contact Jennifer Hughes at Jennifer.hughes@neshealth-care.com or call 800-394-6376 #209 for more information.

FLORIDA



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.

ILLINOIS

Chicago: Mercy Hospital & Medical Center sees 62,000 emergency patients per year. This Level II Trauma Center is a primary teaching site for the UIC EM residency program.

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EMP is 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 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 is easily accessible from a wide variety of residential options. 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 (69,000 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.

PRESBYTERIAN Albuquerque, 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 BC/BP Emergency Medicine trained physicians to work in our Emergency Medicine department. Our physicians enjoy a flexible work schedule and compensated for working nights. This is an employed opportunity with Presbyterian Medical Group, part of Presbyterian Health Services. The Emergency Medicine group covers three Presbyterian Hospitals in Albuquerque including Presbyterian Hospital, Kaseman Hospital and Rust Medical Center. The hospitals have 65,000, 40,000 and 24,000 ED visits per year, respectively. Our ED group is comprised of 45+ physicians, 12 mid-levels and additional support staff. At Presbyterian Hospital, we have over 50 rooms broken into 4 pods. Navigators triage non emergent patients to our lean track or makes next day appointments for those not needing immediate care. We have 24x7 hospitalists admitting ED patients.

Enjoy over 300 days of sunshine, a multi-cultural environment and the casual southwestern lifestyle. Albuquerque has been recognized as "One of the Top Five Cities to Live." It is also home to University of New Mexico, a world class university.

These opportunities offer a very competitive salary, sign on bonus, relocation; CME allowance; 403(b) w/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 ins, etc. EOE.

For more information contact Kelly Herrera, PHS, PO Box 26666, Albuquerque, NM 87125; kherrera@phs.org; 505-923-5662
Visit our website at www.phs.org or www.phs.org/PHS/about/Report

DISTRICT OF COLUMBIA

The Department of Emergency Medicine of the George Washington University is seeking physicians for our academic practice. Physicians are employed by Medical Faculty Associates, a University-affiliated, not-for-profit multispecialty physician group and receive regular faculty appointments at the University. The Department provides staffing for the Emergency Units of George Washington University Hospital, the Walter Reed National Military Medical Center and the DC Veterans' Administration Medical Center. The Department sponsors a four year Residency, ten Fellowships and a variety of student programs.

We are seeking physicians who will participate in our clinical and educational programs and contribute to the Department's research and consulting portfolio. Rank and salary are commensurate with experience.

Basic Qualifications: Physicians must be ABEM or AOBEM certified or have completed an ACGME or AOA certified Emergency Medicine residency prior to their start date.

Application Procedure: Complete the online faculty application at www.gwu.jobs/postings/24567 and upload a CV and cover letter. Review of applications will be ongoing, and will continue until positions are filled. Only complete applications will be considered. Contact Robert Shesser MD, Chair, Department of Emergency Medicine, directly with any questions about the position at rshesser@mfa.gwu.edu.

The university is an Equal Employment Opportunity/Affirmative Action employer that does not unlawfully discriminate in any of its programs or activities on the basis of race, color, religion, sex, national origin, age, disability, veteran status, sexual orientation, gender identity or expression, or on any other basis prohibited by applicable law.

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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 44,000 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.

Brooklyn: Emergency Medicine Physicians Needed. NES Healthcare Group is seeking Pediatric Emergency Medicine Physicians for Lutheran Medical Center (LMC), Brooklyn, NY. LMC is a Level I Trauma Center and a designated stroke center. Candidates must be BP/Certified Peds and have current EM experience. Peds EM desirable/UC experience and must have ACLS, ATLS and PALS certifications. Competitive compensation, incentive program, CME allowance and malpractice coverage provided. Contact: Jennifer Hughes, Physician Recruiter, 800.394.6376, fax 631.265.8875, jennifer.hughes@neshealth-care.com.

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 42,000 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 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.

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Eastern Region: EMERGENCY MEDICINE FACULTY. Clinician-Educator / Clinician-Researcher / Pediatric Emergency Medicine / Ultrasound:

The Department of Emergency Medicine at East Carolina University Brody School of Medicine seeks BC/BP emergency physicians and pediatric emergency physicians for tenure or clinical track positions at the rank of assistant professor or above, depending on qualifications. We are expanding our faculty to increase our cadre of clinician-educators and further develop programs in pediatric EM, ultrasound, and clinical research. Our current faculty members possess diverse interests and expertise leading to extensive state and national-level involvement. The emergency medicine residency is well-established and includes 12 EM and 2 EM/IM residents per year. We treat more than 120,000 patients per year in a state-of-the-art ED at Vidant Medical Center. VMC is a 960+ bed level 1 trauma center and regional stroke center. Our tertiary care catchment area includes more than 1.5 million people in eastern North Carolina, many of whom arrive via our integrated mobile critical care and air medical service. Our new children's ED opened in July 2012, and a new children's hospital opened in June 2013. Greenville, NC is a fast-growing university community located near beautiful North Carolina beaches. Cultural and recreational opportunities are abundant. Compensation is competitive and commensurate with qualifications; excellent fringe benefits are provided. Successful applicants will be board certified or prepared in Emergency Medicine or Pediatric Emergency Medicine. They will possess outstanding clinical and teaching skills and qualify for appropriate privileges from ECU Physicians and VMC. **Confidential inquiry may be made to: Theodore Delbridge, MD, MPH, Chair, Department of Emergency Medicine, delbridget@ecu.edu.** ECU is an EEO/AA employer and accommodates individuals with disabilities. Applicants must comply with the Immigration Reform and Control Act. Proper documentation of identity and employability required at the time of employment. Current references must be provided upon request. www.ecu.edu/ecuem • 252-744-1418.

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, 68,000 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.

OHIO

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.

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UH Twinsburg Medical Center
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MEDICINE MANAGEMENT MENTORING MISSIONS

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Columbus: Doctors Hospital is host to an award winning osteopathic emergency medicine residency training program where 78,000 ED patients are treated annually. 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 27,000 emergency pts./yr. The Madison Medical Campus hosts a freestanding ED seeing 11,000 pts./yr. West Medical Center is a state-of-the-art acute care hospital serving 35,000 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, 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



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.

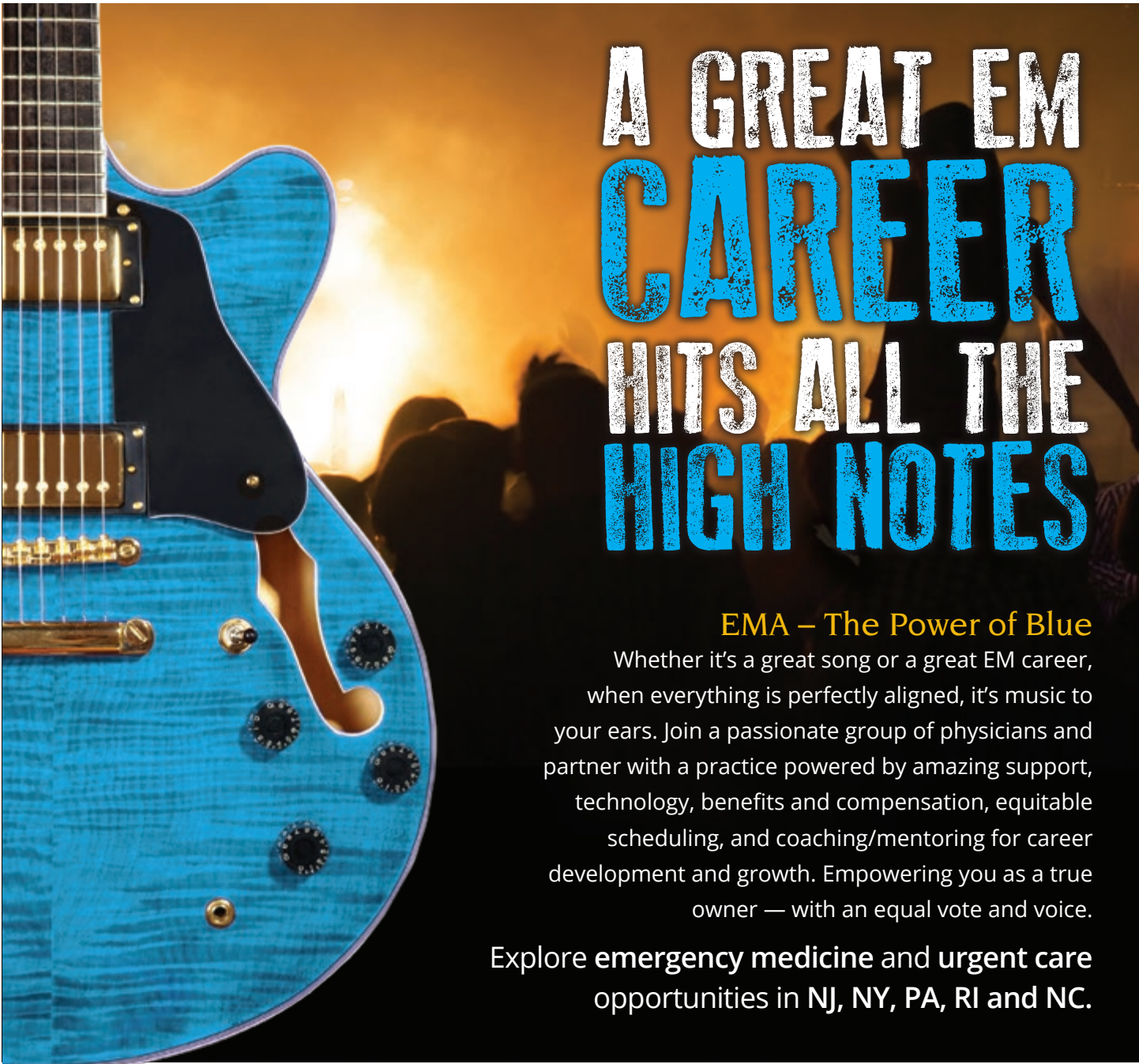
If you're a BC/BP Emergency Medicine-trained physician with outstanding skills, we want you to join our growing team. Whether you're an experienced physician, a new graduate or an experienced EM leader seeking a Chair or Associate Chair position, there are exciting opportunities throughout the health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

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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, a 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.



Northeastern Ohio: Physicians Emergency Services, Inc. is a progressive, single hospital, independent democratic group seeking another board-prepared physician to join its team. The hospital is located in Ravenna and has a 22 Bed ED with electronic medical record system. Annual census is 37,000. Competitive salary. Excellent benefit package. Equal shareholder at 2 years. Nine and ten-hour shifts rotate amongst all physicians except two existing physicians work exclusively nights. ED Physician coverage is 37 hours per day and PA/NP coverage 24-36 hours per day. A description of some our practice advantages along with a more detailed summary of our salary and benefit package is available. For more information please contact Brian Adams, MD, FACEP at 440-864-4242 or by email at phys_app@pesmed.com.

Parma: INCREASED PAY and LOAN REPAYMENT PROGRAM! University Hospitals Parma Medical Center is situated in the SW Cleveland suburbs. State-of-the-art physical plant and equipment serve 43,000 patients per year. Outstanding partnership opportunity, a 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.

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, treating 79,000 emergency patients 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 16,000 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.

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

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Tulsa: EMP is pleased to announce our recent affiliation with Saint Francis Hospital South – a modern community hospital built in 2007 near the desirable Broken Arrow, Bixby and Jenks communities, treating 28,000 emergency patients annually, and a full continuum of care is supported by the Saint 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.

PENNSYLVANIA

New Castle: Jameson Hospital is a respected facility situated between Pittsburgh, PA and Youngstown, OH, with easy access to the amenities and residential options of each. Recent major renovation includes a brand-new ED with 30 private rooms; 37,000 emergency patients are treated per year. EMP offers outstanding partnership opportunity including performance pay, equal equity ownership, funded pension, open books, comprehensive benefits and more. Contact Jim Nicholas (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

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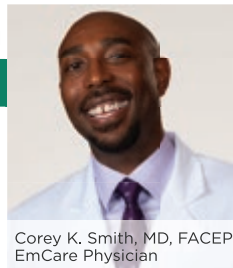
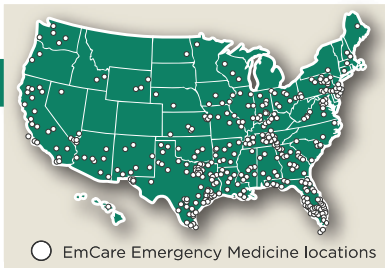
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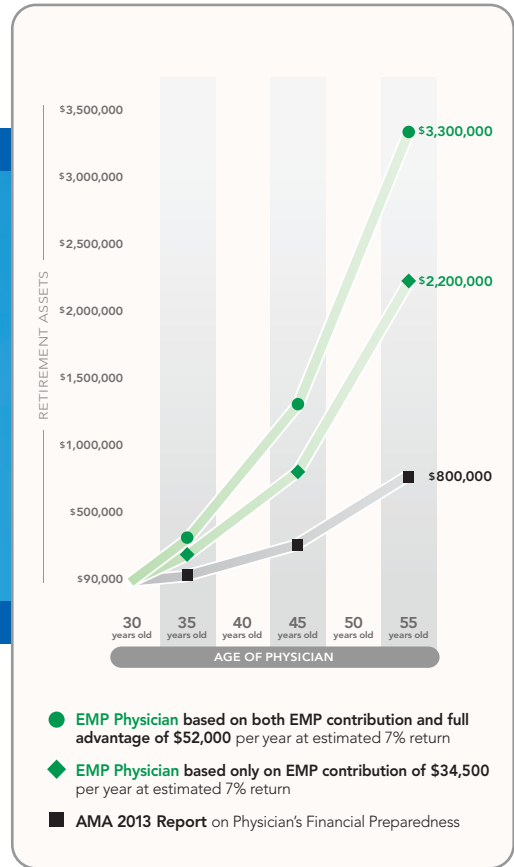
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