

EM Resident

Official Publication of the Emergency Medicine Residents' Association

December 2013/January 2014

VOL 40 / ISSUE 5

Money & Medicine

EM faces budget crisis

Cool Thinking

Induced hypothermia in pregnancy

Social Health Care

Meeting patient needs



EM PHYSICIAN OPPORTUNITIES

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ED Medical Director, Mercy Health West Hospital

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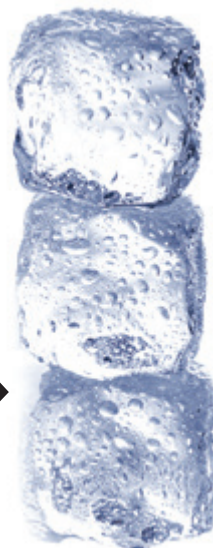
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The Emergency Medicine Residents' Association is the voice of emergency medicine physicians-in-training and the future of our specialty.



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Looking Back *Forging Ahead*

EMRA celebrates its 40th anniversary in 2014

As residents and medical students, we grow accustomed to living by the academic year, but January will always mark a period of transition. Named after the Ancient Roman god Janus, the start of the year allows us to take stock. Janus was the god of beginnings and transitions. If you were a Latin geek like I was in high school, you remember that he has **two faces – one that looks to the past, and one that looks to the future.**



As I settle into the role of EMRA president, I look back at the many successes our organization has had this year. We produced an hour-long documentary about the founding of our specialty, *24|7|365: The Evolution of Emergency Medicine*. We increased the scope of both our spring and fall awards, updated and broadened our publications, and continued to expand into mobile media. EMRA's committees and divisions grew as well, allowing for **more member involvement, invention, and innovation.**

Before we set our sights on the future, we must first reflect on the past. **2014 marks the 40th anniversary of EMRA – a monumental event that will be celebrated throughout the year.** Over the past four decades, EMRA has grown in size and success, while still remaining true to the sentiments of its founders and serving as the principal organization for emergency medicine physicians-in-training.

In order to accomplish so much, EMRA has relied on its leadership – and, at

the same time, has worked to *develop* leaders. From past board members, to program and regional representatives, to committee chairs, and to authors and contributors – involved, active members have made this organization what it is today. EMRA's latest initiative, EMpower, is highlighting these leaders.

EMRA also has many exciting projects in the pipeline for the future. Our publications will continue to grow and be updated, including the recently released second edition of our popular *Basics of Emergency Medicine* handbook. EMRA is

increasing its regional presence, as well – recognizing the opportunity to reach more members, not just at major meetings.

Be sure to stay tuned to see what EMRA has coming; but more importantly, get involved! Check out emra.org to see all that we have to offer. Beyond educational materials and clinical resources, **EMRA offers information and opportunities that you just can't get anywhere else.** My articles this year will highlight how you can take advantage of all that EMRA provides you to propel your career and personal development forward. ★



EMRA thanked its outgoing board members at the Fall Awards Ceremony at ACEP13 in October. We are indebted to them for their commitment and service to emergency medicine. Pictured from left: Drs. David Chiu, former informatics coordinator; Chadd Kraus, former academic affairs representative; Don Stader, past president; Cameron Decker, immediate past president; Matt Rudy, former speaker of the council and now president-elect; and Stephanie Krema, former secretary and editor-in-chief of *EM Resident*.



Movements that Matter

Pink Ribbons & Mustaches



Every October, our country comes together as a national community in support of those affected by breast cancer. We can see the unity in the banners hung at hospitals, ribbons on lapels, and pink gloves and shoes worn by NFL players. There are few among us who do not know someone in our family or circle of friends who has been affected by the disease. The popularity of the “pink ribbon” movement is a sign that we, as a country, still have the best interests of our fellow men and women at heart.

In keeping with this sentiment, many of my medical school friends on rotation with the pediatric hematology/oncology service shaved their heads in support of the young patients battling cancer. **Despite the many things that might bring us down on a day-to-day basis, we are surrounded by these glimmers of encouragement and empowerment.**

Though not as visible a movement, “**Mustache Movember**” brings together those who stand in support of prostate cancer and other men’s health issues. It has become annual November tradition for the residents, nurses, medics, and faculty members

CORRECTION

In the last edition of *EM Resident*, the article “Under Pressure” included a misprint. The formula for determining cerebral perfusion pressure should actually have read: $CPP = MAP - ICP$. We apologize for any confusion.

in my program to grow mustaches to show support for the cause – often to the chagrin of their significant others. While some of my colleagues sport facial hair no thicker than whiskers on a kitten, and others look like they have dead animals perched on their lips, **we all stand united to show support for those affected by cancer.**

In the emergency department, we don’t often think about cancer unless we happen to find it on a random CT scan. It can be easy to overlook the feelings of a patient, and empathy can be left by the wayside; we often have too many other pressing issues on which to focus. However, it is the simple things – **like pink ribbons and mustaches** – that help to remind us why we got into medicine in the first place.

No matter what kind of medicine we practice, we’re all here to help and support patients. Ours is a calling of service to our fellow men and women.



Nathaniel Mann, MD
Secretary/Editor, *EM Resident*
University of Cincinnati
Cincinnati, OH

That’s why we shave our heads, grow mustaches, and wear pink on football fields – and that’s why we produce this magazine. Let us know what we can do to make *EM Resident* better; submit an article, share a letter to the editor, tell us what you think. We’re here to make a difference, and last month, we were there with a mustache to prove it. ★



Emergency medicine physicians at the University of Cincinnati show off the facial hair they sprouted during “Mustache Movember,” a campaign to raise awareness of men’s health issues.

My first representative council meeting was at the SAEM conference in Boston in 2010; I had just started my intern year in Houston. An EMRA member since medical school, I had never attended a council meeting. By a sheer stroke of serendipity, my intern class was at SAEM and our program representative was not able to attend, so I became our program alternate.

I was captivated by the representation of emergency medicine residents, the scope of conversation, the passion of the council, and the fact that in this one cold hotel room in Boston was **the powerful voice of a generation of healers that remains at the forefront of our health care debate.** I knew I had to go back again and again. Today, it is with great humility and a sense of appreciation that I serve as the speaker of the EMRA Representative Council.

I addressed the council for the first time at ACEP's 2011 *Scientific Assembly* in San Francisco. I spoke in favor of a resolution proposing that EMRA adopt a policy endorsing informatics as an emergency medicine subspecialty. Leading up to ACEP13, I had rallied all 47 of my co-residents to join EMRA. My argument to them, as it continues to be with all of our members, is that **true representation cannot be divorced from membership and advocacy.** Now, as EM residents start their informatics fellowships and become leaders in a field that will define our practice for years to come, the power of

A VOICE for Our Times

EMRA's Representative Council speaks for residents

our council resounds as strongly now as it did that day in San Francisco.

In the spring of 2013, our council stood together – albeit with passionate debate, and even the suspension of parliamentary rules – to vote in favor of the idea that **GME funding is important for the future of our residencies.** We determined that only an MD or a DO should use the term “doctor” in the emergency department. We voted for *EMRA's Legacy Initiative*, which spurred the most comprehensive documentary on the history of our specialty, 24|7|365: *The Evolution of Emergency Medicine.* We are a voice that is changing our lives and those of our patients.



Ije Akunyili, MD, MPA
Vice Speaker of the Council
Medical Center Emergency Physicians
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This coming year as your speaker, I will continue my promise of engaging the diversity of voices within our membership and strengthening the regional representative network. I have traveled throughout our country and met many of you in person, and it has remained my privilege to continue this work.

We are thrilled at **the election of our new vice-speaker, Dr. Anant Patel.** Anant is highly talented and eager to continue the work of our organization. We both share the passion of ensuring that our council remains the authentic voice of *all emergency physicians in training.* ★

EMRA Committee and Division Application Deadlines this Spring!

Apply by **April 15** to serve on one of our career-boosting committees and divisions. We welcome applicants for those interested in serving on EMRAs **editorial, health policy, informatics, research,** and **education** committees; and the **EMS, international, pediatric EM, ultrasound, wilderness,** and **critical care** divisions.

Feeling really passionate? Apply by **February 15** to be considered for the position of vice chair. The vice chair of each committee and division must accept a two-year commitment, as they will continue as chair for the 2015-2016 year. All applicants must be EMRA members.

Apply online at www.emra.org.
Email committees@emra.org for more information.



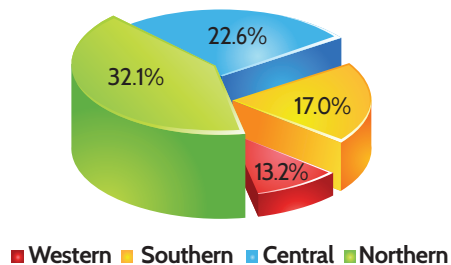
According to a 2011 article in *Academic Emergency Medicine*, 26.1% of residents chose to pursue a career at an academic center, 57.1% signed contracts with community groups, and 13.5% entered a fellowship.¹ As the number of new fellowship opportunities are created, emergency medicine graduates leaving residency for fellowships and academic positions is likely to increase.

This year, like every year, many senior residents are on the hunt for fellowships and attending faculty positions. To aid these residents, the EMRA Education Committee surveyed residency chairs nationwide to gauge what characteristics they are looking for in their new hires. Responses from 53 programs were received, 94% of which came from primary academic teaching institutions. The response rate by region is seen in *Figure 1*.

Residents graduating from three-year programs, but looking for work at institutions with four-year training

programs, may need additional work experience. Fifteen institutions with four-year programs responded to the survey. Of these, only two (13%) stated they would hire a graduate from a three-year program. Eleven of these programs wanted to see additional work experience, and two would not hire anybody from a three-year program, regardless of work experience. Overall, however, more than half of the academic institutions polled would hire a new emergency medicine physician out of residency. The percentage of positions

FIGURE 1. Response Rate by Region

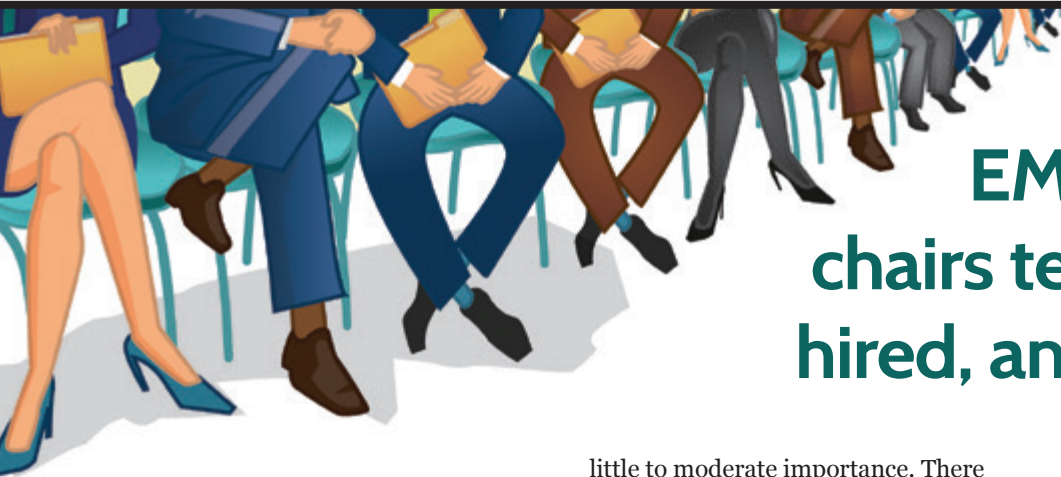


Jessica Best, MD
 Vice-Chair
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filled by newly graduated EM physicians across the board is shown in *Figure 2*. The data indicates that, while finding a position at a four-year training program may be difficult, new graduates are still perceived as good hires.

For graduating fellows, there seems to be ample opportunity for new academic positions. (*Figure 3*) Programs appear to be uniformly looking to fill vacancies with physicians who are fellowship-trained, suggesting that if you're aiming for an academic position, a fellowship will likely be beneficial in finding your perfect job.

There are certain specialties in which programs are looking to hire in the near future. Research, ultrasound, EMS, and

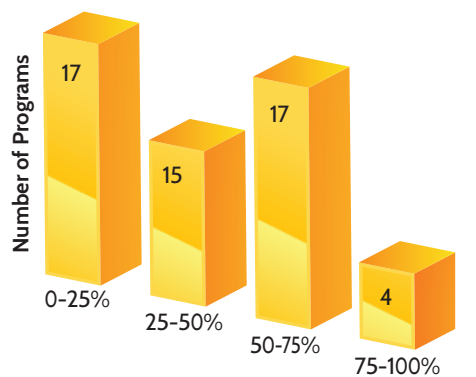


EM residency chairs tell us who gets hired, and who doesn't

simulation are the most highly sought-after, with wilderness medicine and hyperbarics being the least marketable fellowships. (Figure 4)

Finally, we asked the chairs which characteristics were most important when evaluating a new graduate as a potential employee. Table 1 shows the applicant characteristics that were of

FIGURE 2. Hiring Patterns of Academic Institutions with New Emergency Medicine Graduates

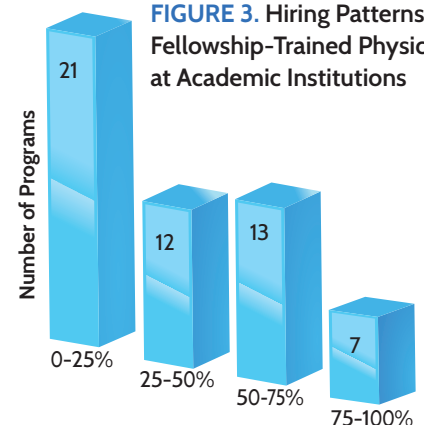


Percentage of new hires who are new EM graduates

little to moderate importance. There were no specific characteristics that were deemed “very important” by the majority of programs, suggesting that a well-rounded candidate is more important than any one salient feature.

For those of you on the interview trail, we hope this survey sheds some light on what the job market holds for new residency and fellowship graduates. For residents and medical students looking forward to positions in academic medicine, we hope that you can start to groom the characteristics that will be important in finding your future positions. ★

FIGURE 3. Hiring Patterns for Fellowship-Trained Physicians at Academic Institutions



Percentage of fellowship-trained physicians hired post-graduation

FIGURE 4. Fellowship Subspecialties Sought After by Academic Programs

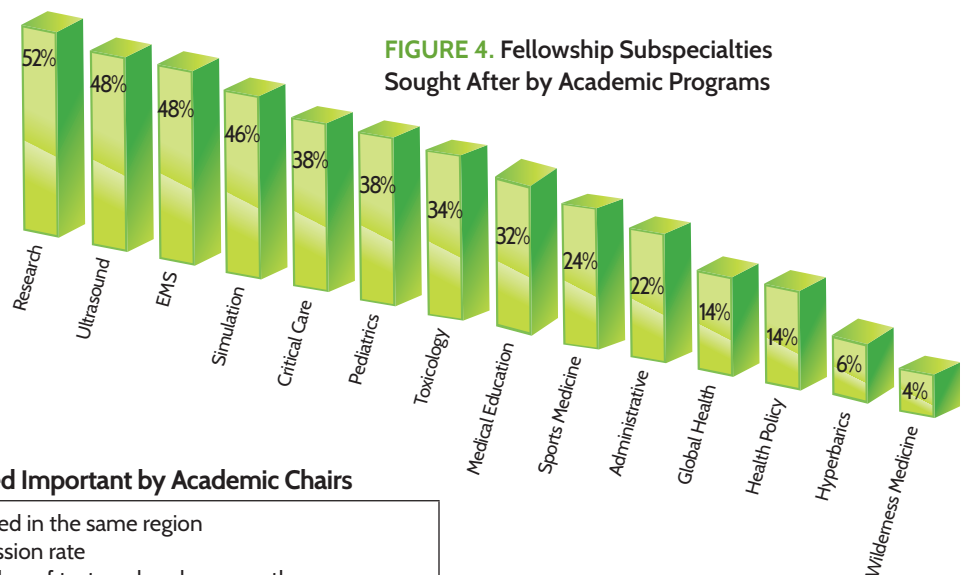


TABLE 1. Characteristics of New Hires Deemed Important by Academic Chairs

Little Importance	<ul style="list-style-type: none"> Applicant has been trained in the same region Applicant's patient admission rate Applicant's average number of tests ordered per month
Some Importance	<ul style="list-style-type: none"> Applicant trained at a program with a similar patient demographic Applicant's average number of patients seen per hour Number of lectures/presentations given during residency training Mentoring of medical students and residents during residency training Involvement in professional organizations Participation in hospital or department committees
Moderate Importance	<ul style="list-style-type: none"> Program director letter of recommendation Applicant trained in a program with similar patient volume Research experience and/or publications during residency training

A well-rounded candidate is more important than any one salient feature.

INFORMATION INTOXICATION

EMRA Cuts Through the Haze with its 2013 Education Survey

A familiar refrain echoes continuously across the halls of hospitals all over the world:

Resident A: What (type of resource) do you use (time/place) to learn about (topic)?

Resident B: You should definitely check out (resource X), it's the best thing out there for learning (topic)!

Far from a nostalgic game of *Mad Libs*, this is a frequent conversation between adult learners eager to grow in the specialties they've chosen. Information flows from those who have gone before and have done it "right" to those who have self-identified an area of weakness. This invaluable information – passed down from one physician to the next – not only increases knowledge and skill, it also helps to improve patient care.

The Emergency Medicine Residency Review Committee (RRC) recognizes the value of self-directed learning in the training of future emergency physicians. The 2008 Council of Residency Directors (CORD) Academic Assembly Conference Alternatives Workgroup suggests that synchronous (traditional didactics-based) and asynchronous learning (accounted for by individualized instruction) have advantages and disadvantages, and the "ideal curriculum capitalizes on the strengths of each through a deliberate mixture of each."¹

The group allows for up to 20% of mandated education to occur in individualized sessions.² This formally made adult learners responsible for their own learning, with the freedom to target their own knowledge gaps in ways attuned to their personal learning styles and schedules. (This option is still residency-dependent).

The modern dilemma surrounding asynchronous learning is that **the amount of competing information available leads to "infoxication" (information + intoxication)**, otherwise known as information overload. Driven by the explosion of educational content available to residents with the advancement of web-accessible resources, the possibilities are endless. Many leading experts in their fields have embraced Web 2.0 and are available through social media to directly answer any additional questions an individual resident may have.³ If medical school felt like "trying to drink water from a

Nelson Wong, MD

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fire hose," these ever-increasing options make current residency education akin to plugging that fire hose directly into the five oceans and turning it on full blast. Unadulterated, the information available can be overwhelming.

How does a single resident filter through the noise to find the right resource for learning? The EMRA Education Committee wanted to know the answer. We went back to the guidance "Resident A" was seeking from "Resident B" and thought: if one respected resident's opinion is good, 200 residents' opinions are even *better*.

During the two months surrounding the in-service examination this year, when residents' minds theoretically are most attuned to learning, **EMRA hosted an online survey asking visitors what resources they used most frequently. The results are enlightening.**



Results are also posted on the Education Committee page on emra.org.

EMRA EDUCATION SURVEY RESULTS

Resources EMRA Members Use Most

Daily

1. UpToDate
2. EMRA's *Antibiotic Guide*
3. Epocrates
4. Tintinalli's *Emergency Medicine: A Comprehensive Study Guide*

Main References

1. UpToDate
2. Tintinalli's *Emergency Medicine: A Comprehensive Study Guide*
3. Rosen's *Emergency Medicine Concepts and Clinical Practice*
4. Roberts and Hedges'

On-Shift Resources

1. UpToDate
2. EMRA's *Antibiotic Guide*
3. Epocrates

Textbooks

1. Tintinalli's *Emergency Medicine: A Comprehensive Study Guide*
2. Rosen's *Emergency Medicine Concepts and Clinical Practice*
3. Roberts and Hedges'
4. Harwood-Nuss'

Journals

1. *Annals of Emergency Medicine*
2. *Journal of Emergency Medicine*
3. *Academic Emergency Medicine*
4. *New England Journal of Medicine*
5. *JAMA*

Podcasts

1. EM:RAP
2. EMCrit
3. ERCast
4. SMART:EM

Blogs

1. EMCrit
2. Life in the Fastlane
3. Amal Mattu's *Emergency ECG*
4. Tie: UMEM Educational Pearls/Academic Life in EM

Question Banks

1. PEER Questions
2. ACEP Board Review Course

Specialty-Specific

Anesthesia

1. EMRA
2. Ron Walls' *Manual of Emergency Airway Management*
3. Tintinalli's *Emergency Medicine: A Comprehensive Study Guide* /UpToDate

Cardiology

1. Amal Mattu's *Emergency ECG/UpToDate*
2. Rosen's *Emergency Medicine Concepts and Clinical Practice*
3. Tintinalli's *Emergency Medicine: A Comprehensive Study Guide*

Critical Care

1. EMCrit/Marino's *ICU Book*
2. EMRA Apps
3. Critical Care Clinics/Rosen's *Emergency Medicine Concepts and Clinical Practice*

Dermatology

1. *Fitzpatrick's Color Atlas*
2. Visual Diagnosis
3. UpToDate

ECG

1. Amal Mattu's *Emergency ECG*
2. Dubin's *Rapid Interpretation of EKG*
3. Dr. Smith's ECG blog

ENT

1. Tintinalli's *Emergency Medicine: A Comprehensive Study Guide*
2. UpToDate
3. *Atlas of EM*

Medical Pharmacology

1. Epocrates
2. UpToDate
3. EMRA's *Antibiotic Guide*

Neurology

1. UpToDate
2. Tintinalli's *Emergency Medicine: A Comprehensive Study Guide*
3. Rosen's *Emergency Medicine Concepts and Clinical Practice*

Ophthalmology

1. UpToDate
2. *The Wills Eye Manual*
3. Tintinalli's *Emergency Medicine: A Comprehensive Study Guide*

Orthopedics

1. Simon's *Emergency Orthopedics*
2. *Handbook of Fractures/Orthobullets.com*
3. *Wheless Textbook of Orthopaedics* (Online)

Pediatrics

1. *Harriet Lane Handbook*
2. UpToDate
3. Tintinalli's *Emergency Medicine: A Comprehensive Study Guide*

Procedures

1. Roberts and Hedges'
2. Youtube.com
3. EM Procedures/Google/UpToDate/Procedure Consult

Pulmonology

1. UpToDate
2. Tintinalli's *Emergency Medicine: A Comprehensive Study Guide*
3. Rosen's *Emergency Medicine Concepts and Clinical Practice*

Radiology

1. Schwartz's *Emergency Medicine Case Studies/Learningradiology.com*
2. One Night in the ED (app)
3. UpToDate

Research

1. Pubmed
2. Evidencebasedmedicine.com/UpToDate
3. TheNNT.com

Toxicology

1. Goldfrank's *Toxicologic Emergencies*
2. Poison control centers
3. Tintinalli's *Emergency Medicine: A Comprehensive Study Guide* / Micromedex

Trauma

1. *ATLS* textbook/Rosen's *Emergency Medicine Concepts and Clinical Practice*
2. Tintinalli's *Emergency Medicine: A Comprehensive Study Guide*
3. UpToDate

Ultrasound

1. Ma's *Emergency Medicine Ultrasound*
2. Sonoguide.com/Emsono.com
3. Sonosite.com

Urology

1. Rosen's *Emergency Medicine Concepts and Clinical Practice* / UpToDate
2. Tintinalli's *Emergency Medicine: A Comprehensive Study Guide* ★

Special thanks to the EMRA Education Committee for its contributions (especially Drs. Claire Broton, Tiffany Moadel and Joe Pinero), and the EMRA community for its responses. ★



Providing Compassionate CARE

Emergency medicine physicians have the opportunity to take a leadership role in tackling patients' bigger problems. We can expand our practice to meet patients' most pressing needs.

“Well, I lost my Kaiser when the economy tanked, so I wasn’t able to get follow-up. Everything was okay for a while, but then *this* happened.” Mr. W gasped for a breath as he pointed to his distended abdomen, the ascites from his hepatitis C cirrhosis making it difficult for him to breathe. He was still waiting for a GI appointment, and this was his third visit in a week to the ED for therapeutic paracentesis. As I drained the fluid from his abdomen, I promised to submit another referral to GI.

of gas or electricity at home, or housing problems.² Many of these patients do not have any connection to consistent health care services; nearly a quarter do not receive public assistance.³ However, even frequent ED users *with* regular access to health care are sicker and poorer than their counterparts.⁴

This finding is not surprising; it has been long recognized that **SEEL factors affect health**. In 1848, German physician Rudolf Virchow identified poverty, the lack of education, and the lack of democracy as key elements in



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leadership role in tackling patients’ bigger problems. New pilot programs around the country that address the needs of the most challenging ED patient populations have shown a lot of promise. Recent studies suggest a potential for significant health care savings that may substantially offset the costs of providing additional services.

For example, in New York City, the Health and Hospital Corporation’s Hospital to Home (H2H) project provided intensive case management and coordination for Medicaid patients at high risk for frequent hospitalization.¹⁶ This project employed a coordinator who worked with community groups that provide housing. This coordinator helped with housing applications and provided ongoing tracking of patients’ applications. In essence, H2H used the ED as a portal of entry into the housing system for those who were unstably housed or homeless. The study enrolled 263 high-cost Medicaid patients and **saved Medicaid more than \$14,000 a year per patient** – a significant 20% savings. Both emergency department visits and hospitalizations decreased by about 50% in this cohort. This pilot study highlights the opportunity provided by **improving communication and coordination of care and resources between health care and social services providers**.

Other programs also have shown promising results. In Chicago, 407 hospitalized homeless adults with chronic illness were enrolled in a randomized control trial in which the treatment group received case management and housing, while the control group received standard discharge planning care.¹⁷ After adjusting for baseline variables, the study found statistically significant relative rate reductions in hospitalization, length of stay, and ED visits in the control group.¹⁸ By engaging a traditionally challenging population, this study showed decreased health care utilization and used it as a proxy for improved health outcomes.

AMIDST THE FRAYING

Safety Net

When training at a county safety net hospital, often the most difficult part of the job is arranging follow-up, figuring out how patients can get prescriptions filled, and addressing patients’ underlying social, economic, environmental, and legal (SEEL) issues. Ranging from lack of access to care to unstable housing and violence, these factors frequently are the at the root of why patients come into the emergency department. Semingly benign side comments like, “Doc, my back hurts... and can I have a sandwich?” or “Doc, I feel better, but can I just stay here until morning?” raise much deeper issues. What is the role of the ED physician when it comes to the social, economic, environmental, and legal determinants of health?

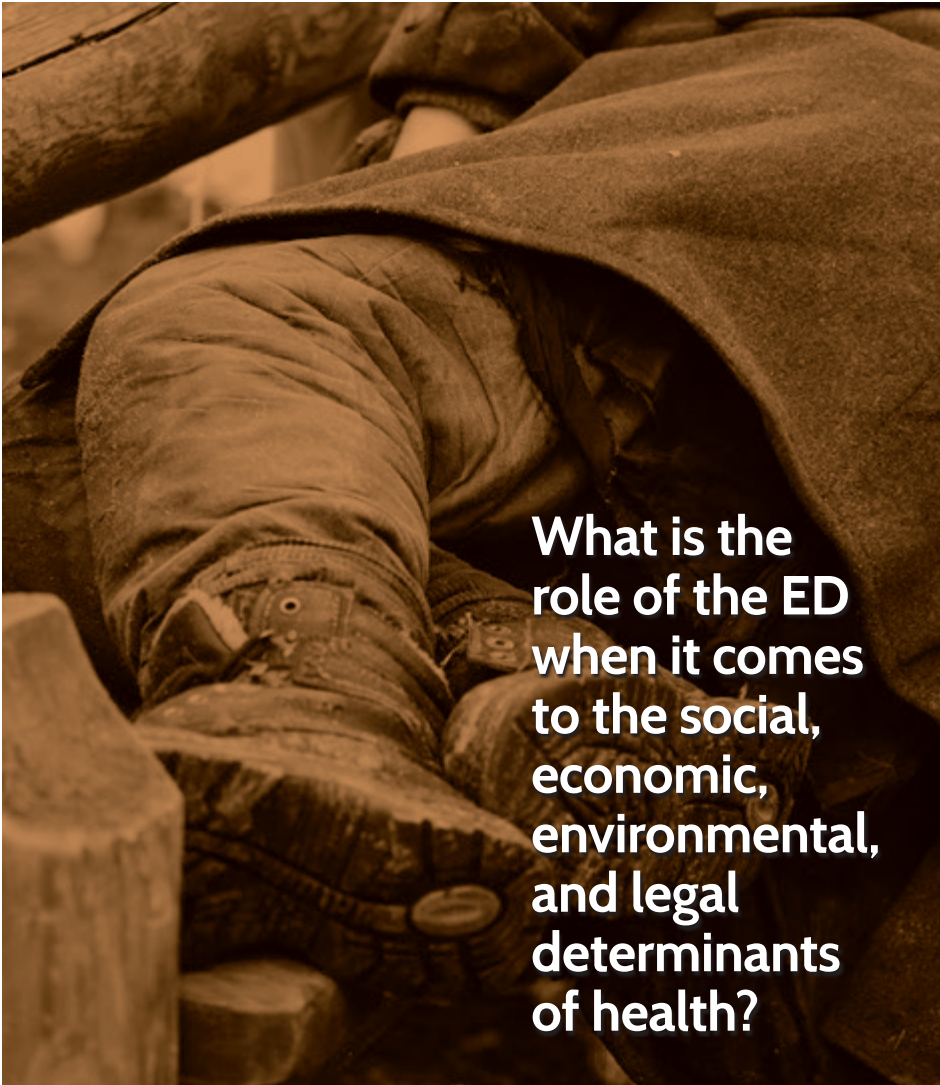
The ED is the only health care resource for many Americans who have nowhere else to turn.¹ These patients often have a disproportionate number of SEEL needs. One study showed that 31% of ED patients reported one or more social deprivations, including a lack of food, disconnection

the development of a typhus epidemic.⁵ Since then, many studies have shown the impact that various SEEL factors such as food,⁶ housing,⁷ transportation,⁸ health care,⁹ and education,¹⁰ have on health.

Despite the prevalence of SEEL needs and their effect on health, traditional medical training largely ignores them.¹¹ As a result, physicians spend little or no time addressing these areas due to a perceived lack of time or expertise.¹² When patients hint at these issues, many ED physicians immediately refer them to social workers.¹³ However, **in many busy EDs, patients’ needs vastly outnumber the limited social work resources available**.

ED social workers are often focused on addressing the acute and immediate concerns of patients, and often do not have resources to provide longitudinal follow-up for patients’ underlying difficulties.

Some forecasters predict that the implementation of the Affordable Care Act (ACA) will increase the number of ED visits.¹⁴ The newly insured will have many SEEL needs.¹⁵ At this critical juncture, ED physicians have the opportunity to take a



What is the role of the ED when it comes to the social, economic, environmental, and legal determinants of health?

Similar to H2H, this program leveraged existing community-based housing resources.

In San Diego, the REACH program looked at the costs of providing housing for homeless adults with significant mental health and criminal justice system histories.¹⁹ Outpatient and case management costs per patient increased significantly in this program, but when compared to a control group, **the cost was only \$417 per patient**; and there were significant reductions in emergency, inpatient, and criminal justice system expenditures. Improved health outcomes were not accounted for. Other programs in Seattle,²⁰ San Francisco,²¹ Connecticut,²² and New York²³ have also looked at similar interventions. Generally, cost savings were found from decreased service utilization that partially or mostly offset program and housing costs.

These promising results highlight the role that ED physicians can play in identifying and addressing SEEL needs. Traditionally, physicians have shied away from asking about these issues because of the lack of resources, time, and training.²⁴ However, the National Center for Medical Legal Partnerships recommends the IHELLP screen for SEEL needs as part of a complete social history.²⁵ IHELLP stands for **income, housing, education, legal status, literacy, and personal safety**. As busy providers, we may not have the time to ask all of these questions. Instead, a modified two-question screen could be used: “Do you have a safe place to go after this visit?” and “Do you have enough money to get home, pay for your medications, and pay for food?”²⁶ The first question addresses housing and personal safety; the second gets at income, health care access, insurance, and food.

Besides identifying these needs, we can work with our social work colleagues and ED and hospital administrators to develop a plan that goes beyond existing resources for addressing SEEL needs. Not every ED has the ability or manpower to implement a “housing first” type of program. However, there are many intermediate interventions that can augment social work’s capacity to handle these challenging issues.

One model involves working with volunteers to connect patients to resources. The prototype of this model is HealthLeads,²⁷ which serves mainly primary care settings. Founded in Boston, this model expands capacity by allowing one social worker to provide the equivalent of up to 5.0 FTE worth of services by utilizing volunteers. **A second model is the medical-legal partnership**,²⁸ which places lawyers in the health care setting to partner with the health care team to address more complex SEEL needs. Both of these programs function in conjunction with social work and allow teams to work at the top of their license to meet patients’ needs. At Highland General Hospital in Oakland, Highland Health Advocates combines these two models into a single program that provides a continuum of care for patients’ needs.²⁹

Although a number of programs directed towards addressing SEEL needs have appeared around the country in the last 20 years, they are not the standard of care, and no best practices have yet been developed. Emergency physicians have the opportunity to shape these programs, informed by daily interactions with patients and insights into their lives and communities.

We have the opportunity to direct resources and address the factors impacting our patients’ health, instead of only meeting their direct medical needs. **We can expand our practice to meet patients’ most pressing needs and turn emergency departments into centers of excellence in addressing SEEL needs.** We can shape medicine to better improve patients’ health, and to meet their daily challenges. ★

THE LEADERSHIP PIPELINE

Engaging the Next Generation of Leaders

ACEP13 was a celebration of emergency medicine’s tremendous past and its bright future. We commemorated those who founded and shaped our specialty through the premiere of EMRA’s long-awaited documentary and elected a new cohort of leaders to the EMRA and ACEP Boards of Directors. But perhaps to me, the most important theme that emerged during this conference was recognizing the importance of student engagement in creating a pipeline of leaders ready to define the future of our specialty.

Lessons learned from ACEP Resolution #10

This resolution sought to exclude medical student members of ACEP in determining the number of councillors allocated to each state chapter. Thanks to thoughtful testimony from both students and experienced ACEP leaders alike, **this proposition was overwhelmingly defeated.** Not only would this resolution have had minimal impact on the overall number of councillors (less than 5% decrease), but it actually would have hurt

smaller chapters the most; losing one of a *few* councillors is of much greater impact than losing one of *several*.

If ACEP is to accomplish its goal of increasing total membership by retaining EMRA members as they transition from residents to attendings, **the role of medical student engagement can’t be overlooked.** Involved medical students will become involved residents, who will one day become involved attendings. Some state chapters, such as Texas, have excelled at engaging medical students, while others are still warming up to the idea. I would like to challenge the leadership of each chapter to reach out to the medical students within your state and to be vigilant in recognizing and providing opportunities for them to become more involved. You might be surprised by how much these up-and-coming physicians have to offer.

The difference between mentors and advisors

While the need for increased student engagement at the state and national levels is evident, it is not a replacement for the value of one-on-one mentorship. Although



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I’ve written about the importance of mentorship in the past, it was not until recently—while attending a grand rounds presentation on the interview trail—that I gained an appreciation for the fundamental distinction that exists between two terms that are often, and improperly, used interchangeably: **advisor versus mentor.**

While a precise definition of “mentorship” may be difficult to agree upon, in general, a mentor *guides* while an advisor *directs*. Guidance requires more than prescribing a pre-defined, one-size-fits-all approach; guidance requires consideration of an individual’s personal situation, needs, and passions. **True mentors know what motivates their mentees;** true mentors strive to build long-term personal relationships and seek to empower mentee decision-making, holding the goals of their mentees paramount to their own when providing guidance. It has been said that “many can advise; but few can mentor.”

Become a leader

Calling all students interested in becoming more involved in organized emergency medicine! Applications for EMRA’s Medical Student Council are due February 15. More information can be found at www.emra.org/students/medical-student-council. ★

SUBMIT
A LETTER TO THE EDITOR ▶



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~~IMPATIENT~~

ANXIOUS FOR A DIAGNOSIS

PATIENTS WITH HYPOCALCEMIA CAN PRESENT WITH MILD TO SEVERE LIFE-THREATENING SYMPTOMS

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Glendale, AZ

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Case description

A 45-year-old diabetic woman presents to the emergency department with severe anxiety. She also describes paresthesias and “heavy” upper extremities. Two weeks ago she underwent a total thyroidectomy for papillary carcinoma.

She is tachycardic and tachypneic with **positive Chvostek and Trousseau signs**. An EKG is obtained, showing a prolonged QTc. Her labs demonstrate hypocalcemia with an ionized calcium of 0.82 mmol/L (reference range 1.12-1.32) and serum calcium of 6.8 mg/dl (reference 8.9-10.3).

She is treated with IV calcium, with significant symptom improvement, and is admitted for further workup. While in

the hospital, her PTH levels are found to be within the normal range, and a chart review reveals that no parathyroid glands were removed. Adjustments to her oral calcium supplement are made and she is discharged two days later.

Discussion

Hypocalcemia is the most common complication of a thyroidectomy, and usually results from removal or damage of the parathyroid glands.¹ When damage to one or all of the parathyroid glands occurs, the body’s calcium homeostasis will be rendered dysfunctional, and serum calcium can be severely reduced.

Patients with hypocalcemia can present with mild to severe life-threatening symptoms. The severity of symptoms is usually determined by the rate and duration that one develops hypocalcemia.² For acute presentations, the most significant pathophysiological effect is hyperexcitability of the neurons, which can manifest both in **sensory and muscular dysfunction as tetany, paresthesias, weakness in the extremities, and muscle spasms**. Carpal spasms and facial muscle spasms can present with the

classic Trousseau’s and Chvostek’s signs. Due to its ability to affect membrane potentials, hypocalcemia is known to prolong the QT interval, which, in turn, can predispose the patient to

Symptoms and signs of hypocalcemia

Systemic	Confusion
	Weakness
	Mental retardation
	Behavioral changes
Neuromuscular	Paresthesias
	Psychosis
	Seizures
	Corpopedal spasms
	Chvostek and Trousseau signs
	Depression
	Muscle cramping
	Parkinsonism
	Irritability
	Basal ganglia calcifications
Cardiac	Prolonged QT interval
	T-wave changes
	Congestive heart failure
Ocular	Cataracts
Dental	Enamel hypoplasia of teeth
	Defective root formation
	Failure of adult teeth to erupt
Respiratory	Laryngospasm
	Bronchospasm
	Stridor

ventricular arrhythmia. Neurological symptoms, such as anxiety or seizures, can occur with low levels of calcium in the cerebrospinal fluid.³

Hypocalcemia can be treated with oral or intravenous calcium. Oral calcium is used in mild hypocalcemia, where the ionized calcium concentration is above 3.0 mg/dL or 0.8 mmol/L.⁴ Oral calcium can be supplemented with vitamin D in patients with hypoparathyroidism, allowing for lower doses of calcium. Intravenous calcium is used for acutely symptomatic patients, or those with an acute decrease in serum calcium below 7.5 mg/dl or 1.9 mmol/L.⁴ Notably, intravenous calcium repletion may decrease inpatient length of stay, but likely does not change clinical outcomes.^{5,6}

For the patient presenting in this scenario, **severe neurologic symptoms were masquerading as a psychiatric disorder**, and a panic attack could easily have been the primary diagnosis. However, with the patient's history of recent thyroidectomy, electrolyte (especially calcium) and hormonal imbalances must be considered. Her low serum calcium made the diagnosis. After admission,



Impression on EKG: sinus tachycardia with a rate of 102 bpm and a prolonged QT interval of 479ms (reference 440ms).

parathyroid studies revealed a normal PTH level, and review of her surgical pathology showed no parathyroid tissue. The patient's parathyroid glands were neither removed nor damaged.

While parathyroid gland manipulation is a known cause of hypocalcemia, there is limited literature to suggest why hypocalcemia occurs in the presence of normal PTH levels. Direct intervention on the thyroid gland potentially can cause a calcitonin leak, leading to a drop in serum calcium. In the presence of parathyroid

irritation or post-surgical reimplantation, an insufficient PTH response could contribute to low calcium.¹

Conclusion

Hypocalcemia is very common among post-thyroidectomy patients. It can vary widely from asymptomatic to life-threatening, and manifest classically as tetany, or atypically, as anxiety. By determining clinical severity and acuteness, the appropriate route (oral or intravenous) for calcium repletion should be determined. ★

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FINDING YOUR Pathway & Passion

From Medical Student to Attending

There are plenty of ways to get involved in organized emergency medicine, show your dedication and interest in the field, and capture meaningful learning opportunities.



Sara Andrabi, MD
Baylor College of Medicine
Emergency Medicine
Houston, TX



Angela Siler Fisher, MD
Baylor College of Medicine
Houston, TX

So you have fallen in love with emergency medicine, but now you're wondering: How can I learn more? How do I get involved? How do I actually become an emergency physician? While there are a lot of things to consider, starting your path toward EM can be as easy as **A-B-C**.

Find an *Advisor*

It is crucial to find a good EM advisor early on – someone who takes special interest in your professional development by providing guidance and support. **An advisor can help you set goals, serve as a sounding board, and give objective advice.** If your school has an emergency medicine residency program, you might begin by talking with the program director, associate program director(s), medical director, the chair, or clerkship director. You may find a mentor amongst this group, or the advisor may be able to help direct you toward someone who would be a good fit.

Ask around; upperclassmen and residents are excellent resources for determining which mentors may be a good match for you. Things to consider include whether or not advisors are involved in the applicant interviewing and ranking processes (i.e., they are up to date on the application process), or if you share similar professional interests. Even if your school does not have an affiliated residency program, the EM faculty members are knowledgeable about the application process and may be an excellent resource.

If emergency medicine does not exist at your school, an away rotation can be a great way to find an advisor. Even if you have one “official” advisor, it is always a good idea to have a group of individuals whom you can turn to for advice. Hearing different perspectives can help elucidate precisely what you want out of your future and the best way for you to achieve your goals.

Be Proactive

It is important to actively pursue skills, activities, and relationships that will help you achieve your goals. That means networking, planning, and acting to grow your budding EM career. A wise mentor once told me, “You are your own biggest advocate.” **Making personal connections within emergency medicine can be a good first step to finding an advisor and getting your name out there.** Take all the appropriate opportunities to interact with EM faculty and residents; social events where students are welcomed and conferences are good places to start. Show your interest and what makes you fit into – and stand out from – the EM community. The more potential colleagues know about you, the more likely they are to advocate for you.

Setting priorities and goals early is imperative. Emergency medicine is a diverse field – an advisor cannot be effective if *you* don't know what *you* want out of your career. The **Emergency Medicine Residents' Association (EMRA) website (emra.org) is a great place to begin.** It contains information about current events in the field and career opportunities within the specialty.

You also can pick up pointers on how to succeed in an EM clerkship and how to build a match-worthy resume. Further, the organization provides “scouting reports” of many fourth-year away electives and emergency medicine residencies around the country through the Away-Rotation Finder and EMRA Match tools. After doing some preliminary legwork, take your ideas to your advisor for specific, personalized advice.

Clubs and Organizations

Getting involved in emergency medicine may seem like a daunting task, but there are many avenues through which you can get started and investigate your interests. A natural starting point may be **joining your school's emergency medicine interest group.** Your involvement can range from attending meetings and lectures, to helping with a club project, event, or a research study. Professional organizations also provide resources that can help you become more informed, and may even offer opportunities to get involved in leadership roles at the local or national levels.

- **The American College of Emergency Physicians (ACEP)** – ACEP is the largest professional organization in emergency medicine. As a member, you receive a subscription to *Annals of Emergency Medicine*, newsletters, and up-to-date articles pertaining to the field.
- **Society of Academic Emergency Medicine (SAEM)** – This organization focuses on education and research. As a member, you receive a subscription to *Academic Emergency Medicine*.
- **Emergency Medicine Residents Association (EMRA)** – This is the largest specialty resident organization in the country, and it has a very active student section. As a member, you receive helpful books on the application process and the practice of emergency medicine, and a subscription to *EM Resident*, as well as an online newsletter.

Remember, every organization provides unique learning and leadership opportunities. However, avoid randomly joining organizations and showing up to events just so it “looks good” on your CV – **find your passion!** Identify what excites you and where your priorities lie. Conduct research within your emergency department, apply for a national committee, lead your local interest group, or find other unique opportunities.

There are plenty of ways to get involved in organized emergency medicine, show your dedication and interest in the field, and capture meaningful learning opportunities. ★



Making Every Word Count

How a month in the forest taught me the value of three sentences



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Ross University
School of Medicine
Dominica, West Indies

I recently participated in a wilderness medicine rotation in the Gila National Forest of New Mexico. Out of communication with civilization and covering over 80 miles by foot through stunning canyons, picturesque ridge lines, chilly peaks, and boot-soaking river crossings, I was surprised by how much I learned about *medicine* on such a trip.

Working in a resource-limited setting clearly presents its challenges. A dislocated patella at home would prompt a visit to the ED. An open tib-fib fracture would be a ticket to the operating room. Away from the convenience of a quick ambulance ride, EKG, or CT scan, **one thing you do have plenty of in the backcountry is time.**

In emergency medicine, our time with our patients is generally short. We have only minutes to assess, rule out, diagnose, and create a disposition on what could be a benign or life-threatening condition. We then need to effectively communicate this course to our patients in an even briefer time frame. It's not surprising that information can often be miscommunicated.

While living in the Gila wilderness, our lives were based on *efficiency*. Everything we packed – from clothes and tents to food and first aid – was carried on our backs for the entire rotation. This lifestyle emphasizes the essentials. **If an item wasn't essential, it wasn't taken.** What I did not expect was that this streamlined and efficacious way of life would provide a lesson that

far exceeded didactics in backcountry packing; the challenge instilled in me the importance of *efficient communication in a medical setting*.

Outside the comforts of home and resources of the hospital, I learned a valuable lesson about time. When it comes to clear communication, **thoughtfulness and carefully chosen words are far more important than the number of minutes you spend talking.** You don't need three hours with a patient to be effective. All you need are three good sentences.

During one of our group discussions on the rotation, our instructors led an activity in which pairs of medical students were asked to explain a diagnosis to a patient in three sentences, using only terms a lay person would know. This activity demonstrated how clear and straightforward language results in better understanding, enhancing the exchange and strengthening the impact on the patient. In reality, not everything one needs to say to a patient on discharge can be explained only in three sentences, but this paradigm is a helpful reminder of the importance of efficient communication in the ED. **If you only have three sentences, chances are you will pick them more carefully.**

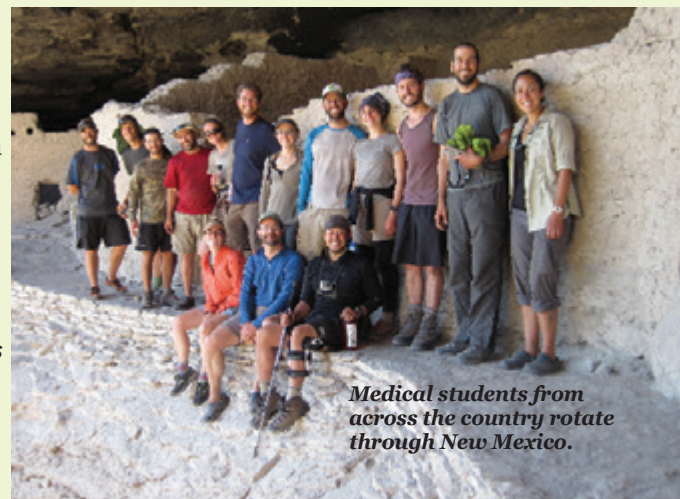
In March 2013, the EM:RAP episode: *The Paper Chase: The Failure of Discharge Instructions* discussed research showing that

patients often don't understand what physicians are telling them in the ED. Lack of emphasis on the important points, language barriers, time constraints, and literacy issues, to name a few, contribute to the problem.¹ One study found that 92% of patients displayed at least one deficit in understanding the following domains: diagnosis, home care, follow-up, and return precautions.²

The relationships we form with our patients – and our ability to clearly communicate with them about their care – can have a long-term impact on their lives. Perhaps the three-sentence philosophy, which requires us to pack the “bag” with the most essential elements, can help our patients understand the most crucial points related to their diagnoses and responsible follow-up care.

So, pack wisely. Bring a waterproof jacket and a warm sleeping bag. Leave your electric toothbrush at home.

Three sentences. ★



Medical students from across the country rotate through New Mexico.



Brandon Allen, MD
RRC-EM Representative
University of Florida
Gainesville, FL

ABEM Rolls out New Rules

A delay in taking your qualifying exam is an independent risk factor for failure

The picturesque views of Seattle are now only a distant memory, but I can assure you the EMRA Board of Directors did a great deal of working, and not much sightseeing while at *ACEP13*. In October, **the board met with the American Board of Emergency Medicine (ABEM)**, which has long been a staunch advocate of our organization. Our strong working relationship has affected change in our specialty.

In recent months, **the American Board of Medical Specialties (ABMS) has dramatically changed the definition of board eligibility.**

Emergency physicians are now board-eligible for a maximum of five years (with some exceptions and waivers, of course). Effective January 1, 2015, ABEM will recognize physicians as board-eligible for up to five years *after* the completion of an emergency medicine residency. If you complete training *prior* to January 1, 2015, you will be considered board-eligible for five years from the date of residency completion.

The days of being board-eligible for 10 years following the completion of residency training are dead and gone. **If you don't pass your qualifying examinations within five years, you will have to re-enter a residency training program** to become board-eligible. Ouch! I encourage you to review the ABEM website for further details at www.abem.org.

ABEM could not stress to EMRA enough that **physicians should not delay taking their qualifying exams after completion of residency training.** There is a 99% pass rate for the written qualifying exam when taken within the first year after residency. The pass rate drops to 96% in year two, and 87% for the years that follow. A delay in taking your qualifying exam is an



independent risk factor for failure. To be blunt, don't wait or you will do worse!

In the near future, the ABEM qualifying exam as we know it will be extinct. Some of you may have been involved in the volunteer pilot of the new multiple choice question (MCQ) examination in 2011, which introduced new stimuli from the standard radiographs and clinical images. The new stimuli included video clips (including ultrasound), the ability to scroll through CTs, dynamic telemetry, and an audio component. To view six questions from the pilot, visit the ABEM website and search for the "MCQ Pilot Examination Items and Stimuli" section. I think you will be impressed.

On that same note, the oral board examinations also will be receiving a facelift. In the spring of 2015, **cases will be scored with new software to simulate a more realistic ED experience.** Are you aware that the examiners currently show EM candidates plain films that must be placed in a light box and interpreted? The goal of ABEM is to provide the software to all residency training programs. The logistics of this are still in question; more details will be revealed in the near future.

Our meeting with ABEM was quite informative and truly showed that the senior leaders of our specialty have younger physicians' best interests in mind. ABEM has worked hard to adapt to the growing technological advances of our society, and is placing a big emphasis on this with their new examination software.

Two points to take to heart

- Get board-certified within five years after residency or you will be an intern again.
- Take your written qualifying exam *early*. Ninety-nine percent of graduates who take the exam in year one pass it the first time. ★

RESIDENCY PROGRAMS RECEIVE NEW ACCREDITATION

We would like to recognize the following programs, which have achieved initial accreditation in emergency medicine, sports medicine, and EMS. Congratulations!

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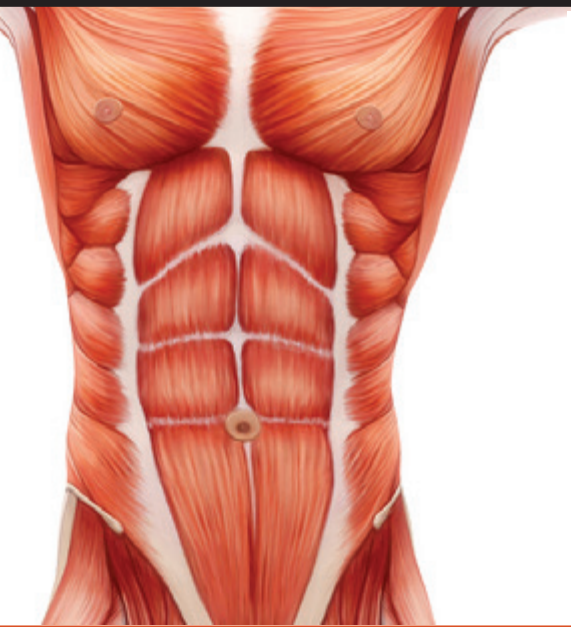
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Newark Beth Israel Medical Center
UPMC Medical Education
UT Southwestern Medical Center

University of Washington
Medical College of Wisconsin

THINKING OUTSIDE THE BELLY

Keep a broad differential when diagnosing acute causes of abdominal pain



Jeremy Smith, DO
 Brian J. Tollefson, MD
 Noah Abbas, MD
 Justin Daniels, MD
 University of Mississippi Medical Center
 Jackson, MS

Introduction

Acute abdominal pain is one of the most frequent presenting complaints in the emergency department, but has one of the most diverse etiologies. **Keeping a broad differential in mind is key;** that patient with abdominal pain could represent anything from benign gas pain to any number of life-threatening surgical emergencies.

Clinical case

A 41-year-old otherwise healthy female presents to the ED complaining of severe, sharp left lower-quadrant abdominal pain, which began suddenly about three hours ago during a walk to the mall. She provides no history of trauma or recent strenuous exercise. She is noted to be slightly tachycardic at 109 beats per minute, and she has a firm and tender swollen left lower abdomen. As a first step in imaging, a bedside ultrasound is performed soon after arrival. This shows a 4x8-cm complex mass in the left rectus sheath. Pain control is provided, and the mass is reexamined with ultrasound one hour later. On second assessment, the mass is noted to be enlarging. The concern is for

hematoma with active extravasations. This is followed by a CT exam, which confirms the suspicion.

Discussion

A rectus sheath hematoma develops following disruption of blood vessels in the abdominal wall. Above the arcuate line, it may be due to rupture of the superior epigastric arteries; and below the arcuate line, typically the inferior epigastric arteries are implicated. Rupture of the deep circumflex artery – although rare – can also occur, often leading to a hematoma in the oblique muscles.¹

Many risk factors for rectus sheath hematoma have been identified.

The condition usually occurs following trauma in an anticoagulated patient.² However, significant rectus sheath hematoma requiring intervention can occur following even benign tussive episodes.³ Other case reports describe development of rectus sheath hematomas following abdominal surgery.⁴ Other risk factors for development of rectus bleeding include pregnancy, collagen vascular diseases, degenerative muscular disorders, coagulation disorders, and strenuous exercise. Preexisting arteriovenous malformations may also predispose one to bleeding and hematoma formation.⁴

The presentation of a rectus sheath hematoma ranges from localized pain to abdominal compartment syndrome



Left-sided rectal sheath hematoma, as seen on CT imaging of the abdomen. Hematomas like this can often be easily distinguished by bedside ultrasonography as a hypoechoic mass within the muscle sheath, sometimes with more hyperechoic layering present.

resulting in renal failure and ventilation difficulty, necessitating laparotomy.⁵ Other commonly associated signs and symptoms include a swelling or mass, a fall in hemoglobin, nausea and vomiting, tachycardia, orthostasis, hypotension, ecchymosis, syncope, peritoneal signs, and fever.⁶ Many of these presenting symptoms mimic intra-abdominal pathology, making diagnosis more difficult.

Rectus sheath hematoma can be differentiated from other abdominal pathology by computed tomography or ultrasound.⁷ **A low threshold to pursue these imaging options is important to avoid missing this diagnosis.** It is also important to identify the presence or absence of active extravasation on CT scan.

Resuscitation with fluid or blood products may be required for extensive hemorrhage. Clot evacuation may be indicated if sequelae abdominal compression or compartment syndrome is the concern. For patients who are anticoagulated, reversal of their anticoagulation is indicated. Some

cases will only require pain control and observation, but sometimes a rectus sheath hematoma may be cause for operative intervention.

While most patients with rectus sheath hematomas will have at least one major risk factor, some have none. The patient in this case experienced no trauma, was not on any anticoagulants, and had no history of bleeding abnormalities. Even though the incidence of rectus sheath hematoma is increasing as more and more patients are being anticoagulated, **it is still a potential source of abdominal pain in other patients and should always be considered.**

Conclusion

While most physicians will recognize cholecystitis or a septic patient with a ruptured appendix, a spontaneous rectus sheath hematoma is one cause of acute abdominal pain that usually isn't at our mental forefront. **Rectus hematomas are a rare, but potentially life-threatening cause of acute abdominal pain.** Ruptured vessels or muscle tears can result in accumulation of blood in the rectus sheath. Typically,

That patient with abdominal pain could represent anything from benign gas pain to any number of life-threatening surgical emergencies.

this is secondary to blunt abdominal trauma, but can occur spontaneously in patients who are anticoagulated, and sometimes occurs in the absence of any risk factors. We should consider abdominal wall pathology in all patients presenting with abdominal pain, even if they are low-risk. If there is concern for a rectus sheath hematoma or bleed, it can often be seen on bedside ultrasound; this should be the initial diagnostic modality used. ★

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Sharing Our Stories

Critical Acclaim

An interview with EMRA leader Dr. John Greenwood

A passionate advocate of emergency medicine and leader in the field of critical care education, John Greenwood, MD, has fast become a rising star in the EM community. He attributes his tremendous success to hard work and natural curiosity, but insists that his desire to be a better clinician – and to mentor others in the treatment of critically ill patients – inspires him to keep learning, teaching, and *leading*.

While an emergency medicine resident at the University of Maryland, where he is now a critical care medicine fellow, Dr. Greenwood joined EMRA's Critical Care Division, eventually serving as the group's chair. Under his leadership, the division became one of EMRA's most active, publishing two enormously popular handbooks – the **EMRA Critical Care Handbook** and **PressorDex** – during his tenure. *PressorDex*, which is also available as a top-rated iOS app, has become one of EMRA's leading educational resources.

Dr. Greenwood also was instrumental in influencing the creation of a critical care board certification for EM-trained physicians; and developing grant opportunities within the subspecialty, including the new **Emergency Medicine Foundation/EMRA Critical Care Research Grant**. He has mentored countless residents interested in pursuing a career in critical care. Dr. Greenwood and his wife, Beth, a family medicine physician, live in northern Maryland with their two children.



EMRA presented Dr. Greenwood with an author award for PressorDex at ACEP's 2012 Scientific Assembly.

EM Resident staff editor, Rachel Donihoo, sat down with Dr. Greenwood to talk about his remarkable young career and the ways in which EMRA has helped to shape it.



Drs. John and Beth Greenwood with their two-year-old son, Mason, and two-month-old daughter, Natalie.

What first attracted you to emergency medicine, and why did you choose to specialize in critical care?

I realized very early into my EM rotation in medical school that the specialty was a good fit for me. I loved the work, the people, and the challenges that such a fast-paced environment provided. I thought it was extremely exciting to receive completely undifferentiated patients and be able to solve their problems. That's an opportunity you don't have in many other fields. It can be daunting – even scary – to know that it's up to you to pick up the pieces, particularly when you often know very little about the patient you're treating. But, for me, critical care is an exhilarating field; there's always something new to learn.

What is EMPower?

EMRA is proud to announce its newest initiative Empower!

Beginning this month, every issue of *EM Resident* and our e-newsletter, *What's Up in Emergency Medicine*, will feature past EMRA leaders to highlight how their involvement in the organization has served as a launching pad for their careers and future accomplishments.

If you'd like to share how EMRA has enriched *your* educational experience or helped to propel you forward, please email president@emra.org.

What inspired you to create *PressorDex*?

There were many reasons, but I suppose the initial concept began as a way to find clarity and ease my own anxiety. When I first started my residency, the thought of treating a really sick patient with pressors was stressful. I thought there was a gap in emergency medicine education surrounding these very complex medications, and I thought that creating and presenting an algorithmic approach to managing critically ill patients might be helpful to a lot of people – like me. As I started to further explore the concept of *PressorDex* and spoke with other clinicians, I realized how many of them already were using EMRA's *Antibiotic Guide*. I thought that we could do something similar, but gear it specifically toward the care of critically ill patients.

My ultimate goal in creating the book was two-fold. I wanted to help people better take care of patients in the ED, but I also viewed it as an opportunity to show off how smart and talented emergency medicine physicians are in the management of these kinds of patients. In the last three years, there has been a lot of growth in the EM community, and people are noticing. When physicians from other specialties – like internal medicine, surgery, and anesthesiology – approach me and ask for copies of the book, I proudly say that it was written entirely by emergency medicine physicians.

Have you been surprised by how well-received the book and mobile app have been?

It really has been amazing to see *PressorDex* 'in action' in hospitals all over the world; I've heard from clinicians from as far away as Europe, Australia, and Asia. It's just incredible to see how one little idea can affect people all over the planet – particularly the iOS app, which has made the book that much more accessible. We're going to be able to incorporate some of the feedback we've received from users into the upcoming 2nd edition, which will be exciting. It's going to be fun to see the product grow and reach more people as the years go on.



How has your relationship with EMRA grown through the years, and in what ways do you feel the organization has enhanced your career?

Getting involved with EMRA early in my career truly has been one of the best decisions I've ever made; the organization has been an invaluable launching pad for me. The leadership, networking, and educational opportunities EMRA has provided have been priceless.

The resources that the organization makes available have had a huge impact on the kind of clinician I am; simply put, they've made me better. I spent countless hours listening to EM:RAP and consulting *EM Resident* and the *Antibiotic Guide* – they enhanced my education immensely.

I'm not sure you'll find a bigger advocate of residents and emergency medicine than EMRA. The ideas I've presented to the organization have always been met with a 'yes'; the leadership – both the board and the staff – is quick to ask: *How can we make it happen?* As a person who is interested in creating things and developing projects that will help make other EM physicians better, that kind of response is incredibly inspiring. I don't know of any other organization that supports residents in that way. ★



PressorDex iOS app

Pressure System

Identifying the shortcomings of CVP monitoring

Supported by national and international expert-panel recommendations, early goal-directed therapy has become the benchmark of resuscitation of the severe sepsis patient.

Introduction

Hypotension is a common finding among critically ill septic patients presenting to the emergency department. **Early and aggressive resuscitation is key to reversal of the shock state.** The current therapy within the ED is a multifaceted approach that includes early antibiotics, fluid resuscitation, and vasopressors to maintain organ perfusion. Early goal-directed therapy (EGDT) is an algorithm designed to optimize hemodynamics by, among other things, targeting preload, afterload, and cardiac output.¹ Supported by national and international expert-panel recommendations, **EGDT has become the benchmark of resuscitation of the severe sepsis patient.**²

The first hemodynamic parameter that is addressed by EGDT is preload. Measured by central venous pressure (CVP), the protocol directs fluid resuscitation until a CVP of 8 to 12 mmHg is achieved.¹ Despite these recommendations and its frequent use, should CVP be our marker for guiding fluid resuscitation?

The beginning

The use of CVP first gained popularity in 1959, when the technique of measuring right atrial pressure (RAP) was described by Hughes and Magovern.³ The researchers initially used CVP to guide volume

replacement in post-thoracotomy patients where blood loss and subsequent transfusion resulted in a fall, then rise, in central venous pressure. Since this time, CVP has become a ubiquitous tool used by anesthesiologists, surgeons, intensivists, and emergency physicians to guide fluid resuscitation.

Place your bets

Central venous pressure is a surrogate marker that attempts to identify patients who would benefit from volume expansion through fluid resuscitation. These patients are characterized as *fluid-responsive*. Fluid responsiveness, defined as an increase in cardiac output (CO) of 10 to 15% after volume expansion, is best described using the Frank-Starling curve. This physiologic relationship is a curvilinear association between end-diastolic volume (EDV) and stroke volume (SV) (*Figure 1*). Volume expansion increases EDV and SV, resulting in optimization of cardiac output ($CO = SV \times \text{heart rate}$) in the preload-dependent or fluid-responsive patient.

Although CVP is extensively used to measure the need for fluid resuscitation, the evidence does not support this application. A systematic review analyzed 19 studies to answer the question if CVP, or a change in CVP, can accurately predict fluid responsiveness.⁴



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The pooled correlation coefficient was 0.18 (95% CI, 0.08 to 0.28) with an AUROC of 0.56 (95% CI, 0.51 to 0.61) – essentially no better than flipping a coin. This has serious implications, as **under- and over-resuscitation of the critically ill patient is associated with increased mortality.**^{1,5,6} The authors concluded that “CVP should not be used to make clinical decisions regarding fluid management.”⁴

Although CVP has many deficiencies, it remains a commonly available tool in resuscitation; thus understanding its limitations may better aid the accuracy of resuscitation. Specifically, there are three variables that alter the accuracy of CVP in guiding fluid resuscitation: ventricular compliance, ventricular contractility, and intrathoracic pressure.

Diverging paths

Ventricular compliance

When measuring CVP, we are attempting to approximate right ventricular EDV (RVEDV) by assuming that $CVP \approx RAP \approx RVEDV$.⁷ RVEDV, a surrogate

marker for preload, will increase through volume expansion, leading to elevation of right ventricular pressure (RVP). The increase in RVP will be transmitted to the right atrium and superior vena cava, resulting in an increase in CVP. Right ventricular compliance alters this association. Compliance is defined as $\Delta\text{Volume}/\Delta\text{Pressure}$. From this we can derive ΔP (or CVP) = $\Delta V/C$. Compliance is a characteristic of the myocardium, which is affected by age and comorbidities. Consequently, an unknown and potentially variable compliance between patients with similar volume expansion can lead to an unpredictable change in CVP, despite preload-dependent or independent status.⁸

Ventricular contractility

Ventricular contractility is an additional variable that is difficult to ascertain in the clinical setting. Diminished contractility will alter the Frank-Starling curve, shifting the curve down and to the right (Figure 1). Septic patients can have altered ventricular contractility, and therefore a reduced response to fluid resuscitation.⁹ This can be seen in blunting of the preload-dependent portion of the curve.

Increased intrathoracic pressure

A third concept to understand is the interplay of intrathoracic pressure and CVP. Central venous pressure is an intravascular pressure reading of the superior vena cava, and we assume that $\text{CVP} = \text{RAP} = \text{RVP}$. The physiologically significant variable, RVP, is a transmural pressure. This is defined as the difference between intra and extravascular (or intrathoracic) pressure. Intrathoracic pressure will vary

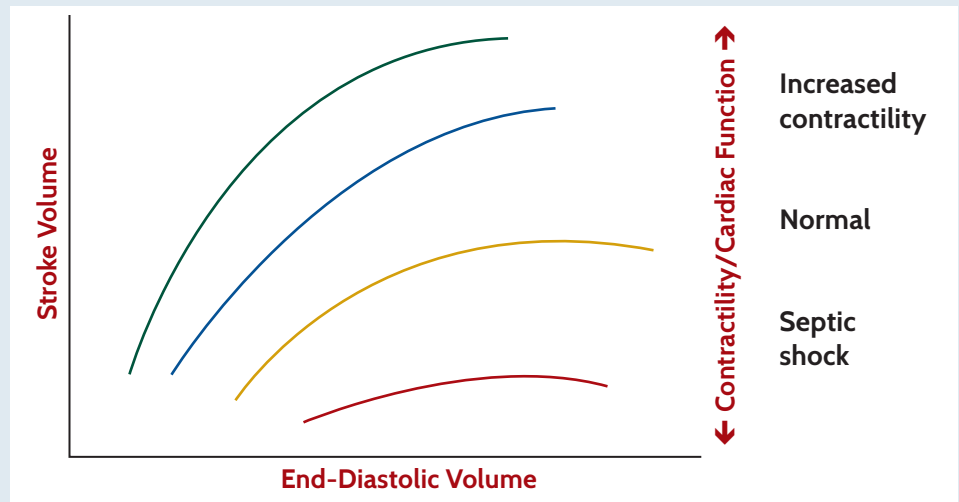


Figure 1. The ascending portion of the Frank-Starling curve represents an increase in EDV and SV with fluid administration, as would be seen in a preload-dependent patient. In the plateau phase of the curve, volume expansion will not alter SV; this is known as preload independence.

through the normal respiratory cycle and will alter intravascular pressure, while the transmural pressure of the RV remains relatively constant.¹⁰ In a healthy individual, we can counteract this variable by measuring CVP during end-expiration when the extravascular pressure is zero and intravascular and transmural pressure are equal. This leads to an accurate measurement of RVP.

However, intrathoracic pressure is not always zero at end-expiration. Obstructive lung disease, such as COPD and asthma, can cause an increase in intrathoracic pressure at end-expiration by limiting alveolar emptying. In addition, mechanical ventilation, especially with added positive end-expiratory pressure (PEEP), can have a similar result. In these cases, CVP will

be spuriously high. To compensate for this increase in intrathoracic pressure, current expert recommendations suggest altering the CVP goal to 12 to 15 mmHg in mechanically ventilated patients.² In any case, this recommendation does not account for varying levels of PEEP or obstructive lung pathology.

Where do we go from here?

In conclusion, CVP may not be an accurate method of differentiating preload-dependent versus preload-independent patients. Given multiple variables and unpredictable clinical situations, it is conceivable that a patient may remain fluid-responsive and potentially have a low, normal, or elevated CVP. Central venous pressure is a static measurement of preload. In comparison, dynamic measurements of preload, such as stroke volume variation and pulse pressure variation, measure the cardiac response to changes in preload.⁷ **Dynamic measurements of preload are much more effective at predicting which patients are fluid responsive.**⁷ Unfortunately, these measures, though well-validated, have yet to be adopted routinely in clinical protocols, so utilizing CVP remains a common approach. **Recognizing the limitations of CVP may lead to more accurate fluid resuscitation,** but the method may ultimately be replaced by other improved approaches. ★

WHAT IS CVP?

Central venous pressure (also known as: right atrial pressure; RAP) describes the pressure of blood in the thoracic vena cava, near the right atrium of the heart. CVP reflects the amount of blood returning to the heart and the ability of the heart to pump the blood into the arterial system.

It is a good approximation of right atrial pressure, which is a major determinant of right ventricular end diastolic volume. CVP has been, and often still is, used as a surrogate for preload, and changes in CVP in response to infusions of intravenous fluid have been used to predict volume-responsiveness (i.e. whether more fluid will improve cardiac output). However, there is increasing evidence that CVP, whether as an absolute value or in terms of changes in response to fluid, does not correlate with ventricular volume (i.e. preload) or volume-responsiveness, and so should not be used to guide intravenous fluid therapy.

Meet Your New EMRA Leaders

EMRA is thrilled to announce its new 2013-2014 board members. Five stellar emergency medicine physicians were elected into the organization at ACEP13 in October.

Please join us in welcoming them!



David Diller, MD
Academic Affairs Representative

Dr. Diller comes to the EMRA board from St. Luke's-Roosevelt emergency medicine program in New York City, where he serves as chief resident. His interests include



medical education; he will be pursuing a fellowship and master's degree in this same field next year. He says he is both grateful and excited to serve as EMRA's new academic affairs representative. A native of the great Northeast, Dr. Diller was born and raised outside of Boston and attended medical school at the University of Vermont. Outside of work and medicine, he is an aficionado of exercise – a hobby born out of necessity, thanks to what he considers his life's true passion: *good food*. His door is always open for ideas, questions, or suggestions on how he can best serve as your representative.

Matt Rudy, MD
President-Elect

Dr. Rudy is no stranger to the EMRA board, having just completed two years of service as the vice-speaker of the council. He attended the Medical College of Georgia, where he was elected to serve as the national chair for the American Association of Medical College's Organization of Student Representatives. While there, he gained a deep appreciation for advocacy and later joined both EMRA and the American Medical Association. Dr. Rudy is a fourth-year resident at Washington University in St. Louis, a program he sought because of its support and participation in organized medicine. Before becoming vice speaker, he served as a program representative and then regional representative in EMRA. Dr. Rudy will continue to have the organization's best interests at heart as our new president-elect.



Nathaniel Mann, MD
Editor-in-Chief/Secretary

A Virginia native, Dr. Mann earned his medical degree from the Medical College of Virginia and now comes to the board as a resident at the University of Cincinnati. He previously served as vice-chair of the EMRA Editorial Committee, where he was heavily involved in production of *EM Resident*. He is excited to be a part of the EMRA board and take charge of its flagship publication. Outside of the emergency department, Dr. Mann is involved in research, the Cincinnati SWAT team, and the hospital ethics committee. When away from these obligations, he enjoys time at home with his wife and dogs, and outdoor sports. As the new editor-in-chief of *EM Resident*, he welcomes submissions for the magazine, letters to the editor, or any suggestions you might have.



Bree Alyeska, MD
Informatics Coordinator



Born in Colorado, Dr. Alyeska wandered North America from Florida to British Columbia, New York to Oregon – and many places in between – before finally settling in Cambridge, MA for college at MIT. While working toward an undergraduate degree in brain and cognitive science, she filled her not-so-abundant free time with soccer, ice hockey, and lacrosse, as well as research into the peculiarities of short-term memory formation. After college, Dr. Alyeska worked as a software engineer and consultant for several years before deciding to pursue medical school. While at the University of Massachusetts, she found a home in the emergency department and chose to stay for residency. She is currently an intern in the UMass EM program. In her new role on the board, she hopes to expand the EMRA suite of mobile applications, revamp the EMRA match tool, develop a fellowship and mentoring database, and promote resident involvement in informatics projects throughout the country.

Anant Patel, DO
Vice Speaker of the Council

Dr. Patel grew up in Fort Worth, Texas and was excited to return to his hometown for residency after attending medical school in Arizona. Before medical school, Dr. Patel had the opportunity to work in an emergency department, and it was there that he discovered that he wanted to become an emergency medicine physician. During his time in Arizona, he was introduced to EMRA, and quickly learned how valuable a resource the organization is for medical students and future residents. After returning to Texas for residency, he made it a goal to become more involved with the organization; he is now proud and honored to serve on its board. He and his wife, Jennifer, have known each other since high school.



Sarah Hoper, MD, JD
EMRA Legislative Advisor
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Fact or Fiction?

The Cost of Defensive Medicine and the Promise of Tort Reform

The Missouri Supreme court recently ruled that the state's medical liability caps were unconstitutional. Missouri medical associations immediately spun into action to find alternative liability reforms. This is a battle that is taking place all across the country. Many physicians and legislators say the cost of defensive medicine is reason enough to implement medical liability caps, but **is the cost of defensive medicine fact or fiction?**

In surveys, physicians admit to practicing defensive medicine and estimate the cost of this practice to be 26-34% of the annual costs of health care.^{1,2,3} Physicians, legislators, and the public believe that tort reform will decrease defensive medicine and, in turn, decrease the cost of health care. Health economists, however, maintain that the occurrence and cost of defensive medicine may be much lower than physicians estimate. Additionally, research shows that tort reform may not influence physicians' practice patterns.

The idea of defensive medicine has been around since the dawn of the attorney-patient relationship; however, in the mid-90s, Kessler and McClellan seemed to prove defensive medicine was quantifiable. They estimated that tort reform reduced hospital spending by 3.8-5.3% for myocardial infarction and 7.1-9% for heart disease.^{4,5,6} It was believed that, when this model was applied to larger patient groups, the cost savings of tort reform on defensive medicine would be even greater. However, in 2009 when researchers tried to apply this model to larger patient populations and expanded the project to look at acute MI, stroke, breast cancer, and diabetes, and

included *all* Medicare spending (not just Medicare spending on hospital stays, as in the Kessler studies), they were not able to reproduce these findings.⁷

More recently, Mello *et al* found defensive medicine cost 2.4% of the national health care spending in 2010,⁸ significantly less than the 7-9% found in Kessler and McClellan, or the 30% estimated by physicians. This estimate was made on the basis of previous research that found an 11% increase in malpractice payments was associated with a 1.1% increase in Medicare reimbursement for all physician services in Medicare Part B from 1991 and 2001.⁹ Mello then applied this ratio to current Medicare spending to determine the percentage of spending that was due to defensive medicine. If defensive medicine only accounts for 2.4% of health care spending, curbing defensive medicine is unlikely to drastically decrease the cost of medicine in the U.S., as previously hoped.

We believe the safety net of tort reform will cause physicians to change their practice patterns and order fewer tests. However, Lakdawalla and Seabury used changes in jury awards to determine that a **10% reduction in malpractice costs would only reduce health care spending by 1.2%.**¹⁰ Thomas *et al.* noted that across 35 specialties, a 10% reduction in premiums would lead to a 0.132% reduction in defensive medicine costs, and that a 30% decrease in premiums would only lead to a 0.4% reduction.¹¹

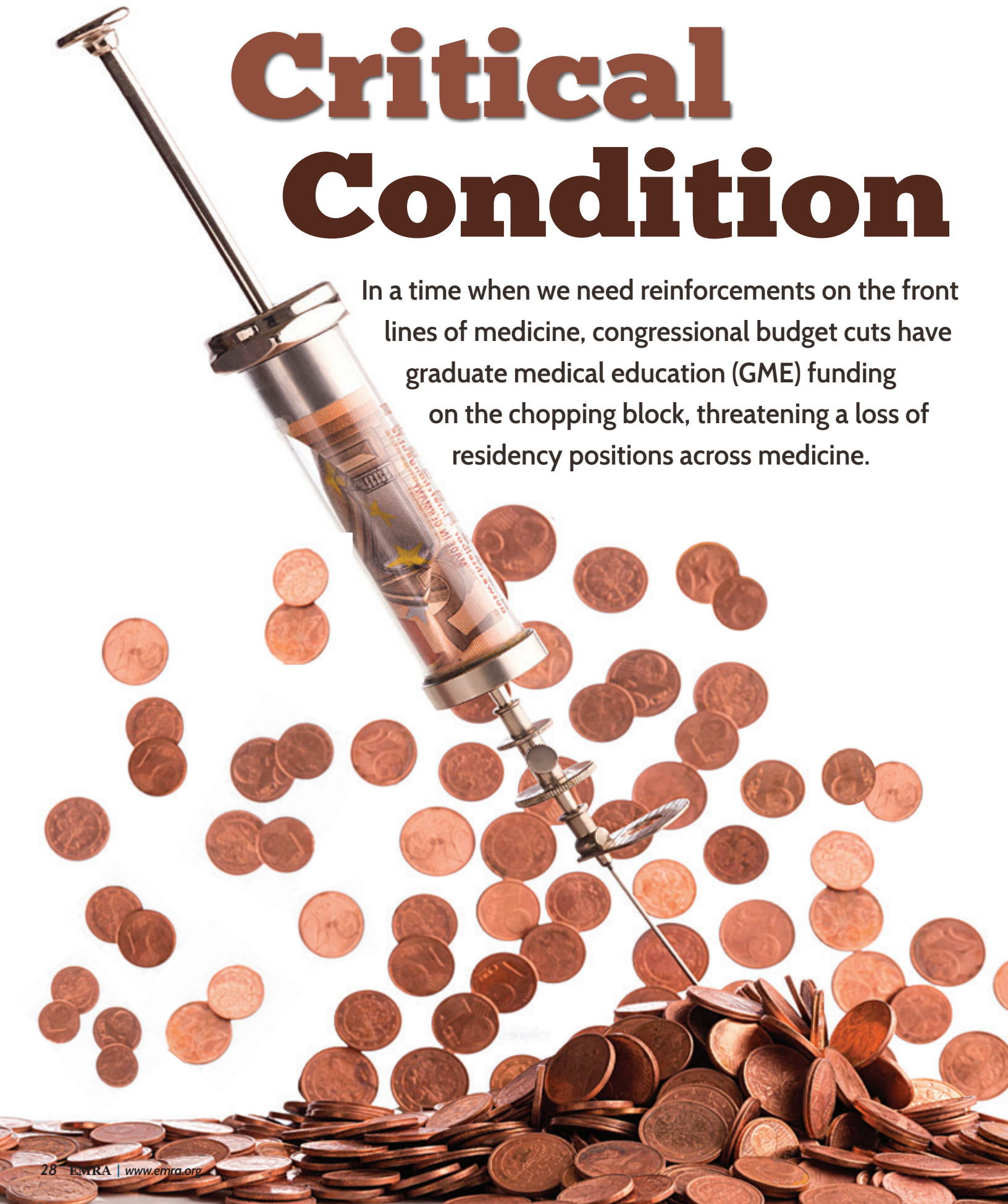
Texas is often used as an example of a state that implemented progressive liability

reform that works. Yet, the results published by Paik *et al.* in 2012 bring those beliefs into question. Paik found that even with Texas' non-economic caps, which drastically reduced the number of medical liability suits and liability awards, there was no difference in Medicare spending in counties that were considered at high risk for litigation and those considered at low risk. In fact, there was evidence that **physician spending actually increased in high-risk counties.** Likewise, when comparing Texas nationally, there was no reduced spending in Texas as compared to control states that did not have progressive reform. In fact, in some instances Texas outspent the control state.¹²

Current evidence does not show that tort reform will significantly reduce health care spending by reducing defensive medicine. Yet, we often argue to the public that tort reform will save *them* money. In Missouri, tort reform advocates are considering a referendum that will require a majority vote by the public to change the state constitution to make medical liability caps constitutional. Likewise, the Texas Supreme Court originally found caps to be unconstitutional, but Texans voted to change their state constitution, allowing current medical liability caps. Given the data reviewed here, we have to ask ourselves, "Is the public getting what they were promised – decreased medical spending – in return for their willingness to truncate their legal rights?" ★

Critical Condition

In a time when we need reinforcements on the front lines of medicine, congressional budget cuts have graduate medical education (GME) funding on the chopping block, threatening a loss of residency positions across medicine.



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Vice Chair

EMRA Health Policy Committee

Central Michigan University College of Medicine

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We're dying out there. Emergency departments all over the country need more bodies – physicians, nurses, and specialists. The rate of ED visits is increasing at nearly twice the rate of the population growth, and there are no indications that the Affordable Care Act (ACA) will alleviate our burden.^{1,2} With baby boomers aging and the ACA working to increase access to health care, **the Association of American Medical Colleges projects a shortage of 130,000 physicians by 2025.**³ In a time when we need reinforcements on the front lines of medicine, congressional budget cuts have graduate medical education (GME) funding on the chopping block, threatening a loss of residency positions across medicine.

It's not a question of *if* GME funding is going to be cut, but *when* and by how much. **While there are many funding sources for residency programs, far and away the greatest contributor is the federal government via the Centers for Medicare & Medicaid Services (CMS).** There are two main components to CMS funding: direct medical education (DME) and indirect medical education (IME). DME includes resident salaries, overhead, and faculty supervision. IME is a more amorphous fund. The amount paid for IME is based upon the assumption that academic centers have higher acuity patients, added staff, inefficiencies secondary to having multiple learners, and increased technological costs. It involves a calculation involving the intern- and resident-to-bed ratio and an adjustment factor that is set by Congress. The lower the IME adjustment factor, the less money residency programs get.

In 1983, the initial adjustment factor was set by Congress at 11.59%, based on recommendations made by the

Department of Health and Human Services. Since then, the factor has progressively decreased. After the Balanced Budget Act in 1997, it was reduced to 5.5%, where it currently stands. This was based on the Medicare Payment Advisory Commission's (MedPAC) estimate at that time, which gauged the IME factor to be between 4.5-5.5%.⁴ Unfortunately, the current estimates indicate that the IME adjustment factor may actually be as low as 2% (MedPAC's estimate at this time is 2.2%).^{4,5} With these new figures, it's no surprise that the bipartisan Joint Select Committee on Deficit Reduction identified GME as a potential area for savings. **Since then, GME funding has been on everyone's radar; we need more than ever.**⁶

Many solutions have been proposed. MedPAC has recommended decreasing the IME adjustment factor to 2.2% and utilizing the surplus money for performance-based hospital incentive programs.⁵ This plan at least puts the money back into medicine. The proposals coming out of Washington are not as kind. Perhaps the most extreme is one set forth by The National Commission on Fiscal Responsibility and Reform (also known as the Simpsons-Bowles Commission), which recommends dropping the factor to 2.2% and returning that surplus to the government. The most lenient is President Obama's budget, which calls for a reduction of IME to a 4.5% adjustment factor beginning in 2014.⁷

A plan that hits somewhere in the middle comes from the Congressional Budget Office (CBO), an establishment that uses a lot of math to come up with recommendations and estimates for Congress. The CBO recommends scrapping the IME and DME system altogether and providing a lump sum based on IME with a 2.2% adjustment factor + DME + \$500 million (which is the estimated federal contribution to Medicaid GME support). Unfortunately, the one thing all these proposals share is a decrease in GME funding.⁷

Fortunately, we are not without our allies; several groups are advocating for an *increase* in GME funding, including EMRA and ACEP. In 2013, a coalition of legislators introduced H.R. 1201, a bill that would add 3,000 Medicare-funded residency slots between the years 2014-2018.⁸ This is not the first time there has been a proposition to increase residency spots. The last incarnation of H.R. 1201 – H.R. 6562 – was introduced in 2012, but was stopped in Congress.⁹ The chances of this bill succeeding are equivalent to a 70-year-old septic patient on a ventilator walking out of the hospital – not great, but it could happen.⁸

Without an increase in residency spots, these new medical school openings may prove futile. We've never lacked medical graduates; EM spots keep getting filled. As the specialty becomes more competitive, the rate-limiting step in the reaction has been residency positions. The disparity between medical graduates and available positions is already being felt. It's increasingly common to hear "Doctor Smith will be seeking residency *in the future.*" **In 2013, 8,892 applicants did not match into a residency position – 1,755 of them U.S. graduates.**¹⁰ To add fuel to the fire, 26 new schools have opened since 2000, and 18 schools are currently undergoing, or have recently achieved, accreditation. The number of unmatched graduates is the highest recorded in the past four years, and will continue to grow if nothing changes.^{11,12}

Despite budget cuts, however, residency programs are still expanding at a slow pace.¹⁰ Unfortunately, they are rapidly being outpaced by the need for physicians in the U.S. and the increasing rate of medical graduates. One day, we might be able to sustain an adequate number of residencies without government support, but right now we depend on government funding for residency programs – and we need to fight for it. The world does not stand still; people will continue flocking to emergency departments, expecting us to be there to provide high-quality care 24/7/365. ★

To get updates on pending legislation and active policy issues, and to get involved in the EMRA/ACEP health policy circles, visit emra.org or on [Facebook.com/EMRA.Health.Policy](https://www.facebook.com/EMRA.Health.Policy).

An Open Letter to Capitol Hill

EMRA recently joined forces with more than 40 other physician organizations in an impassioned letter to U.S. lawmakers. The letter, below, urges Congress to preserve funding for Graduate Medical Education, an issue of great

importance to the EM community.

[We] understand and appreciate the many challenges Congress faces in the coming months. As you work to address the federal budget, Medicare physician payment reform, and sequestration, we strongly urge you to protect Medicare beneficiary access to health care services by preserving existing Medicare financing for Graduate Medical Education (GME). We recognize the need to take action to ensure the long-term fiscal stability of our nation. However, we are gravely concerned that reductions in Medicare support for GME would worsen an already critical national physician workforce shortage and limit teaching hospitals' ability to maintain vital, life-saving services, such as 24-7 trauma and burn units that often are unavailable elsewhere in communities.

The Association of American Medical Colleges (AAMC) and others project a shortage of 91,500 doctors (including 46,100 specialists) by 2020; by 2025 the shortage will grow to 130,600 physicians (including 64,800 specialists). New and existing medical schools and their physician faculty have done their part to address the shortage by expanding the number of medical students enrolled in their respective institutions. This contributes to a larger pool of future physicians, but is only part of the solution. Without sufficient residency training positions, these new physicians will not be able to complete training and begin seeing patients.

*Medicare's current cap on financial support for GME prevents teaching hospitals from expanding the number of training positions and often prevents new hospitals from establishing teaching programs. Our nation needs to invest in physician training programs, not reduce support. Cuts to Medicare GME financing likely will exacerbate the physician shortage at a time when we have an estimated 10,000 Americans turning 65 each day and one in every three practicing physicians retiring by 2020. **Ensuring access for Medicare beneficiaries requires long-term, rational physician payment reforms, as well as an adequate supply of physicians to care for an aging nation.***

Any reduction in Medicare's support for GME would dramatically and rapidly increase shortages of primary care and specialist physicians that seniors (and others) rely upon. The nation must provide the necessary support to train more physicians or it will be increasingly difficult for patients to find the doctors they need. Cuts to Medicare GME will only jeopardize access to care nationwide, particularly for those who are already underserved.

Proposals to cut these essential funds that teaching hospitals depend on to train doctors, nurses, and other medical professionals would also adversely affect the ability of these institutions to maintain vital, life-saving services that often are unavailable elsewhere in communities. For example, although they account for only 6 percent of all hospitals, teaching hospitals and their physician faculty provide one-fifth of all hospital care, and operate more than 80 percent of the country's ACS-certified Level 1 regional trauma centers and burn care units.

America trains the world's best physicians, nurses, and other health care professionals. This reflects, in large part, the quality of our medical schools, teaching hospitals, and training programs. The physician community supports efforts to improve our nation's health care system and we are working to improve the quality and efficiency of the care we provide. We also understand the need to contain health care costs. However, funding for physician training has been disproportionately targeted, in our opinion, at a time when medical schools, teaching hospitals, and teaching hospital physicians are working to improve the way they teach and train residents and implement new delivery and training models that reduce costs and improve outcomes.

*Medicare GME cuts that jeopardize physician training and limit critical services are a step in the wrong direction. **Reducing our national deficit is important, but threatening access to care for millions of current and future patients is not the answer. ****

To admit, or not to admit? Is the patient well enough to go home, and will he or she follow up? These are questions emergency physicians face multiple times per shift.

Few emergency physicians, however, take into account what is best for health care

outpatient and acute care has evolved with this paradigm shift.

The complex nature of the various functions of EDs as pre-hospital systems, health care safety nets, and acute diagnostic and treatment centers, makes analyses of the interplay between



Costly questions

What's right for patients & EDs?

at large before admitting a patient. **New evidence shows that ED providers substantially affect our country's health care costs through their hospital admission decisions.**

In May 2013, the RAND Corporation released an important study, *The Evolving Role of Emergency Departments in the United States*. This report discusses how EDs impact health care access and costs in our ever-changing, complicated health care system.

The findings were impressive. Roughly 50% of hospital admissions come at the request of emergency physicians, who account for only 4% of the total physician workforce. Why is this important? Because inpatient care is the single largest source of U.S. health care spending, accounting for 31% of total expenditures.^{1,2} **About 15% of health care costs are controlled by which patients we choose to admit.**

From 1993 to 2006, ED admissions increased substantially from 11.5 to 17.3 million per year.³ As primary care physicians are more frequently deferring admits, an overwhelming majority of admissions are dictated by emergency physicians. The RAND report attempts to examine how the relationship between

EDs, patients, and their primary care providers challenging. **Emergency department admissions are increasing as the number of patients presenting with complex illnesses expands.** In addition, emergency physicians may not have the advantage of knowing the long-term course of a given patient's disease or treatment, which can bias them toward more admissions.

Primary care providers interviewed as part of the RAND study reported that they routinely send patients to the emergency department for admission – when in the past, they might have directly admitted their patients. The reasons for this are multifactorial. Offices face numerous time and financial constraints, and many primary providers have dropped their hospital privileges altogether. Furthermore, unlike the office setting, EDs have the ability to efficiently perform diagnostic workups and initiate immediate treatment.⁴

Adding to this, government incentives to comply with core measures in a timely manner encourage ED utilization through the assumption that quick diagnoses and treatment will decrease length of stay and costs. There is little evidence,



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however, that early admissions have any effect on outcome or costs. Future studies in this area could establish whether ED admissions improve outcomes as compared to direct admissions.³

Emergency departments contribute to health care savings through the implementation of observation and short-stay units. Protocols for acute coronary syndrome rule-outs, serial exams for abdominal pain, and asthma treatment help to avoid the higher costs of inpatient stays.⁴ A 2012 study found a decline in non-elective admissions and admissions for diagnoses that are now often sent to observation units; this outcome likely is the result of utilizing observation units and rapid risk-stratifying protocols.³

The average ED visit costs \$922, while the average inpatient stay costs \$9,200,⁵ yet the mantra among many policymakers is that “emergency medicine is the most expensive care there is.” Based on 2008 data from the Agency for Healthcare Research and Quality, **EDs account for only 2% of the nation's health care expenditures.**⁴ This is the evidence that needs to be vocalized in order to change the misperception regarding our contribution to health care spending.

The findings of the RAND report underscore the integral role EDs play in the health care system and the potential we have to contribute to health policy. It proves our admissions decisions have a substantial effect on health care costs, and discusses how nationwide reforms have changed practice. More reforms can't be far, and as the gatekeepers of medicine, we need to fight for a more prominent seat at the table. Policymakers must take our voice into account when crafting regulations and legislation. So get active! Speak with your representatives, write a letter to your local and national politicians, and support the organizations that are devoted to protecting our profession. ★

An attending physician's approach to pulmonary embolism, ultrasound, and resuscitation

PLAY-BY-PLAY

with the expert



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Dr. David Barnes, emergency medicine residency program director at the University of California, Davis Medical Center in Sacramento, gives a step-by-step breakdown of a PE case study.



The Case

2:09 pm: EMS arrives with a 59-year-old man who experienced near-syncope 25 minutes prior. In the field, his blood glucose was 346 and his BP was 80/50, improved to 104/palp after 600 ccs of crystalloid. Triage vitals are: BP 107/52, HR 115, RR 28, SaO₂ 95%. He complains of chest pain and is in respiratory distress, speaking in only four- or five-word sentences.

Question: When seeing critically ill patients, do you start with a pre-formed differential diagnosis, or do you focus more on the pathophysiology at hand?

D.B. I use a combination of both. Here, I incorporated key preliminary signs, symptoms, and data to help characterize this patient's underlying physiology. My initial differential diagnosis included

MI, PE, aortic dissection, pneumothorax, DKA, arrhythmia, myocarditis, valve rupture, and pericardial effusion. While the differential may change, you've got to throw some cards down early, and those are usually the common and most likely things that will explain the constellation of findings.

2:12 pm: IV access is obtained and an EKG reveals sinus tachycardia at 131 beats per minute; a slight ST elevation is noted in aVR.

Question: Reflecting on this case, you had initially felt that this was a STEMI. Why?

D.B. I already had a preliminary hierarchy of diagnoses in my mind, and MI was number one. Sure, there's framing bias. The challenge is knowing that you have to step back, abandon the bias, and reevaluate if things start to not add up.

The field ECG raised my pretest probability for MI, as there was subtle ST elevation in aVR. ST elevation in aVR is often easily overlooked and can be a sign of left main coronary occlusion; however, the emergency department ECG did not confirm that. Moreover, significant sinus tachycardia is unusual for MI, even with a huge amount of left ventricle compromise.

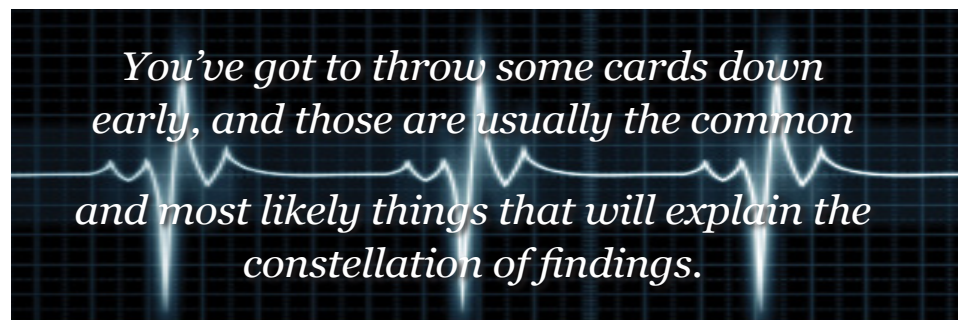
2:16 – 2:21 pm: The patient reveals that he has noticed new left leg-swelling. A bedside cardiac and deep venous ultrasound are performed. Based on these results, a 5,000-unit heparin bolus is started.

Question: What components of the patient's exam, at this point, made PE the most likely diagnosis?

D.B. The constellation of symptoms, in addition to an ECG that did not support a STEMI diagnosis, signs of a DVT (a non-compressible left femoral vein), and a bedside cardiac ultrasound showing severe right heart-volume overload (four-chamber apical view) together made the post-test probability as close to 100% as you can get without a formal diagnostic study.

Question: You didn't provide analgesics or anxiolytics. Why?

D.B. Management of acute RV dysfunction is tricky. We didn't have any readily available bedside tools to determine where his RV was on the Starling curve. We made an assumption in this case that any change in preload might negatively affect his cardiac output and compromise survival. He could have just as easily, however, been on the falling part of the Starling curve, and a small reduction in RV preload



may actually actually helped. Any vasodilation with a borderline blood pressure would have been dangerous. I erred on the side of safety, instead of comfort.

2:25 pm: The patient develops diaphoresis and increasing respiratory difficulty with cold, pale extremities and central mottling. Tenecteplase 50-mg IV push is ordered and administered by 2:27.



Apical four-chamber view revealing marked right-ventricle dilatation consistent with volume overload.

Question: What led you to proceed to thrombolysis only 10 minutes after starting heparin?

D.B. Heparin prevents further clots from forming and allows endogenous clot breakdown. This patient was initially quasi-stable inasmuch as his SBP was >90 and he was not hypoxic, despite having significant right heart strain. However, the progressive signs of increased respiratory distress and poor perfusion were indicators that this patient probably had a massive pulmonary embolus and was in cardiogenic shock. This was the trigger for me to escalate treatment to systemic thrombolysis to help reduce pulmonary clot burden and relieve the afterload on the RV.

2:33 pm: Shortly after administering tenecteplase, the patient's blood pressure drops to 82/48.

Question: What medication(s) did you use to help raise the blood pressure and why?

D.B. In the case of an acute, massive PE with RV failure, it is likely that the RV is on the falling, descending portion of the Starling curve. The RV is already compromised by pressure and volume

overload, the tricuspid annulus is stretched, and the myocardium oxygen demand has exceeded supply. More volume in the form of crystalloid would further compromise the RV function and cardiac output would likely rapidly spiral downward. Therefore we chose to start norepinephrine, knowing and accepting the risk of arrhythmia was outweighed by his falling blood pressure.

2:40-2:47 pm: The patient's pressure improves to 97/56, but he continues to have significant respiratory distress. He undergoes RSI with ketofol and rocuronium.

Question: What were your indicators for intubation and what method did you use?

D.B. Since his work of breathing worsening, we felt that we had 1) an imperative to start mechanical ventilation, but also 2) a window of safety. It was still a crashshoot, and he may have had a peri-intubation arrest. We chose to manage that risk by selecting a combination of ketamine and propofol for induction, hoping that the ketamine would help preserve cardiac output. He remained hemodynamically stable throughout the procedure.

Question: Describe the ideal ventilator settings for this patient.

D.B. First, we wanted to avoid high PEEP, because of its negative effect on the already compromised RV and LV function. In the former, RV dysfunction was caused by very high PA pressures (cor pulmonale). The LV was compromised because 1) LV filling is dependent on RV output AND 2) because RV dilatation causes bowing of the septum into the LV cavity, impairing LV cardiac output. In this case, PEEP would most likely have reduced cardiac output because of the effect that increased intrathoracic pressure would have on already dysfunctional ventricles. Second, lung-protective ventilation strategies (ARDSnet) can be employed using low tidal volumes (6-8 mL/kg ideal body weight) to reduce plateau pressures.

Conclusion

The patient eventually had a CT scan revealing a massive pulmonary embolus with right heart strain, had an IVC filter placed, was extubated the following morning, and was discharged in stable condition later that week. ★

[critical care perspectives]
in emergency medicine



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FLOW FAILURE

Treating Critical Aortic Stenosis

Critical aortic stenosis is a mechanical obstruction that requires mechanical relief; aortic valve replacement is the only truly effective treatment.



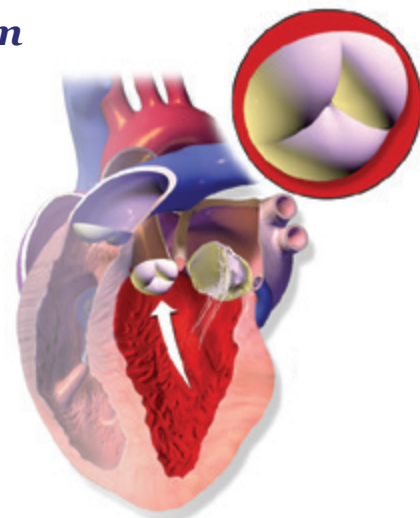
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Causes of aortic stenosis include rheumatic disease, congenital aortic stenosis, and most commonly, calcified aortic stenosis.

A 78-year-old woman presents to the emergency department with chest pain and dyspnea. She has crackles in both lung fields, a crescendo-decrescendo grade 3/5 systolic ejection murmur radiating to the neck with diminished carotid upstrokes, a powerful apical pulse, and 2+ pitting edema in her lower extremities. Evaluation reveals acute decompensated heart failure secondary to critical aortic stenosis.



Aortic Stenosis

What is critical aortic stenosis?

Aortic stenosis (AS) is narrowing of the aortic valve opening and is considered critical when the valve area is less than 0.6 cm² and the mean transvalvular gradient is greater than 70 mm Hg. Causes of AS include rheumatic disease, congenital aortic stenosis, and most commonly, calcified aortic stenosis.¹ When the cause is secondary to calcification, this is considered a marker for concomitant coronary disease.

What complications result if left untreated?

If left untreated, AS causes a potentially lethal obstruction to the outflow tract. Left-sided heart failure is the most common and most life-threatening complication. Cardiac muscle initially hypertrophies in response to the resistance from the aortic valve, but over time the increased pressure causes the left ventricle to dilate, resulting in failure.¹ **Mortality is 50% at two years and 75% at three years after the onset of congestive heart failure, unless the valve is replaced.**² As such, when patients become symptomatic, early surgical intervention is crucial to prevent these complications. Other concerns include cardiac dysrhythmias secondary to calcification of the conduction system, and endocarditis secondary to the damaged valve.³

What are the physical exam findings in aortic stenosis?

Early in AS there is a classic crescendo-decrescendo systolic ejection murmur that peaks early in systole and radiates to the neck with normal carotid upstrokes. Progression of AS produces a louder murmur that is auscultated later in systole.³

Further worsening of AS obstructs outflow, leading to a reduction in cardiac output. At this stage, the murmur intensity lessens, and the carotid upstrokes are diminished and delayed. Despite this, the left ventricular apical impulse remains forceful. The disparity between the powerful left ventricular apex and diminished carotid pulses is due to the stenosed aortic valve, which creates a partial obstruction between these two structures. Echocardiography with Doppler is the best noninvasive tool available for diagnosis.³

How should critical aortic stenosis be managed differently than standard acute decompensated heart failure?

Critical aortic stenosis is a mechanical obstruction that requires mechanical relief; aortic valve replacement is the only truly effective treatment. The medical treatment of acute decompensated heart failure in the setting of AS is controversial. Therapeutic interventions focus on reducing afterload, and thus improving

cardiac output. Diuretics can be employed, and enalapril has been shown to reduce symptoms, though these are usually insufficient for acute management.

Diuretics also run the risk of dangerously reducing preload in these tenuous patients. **Beta-blockers, while often effective in traditional heart failure, can be disastrous in the patient with critical aortic stenosis.** Blocking beta-adrenergic receptors reduces inotropy, and can decrease the heart's ability to push blood past the obstruction.

Vasodilators have traditionally been used with caution, out of concern for systemic hypotension leading to decreased coronary perfusion pressure.⁴ However, there is evidence that nitroprusside can improve the cardiac index by reducing afterload, filling pressures, and augmenting myocardial blood flow.⁵ It is an option in the ACC/AHA guidelines for the inoperable patient with valvular heart disease, though should be used in the intensive

care unit under vigilant hemodynamic monitoring.⁶

Other therapies include placement of an intra-aortic balloon pump, which reduces myocardial workload and improves coronary blood flow.² A final measure to be considered is aortic balloon valvuloplasty; even a small increase in valve area can help with hemodynamic stabilization.² **The key difference from traditional heart failure management is to avoid nitroglycerin and to seek early surgical evaluation.** Treating aortic stenosis like a standard CHF exacerbation can be a fatal mistake.

Summary

For patients presenting in acute decompensated heart failure, it is imperative for the clinician to have critical AS in the differential diagnosis, as acute preload reduction is potentially dangerous. While the judicious use of medical therapy can be adjunctive, emergency department management should focus on expeditious surgical consultation. ★



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SPOTTING STDs in the Emergency Department

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The patient

A 24-year-old homosexual African American male with well-controlled HIV and normal CD4 counts presents with a rash on his palms, soles, and chest wall. He has normal vital signs and is not in any distress. The rash has been present for two weeks and is irritating and rough to the touch, but is not pruritic and has no drainage. He has a recent diagnosis of genital herpes.

The diagnosis

This patient's rash is due to secondary syphilis. **Cases of syphilis are on the rise throughout the country;** the highest incidence is among men who have sex with men.¹ The states with the highest rates of primary and secondary syphilis are the District of Columbia, Louisiana, Maryland, Georgia, and Illinois.²

Syphilis occurs in three stages, and is caused by the bacterium *Treponema pallidum*. The primary stage is manifested by a painless chancre that occurs about 21 days after exposure.^{3,4} Transmission occurs through contact with these open wounds. The recent diagnosis of herpes in the patient in this scenario was likely a misdiagnosis of primary syphilis. If left untreated, secondary syphilis develops, which involves a rash on the palms and soles, as well as fevers, lymphadenopathy, fatigue, and myalgias. This is followed by a latent period of 10-30 years, after which tertiary syphilis occurs, causing a variety of serious disabilities and death.^{3,4}

Diagnosis of syphilis is usually made through a VDRL or RPR assay. FRA-abs is used for confirmatory testing.⁴ First-line treatment is with 2.4 units of benzathine penicillin G given IM, though there are alternative treatments available.³ ★

MORE THAN A Pain in the Back

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The patient

A 45-year-old male presents with sudden onset left flank pain radiating to his left shoulder. He has a history of urolithiasis, but is unsure whether this episode is the same as when he had an obstructive stone. On examination, he is diaphoretic with a blood pressure of 154/86 with reproducible left flank and costovertebral angle tenderness. An initial complete blood count, basic metabolic profile, and urinalysis are normal. However, due to his

clinical appearance, CT scans of his abdomen and pelvis are obtained. **What is the diagnosis?**

The diagnosis

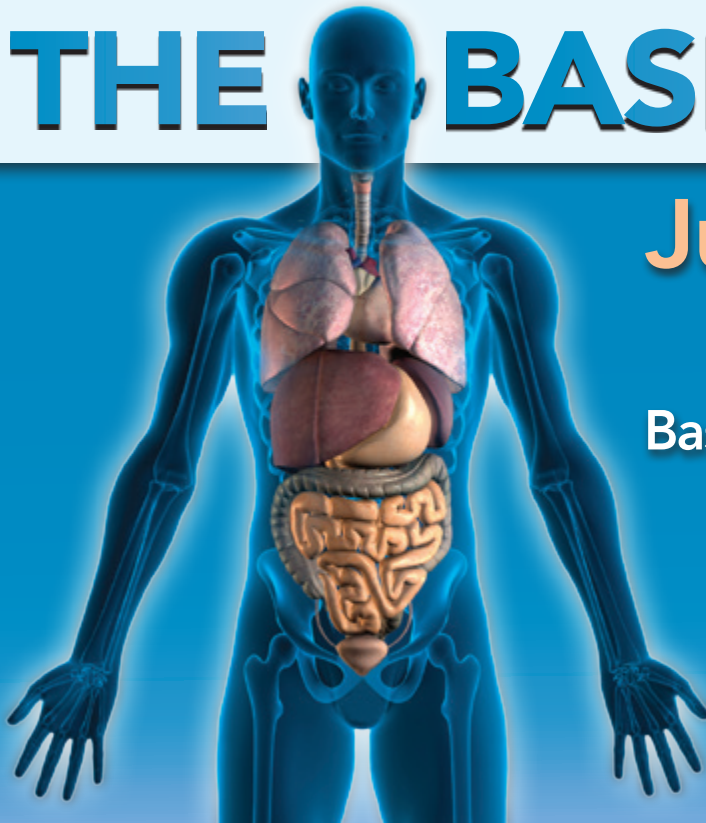
Computerized tomography reveals a high-density fluid collection in the left suprarenal region without visualization of the left adrenal gland, suggesting spontaneous adrenal hemorrhage. This patient has normal serum aldosterone and cortisol levels, but plasma normetanephrine and metanephrine levels are elevated. **Spontaneous unilateral adrenal hemorrhages have been reported in association with tumors, long-term non-steroidal analgesic use, and trauma.** In patients with elevated catecholamine levels, spontaneous rupture of a pheochromocytoma should be considered. Most patients with a spontaneous adrenal hemorrhage will present with severe discomfort and often will have reproducible costovertebral tenderness. Surgery is generally not required in non-traumatic cases, unless there is an associated neoplasm or extensive retroperitoneal hemorrhage.¹ These patients should be admitted for monitoring and a workup to determine the cause of spontaneous hemorrhage. ★



CT scan shows high-density fluid collection in the left suprarenal region without visualization of the left adrenal gland.

The condition presented here is a relatively uncommon condition and has a variable and nonspecific presentation that may lead to acute adrenal crisis, shock, and death unless it is recognized promptly and treated.

THE BASICS



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RUSHing for a Diagnosis

Point-of-care ultrasound has become an integral tool in the diagnosis and management of various conditions in the emergency department. Ultrasound is particularly useful in the management of critically ill patients when making a timely diagnosis, and instituting appropriate interventions can result in significantly improved patient outcomes.

The RUSH (Rapid Ultrasound for Shock) exam utilizes bedside ultrasound to provide rapid, systematic care to the patient with undifferentiated hypotension. This exam has three major focus points – the “pump,” the “tank,” and the “pipes.”¹

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The “pump” – cardiac status Pericardial effusion

The RUSH exam can determine the presence of a pericardial effusion, evidenced by anechoic or hypoechoic fluid surrounding the heart. It is important to distinguish a pericardial effusion from the pericardial fat pad, which has some echogenicity and moves in concert with the myocardium. Identification of the descending aorta deep to the left atrium in the parasternal long view allows differentiation of a pericardial (anterior to aorta) from a pleural (posterior to aorta) effusion. **If a pericardial effusion is recognized, assessment for evidence of tamponade should be the next step.** This is evidenced by inward collapse of the right-sided chambers in diastole. Tamponade can be subtle; therefore in the hypotensive patient with a significant pericardial effusion, it is reasonable to prepare for emergent pericardiocentesis.² (Figure 1)



Figure 1: Subxiphoid view; mass adjacent to R atrial free wall; significant pericardial effusion with inward deflection of right ventricle in diastole; suggestive of tamponade physiology.

Left ventricular (LV) contractility

Evaluating LV contractility involves assessing an ejection fraction (EF), as evidenced by change in volume and wall thickness from diastole to systole. Described in broad terms as hyperdynamic, normal, or moderately or severely decreased, this assessment can be done fairly accurately by visual estimation.

More advanced techniques, called E-point septal separation or fractional shortening, can also be used.^{3,4} In the presence of hypovolemic or distributive shock, hyperdynamic or normal cardiac function is suggestive of fluid responsiveness. On the other hand, a depressed EF should prompt cautious fluid resuscitation and consideration of treatments directed at cardiogenic or obstructive shock.

Right heart strain

The final cardiac assessment is the presence of right heart strain, which may indicate pulmonary embolism (PE). The normal RV/LV ratio in the apical four-chamber view is 0.6, therefore an RV larger than the LV suggests right heart strain. Bowing of the interventricular septum into the left ventricle in the parasternal short view is called a “D sign,” which suggests elevated right-sided pressures. In the setting of a hemodynamically unstable patient, this should prompt consideration for thrombolytics for PE. Of note, a thickened RV wall suggests chronic right heart strain, as seen in pulmonary hypertension and COPD.² (Figure 2)

The “tank” – intravascular volume status

Tank fullness

Assessment of fluid status starts with evaluation of the IVC. The diameter of the IVC should be measured 2 cm distal

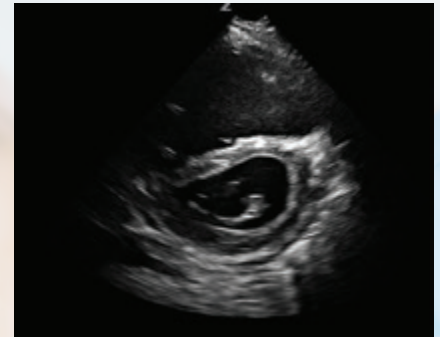


Figure 2: Parasternal short axis; enlarged RV and “D sign” suggesting right heart strain.

from the cavoatrial junction and superior to the insertion of the hepatic veins. An IVC diameter less than 2 cm with >50% collapse with inspiration correlates with a central venous pressure (CVP) <5 mmHg. This suggests that the patient is likely to be fluid-responsive. IVC diameter greater than 2 cm and <50% collapsibility correlates with CVP >10mmHg, and argues *against* fluid responsiveness (cardiogenic or obstructive shock).² (Figure 3)



Figure 3: Longitudinal view of IVC; small IVC collapsing with inspiration.

Tank leakiness and overload

The next step is evaluating the peritoneal and thoracic compartments for free fluid. The FAST exam allows for rapid determination of

hemoperitoneum; this, in nontraumatic settings, may be due to a ruptured abdominal aortic aneurysm (AAA), ectopic pregnancy, or hemorrhagic cyst.² In the thorax, pleural effusion or pulmonary edema can be signs of tank overload. To assess for fluid in the lung parenchyma, place the phased array probe in the anterolateral chest between the 2nd and 5th intercostal spaces. The presence of multiple B lines (vertical reverberation artifact extending from the pleural line to the far field) is evidence of pulmonary edema.³ This finding, together with poor cardiac contractility and a plethoric IVC, is highly suggestive of cardiogenic shock.

Tank compromise

Presence of a pneumothorax can cause obstructive shock. Place the linear probe in the midclavicular line between the 3rd and 5th intercostal spaces to assess for lung sliding along the pleural surface. In M mode, normal sliding is noted by the “waves on a beach” pattern, while the “bar code” sign suggests a pneumothorax is present. Lung sliding is 86-100% sensitive in ruling out pneumothorax. Specificity is also high; however, the absence of lung sliding may occur in other pulmonary conditions or mainstem intubation.²

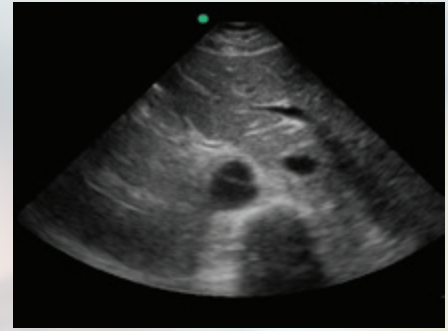
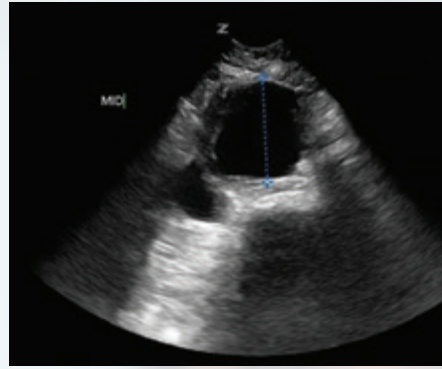


Figure 4: Transverse view of AAA measuring 4cm (left); intimal flap suggesting dissection (right).

The “pipes” – circulatory system

Pipe rupture

Both AAA and aortic dissection are evaluated with the RUSH exam. Imaging of the abdominal aorta should begin at the epigastrium and extend distally to the bifurcation of the iliac vessels. **Measurement of the aorta should be from outer wall to outer wall.** AAA is defined as a diameter >3 cm, but rupture is more likely when >5 cm. AAAs tend to rupture into the retroperitoneum, which is poorly imaged on ultrasound; acute rupture should be considered in a hypotensive patient with AAA >3 cm.^{3,5}

Assessment for an aortic dissection is more challenging. However, if an intraluminal flap is noted, this is highly specific for dissection. Thoracic aortic dissection may be detected on the parasternal long axis view with an aortic root measuring >3.8 cm.² (Figure 4)

Clogged pipes

Assessment for DVT involves compression of the lower extremity venous system. This should be performed on the proximal femoral vein from the level of the common femoral vein to the bifurcation of the deep and superficial femoral veins. The popliteal vein should also be assessed in the popliteal fossa down to the trifurcation of the calf veins.² ★

TABLE 1. The RUSH Exam: Rapid Ultrasound in Shock²

RUSH Evaluation	Hypovolemic Shock	Cardiogenic Shock	Obstructive Shock	Distributive Shock
Pump	Hyperdynamic heart Small chamber size	Hypodynamic heart Dilated heart	Hypodynamic heart Pericardial effusion Cardiac tamponade RV strain Cardiac thrombus	Hypercontractile heart (early sepsis) Hypodynamic heart (late sepsis)
Tank	Flat IVC Flat jugular veins Peritoneal fluid (fluid loss) Pleural fluid (fluid loss)	Distended IVC Distended jugular veins Lung rockets (pulmonary edema) Pleural fluid Peritoneal fluid (ascites)	Distended IVC Distended jugular veins Absent lung sliding (pneumothorax)	Normal or small IVC (early sepsis) Peritoneal fluid (sepsis source) Pleural fluid (sepsis source)
Pipes	Abdominal aneurysm Aortic dissection	Normal	DVT	Normal

The RUSH exam provides a framework for the assessment of the patient presenting in shock. While the exam starts with cardiac evaluation, the clinical context and clinician’s judgment should guide the order of progression through the components of the exam.³

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COOL

Introduction

It is well known that a mother's health affects fetal health, which leads us to seek ways to limit adverse consequences on the mother, and therefore, the fetus. It has also been well established that induced hypothermia has made a notable decrease in morbidity and mortality when utilized in patients who are comatose after out-of-hospital cardiac arrest. **Post-cardiac arrest hypothermia is being utilized more frequently in hospital systems and in protocols around the world;** however, limited data has been published on therapeutic hypothermia in pregnant patients.

Clinical case

A 26-year-old primigravida woman at 16 weeks and five days into pregnancy experienced a cardiac arrest at her home. Bystander CPR began immediately. When emergency medical personnel arrived at her home, she was in ventricular fibrillation, and a shock was given at 360 joules. She then progressed to asystole in route to the hospital. Return of spontaneous circulation was obtained in the emergency department after CPR, intubation, epinephrine, and atropine; however, she was noted to have decorticate posturing. In conjunction with OB/GYN, the critical care team, and the patient's family, the decision was made to treat her with therapeutic hypothermia. Both mother and fetus survived this event with positive neurological outcomes.



Induced hypothermia has been shown to improve morbidity and mortality after cardiac arrest and should be considered when fetal survival is dependent on maternal survival.

Discussion

Anoxic brain damage occurs during cardiac arrest due to the decrease in cerebral blood flow. The reduction in aerobic respiration results in an increase in anaerobic glycolysis, which increases intracellular lactate and hydrogen ions. These, in turn, cause intracellular acidosis and ultimately neuronal cell injury and death. Further cerebral injury can occur with release of free radicals, calcium, free fatty acids, and other inflammatory mediators when blood flow returns, a phenomenon known as reperfusion injury.^{1,2}

THINKING

Quick action and rapid hypothermia in pregnancy can potentially save two lives

Hypothermia, defined as a core temperature of less than 35 degrees Celsius (C), reduces the rate of cerebral oxygen metabolism by 6% for every 1C reduction in brain temperature > 28C.³ Evidence suggests that hypothermia exerts a neuroprotective effect by decreasing cerebral oxygen demand and reducing cell membrane damage from inflammatory responses.

During a state of induced hypothermia, the mother's body temperature is lowered to 32-34C for 24 to 48 hours. The placenta functions as a heat exchanger with a gradient of temperature between the fetus and mother, and so fetal temperature decreases similarly with maternal temperatures during maternal cooling. Effects on the fetus are similar to those seen in the mother. **Fetal cardiac output is reduced because of the direct stimulation of cooling on the sinus node**, resulting in a decrease in fetal heart rate (FHR).^{3,4,5} The FHR decreases approximately 7 BPM for each

degree of fetal cooling.^{3,5} Fetal pO₂ is well compensated by a left shift of the hemoglobin saturation curve, resulting in normal fetal oxygen saturation levels at maternal temperatures of 32-34C. Further, fetal pCO₂ is decreased as a result of the reduced metabolism.⁵ Notably, whole-body hypothermia has been safely used in neonates and infants with hypoxic-ischemic encephalopathy with improvement of neurological outcomes and reduction of death and disability.⁵ However, **induced hypothermia has not been adequately studied in pregnancy**, and the 2010 ACLS guidelines make no recommendations in regard to pregnancy.⁶

In this case, the fetus was at a nonviable gestational age (<24 weeks), and induced hypothermia was chosen as a potential benefit for the mother. In the case of a viable gestation, immediate cesarean delivery would be recommended prior to inducing maternal hypothermia.

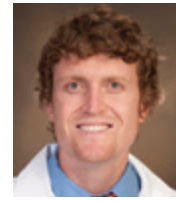
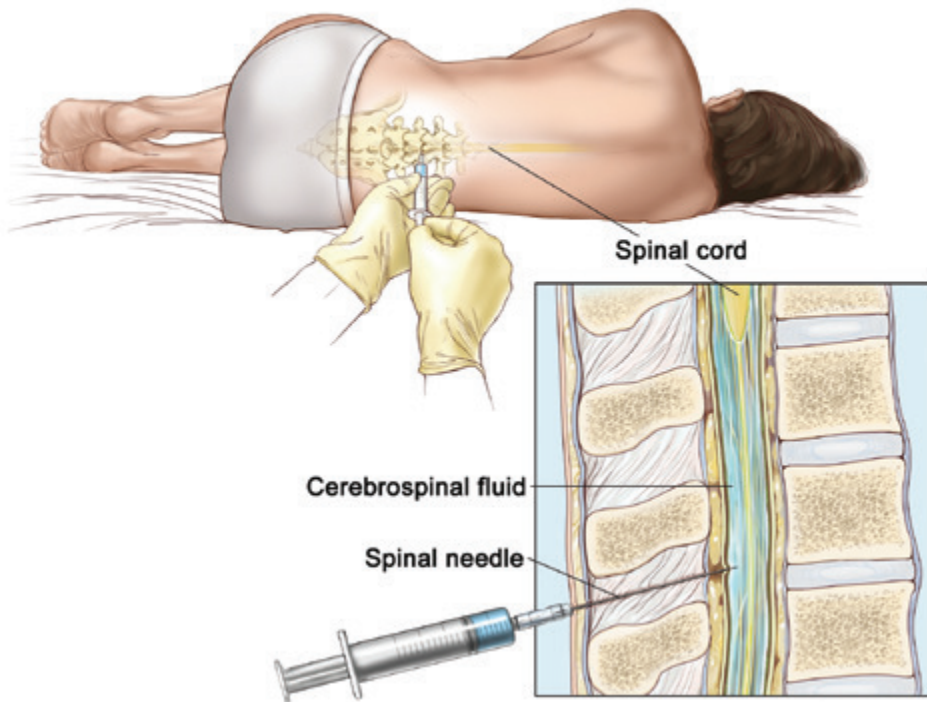
In cases where cesarean delivery is contraindicated and in viable gestational ages, hypothermia should still be considered.

Conclusion

Cardiac arrest during pregnancy is an uncommon occurrence with an estimated prevalence of 1 in 30,000 pregnancies.⁷ Utilization of induced hypothermia for patients comatose after resuscitation from out-of-hospital cardiac arrest improves mortality and neurologic outcomes.^{4,8} To date, only two case reports have been published with the use of post-cardiac arrest hypothermia in pregnancies. Both showed positive outcomes for the mother, with favorable fetal outcome in one, and fetal death in the other.^{9,10} With fetal survival largely dependent on maternal survival, **induced hypothermia should be considered in all cases if the fetus is non-viable**, if cesarean delivery is contraindicated, or after emergent delivery of a viable infant. ★



LUMBAR PUNCTURE



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Tips and tricks for performing pediatric lumbar puncture

Lumbar punctures are routine procedures in the pediatric emergency department. In the emergency setting, the procedure is primarily diagnostic and used to rule out various infectious and neurologic processes. When undergoing a lumbar puncture, children are generally placed in the sitting or lateral recumbent position. Positioning is determined by the clinician performing the procedure, and so there is no one standard position.

ILLUSTRATION COURTESY OF CANCER CENTER OF SANTA BARBARA

BACK to basics

Lumbar puncture (LP) is a common procedure in the pediatric emergency department, fraught with parental fears, expectations, and high patient acuity. For the novice proceduralist it can be a daunting task, but a few tips can ease stress and increase success.

Anesthesia

Anesthesia is recommended when performing a lumbar puncture. Non-inferiority studies show that **LP success rates with local lidocaine are equal, if not better, when compared to no pre-anesthesia.**¹ This suggests that the benefit of patient cooperation with adequate pain control outweighs the loss of landmarks from the lidocaine wheal. Although the

literature can be contradictory,^{2,3} ACEP and the AAP both advocate for the routine use of procedural anesthesia.^{4,5}

Other options for anesthesia include topical analgesia, J-tip, and sedation. **Topical analgesia can be used in conjunction with a lidocaine injection, making the poke painless.** Unfortunately, the patient must sit for 20-30 minutes before adequate anesthesia is achieved. The J-tip offers quick anesthesia by pressurizing the lidocaine into the superficial dermis; and though superior to topical agents in anesthetic qualities, its use alone may not offer adequate anesthesia.^{6,7,8} Additionally, the associated “pop” can be traumatizing to younger patients, despite being painless. Oral sucrose for the neonate or infant is a helpful

adjunct. The toddler and young child, on the other hand, may require procedural sedation.

Get the right position

There are generally two approaches to patient positioning: sitting and lateral knee to chest.

Lateral knee to chest

This position is considered a position of comfort. It is the preferred position for measuring opening pressures.

- Ensure that the bed is completely flat. A slight incline at the head of the bed can place a bend in the spine and decrease chances for success.
- The patient is flexed at the upper torso, hips, and, knees. Flexion at the neck is no longer considered beneficial.⁹ It should be stressed

that the shoulders, hips, and knees be aligned to prevent a twist in the spine.

- The patient's bed should be raised so that their vertebrae are at eye level. This prevents the operator from inserting the spinal needle while looking downward, which makes detecting deviations in needle projection difficult.

Sitting

This approach can be more successful as appropriate vertebral alignment is easier to achieve, deviations in needle angulation are more readily apparent, and intervertebral spaces are more widely open.⁹

- Attention should be given to preventing flexion to the side or rotation at the hips. Proper positioning can be confirmed by drawing an imaginary vertical line down the spine and an imaginary horizontal line through the shoulders. These two lines should intersect and form a cross.
- Opening pressure measurements are difficult to obtain in this position. It is possible to lay the patient



Image 1. Blue arrow demonstrates desired needle angulation. Red line demonstrates anatomical alignment of vertebrae. Ideally, needle insertion would be at L4-L5 intervertebral space. IMAGE COURTESY OF INFO-RADIOGRAPH.CH



Table 1.

	Neonate/Infant	Teen/Adult
Spinal cord	L2-3	L1
Depth to cord	cm	inches
Tap space	L4-L5	L3-L5

laterally after accessing the CSF, but the operator should consider the feasibility of this maneuver prior to selecting this position.

Angling the needle

The anatomical landmarks are generally much more prominent on the pediatric patient than the adult counterpart. However, the space for needle insertion is much smaller, and there is less room for error. **Locating the spinal canal is improved by using a three dimensional approach.**

- **Cephalocaudal plane:** Needle projection should reflect an understanding of vertebral anatomy. Remembering that the ventral aspect of the lower spinous process aligns with the most dorsal aspect of the upper spinous process can help in determining angle approach (Picture 1).

- **Medial-lateral plane:** Place the thumb of the non-dominant hand in middle of the cephalad vertebrae. The thumb should be kept on the vertebrae and used to ensure that needle insertion is midline with the spine and does not deviate laterally.
- **Depth:** The depth of the spinal canal in a neonate can be centimeters from the surface (see Table 1). Frequent stylet removal and checks have been shown to increase success rate, and some authors suggest complete stylet removal once the needle has passed through the dermis.¹⁰

Final points

- Obtain blood glucose levels prior to needle insertion or shortly after CSF collection. A normal CSF glucose should be 60% of serum glucose. CSF glucose may be inappropriately interpreted high in the hyperglycemic patient or low in the hypoglycemic patient.
- Clean the iodine off the patient when finished. Iodine can irritate the skin if not removed, and an infant or neonate cannot verbalize this irritation. Additionally, some studies report a possible risk of hypothyroidism with prolonged exposure.^{11,12} ★



Detecting pediatric appendicitis through ultrasound

Sound Diagnosis

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Case

A 3-year-old boy with no significant past medical history presents with two days of abdominal pain and several episodes of non-bilious, non-bloody emesis. His mother states he has been less active than usual.

- Vitals signs are: temperature 100.8°, heart rate 134, BP 105/62, respiratory rate 20, and O₂Sat of 100%
- A review of systems is only positive for nausea, vomiting, abdominal pain, and mild decrease in activity.
- Exam reveals an uncomfortable but cooperative child who appears well-hydrated and well-perfused. Mild tachycardia is noted. The abdomen has normal bowel sounds and is soft without rebound or guarding, but is diffusely tender.

Questions to consider

- What is your differential diagnosis?
- What diagnostic studies would you perform?
- Do you think bedside ultrasound would be helpful in this case, and if so, what signs are you looking for?

Patient course and bedside ultrasound

After initial evaluation, serum labs were ordered and revealed elevations in white blood cell count and CRP. Intravenous fluids and acetaminophen were administered. Abdominal bedside ultrasonography (U/S) was performed using a 5-10 MHz linear transducer.

Findings on bedside ultrasound examination revealed a distended, noncompressible appendix measuring >8mm in diameter, consistent with acute appendicitis. The patient was started on intravenous antibiotics, and underwent a laparoscopic appendectomy. He was discharged home the following day.

Discussion

The diagnostic challenge of abdominal pain

Abdominal pain is one of the most common childhood complaints in the emergency department. Its differential

diagnosis can be exhaustive – from relatively benign conditions, such as constipation and acute gastroenteritis, to more serious and potentially life-threatening ones, such as intussusception and appendicitis.¹

Appendicitis is the most common abdominal surgical emergency in children; but, despite its prevalence, it remains a diagnostic challenge.² The diagnosis of appendicitis is classically taught to be a clinical one, with findings of anorexia, early periumbilical pain that migrates to the right lower quadrant, fever, and generalized peritoneal signs of irritation.³ However, young children are unable to accurately describe their symptoms,⁴ and clinical judgment alone has been shown to have low diagnostic accuracy.⁵ Therefore, **imaging is an important adjunct in the diagnosis of appendicitis in this population.**

Diagnostic utility of U/S in appendicitis

The introduction of U/S and computed tomography (CT) as standard diagnostic imaging modalities for appendicitis has been associated with a substantial decrease in the rate of perforation and negative appendectomy.^{6,7} Although CT is shown to have greater sensitivity than

U/S,⁸ the concern for radiation-related malignancy in children and the practice of the “as low as reasonably achievable” (ALARA) principle have put its liberal use into question.⁹

Ultrasound offers an elegant solution to some of the problems posed by CT.

It can be performed immediately, is reasonably inexpensive, avoids radiation, and does not require sedation. The relative ease of obtaining ultrasound imaging may prevent some of the complications of advanced or late appendicitis, such as perforation, gangrene, paralytic ileus, obstruction, and phlegmon.¹⁰

Ultrasound examination is particularly useful in children because they tend to have a lower abdominal fat content. Conversely, CT relies on intra-peritoneal fat for improved diagnostic accuracy.¹¹ A meta-analysis of the diagnostic utility of

transducer. The lower frequency (2-5 MHz) curvilinear transducer can be used in patients with a larger body habitus in order to gain more depth at the expense of resolution. The probe is placed on the anterior abdominal wall over the point of maximal tenderness.

The recommended scanning methodology involves first identifying the ascending colon, then moving inferiorly to the terminal ileum, and finally to the cecum. The appendix should be seen arising from the tip of the cecum about one cm inferior to the terminal ileum. When having difficulty finding the appendix, it may be helpful to locate the psoas muscle and iliac vessels in the transverse view as the appendix is usually anterior to these structures.¹¹

Sometimes overlying bowel gas can obscure the appendix, making visualization difficult. Using a “**graded**

longitudinal (long-axis) and transverse (short-axis) views. Typically, the probe indicator points to the head and to the patient’s right, respectively, for these views; however, this varies based on the orientation of the appendix.

Diagnostic criteria

Recognized criteria for diagnosing acute appendicitis by U/S include the identification of a noncompressible, nonperistaltic, blind-ending tubular structure in the longitudinal axis that measures greater than 6 mm in diameter.^{10,14} **It is also important to obtain images in the transverse view, in which the distended appendix may take on a target-like appearance.**¹¹ Other findings supportive of acute appendicitis include:¹⁴

- Appendicolith
- Appendiceal wall hyperemia seen with color Doppler
- Pericecal inflammatory changes (hyperechoic fat, free fluid)
- Mesenteric lymph nodes
- Pain with compression at McBurney’s point (sonographic McBurney’s)

Pitfalls of bedside ultrasound

It is important to visualize the entire appendix all the way through to the distal tip. Failure to do so may result in a missed early appendicitis that is confined to the tip. Conversely, failing to scan all the way through and confirm a blind-ending pouch may also lead to false positives, as an inflamed terminal ileum may be mistaken for appendicitis. Another potential pitfall relates to the perforated appendix, which may be decompressed after pus is expelled.¹¹ A normal or non-visualized appendix does not necessarily mean no appendicitis.

Management

Once appendicitis has been identified, the patient should be started on antibiotics and made NPO in preparation for appendectomy. Patients who present with late appendiceal phlegmon and are non-toxic, without generalized peritonitis, can be initially managed non-operatively. A surgical consult should be obtained in either scenario. ★

Young children are unable to accurately describe their symptoms, and clinical judgment alone has been shown to have low diagnostic accuracy — ultrasound offers an elegant solution.

U/S in pediatric appendicitis showed a pooled sensitivity and specificity of 88% and 94%, respectively,⁸ supporting its use as an initial “rule in” test. This notion applies to sonography by emergency physicians as well. A study looking specifically at the abilities of emergency physicians found that they were able to diagnose appendicitis within five minutes with 90% specificity.¹² **If U/S is negative or inconclusive, an abdominal CT should be done.**⁷ MRI can also be utilized, especially in pregnant patients, but the high cost, limited availability, and need for sedation in children often make it an impractical option.¹³

Orientation and landmarks

Bedside U/S for appendicitis in pediatric patients is best conducted with the patient in the supine position using a high-frequency (5-10 MHz) linear array

“**compression**” technique by applying varying amounts of pressure to the abdomen in order to displace overlying bowel gas and bring the appendix closer to the probe can be helpful. If the appendix is not visualized after completion of the graded compression scans, adjuvant techniques such as posterior manual compression can be employed. This consists of applying manual pressure with the sonographer’s free hand on the posterior aspect of the right lower quadrant in the anterior or anteromedial direction.

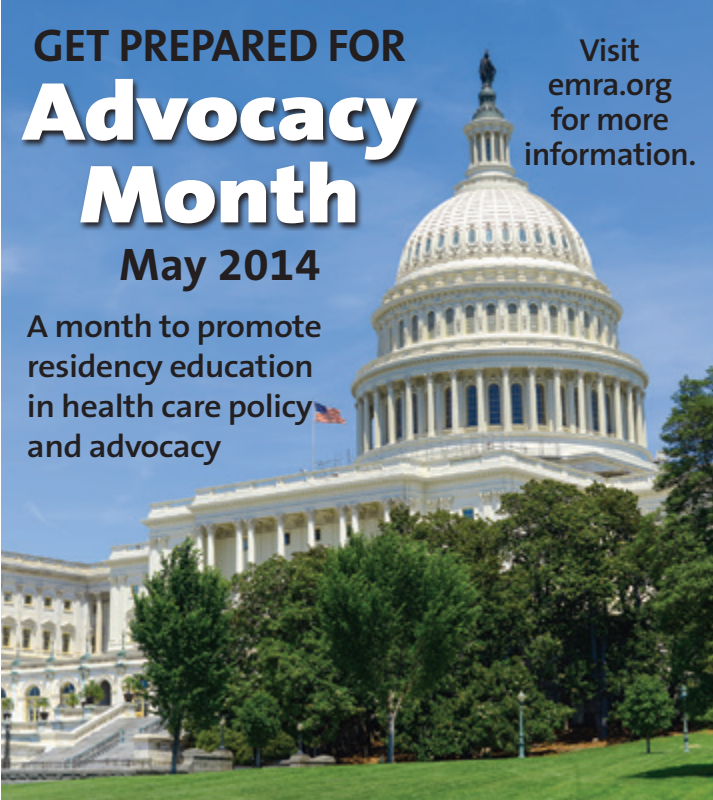
Another technique is to lay the patient in the left lateral decubitus position, which can bring an appendix attached to a high-positioned cecum into view.¹⁴

Once the appendix is visualized, the diameter should be measured from outer wall to outer wall in both the

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UPCOMING EVENTS

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- Mar 5 Residents' Appreciation Day Nationwide
- Mar 30 CORD Academic Assembly New Orleans, LA
- Apr 15 EMRA Committee Application Deadline
- May 13-17 SAEM Annual Meeting Dallas, TX
- May 18-21 ACEP Leadership and Advocacy Conference Washington, DC



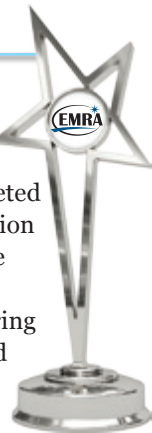
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- Residency Coordinator of the Year Award
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BOARD REVIEW+

QUESTIONS

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

Provided by PEER (Physician's Evaluation and Educational Review in Emergency Medicine). PEER 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.

- Which of the following is seen most commonly in true generalized seizures?
 - Altered mental status
 - Duration exceeding 2 minutes
 - Emotional provocation
 - Gradual onset
- A 67-year-old woman presents after three episodes of hematemesis. She denies significant past medical history and is taking only an over-the-counter medication for osteoarthritis. She appears anxious and diaphoretic. During the interview, she vomits 250 mL of bright red blood. Physical examination is notable for blood pressure 79/58, pulse 122, moderate epigastric abdominal tenderness, and bloody stool. Which of the following is most likely to control the bleeding?
 - Bedside esophagogastroduodenoscopy
 - Nasogastric tube placement with lavage
 - Omeprazole infusion followed by vasopressin drip
 - Sengstaken-Blakemore tube
- A 24-year-old man presents with pain and deformity over his right clavicle after a fall. Radiographs reveal a fracture of the middle third clavicle. It is shortened by 2.5 cm and displaced. Which of the following statements regarding his treatment and disposition is correct?
 - For pain control and fracture reduction, a figure-of-eight harness is better than a simple sling
 - He should be encouraged to start active full range of motion exercises with the shoulder
 - Location of the fracture is uncommon and increases the risk for neurovascular compromise
 - Urgent outpatient orthopedic referral is required
- Which of the following statements regarding the use of multidetector CT pulmonary angiography to diagnose pulmonary embolism is correct?
 - Inadequate contrast administration can lead to a false-positive result
 - Motion artifact leads to a false-negative result
 - Sensitivity for detecting any pulmonary embolism is higher than 97%
 - Sensitivity is improved with venous phase CT venography of the lower extremities
- A 25-year-old man presents with a severe asthma exacerbation and is intubated. After being stable for several hours, he develops hypoxia with hypotension and is increasingly difficult to ventilate. Breath sounds are equal bilaterally. What is the next step in management?
 - Administer a nebulized albuterol treatment
 - Order stat chest radiography
 - Perform emergent needle decompression
 - Remove him from the ventilator and allow him to exhale

24|7|365 Documentary Film Premiere



More than 1,000 guests walked the red carpet at the EMRA premiere of 24|7|365: *The Evolution of Emergency Medicine*.



Legacy leaders from left: Drs. James Cao; *Legacy* co-chair and executive producer, Don Stader; and premiere emcee, Mel Herbert.



Premiere guests from left: Mark Scherzer, film director Dave Thomas, film interviewee Dr. Robert Proding, and guest.



Legacy leaders from left: the late Dr. George Podgorny, who was featured in the film; and *Legacy* co-chairs Drs. Mark Brady, Chadd Kraus, Don Stader, and Angela Fusaro.



Legacy Panel Discussion

EM pioneers gathered for an in-depth panel discussion about the history of the specialty. From bottom left, Drs. Gautam Bodiwala, Peter Rosen, Ron Stewart, and Nancy Auer. From top left, Drs. Amal Mattu, Brian Zink, George Podgorny, Pamela Bensen, and Bruce Janiak.



☉ Pictured from left: Drs. Jordan Celeste, EMRA president; Kevin Klauer, ACEP council speaker; and Ije Akunyili, EMRA speaker of the council.

Annual SimWars Competition



The UC Davis team reacts to a simulated scenario.



Team 'Tro from MetroHealth/Cleveland Clinic



Competitors from Boston Medical Center



Competitors from the University of California, Davis

Not pictured:
Competitors from Texas A&M/Scott & White and the University of Chicago.



Defending champions from the University of Florida College of Medicine – Jacksonville



Congratulations to the winning SimWars team from St. Luke's – Roosevelt Hospital Center!



☞ **Congratulations to the 2013 National Emergency Medicine CPC Competition Winners!** Resident presenter winner, Dr. Keegan Tupchong (right) of New York/Bellevue Hospital, and CPC committee chair, Dr. Saadia Akhtar. *Not pictured:* CPC faculty winner, Dr. Jeffrey Sankoff of Denver Health.



☞ **EMRA Fall Awards** EMRA presented Dr. Angela Siler Fisher (second from right) with the prestigious Joseph F. Wackerle Founder's Award. Also pictured from left: Drs. Arlo Weltge; Cameron Decker, EMRA immediate past-president; Shkelzen Hoxhaj; and Chris Colletti.



RISK MANAGEMENT PITFALLS

MANAGEMENT OF ACUTE ASTHMA IN THE ED



From the June 2013 issue of *Emergency Medicine Practice*, “Management Of Acute Asthma in the Emergency Department.” 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 email ebm@ebmedicine.net.

- 1 “The treatment seemed straightforward; I didn’t think their home situation was any of my business.”**
 Psychosocial problems need to be identified and addressed as part of asthma management, because, even with best practice, these problems place patients at an increased risk of dying. Family psychosocial problems and financial problems are associated with increased risk of mortality for patients aged >31 years but not for younger patients. Males were at increased risk of mortality from asthma exacerbation overall, but females with family problems are at greater risk than males with family problems. Alcohol use increased the risk of mortality for individuals who received only verbal instructions without a written action plan.
- 2 “I thought the longer-acting medication would help reduce the need for repeat treatments.”**
 Clinical studies of long-acting beta agonists compared to placebo in asthma patients using variable doses of inhaled corticosteroids have raised the issue of mortality risk in patients with asthma who are taking regular long-acting beta agonists. Long-acting beta agonists added to inhaled corticosteroids reduces asthma-related hospitalizations compared to inhaled corticosteroids alone, and there is no statistical increase in mortality. However, long-acting beta agonist treatment without inhaled corticosteroids does increase mortality risk in asthma. Healthcare providers must understand the essential need for adequate dosing of inhaled corticosteroids to control airway inflammation.
- 3 “The patient didn’t have any questions, so I didn’t think she really wanted to hear all the intricate details.”**
 Prescription of steroids in the treatment of acute asthma can lead to the following complications: avascular necrosis, mood changes, visual complaints, and infection. A provider treating patients with steroids must be diligent in explaining the potential side effects of steroids. The informed consent process, documentation, and close monitoring of patients are critical to avoid potential litigation.
- 4 “I was concerned about the fetal side effects and figured that short-acting beta agonist therapy was sufficient.”**
 Maternal asthma is associated with an increased risk of spontaneous abortion. Standard medical treatment of acute asthma does not increase the risk of congenital anomalies in the offspring when taken during the first trimester of pregnancy.
- 5 “I thought I would see how the patient responded to standard therapies before starting noninvasive positive-pressure ventilation.”**
 Noninvasive ventilation (NIV) has been shown to be effective in a wide variety of clinical settings; however, reports of NIV in asthma patients are scarce. There are a few prospective clinical trials reporting promising results in favor of the use of NIV in a severe asthma attack. A trial of NIV prior to invasive mechanical ventilation seems acceptable and may benefit patients by decreasing the need for intubation and by supporting pharmaceutical treatments. Although selecting the appropriate patients for NIV use is a key factor in successful NIV application, how to distinguish such patients is still quite controversial. If this technology is going to be employed, reaching for it early will likely yield more benefit.
- 6 “I knew the patient was sick, but ETCO₂ seemed sufficient.”**
 In adult asthma patients with acute exacerbations, concordance between ETCO₂ measured by capnography and PaCO₂ measured by blood gas is high. However, capnography is not a replacement of blood gas as an accurate means of assessing alveolar ventilation in acute asthma.
- 7 “We had trouble getting IV access, so I thought the nebulized therapy would suffice.”**
 The use of IV magnesium sulfate (in addition to beta agonists and systemic steroids) in the treatment of acute asthma improves pulmonary function and reduces the number of hospital admissions for children; it only improves pulmonary function for adults. Though the use of nebulized magnesium sulfate appears to produce benefits for adults, the routine use of this form of magnesium sulfate should not be considered standard of care at this point.
- 8 “Steroids from the discharge pharmacy seemed much easier.”**
 Early administration of steroid therapy is essential. Current literature suggests that early administration decreases hospitalization rates and bounce-back rates. When treating for acute exacerbations, steroid therapy should be administered early. ★

RISK MANAGEMENT PITFALLS

PEDIATRIC CAPNOGRAPHY

EB MEDICINE An Evidence-Based Review
Improving Patient Care



From the June 2013 issue of *Pediatric Emergency Medicine Practice*, “Capnography In The Pediatric Emergency Department: Clinical Applications.” 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 email ebm@ebmedicine.net.

- 1** “I confirmed placement of an ETT with a colorimetric CO₂ detector, and my patient was on continuous pulse oximetry, so ongoing capnography monitoring was unnecessary.”

While colorimetric capnography is useful to quickly confirm that an ETT is in the trachea, an ETT can become dislodged if the tube is not immediately and sufficiently secured, or if the patient moves, is repositioned, or is transported to another location. In infants and children, even slight movements of the head can cause displacement of an ETT. A displaced ETT that goes unrecognized can be catastrophic for the patient. Continuous infrared capnography can detect ETT dislodgement or obstruction in seconds, whereas pulse oximetry may take several minutes to register a decline in oxygenation. The American Heart Association guidelines for both adult and pediatric life support recommend the use of continuous capnography to monitor the position of an ETT.
- 2** “When providing CPR, I rely on my coworker, who is providing chest compressions, to let me know when he is getting tired and needs to switch. As long as the compressor is pushing hard and fast and is generating a palpable femoral pulse with each compression, the compressions are effective.”

Numerous studies confirm that ETCO₂ correlates with cardiac output during CPR, and capnography can provide an objective and quantitative measure of the volume of blood flow that is generated by compressions. A drop in the value of ETCO₂ on the capnogram can be indicative of compressor fatigue and the need to switch to another provider. The 2010 American Heart Association Guidelines for CPR now recommend the use of capnography to monitor and optimize the effectiveness of chest compressions.
- 3** “The patient was in cardiac arrest, so the ETCO₂ was so low that capnography wouldn’t have been useful in confirming that the ETT was in the trachea.”

Current-day infrared ETCO₂ detectors are extremely sensitive and can detect residual CO₂ in the trachea and reveal a recognizable waveform to indicate the ETT is properly placed. The 2010 American Heart Association guidelines for CPR recommend quantitative waveform capnography to confirm ETT placement in cardiac arrest.
- 4** “The only way to know if a cardiac arrest patient is responding to resuscitation is to stop CPR every 2 minutes to check for a pulse.”

The 2010 American Heart Association guidelines encourage the use of capnography to monitor and optimize CPR as well as to indicate ROSC. Pauses in CPR should be minimized in order to maintain perfusion pressure to essential organs. An increase in ETCO₂ noted during resuscitation indicates an increase in pulmonary blood flow. ROSC is recognized by an abrupt increase in ETCO₂ to normal or above-normal levels.
- 5** “The pulse oximeter said my sedated patient had an oxygen saturation of 100%, so I knew he was breathing effectively.”

While a pulse oximetry reading of 100% is reassuring to the emergency clinician because it indicates oxygen has been effectively delivered to body tissues,
- it does not reveal any information about how effectively the patient is ventilating. It is possible to have a pulse oximetry reading of 100% in a patient who is hypoventilating. Pediatric patients have smaller functional residual capacity and higher metabolic demands than adults. If uncorrected, hypoventilation in a child can decompensate quickly to apnea and possibly to cardiac arrest. Continuous capnography monitoring can provide prompt (within 1 breath) objective information about changes in a patient’s ventilatory status. While not yet standard of care, many professional organizations encourage the use of waveform capnography in the monitoring of patients receiving procedural sedation.
- 6** “My sedated patient had an ETCO₂ of 20 mm Hg. That meant he was hyperventilating and I didn’t need to worry about respiratory depression.”

Although a high ETCO₂ (>50 mm Hg) is always indicative of hypoventilation, it seems intuitive to assume that a patient who is hyperventilating will breathe down his CO₂ and have a low ETCO₂ reading; however, this is not always true. As the tidal volume declines, a greater proportion of exhaled ventilation is made up from the dead space. These patients will have a low ETCO₂ reading (<30 mm Hg), and the amplitude of the waveform on capnography will be markedly reduced. Since the patient with hypopneic hypoventilation will have a normal respiratory rate, this form of hypoventilation is often undetected by emergency clinicians who do not use capnography monitoring. ★

REFERENCES/RESOURCES

HEALTH POLICY (P. 28)

Critical Condition

1. Niska R, Bhuiya F, & Xu J. National Hospital Ambulatory Medical Care Survey: 2007 Emergency Department Summary. National Health Statistics Reports, 2010 August 6; (26): 1-32
2. Smulowitz PB, Lipton R, Wharam JF, et al. Emergency department utilization after the implementation of Massachusetts health reform. *Ann Emerg Med*. Sep 2011;58(3):225-234 e221
3. *The Impact of Health Care Reform on the Future Supply and Demand for Physicians Updated Projections Through 2025*, June 2010
4. Graduate Medical Education Payments to Teaching Hospitals by Medicare: Unexplained Variation and Public Policy Contradictions. *Acad. Med.* 2001;76:439-445.
5. The Medicare Payment Advisory Commission, *Graduate medical education financing: Focusing on educational priorities* http://www.medpac.gov/chapters/jun10_ch04.pdf
6. The National Commission on Fiscal Responsibility and Reform, *The moment of truth: report of the national commission on fiscal responsibility and reform* http://www.fiscalcommission.gov/sites/fiscalcommission.gov/files/documents/TheMomentofTruth12_1_2010.pdf
7. The Congressional Budget Office, *choices for deficit reduction* http://www.cbo.gov/sites/default/files/cbofiles/attachments/43692-deficitreduction_print.pdf
8. H.R.1201 — 113th Congress (2013-2014) <http://beta.congress.gov/bills/113th-congress/house-bill/1201/text>
9. H.R. 6562 (112th): Resident Physician Shortage Reduction Act of 2012 <http://www.govtrack.us/congress/bills/112/hr6562>
10. Results and Data 2013 Main Residency Match, NRMP <http://www.nrmp.org/data/resultsanddata2013.pdf>.
11. American Association of Medical Colleges. Retrieved 1 November 2012. <https://www.aame.org/about/medicalschoools>
12. AACOM. Retrieved 1 November 2012. <http://www.aacom.org/about/colleges/Pages/default.aspx>
13. Clare, Overview of the Financing of Graduate Medical Education, American Board of Hospice and Palliative Medicine, 2003 <http://www.aahpm.org/pdf/abhpmgmesummary2.pdf>

LEGISLATIVE ADVISOR (P. 27)

Fact or Fiction

1. Summerton N. Positive and negative factors in defensive medicine: a questionnaire study of general practitioners. *Br Med J*. 1995;10:27-29.
2. Passmore K, Leung WC. Defensive practice among psychiatrists: a questionnaire survey. *Postgrad Med J*. 2002;78:671-3.
3. Studdert DM, Mello MM, Sage WM, DesRoches CM, Peugh H, Zapert K, et al. Defensive medicine among high-risk specialist physicians in a volatile malpractice environment. *JAMA*. 2005;293(21):2609-17
4. Kessler D, McClellan M. Do doctors practice defensive medicine? *Q J Econ*. 1996;111(2):353-90.
5. Kessler DP, McClellan MB. How liability law affects medical productivity. *J Health Econ*. 2002;21(6):931-55.
6. Kessler D, McClellan M. Malpractice law and health care reform: optimal liability policy in an era of managed care. *J Pub Econ*. 2002;84 (2):175-97.
7. Sloan FA, Shadle JH. Is there empirical evidence for "defensive medicine"? A reassessment. *J Health Econ*. 2009;28:481-91.
8. Mello MM, Chandra A, Gawande AA, Studdert DM. "National Costs of the Medical Liability System, *Health Aff* (Millwood). 2010 Sep;29(9):1569-77.
9. Baicker K, Fisher ES, Chandra A. Malpractice liability costs and the practice of medicine in the Medicare program. *Health Aff* (Millwood). 2007;26(3):841-52.
10. Lakdawalla DN, Seabury SA. The welfare effects of medical malpractice liability. Cambridge (MA): National Bureau of Economic Research; 2009. (Working Paper No.: 15383).
11. Thomas JW, Ziller EC, Thayer DA. Low costs of defensive medicine, small savings from tort reform. *Health Aff* (Millwood). 2010 Sep;29(9):1578-84.
12. Paik, Myungho, Black, Bernard S., Hyman, David A. and Silver, Charles M. Will Tort Reform Bend the Cost Curve? Evidence from Texas. (May 9, 2012). *Journal of Empirical Legal Studies*, vol. 9, pp. 173-216 (2012).

EM EDUCATION SURVEY (P. 8)

Information Intoxication

1. Sadosty AT, Goyal DG, Gene Hern H Jr, et al. "Alternatives to the conference status quo: summary recommendations from the 2008 COD Academic Assembly Conference Alternatives Workgroup." *Academic Emergency Medicine*. 16.suppl 2. (2009): S25-31.
2. Reiter D, Lakoff D, Trueger, N, Shah K. "Individual Interactive Instruction: An Innovative Enhancement to Resident Education." *Annals of Emergency Medicine*. 61.1 (2013): 110-113.
3. Berger, E. "Web 2.0 in Emergency Medicine: Specialty Embracing the Future of Medical Communication." *Annals of Emergency Medicine*. 59.4 (2012): A21-A23

SOCIAL MEDICINE (P. 10)

Providing Compassionate Care

1. See, e.g., JA Gordon., The Hospital Emergency Department as a Social Welfare Institution. *Annals of Emergency Medicine* 33(3):321-25 (1999); see also DM Morris & JA Gordon., The Role of the Emergency Department in the Care of Homeless and Disadvantaged Populations. *Emergency Medical Clinics of North America* 24(4) 839-48 (2006); C Naughton et al., The Role of Health and Non-Health-Related Factors in Repeat Emergency Department Visits in an Elderly Urban Population. *Emergency Medicine Journal* 27(9) 683-7 (2010).
2. JA Gordon et al., Where Health and Welfare Meet: Social Deprivation Among Patients in the Emergency Department. *Journal of Urban Health: Bulletin of the New York Academy of Medicine* 78(1): 104-11 (2001).
3. *Id.*
4. See, e.g., BC Sun et al., Predictor and Outcomes of Frequent Emergency Department Users. *Academic Emergency Medicine* 10(4): 320-8 (2003); JM Pines & K Buford., Predictors of Frequent Emergency Department Utilization in Southeastern Pennsylvania. *Journal of Asthma* 43(3): 219-23 (2006).
5. MR Anderson et al., What is Social Medicine? *Monthly Review* 56(8): 34-49 (2005).
6. See, e.g., JT Cook et al., Are Food Security's Impacts Underestimated in the U.S. Population? Marginal Food Security Also Predicts Adverse Health Outcomes in Young U.S. Children and Mothers. *Advances in Nutrition* 4(1): 51-61 (2013).
7. See, e.g., M Rabiner & A Weiner., Health Care for Homeless and Unstably Housed: Overcoming Barriers. *Mt Sinai Journal of Medicine* 79(5): 586-92 (2012).
8. See, e.g., ST Syed et al., Traveling Towards Disease: Transportation Barriers to Health Care Access. *Journal of Community Health* published online March 31, 2013.
9. See, e.g., P Franks et al., Health Insurance and Mortality: Evidence from a National Cohort: *JAMA* 270(6): 737-41 (1993).
10. See, e.g., G Maslow et al., Protective Connections and Educational Attainment Among Young Adults with Childhood-Onset Chronic Illness. *Journal of School Health: 364-70* (2012).
11. See, e.g., MD Klein et al., Training in Social Determinants of Health in Primary Care: Does it Change Resident Behavior? *Academic Pediatrics* 11(5): 387-93 (2011)
12. See, e.g., Fenton., Health Care's Blind Side: The Overlooked Connection Between Social Needs and Good Health. Robert Wood Johnson Foundation (December 2011) (subsequently called RWJF).
13. See, e.g., JG Andren & U Rosenqvist., Heavy Users of an Emergency Department: Psycho-social and Medical Characteristics, Other Health Care Contacts, and the Effect

CRITICAL CARE (P. 24)

Pressure System

1. Rivers E, Nguyen HB, Havstad S, et al., "Early goal-directed therapy in the treatment of severe sepsis and septic shock," *N Engl J Med*, vol. 345, no. 19, pp. 1368-1377, 2001.
2. Dellinger RP, Levy MM, Carlet JM, et al., "Surviving Sepsis Campaign: International guidelines for management of severe sepsis and septic shock," *Crit Care Med*, vol 36, no 1, pp. 296-327, 2008.
3. Hughes RE, Magovern GJ, "The relationship between right atrial pressure and blood volume," *Arch Surg*, vol 79, p. 238, 1959.
4. Marik PE, Baram M, Wahid B, "Does Central Venous Pressure Predict Fluid Responsiveness? A Systematic Review of the Literature and the Tale of Seven Mares," *Chest*, vol. 134, pp. 172-178, 2008.
5. Brandstrup B, Tonnesen H, Beier-Holgersen R, et al., "Effects of intravenous fluid restriction on postoperative complications: comparison of two perioperative fluid regimens: a randomized assessor-blinded multicenter trial," *Ann Surg*, vol 238, pp. 641-648, 2003.
6. Vincent JL, Sakr Y, Sprung CL, et al., "Sepsis in European intensive care units: results of the SOAP study," *Crit Care Med*, vol. 34, pp. 344-353, 2006.
7. Bendjelid K, Romand JA, "Fluid Responsiveness in mechanically ventilated patients: a review of indices used in intensive care," *Intensive Care Med*, vol. 29, pp.352-360, 2003.
8. Napoli, A, "Physiologic and clinical principles behind noninvasive resuscitation techniques and cardiac output monitoring," *Cardiology Research and Practice*, vol. 2012, 2011.
9. Ognibene EP, Parker MM, Bacharach SL, et al., "Depressed left ventricular performance: response to volume infusion in patients with sepsis and septic shock," *Chest*, vol. 93, no. 5, pp. 903-910, 1988.
10. Marino PL, *The ICU Book*, Philadelphia: Lippincott Williams & Wilkins, pp. 182-182, 2007.

of a Hospital Social Worker Intervention. *Social Science & Medicine* 21(7) 761-70 (1985).

14. S Armour., Under Obamacare, Emergency Rooms May Get Even More Crowded. *Businessweek* May 30, 2013, available at <http://www.businessweek.com/printer/articles/121088-under-obamacare-emergency-rooms-may-get-even-more-crowded> (2013).
15. *Id.*
16. M Raven. How can we make Health Homes work for the Homeless? Lessons from NYC HHC's Chronic Illness Demonstration Project. Presentation at Supportive Housing Network of New York (Sept. 23, 2011).
17. LS Sadowski et al., Effect of a Housing & Case Management Program on Emergency Department Visits and Hospitalizations Among Chronically Ill Homeless Adults: A Randomized Trial. *JAMA* 301(17): 1771-78 (2009).
18. The unadjusted primary outcomes showed a non-statistically significant decrease in hospitalizations (-0.5 hospitalizations/person per year), hospitalized days (-2.7 hospital days/person per year) and ED visits (-1.2 ED visits/person per year).
19. TP Gilmer et al., A Cost Analysis of San Diego County's REACH Program for Homeless Persons. *Psychiatric Services* 60(4): 445-50 (2009).
20. D Srebnik et al., A Pilot Study of the Impact of Housing First-Supported Housing for Intensive Users of Medical Hospitalization and Sobering Services. *AJPH* 103 (2) 316-21.; ME Larimer et al., Health Care and Public Service Use and Costs Before and After Provision of Housing for Chronically Homeless Persons with Severe Alcohol Problems. *JAMA* 301(13) 1349-57 (2009).
21. TE Martinez & MR Burt., Impact of Permanent Supportive Housing on the Use of Acute Care Health Services by Homeless Adults. *Psychiatric Services* 57(7): 1-8 (2006).
22. A Anderson & KE Sherwood. Connecticut Supportive Housing Demonstration Program: Final Program Evaluation Report. Corporation for Supportive Housing New Haven, CT (May 2002).
23. D Cullhane et al., Public Service Reductions Associated with Placement of Homeless Persons with Severe Mental Illness in Supportive Housing. *Housing Policy Debates* 13(1): 107-63 (2003).
24. See, e.g., B Zuckerman et al., Why Pediatricians Need Lawyers to Keep Children Healthy. *Pediatrics* 114(1) 224-8 (2004); RWJF *supra* note 12.
25. C Kenyon et al., Revisiting the Social History for Child Health. *Pediatrics* 120(3): e734-8 (2007) (see table 1).
26. These questions were adapted from suggestions from Dr. Mark Richman, an ED physician at the Los Angeles County Olive View Hospital after a 2009 presentation about SEEL needs.
27. <http://www.healthheadsusa.org>
28. <http://www.medical-legalpartnership.org>
29. J Fahimi., Highland Health Advocates Program Announced. [highlandemergency.org, available at http://highlandemergency.org/news2/full_post/highland_health_advocates_program_announced](http://highlandemergency.org/news2/full_post/highland_health_advocates_program_announced).

MEDICAL STUDENT LIFE (P. 14)

Anxious for a Diagnosis

1. Cakmakli S, Cavusoglu T, Bumin C, Torun N. Post-thyroidectomy hypocalcemia: the role of calcitonin, parathormone and serum albumin. *Tokai J Exp Clin Med*. 1996 Jun;21(2):97-101. PubMed PMID: 9239811.
2. Tredici P, Grosso E, Gibelli B, Massaro MA, Arrigoni C, Tradati N. Identification of patients at high risk for hypocalcemia after total thyroidectomy. *Acta Otorinolaryngol Ital*. 2011 Jun; 31(3):144-8. PubMed PMID:22064813; *PubMed Central* PMID: PMC3185817.
3. Goltzman, D., M.D. (2008, September 24). Clinical manifestations of hypocalcemia. [uptodate. Retrieved from www.uptodate.com/contents/clinical-manifestations-of-hypocalcemia](http://www.uptodate.com/contents/clinical-manifestations-of-hypocalcemia)
4. Goltzman, D., M.D. (2011, November 17). Treatment of hypocalcemia. [uptodate. Retrieved from www.uptodate.com/contents/treatment-of-hypocalcemia](http://www.uptodate.com/contents/treatment-of-hypocalcemia).
5. Uruho T, Miyayachi A, Shimizu K, Tomoda C, Takamura Y, Ito Y, Miya A, Kobayashi K, Matsuzuka F, Amino N, Kuma K. A prophylactic infusion of calcium solution reduces the risk of symptomatic hypocalcemia in patients after total thyroidectomy. *World J Surg*. 2006 Mar; 30(3) :304-8. PubMed PMID:16479342.
6. Wang TS, Roman SA, Sosa JA. Postoperative calcium supplementation in patients undergoing thyroidectomy. *Curr Opin Oncol*. 2012 Jan; 24(1) :22-8. PubMed PMID:22080941.

VISUAL DIAGNOSIS (P. 37)

A Pain in the Back

1. Vella A, Nippoldt TB, Morris JC 3rd. Adrenal hemorrhage: a 25-year experience at the Mayo Clinic. *Mayo Clin Proc*. Feb 2001;76(2):161-8.

EM PEDIATRICS (P. 44)**Sound Diagnosis**

- Scholer SJ, Pituch K, Orr DP, et al. Clinical outcomes of children with acute abdominal pain. *Pediatrics*. 1996; 98(4 Pt 1):680.
- Bansal S, Banever GT, Karrer FM, et al. Appendicitis in children less than 5 years old: influence of age on presentation and outcome. *Am J Surg*. 2012;204(6):1031-5.
- Colvin JM, Bachur R, Kharbada A. The presentation of appendicitis in preadolescent children. *Pediatric Emergency Care*. 2007; 23(12):849-55.
- Nance ML, Adamson WT, Hedrick HL. Appendicitis in the young child: A continuing diagnostic challenge. *Pediatric Emergency Care*. 2000; 16 (3):160.
- Jahn H, Mathiesen FK, Neckelmann K, et al. Comparison of clinical judgment and diagnostic ultrasonography in the diagnosis of acute appendicitis: experience with a score-aided diagnosis. *Eur J Surg*. 1997; 163:433-443.
- Kaiser S, Mesas-Burgos C, Soderman E, et al. Appendicitis in children – impact of US and CT on the negative appendectomy rate. *Eur J Pediatr Surg*. 2004; 14:260-264.
- Pena BM, Taylor GA, Fishman SJ, et al. Effect of an imaging protocol on clinical outcomes among pediatric patients with appendicitis. *Pediatrics*. 2002; 110:1088-1093.
- Doria AS, Moineddin R, Kellenberger CJ, et al. US or CT for Diagnosis of Appendicitis in Children and Adults? A Meta-Analysis. *Radiology*. 2006;241(1):83.
- Brenner DJ, Elliston CD, Hall EJ, et al. Estimated risks of radiation-induced fatal cancer from pediatric CT. *Am J Roentgenol*. 2001; 176:289-296.
- Cogley JR, O'Connor SC, Houshyar R, et al. Emergent Pediatric US: What Every Radiologist Should Know. *RadioGraphics*. 2012; 32:651-665.
- Valesky W, Aponte E, et al. Focus on: ultrasound for appendicitis. ACEP Continuing Education. <http://www.acep.org/Continuing-Education-top-banner/Focus-On-Ultrasound-for-Appendicitis>
- Fox JC, Solley M, Anderson CL, et al. Prospective evaluation of emergency physician performed bedside ultrasound to detect acute appendicitis. *Eur J Emerg Med*. 2008;15(2):80-5.
- Israel GM, Malguria N, McCarthy S, et al. MRI vs. ultrasound for suspected appendicitis during pregnancy. *J Magn Reson Imaging*. 2008;28(2):428-33. Lee JH. Sonography of acute appendicitis. *Seminars in Ultrasound, CT, MRI*. 2003;24(2):83-90.

OB/GYN (P. 40)**Cool Thinking**

- Ross D et al. Selective loss and selective sparing of neurons in the thalamic reticular nucleus following human cardiac arrest. *J Cereb Blood Flow Metab* 1993;13:558-567.
- Yamaguchi S et al.: Neurochemical monitoring in the management of severe head-injured patients with hypothermia. *Neurol Res* 2000, 22:657-664.
- Steen PA et al. Hypothermia and barbiturates: individual and combined effects on canine cerebral oxygen consumption. *Anesthesiology*. 1983; 58:527-532.
- Bernard SA, Gray TW, Buist MD, et al. Treatment of comatose survivors of out-of-hospital cardiac arrest with induced hypothermia to improve neurologic outcome after cardiac arrest. *N Engl J Med*. 2002; 346:557-563.
- Shankaran S, Laptook AR, et al.: Whole-body hypothermia for neonates with hypoxic-ischemic encephalopathy. *N Engl J Med*. 2005 Oct 13;353(15):1574-84.
- Robert W. Neumar, et al. Part 8: Adult Advanced Cardiovascular Life Support. *Circulation*. 2010;122:S729-S767. 2010 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care.
- Department of Health, Welsh Office, Scottish Office Department of Health, Department of Health and Social Services, Northern Ireland. Why mothers die. Report on confidential enquiries into maternal deaths in the United Kingdom 2000-2002. London (UK): The Stationery Office; 2004.
- Therapeutic hypothermia after cardiac arrest: an advisory statement by the advanced life support task force of the International Liaison Committee on Resuscitation. *Circulation*. 2003;108(1):118-21.
- Wible EF, Kass JS, Lopez GA. A report of fetal demise during therapeutic hypothermia after cardiac arrest. *Neurocrit Care*. 2010;13(2):239-42.
- Rittenberger JC, Kelly E, Jang D, Greer K, Heffner A. Successful outcome utilizing hypothermia after cardiac arrest in pregnancy: a case report. *Crit Care Med*. 2008;36:1354-1356.

MEDICAL STUDENT LIFE (P. 18)**Making Every Word Count**

- Rhodes KV et al. "Resuscitating the physician-patient relationship: patient relationship: emergency department communication in an academic medical center." *Ann Emerg Med*. 2004 Sep; 44(3):262-7.
- Engel KG et al. "Patient understanding of emergency department discharge instructions: where are knowledge deficits greatest?" *Acad Emerg Med*. 2012 Sep; 19(9):E1035-44.

EM PEDIATRICS (P. 42)**Back to Basics**

- Carraccio C, Feinberg P, Hart LS, et al. Lidocaine for lumbar punctures: a help not a hindrance. *Arch Pediatr Adolesc Med*. 1996;150:1044.
- Porter F, Miller JP, Cole FS, Marshall R. A Controlled Clinical Trial of Local Anesthesia for Lumbar Puncture in Newborns. *Pediatrics* 1991;88:663-669.
- Pinheiro JM, Furdon S, Ochoa LF. Role of local anesthesia during lumbar puncture in neonates. *Pediatrics*. 1993;91:379-382.
- The use of pediatric sedation and analgesia. American College of Emergency Physicians. *Ann Emerg Med*. 2001
- The assessment and management of acute pain in infants, children, and adolescents. *Pediatrics*. 2001;108:793-797.
- Jimenez N, Bradford H, Seidel KD, Sousa M, Lynn AM. A comparison of a needle-free injection system for local anesthesia versus EMLA for intravenous catheter insertion in the pediatric patient. *Anesth Analg*. 2006 Feb;102:411-4.
- Spanos S, Booth R, Koenig H, Sikes K, Gracely E, Kim IK. Jet Injection of 1% buffered lidocaine versus topical ELA-Max for anesthesia before peripheral intravenous catheterization in children: a randomized controlled trial. *Pediatr Emerg Care*. 2008 Aug;24:511-5.
- Ferayorni A, Yniguez R, Bryson M, Bulloch B. Needle-free jet injection of lidocaine for local anesthesia during lumbar puncture: a randomized controlled trial. *Pediatr Emerg Care*. 2012 Jul;28:687-90.
- Abo A, Chen L, Johnston M, Santuccu. Positioning for Lumbar Puncture in Children Evaluated by Bedside Ultrasound. *Pediatrics*. 2010;125:e1149-53
- Baxter AL, Fisher RG, Burke BL, et al. Local Anesthetic and Stylet Styles: Factors associated with Resident Lumbar Puncture Success. *Pediatrics*. 2006;117:1870
- Linder N, Davidovitch N, Reichman B, Kuint J, Lubin D, Meyerovitch J, et al. Topical iodine-containing antiseptics and subclinical hypothyroidism in preterm infants. *J Pediatrics* 1997;131:434-9.
- Chabrolle JP, Rossier A. Goitre and hypothyroidism in the newborn after cutaneous absorption of iodine. *Arch Dis Child* 1978;53:495e8.

CASE REPORT (P. 20)**Thinking Outside the Belly**

- Shimodaira, Masanori, et al. An oblique muscle hematoma as a rare cause of severe abdominal pain. *BMC Res Notes*. 2013; 6: 18
- Cherry, WB et al. Rectus sheath hematoma: review of 126 cases at a single institution. *Medicine (Baltimore)*. 2006 March; 85(2): 105-10
- Tseng, GS et al. Expanding refractory rectus sheath hematoma: a therapeutic dilemma. *Diagn Interv Radiol*. 2012; 18(1): 139-41.
- Dellaportas, D, et al. Ateriovenous malformation: An unusual cause of rectus sheath hematoma, following laparoscopic cholecystectomy. *Int J Surg Case Rep*. 2011; 2(5): 79-81.
- McBeth, Paul B. et al. Correct the Coagulopathy and Scoop It Out: Complete Reversal of Anuric Renal Failure through the Operative Decompression of Extraperitoneal Hematoma-Induced Abdominal Compartment Syndrome. *Case Rep Med*. 2012; 946103
- Alla, Venkata et al. Spontaneous Rectus Sheath Hematoma. *West J Emerg Med*. 2010 February; 11(1): 76-79
- Shaw, Aidan et al. Rectus sheath haematoma or leaking aortic aneurysm – a diagnostic challenge: a case report. *J Med Case Reports*. 2009; 3:97

CRITICAL CARE (P. 32)**Play by Play with the Expert**

- Jaff MR, McMurtry MS, Archer SL, et al. Management of massive and submassive pulmonary embolism, iliofemoral deep vein thrombosis, and chronic thromboembolic pulmonary hypertension; *Circulation*, 2011;123:1788-1830.
- Marx JA, Hockberger RS, Walls RM. section on Pulmonary Embolism, Rosen's Emergency Medicine: Concepts and Clinical Practice; 2010;1127-1136.
- Marino, PL. section on Principles of Mechanical Ventilation, *The ICU Book, 3rd ed*, 2006:421-433.
- Torbicki A, Perrier A, Konstantinides S et al. Guidelines on the diagnosis and management of acute pulmonary embolism: the task force for the diagnosis and management of acute pulmonary embolism of the European Society of Cardiology (ESC). *Eur Heart J* 2008;29:2276-315.

EDUCATION (P. 6)**The Hot Seat**

- Burkhardt J, Kowalenko T, Meurer W. Academic career selection in American emergency medicine residents. *Acad Emerg Med*. 2011 Oct;18 Suppl 2:S48-53. doi: 10.1111/j.1553-2712.2011.01181.x.

HEALTH POLICY (P. 31)**What's Right for Patients & EDs?**

- Martin, A. B., Lassman, D., Washington, B., Catlin, A., & the National Health Expenditure Accounts Team. (2012). Growth in US health spending remained slow 2010; Health share of Gross Domestic Product was unchanged from 2009. *Health Affairs*, 31(1), 208-219.
- Pitts, S. R., Carrier, E. R., Rich, E. C., & Kellermann, A. L. (2010). Where Americans get acute care: increasingly, it's not at their doctor's office.
- Schuur, J. D., & Venkatesh, A. K. (2012). The growing role of emergency departments in hospital admissions. *N Engl J Med*, 367(5), 391-393. doi: 10.1056/NEJMp1204431
- Morganti, KG, et al (2013). *The Evolving Role of Emergency Departments in the United States*. Retrieved July 10, 2013, from the RAND Corporation web site: http://www.rand.org/content/dam/rand/pubs/research_reports/RR200/RR280/RAND_RR280.pdf
- Stranges, E., Kowlessar, N., Elixhauser, A., (2011). Components of Growth in Inpatient Hospital Costs, 1997-2009 (Vol. Statistical Brief #123): Agency for Healthcare Research and Quality (AHRQ)
- Venkatesh, A. K., Geisler, B. P., Gibson Chambers, J. J., Baugh, C. W., Bohan, J. S., & Schuur, J. D. (2011). Use of observation care in US emergency departments, 2001 to 2008. *PLoS One*, 6(9), e24326. doi: 10.1371/journal.pone.0024326/PONE-D-11-13459 [pii]

ULTRASOUND (P. 38)**Rushing for a Diagnosis**

- Weingart SD, Duque D, Nelson B. Rapid ultrasound for shock and hypotension (RUSH-HIMAPP). 2009; <http://emedhome.com>.
- Perera P, Mailhot T, Riley D, Mandavia D. The RUSH exam: rapid ultrasound in shock in the evaluation of the critically ill. *Emergency Medicine Clinics of North America*. 2010; 28(1): 29-56.
- Seif D, Perera P, Mailhot T, Riley D, Mandavia D. Bedside ultrasound in resuscitation and the rapid ultrasound in shock protocol. *Crit Care Res Pract*. 2012; doi: 10.1155/2012/503254.
- Moore CL, Rose GA, Tayal VS, et al. Determination of left ventricular function by emergency physician echocardiography of hypotensive patients. *Academic Emergency Medicine*. 2002; 9(3): 189-193.
- Liteplo A, Noble V, Atkinson P. My patient has no blood pressure: point of care ultrasound in the hypotensive patient-FAST and RELIABLE. *Ultrasound*. 2012; 20: 64-68.

VISUAL DIAGNOSIS (P. 36)**Spotting STDs**

- Centers for Disease Control and Prevention (CDC). Syphilis – CDC Fact Sheet. <http://www.cdc.gov/std/syphilis/STDFact-Syphilis.htm>
- Centers for Disease Control and Prevention (CDC). Syphilis Profiles, 2011. <http://www.cdc.gov/std/syphilis2011/default.htm>
- Centers for Disease Control and Prevention (CDC). Sexually transmitted diseases treatment guidelines, 2010. <http://www.cdc.gov/std/treatment/2010/genital-ulcers.htm>
- Brown DL, Frank JE. Diagnosis and management of syphilis. *American Family Physician* 2003; 68 (2): 283-290.

CRITICAL CARE (P. 34)**Flow Failure**

- Bonow RO, Carabello BA, Chatterjee K, et al. 2008 Focused update incorporated into the ACC/AHA 2006 guidelines for the management of patients with valvular heart disease: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (Writing Committee to revise the 1998 Guidelines for the Management of Patients with Valvular Heart Disease): endorsed by the Society of Cardiovascular Anesthesiologists, Society for Cardiovascular Angiography and Interventions, and Society of Thoracic Surgeons. *Circulation*, 2008. 118(15):e523-661.
- Aksoy O, O'Brien BL, Menon V. Options for managing severe aortic stenosis: a case-based review. *Cleve Clin J Med*, 2013. 80(4):243-52
- Carabello BA, Paulus WJ. Aortic Stenosis. *Lancet*, 2009. 373(9667):956-66.
- Carabello BA. George Ohm and the changing character of aortic stenosis: it's not your grandfather's oldsmobile. *Circulation*, 2012. 125:2295-2297.
- Khot UN, Novao GM, Propovic ZB, et al. Nitroprusside in critically ill patients with left ventricular dysfunction and aortic stenosis. *N Engl J Med*, 2003. 348(18):1756-1763.
- Popovic ZB, Khot UN, Novaro GM, et al. Effects of sodium nitroprusside in aortic stenosis associated with severe heart failure: pressure-volume loop analysis using a numerical model. *Am J Physiol Heart Circ Physiol*, 2005. 288(1):H416-23.



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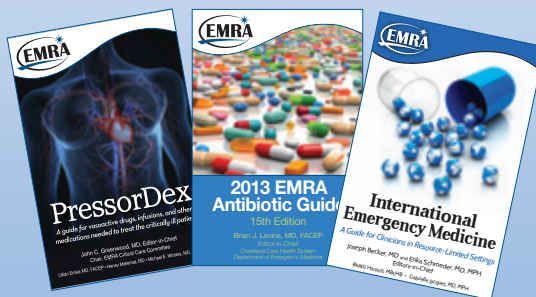
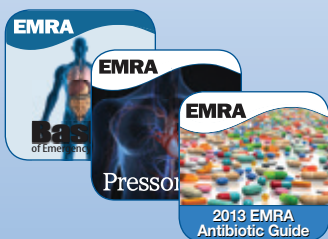
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- * **Web graphics are unacceptable** (resolution is too low) and will be discarded.
- * EMRA is available to assist in the production of your advertisement.

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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Exciting Academic Opportunity

FACULTY

The Baylor College of Medicine, a top medical school, has recently developed an Emergency Medicine Program & Residency in the world's largest medical center. We are recruiting stellar Emergency Medicine BC/BP Clinician Educators and Clinician Researchers at all academic ranks who will be an integral part of building the future of Emergency Medicine at BCM. We offer a highly competitive academic salary and benefits.

The program is based out of Ben Taub General Hospital, a busy Level 1 trauma center in the heart of Houston that sees more than 100,000 emergency visits per year. BCM is affiliated with eight world class hospitals and clinics in the renowned Texas Medical Center. These affiliations, along with the medical school's preeminence in research, help to create one of the strongest emergency medicine programs/experiences in the country.

FELLOWSHIPS

The program also recruits annually for the following fellowship programs: Ultrasound, Global Health, Emergency Medical Services/ Disaster Services, and Administration.

Those interested in a position or further information may contact Dr. Hoxhaj via email hoxhaj@bcm.edu or by phone at 713-873-2626.



and outdoor adventure. Contact Daryl LaRusso, MD, MPH, FACEP, phone (304-264-1287 x31701), e-mail (dlarusso2@wvuhealthcare.com)

ARIZONA

Casa Grande: EMP has excellent opportunities in Arizona and with Casa Grande Regional Medical Center. The hospital has an annual volume of 37,000 emergency patients and offers excellent services and back up including 24-hour hospitalists. A multi-million dollar ED expansion is planned to increase the department to 32 beds. Casa Grande is located just south of Phoenix and north of Tucson. Beautiful weather year round, unlimited outdoor activities and major metro areas a short distance away make this an ideal setting. Excellent compensation and benefits are available. For more information please contact Bernhard Beltran directly at 800-359-9117 or email: bbeltran@emp.com.

Cottonwood and Sedona: EMP has outstanding opportunities in Arizona with Verde Valley Medical Center in Cottonwood and Sedona. These state-of-the-art facilities see approximately 23,000 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. Full-time/partnership opportunities are available for Emergency Medicine residency-trained and Board-Certified Physicians. EMP offers democratic governance, open books and bonus plus shareholder status. Compensation package includes comprehensive benefits with funded pension (up to \$33,500/yr.), CME account (\$8,000/yr.), and more. Contact Bernhard Beltran directly at 800-359-9117 or email: bbeltran@emp.com.

Phoenix: New hospital opening spring 2014 in the appealing suburb of Glendale. Premier Physician Services is an equity-ownership where physicians share in both the profits and the decisions. Our mid-sized group offers the appeal of independent groups without sacrificing the financial stability of larger groups. Excellent package includes family medical plan, employer-funded pension, expense account, shareholder status with no buy-in and more. For additional information, contact Rachel Klockow, (800) 406-8118, rklockow@premierdocs.com.

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CALIFORNIA

Madera: Excellent compensation package — Children’s Hospital Central California: Full time opportunities for Pediatric Emergency Medicine Physicians. Join an outstanding team of fellowship trained/board certified pediatric emergency medicine physicians. Children’s Hospital Central California sees over 90,000 pediatric ED pts./yr. with excellent back up, PICU, and in-house intensivists coverage. The ED physicians also staff the hospital-wide sedation service. The compensation package includes comprehensive benefits with funded pension (up to \$33,500 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.

Southern California, Rancho Mirage: Emergency Medicine — Excellent compensation with full-time/partnership opportunities. Eisenhower Medical Center is a modern hospital with a state-of-the-art 42-bed Emergency Department and an annual volume of 67,000 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 a competitive hourly rate, plus democratic governance, open books, and excellent compensation/bonus, plus shareholder status. Compensation package includes comprehensive benefits with funded pension (up to \$33,500/yr.), CME account (\$8,000/yr.) and more. Contact Bernhard Beltran directly at 800-359-9117 or email: bbeltran@emp.com.

San Francisco: Located in the heart of San Francisco’s Chinatown, Chinese Hospital has served the diverse

healthcare needs of this community since 1924. Although the volume of emergency patient visits is low (6,000 per year), the acuity is high with a wide spectrum of interesting and complex medical cases. ED shifts are 12 hours in length and provide for a high quality of life through manageable work. EMP is a stable, democratic, wholly-physician owned group that offers true career opportunity and outstanding benefits. We currently have sites in 15 states and maintain progressive management with our primary commitment to patient care. Compensation includes some of the best benefits in emergency medicine and profit sharing. For more information please contact Bernhard Beltran directly 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 58,000 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 51,000 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.



Atlantic Coast/East Central (Daytona Beach Area) Florida: Seeking Residency-Trained EM Physicians for desirable beachside Central Florida coastal area. Join our fully democratic

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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 900+ 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

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ILLINOIS

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EMP manages EDs at several community teaching hospitals seeing 31,000 – 70,000 pts./yr. with trauma center designations and EM residency teaching options. Positions are currently available at Franciscan St. James Health (2 campuses seeing 35,000 and 42,000 pts./yr.), Presence Saint Joseph Medical Center (70,000 pts./yr.) and Presence St. Mary's Hospital (31,000 pts./yr.). 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.

MICHIGAN

Grand Blanc: Genesys Regional Medical Center is located 45 minutes north of metro-Detroit and minutes from a number of desirable residential areas. Genesys hosts both allopathic and osteopathic emergency medicine residency programs and sees 65,000 emergency pts./yr. We are an exclusively physician owned/managed group with open books, equal voting, equal profit sharing, equity ownership, funded pension, amazing 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.

MISSISSIPPI



Various Cities: HPP was recently awarded a number of EM contracts in Mississippi in addition to our existing partnerships. As a result, we have immediate Full and Part Time Emergency Physician opportunities in Biloxi, Jackson, Brandon, Amory, Canton, Natchez, Clarksdale, Batesville, Columbus, Booneville and Oxford. Our facilities offer diverse patient populations and ED volume ranges from 16K – 59K+. Enjoy hourly pay rates in the \$170-

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\$240 range along with relocation and sign-on bonuses! Must be BC/BP in EM. What's Important To You... Is What Matters To Us!® Excellent compensation, free & discounted CME, paid malpractice with tail and flexible scheduling. Contact Christina Plain: (800) 815-8377 ext. 5295; email cplain@hppartners.com or visit www.hppartners.com.

NEBRASKA

Omaha: BP/BC EM physician sought for 2014 opening with stable group. Enjoy the exceptional benefits of working within a regional group with a very appealing model. Premier Physician Services is an equity-ownership where physicians share in both the profits and the decisions. Our mid-sized group offers the flexibility and access of independent groups without sacrificing the financial stability of larger groups. Premier's excellent package includes guaranteed rate plus family medical, employer-funded pension, expense account, incentive and shareholder status with no buy-in. As Nebraska's largest city and a leader on "top cities to live in" lists, Omaha provides both metropolitan amenities and Midwestern charm. Home to several Fortune 500 companies, Omaha offers the U.S.'s largest community theatre, 11 colleges and universities and a world famous zoo. With its rich jazz history and reputation as the heart of the Midwest, there is also great cultural appeal. Contact Rachel Klockow, (800) 406-8118, rklockow@premierdocs.com.

NEW HAMPSHIRE



Exeter: EMP is pleased to announce our newest hospital partner – Exeter Hospital. Located less than an hour from Boston, this facility has 100 beds and provides a broad range of

services with a medical staff of 200, treating 35,000 emergency patients annually and making up a broad mix of pathology. Outstanding partnership opportunity includes performance pay, equal equity ownership, funded pension, open books, comprehensive benefits and more. Contact Ann Benson (careers@emp.com), Emergency Medicine Physicians, 4535 Dressler Rd. NW, Canton, OH 44718, 800-828-0898 or fax 330-493-8677.

NEW JERSEY

Residents looking for academic opportunity in great location in New Jersey will want to contact us about staff positions in this Level I Trauma Center. This excellent hospital has a residency and fellowship program & volume of 70,000 annual patient visits. There is a separate Pediatric ED and toxicology service. In addition to clinical services you will teach residents/PAs/medical students as well as do research. This is an excellent opportunity with an Affirmative Action/Equal Opportunity employer that offers great benefits and a very competitive compensation package. For full details, contact Daniel Stern at Daniel Stern & Associates 800-438-2476 or sternd@danielstern.com.

NEW MEXICO



Albuquerque: Come earn \$170-\$250 per hour at "One of the Best Places to Work in Healthcare." Emergency Physician opportunities are available at the Lovelace Health System in beautiful Albuquerque. Three Hospital System with ED volumes ranging from 3K-34K. These are long term, stable contracts with a strong leadership team. Must be BC/BP in EM with EM Residency Required. Enjoy flexible scheduling, paid malpractice with tail and free & discounted CME. Contact

Nicole Pletan: (877) 278-2056; email npletan@hppartners.com or visit www.hppartners.com.

NEW YORK

Long Island, Albany and Cortland: Brookhaven Memorial Hospital Medical Center is in Patchogue on the southern shore of Long Island and sees 72,000 ED pts/yr. Cortland Regional Medical Center is a modern, full-service facility situated in the Finger Lakes Region between Syracuse and Ithaca (33,000 ED pts/yr). Albany Memorial Hospital has a new ED (46,000 pts/yr) and hosts EM resident rotations, while Samaritan Hospital in Troy is a respected community hospital minutes from Albany seeing 46,000 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.

NORTH CAROLINA

Charlotte: EMP is partnered with eight community hospitals and free-standing EDs in Charlotte, Gastonia, Lincolnton, Pineville and Statesville. A variety of opportunities are available in urban, suburban and smaller town settings with EDs seeing 12,000 – 95,000 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.

Charlotte area: CaroMont Regional Medical Center is situated just west of Charlotte in Gastonia. This modern, full-service facility sees 95,000



FACULTY POSITION

University Physician Associates, the physician group practice for the **University of Missouri-Kansas City School of Medicine**, is recruiting for faculty at the Assistant Professor or Associate Professor level in the Department of Emergency Medicine at Truman Medical Center. Candidates must be residency-trained, board-certified/board-prepared emergency physicians. All candidates considered, but preference will be given to candidates with Ultrasound, EMS or Research expertise or interest. The department supports a fully-accredited three-year residency, with 10 residents per year, one of the nation's oldest (founded in 1973.) The Truman Medical Center ED has an annual volume of 67,000 patients and is a modern, state-of-the-art facility with 48 beds. Kansas City offers an attractive lifestyle with low cost-of-living and affordable housing, renowned suburbs with top-ranked schools, and numerous outdoor activities.

Interested candidates should e-mail a letter of interest and CV in confidence to:

Matthew Gratton, MD
Professor and Chair
Department of Emergency Medicine
2301 Holmes Street
Kansas City, Missouri 64108
matthew.gratton@tmcmed.org
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emergency pts./yr. and is a Level III Trauma Center. 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.

New Bern: Respected 313-bed regional medical center located at the intersection of the Trent and Neuse Rivers just off the central coast, 73,000 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: New Hospital Opens Soon! Mercy West, a 250-bed hospital will be opening in 2013 with an anticipated ED volume of 50,000-60,000. Located in the western suburbs, this will be a state-of-the-art facility with great opportunities for BP/BC EM physicians. Premier Physician Services provides an outstanding model offering equity-ownership at one year with no buy-in; giving you a voice and ownership in your company. Excellent package includes guaranteed rate plus additional incentives, family medical plan, employer-funded pension, CME/expense account and additional benefits. For additional information contact Kim Rooney (800) 726-3627, ext 3674, e-mail krooney@premierdocs.com, fax (937) 312-3675.

Columbus: Choose from two very appealing Columbus locations. Grady Memorial Hospital and Memorial Union Hospital are located in the north Columbus suburbs of Delaware and Marysville. Volumes are 27,000 and 21,000 with MLP support. Both opportunities offer physicians the exceptional benefits of working within a regional group with a very appealing model. Premier Physician Services is an equity-ownership where physicians share in both the profits and the decisions. Our mid-sized group offers the flexibility and access of independent groups without sacrificing the financial stability of larger groups. Package includes great benefits including family medical plan, employer-funded pension, CME/expense account, and shareholder status in one year with no buy-in. For additional information contact Amy Spegal, Premier Physician Services, (800) 726-3627, ext 3682, e-mail aspegal@premierdocs.com, fax (937) 312-3683.

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MedExcel USA, Inc. MedExcel USA, Inc. is a regional Emergency Medicine, Urgent Care and Hospitalist Management Service Organization that has openings for EM physicians and residents looking to practice in New York state. From low volume EDs to state-of-the-art urban trauma centers, MedExcel USA, Inc. provides physicians with a wide variety of practice settings. We have been recognized for our programs designed to improve patient flow and offer a quality driven, physician friendly environment with unparalleled career opportunities and professional development.

MedExcel USA, Inc. offers a compensation package that includes an extremely competitive hourly rate, modified RVU bonus system, profit sharing and occurrence malpractice.



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Concord, Madison and Willoughby:

Lake Health is situated in the eastern Cleveland Suburbs. TriPoint Medical Center was built in 2009 and treats 31,000 emergency pts./yr. The Madison Medical Campus hosts a freestanding ED seeing 12,000 pts./yr. West Medical Center is a state-of-the-art acute care hospital serving 37,000 ED pts./yr. Outstanding partnership opportunity includes weekend shift differential, 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.

Dayton: Enjoy the advantage of working within an EM group offering a voice, a financial share, and the opportunity to make a difference in your company. Premier Physician Services offers the stability of a guaranteed package,

along with the reward of equity-ownership. Very appealing model offers shareholder status at one year with no buy-in; an excellent package with guaranteed rate, additional incentive, family medical plan, employer-funded pension, malpractice, expense account & additional benefits. Premier also offers the opportunity to elect alternate options and receive additional compensation. This is a 40,000 volume ED in a north Dayton suburb with 9-hour shifts, collegial environment and an outstanding physical plant. For additional information contact Greg Felder, Premier Physician Services, (800) 726-3627, ext 3670, e-mail gfelder@premierdocs.com, fax CV (937) 312-3671.

Medina and Wadsworth: Combined two-site position at a brand new free-standing ED (~7,000 pts/yr) and established community hospital (19,000 pts/yr). Nice communities are near Akron and the area's most

desirable residential communities. 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.

Parma: Parma Community General Hospital is situated in the SW Cleveland suburbs. State-of-the-art physical plant and equipment serve 47,000 patients per year. Outstanding partnership opportunity includes weekend shift differential, 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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Emergency Physicians OF ST. LOUIS

St. Louis – Emergency Physicians of St. Louis is a young private democratic group made up of EM BC/BP physicians seeking to bring another full-time physician into our group. St. Louis is a vibrant city with an affordable cost of living, easy access to outdoor activities and ideal for raising a family. Candidate must be ABEM/AOBEM BC/BP.

We value a balanced life and an equitable practice and have created a company that espouses these principles. Our group staffs a 43 bed emergency department that sees about 55k adults yearly and has moderate/high acuity. There is superb coverage including 12-36 hours of midlevel staffing daily. We also employ scribes. Compensation is excellent including health/dental/disability insurance, 401k with Safe Harbor Match/Profit Sharing and a one-year partnership track. Total Compensation package averages around \$350K and our contract is for 132 hours a month!!!

Please contact for further information

Mag Greig, Practice Manager

816-550-0003

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The Department of Emergency Medicine at the University of Texas Health Science Center in San Antonio is recruiting for highly qualified full-time or part-time residency trained academic Emergency Medicine Physicians. Optimal candidates will have an established track record of peer-reviewed research, excellence in education and outstanding clinical service.

University Hospital, the primary affiliated teaching hospital of the University of Texas Health Science Center at San Antonio, is a 498 bed, Level 1 trauma center which treats 70,000 emergency patients annually. The University Hospital Emergency Department serves as the primary source for uncompensated and indigent care as well as the major regional tertiary referral center with a focus on transplant, neurologic, cardiac, diabetes and cancer care. A new, state of the art Emergency Department with 80 beds will open in early 2014.

The successful candidate will join a diverse, enthusiastic group of academic Emergency Physicians committed to creating the premiere Emergency Medicine residency program and academic department in Texas. Our initial class of Emergency Medicine residents started July 2013. Academic Emergency Physicians with expertise in EMS, Ultrasound, Toxicology, and multiple dual-board certified EM/IM physicians currently round out the faculty.

The University of Texas Health Science Center at San Antonio offers a highly competitive salary, comprehensive insurance package, and generous retirement plan. Academic appointment and salary will be commensurate with experience. Candidates are invited to send their curriculum vitae to: Bruce Adams, M.D., FACEP, Professor and Chair, Department of Emergency Medicine, 7703 Floyd Curl Drive, MC 7840, San Antonio, TX 78229-3900. Email: adamsb@uthscsa.edu. All faculty appointments are designated as security sensitive positions. The University of Texas Health Science Center at San Antonio is an Equal Employment Opportunity / Affirmative Action Employer.

<http://emergencymedicine.uthscsa.edu>

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- Nationally Recognized Centers of Excellence: Rochester Hearst Institute, Lipson Cancer Center, Orthopaedics, Women's Health, Primary Care, Surgical Services and Behavioral Health– Delta Group 2012
- Nurse Magnet Destination

About Rochester, NY: Located on the shores of Lake Ontario, Rochester is ranked by Forbes as the fourth most affordable U.S. city and the # 3 metro region nationwide for raising a family. The Rochester area is home to 15 of the country's finest colleges and universities, and public school districts with high schools ranked among the best in America.

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Springfield: EMP is pleased to announce one of our newest sites – Springfield Regional Medical Center. The area's only full-service hospital, Springfield Regional is situated 45 miles west of Columbus and 25 miles northeast of Dayton, with 75,000 emergency patients treated annually. 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.

Toledo: This Level III facility has an annual volume of 42,000 visits with outstanding physician coverage plus PA coverage. Premier Physician

Services is seeking an EM Physician sharing our commitment first to quality patient care and excellence. In return we offer superb financial and professional opportunity with the opportunity to participate fully in the decisions and financial rewards of the practice. Maximize your earnings and establish your future with productivity based compensation plus shareholder opportunity at one year with no buy-in. A very appealing benefit package including family medical plan, employer-funded pension, malpractice, expense account & additional benefits is also provided. Contact Amy Spegal, Premier Physician Services, (800) 726-3627, ext. 3682, e-mail aspegal@premierdocs.com, fax: (937) 312-3683.

Toledo: ED Physician opportunity in suburban Toledo college town. This 26,000 volume ED has excellent coverage including resident and MLP support. It also offers physicians the exceptional benefits of working within a regional group with a very appealing model. Premier Physician Services is an equity-ownership where physicians share in both the profits and the decisions. Our mid-sized group offers the flexibility and access of independent groups without sacrificing the financial stability of larger groups. Premier's excellent package includes guaranteed rate plus RVU & incentives; family medical plan, employer-funded pension, expense account and shareholder status with no buy-in. You may also elect alternate options and receive additional compensation. Premier gives you the



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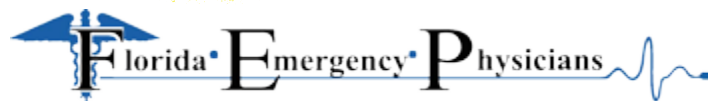
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opportunity to make the most of today without sacrificing tomorrow. Contact Amy Spegal, (800) 726-3627, ext 3682, aspegal@premierdocs.com, fax (937) 312-3683.

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

OKLAHOMA

Tulsa: Modern 971-bed regional tertiary care center sees 91,000 ED patients per year. Broad pathology, high acuity, modern facilities and supportive environment. Outstanding partnership opportunity includes equal profit sharing, equity ownership, funded pension, open books, full benefits and more. Contact Ann Benson (careers@emp.com), Emergency Medicine Physicians, 4535 Dressler Rd. NW, Canton, OH 44718, 800-828-0898 or fax 330-493-8677.

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: EMP is pleased to announce one of our newest sites – Jameson Hospital. This respected facility is situated between Pittsburgh, PA and Youngstown, OH with easy access to the amenities and residential options of each. Recent major renovation includes a new ED with 30 private rooms; 36,000 emergency



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Ochsner Health System in New Orleans is seeking additional residency trained and board-eligible/certified **EMERGENCY MEDICINE PHYSICIANS** to join our expanding multi-hospital 40-physician department.

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

Pittsburgh: Allegheny Valley Hospital in Natrona Heights boasts a brand new ED seeing 37,000 emergency pts./yr. Forbes Regional Hospital is a respected facility in Monroeville seeing 38,000 ED pts/yr. Both sites are proximate to Pittsburgh's most desirable residential communities; areas afford easy access to abundant outdoor recreation and nationally ranked schools. 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.

Sharon: Sharon Regional Health System has an extremely supportive administration/medical staff, newer ED, and full service capabilities making this a great place to work with 38,000 patients treated annually. Small city setting offers beautiful housing and abundant recreation less than an hour from Pittsburgh and Cleveland. Outstanding partnership opportunity includes equal profit sharing, equity ownership, funded pension, open books, full benefits and more. Contact Ann Benson ([\[emp.com\]\(mailto:careers@emp.com\)\), Emergency Medicine Physicians, 4535 Dressler Rd. NW, Canton, OH 44718, 800-828-0898 or fax 330-493-8677.](mailto:careers@</p></div><div data-bbox=)



York: "People love working here!" That's what providers say at Memorial Hospital, named one of 'PA's Best Places to Work' 11 years in a row. Dynamic physicians and Medical Director sought for this 100-bed, 43K volume ED teaching facility in south-central PA. With a brand new hospital opening in 2015 and a great clinical and administrative support team, it's a great time to be on board. Candidates must be ABEM or AOBEM with a completed residency. HPP offers a family-feel culture and is physician-led by actively practicing clinicians



Palmetto Emergency Physicians

Pawleys Island, South Carolina: Live and work on the beautiful Carolina coast. Home to great beaches, boating, golf, fishing, and hunting. One hour north of Charleston, 1/2 hour south of Myrtle Beach. Position available for a BE/BC physician to join a democratic group covering two community hospitals. Annual combined volume greater than 55k, state-of-the-art departments. Competitive salary. Great lifestyle!

Contact info:

William Richmond, MD, FACEP 86 Shorebird Loop, Pawleys Island, SC 29585
wrichmond@sc.rr.com (843) 424-3550 www.palmettoemergencyphysicians.com



Emergency Physicians of Tidewater (EPT) is a democratic group of BC/BP (only) EM physicians serving 7 EDs in the Norfolk/VA Beach area for the past 40+ years. We provide coverage to 5 hospitals and 2 free-standing EDs. Facilities range from a Level 1 Trauma, tertiary care referral center to a rural hospital ED. Members serve as faculty for an EM residency and 2 fellowships. All facilities have EMR, PACS, and we utilize MPs. Great opportunities for involvement in ED Administration, EMS, US, Hyperbarics and medical student education. Very competitive financial package leading to full partnership/profit sharing. Outstanding, affordable coastal area to work, live, and play. Visit www.ept911.com to learn more.

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

VIRGINIA

Peninsula Emergency Physicians (PEP) – Well-established democratic 17-physician group located in Hampton and Newport News, Virginia is seeking to add BC/BP physician. The group staffs a state-of-the-art 210 bed hospital and a freestanding emergency department with combined patient volume of 110,000. Partnership track with no hidden costs, equitable scheduling with 8-9 hour shifts, robust subspecialty coverage, strong midlevel program, scribes, and affordable coastal living make this a great career and lifestyle opportunity. Generous package includes competitive hourly rate, maximum allowable retirement plan, excellent malpractice coverage with tail, and opportunity for equal partnership with profit sharing. A great chance to join a stable, equitably owned democratic group. Visit us at www.pepmds.com to learn more. Contact Dr. Chris Baker at 757-599-4922 or physician@pephome.com.

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Liberatoreh@comcast.net or Cascade Emergency Associates. PO Box 2404, Longview, WA 98632.

WEST VIRGINIA

Charleston: BP/BC EM physician opportunity within EM Residency at three-hospital system with 100,000 annual visits. In addition to Emergency Medicine, there are numerous residencies and student rotations. It also offers physicians the exceptional benefits of working within a regional group with a very appealing model. Premier Physician Services is an equity-ownership where physicians share in both the profits and the decisions. Our mid-sized group offers the flexibility and access of independent groups without sacrificing the financial stability of larger groups. Excellent package includes guaranteed rate plus RVU, incentives; family medical,

employer-funded pension, expense account and shareholder status with no buy-in. Charleston offers both metropolitan amenities and easy access to outstanding outdoor recreation. Contact Rachel Klockow, (800) 406-8118, rklockow@premierdocs.com.

Huntington: Equity ownership group has a very appealing opportunity in newer ED with a patient volume of 73,000 annual visits. This Level II facility has 70 hours of physician coverage, plus 48 MLP hours daily; and 60 hours scribe coverage. An outstanding package is offered including guaranteed hourly plus RVU, family medical plan, malpractice, employer-funded pension, additional incentive income, shareholder opportunity at one year with no buy-in, plus additional benefits. Located 45 minutes from Charleston on the Ohio River, Huntington is home to Marshall

University. For additional information, please contact Rachel Klockow, Premier Physician Services, (800) 406-8118; e-mail rklockow@premierdocs.com; or fax CV to (954) 986-8820.

Wheeling: Ohio Valley Medical Center is a 250-bed community teaching hospital with a brand new-ED under construction. AOA approved Osteopathic EM and EM/IM residency program. Enjoy teaching opportunities, full-specialty back up, active EMS, and two campuses seeing 29,000 and 22,000 pts./yr. Outstanding partnership opportunity includes performance pay, equal equity ownership, funded pension, open books, comprehensive benefits and more. Contact Ann Benson (careers@emp.com), Emergency Medicine Physicians, 4535 Dressler Rd. NW, Canton, OH 44718, 800-828-0898 or fax 330-493-8677.



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Please send a communication of intent to
Thomas Terndrup, MD, Professor and Chair
Thomas.terndrup@osumc.edu
 Department of Emergency Medicine
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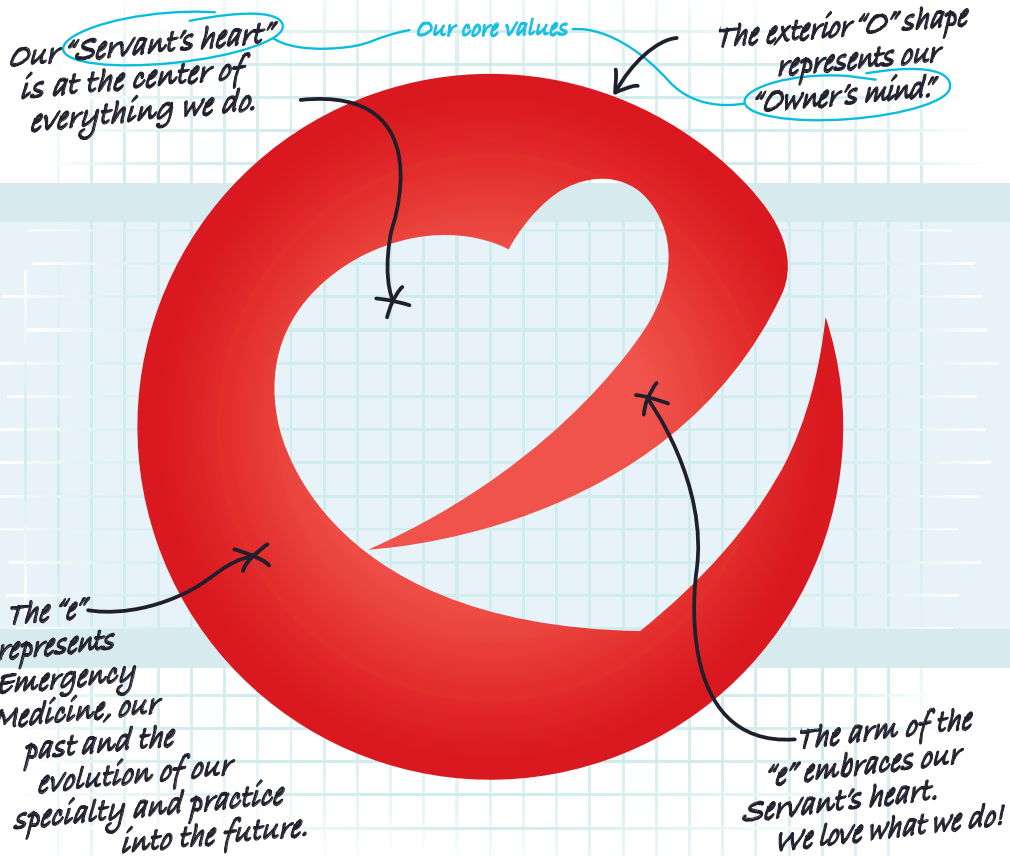
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