Get excited for the 42nd annual ACEP Scientific Assembly! This is a great opportunity to participate in educational programs and social events with your emergency medicine colleagues from all over the country. Adding fun and fear to the equation, the 2010 gathering is being hosted in Las Vegas! As a seasoned gambler and visitor to Sin City, please allow me to offer, in my humble opinion, the top five most underrated Las Vegas experiences.

5. The Bellagio Buffet: Arrive at 11am, pay only breakfast price, but enjoy both breakfast and lunch foods. Stay classy, enjoy the bezoar.
4. The Stratosphere Rides: If you don’t pee your pants in fear, you aren’t wearing pants.
3. Old Vegas: The hourly light show will definitely give you a seizure. BYOA (bring your own Ativan).
2. Medieval Times: A full bar and men with ponytails riding horses. Need I say more?
1. The EMRA Rep Council Meeting: Read on.

The Representative Council is the legislative body of EMRA, composed of a representative from each residency program. We convene twice a year—at the SAEM Annual Meeting and at ACEP’s Scientific Assembly—to vocalize concerns, discuss pressing issues in emergency medicine, and vote on resolutions.

A resolution is a directive for EMRA to form a new policy or take action. Once accepted by EMRA, these directives can be forwarded to ACEP or to the AMA, where their subsequent instruction can change the future of emergency medicine. It is important to review the resolutions and talk about them with your colleagues beforehand so that you are prepared to discuss them at the Rep Council meeting. In June, we approved continued on page 10
Are you all in?

Mandalay Bay
Mix Lounge
9-29-10
7 PM

Get an invite chip, and get into the hottest party at Scientific Assembly 12 years running: Emergency Medicine Physicians’ resident mix. We’ve reserved Mandalay Bay’s Mix Lounge for an unforgettable evening. You’ll enjoy delicious food, cocktails and live music from the top of Las Vegas’ hippest nightspot. Step out on the 64th floor balcony and take in breathtaking views of the famed Las Vegas strip. **Stop by EMP’s booth #1555 to get your poker chip invite. It’s time to go all in.**
Thank you very much for your interest in advertising with EM Resident. As the largest organization to represent the needs of the emergency medicine resident, we are able to reach a unique and important niche of our specialty. EMRA’s mission statement is to promote excellence in patient care through the education and development of emergency medicine residency-trained physicians. It is our belief that this provides the best patient care in an emergency department setting.

To support our mission and provide the greatest advantage to our residency-trained members searching for jobs, we welcome you to advertise in EM Resident, but require that all positions advertised in our publication be addressed only to board-certified/board-prepared, residency-trained emergency physicians.

For the sake of consistency, the use of the terms “ED,” “emergency department,” and “emergency physicians” are preferable to using “ER” or any such derivation.

Your support is very important to us, and we appreciate your compliance with these guidelines. Please respect this policy and reflect its sentiment in your advertisements. EM Resident has the right to refuse any advertisement that does not meet these guidelines.

Thank you again for advertising in EM Resident.

To place a classified or display ad in EM Resident, contact Leah Stefanini, 866.566.2492, ext. 3298, e-mail lstefanini@emra.org, or fax 972.580.2829. Information for advertisers can also be found at www.emra.org.

EM Resident is published six times per year. Ads received by November 1 will appear in the December/January 2011 issue.

EM Resident subscriptions are available only to individuals and institutions that are not considered eligible for EMRA membership as per the EMRA bylaws. For information on how to subscribe please contact Leah Stefanini, 866-566-2492 ext. 3298 or email lstefanini@emra.org.
President’s Message

As the outgoing 34th EMRA President, I would like to begin by extending my appreciation to those of you who have lent your insight, volunteerism, creativity, energy and time for the advancement of our organization’s agenda. Of particular note, I want to thank our 2009-2010 committee members, board of directors and staff for their dedication to our specialty. It has been my sincere privilege to work alongside you as we champion on behalf of emergency medicine residents nationwide.

From a visit to the White House for a presidential health care briefing, to our participation at the Consensus Conference for Workforce Issues and our collaboration in the ACGME Duty Hours Task Force, we hope you have felt well represented and that your voice has been heard. Now, allow me to take you through a brief summary of our collective progress this year.

It has been 11 months since the release of the iPhone application for the EMRA Antibiotic Manual and we have sold more than 6,100 copies in 52 countries worldwide. Scheduled for this Scientific Assembly, I am pleased to announce the release of the next edition, now available in both highly anticipated Android and Blackberry platforms!

But this isn’t the only new member benefit – we have new discounted products such as Pepid for 20 percent off year-round and a whopping 50 percent off for a few months of the year. VisualDx, Emergency Medicine Practice, and Office Depot discounts are other new benefits. We’ve also made significant progress toward the release of our Clinical Decision Tools card and the 2nd edition of the Emergency Medicine Advocacy Handbook due for release at the ACEP Leadership and Advocacy Conference 2011.

Continuing our commitment to resident education, the board of directors unanimously voted to fully fund the Resident SIMWars Competition at this year’s SAEM Annual Meeting and ACEP’s Scientific Assembly. We’ve also formed the new Task Force for Educational Curriculum which is charged with reviewing our current educational content and providing recommendations for future national and regional meetings.

Dollar for dollar, there are few areas where the return for investment is as great as with the young researcher. EMRA recognizes this value, which is why we have increased our funding toward our joint EMRA-EMF research scholarships this year. But that’s not all. Funding was also increased for various scholarships as well as for the CORD Academic Assembly. In an effort to increase the value of research literature to residents, we have joined forces with the Academic Emergency Medicine Journal to create a new opportunity – the EMRA Resident Consultant to AEM which is now in its inaugural year.

As our magazine has grown in size from 64 to 80 pages, our Editor-in-Chief has worked to increase its educational value by creating new sections such as “Bouncebacks” and “Can’t Miss ECGs” which are sure to cause a splash.

As EMRA continues to grow and expand so too should our voice and influence. One major goal this year was to broaden our representation within the house of medicine. I am pleased to announce that we are increasing our number of delegates representing emergency medicine residents to the American Medical Association...

“One major goal this year was to broaden our representation within the house of medicine and I am pleased to announce that we are increasing our number of delegates representing emergency medicine residents to the American Medical Association...”

Edwin Lopez, MD
Loma Linda Medical Center
Loma Linda, CA
President
benefit of implementing EMRA chapters at the state level.

Our Representative Council has now moved towards a greener meeting. We have purchased an automated response system with the goal of efficiency, accuracy and transparency during our voting process. And although you will certainly still see paper as we move toward a completely paperless council meeting, it is a step in the right direction.

Financially, EMRA continues to be in a healthy state with our largest contribution to equity in our history. Membership is also up across all membership sections.

On the advocacy front, EMRA has championed for the absolute requirement of emergency medicine residency training and ABEM/AOBEM certification as the only pathway to “board certification” in emergency medicine. As APBS seeks to allow physicians to advertise themselves as “board certified” without having completed focused residency training in emergency medicine, this issue promises to be an ongoing battle at the state and national level.

There are many that may not be aware that early in our elected term, we were challenged by the sudden military deployment of one of our valuable board members, Dr. Steve Tantama, who now serves our country honorably as an emergency physician in Afghanistan. Dr. Jonathan Heidt has transitioned into that role, quickly integrating and demonstrating his value within the board.

Navigating you through the next year will be Dr. Nathan Deal. As he assumes the role of the 35th EMRA President, I have the utmost confidence that he will continue to demonstrate the leadership, capacity and team spirit that he has demonstrated this year – you are in good hands! In closing, none of this would be possible without the full support of the family members to our board of directors. EMRA sincerely thanks you!
PHOTO CONTEST WINNERS

I am pleased to announce the results for the 2nd Annual EMRA Photo Contest. In its inaugural year, the contest, started by Dr Lisa Bundy, had 76 entrees. The number has grown to 119 with photographs coming from all over the world – including Ecuador, Ethiopia, Haiti, India, Tanzania, and Myanmar, just to name a few.

I am still amazed by how multi-talented emergency physicians can be, and our Photo Contest proves this, once again, to be true.

ART PHOTOGRAPHY
WINNER
Canyon Light
Leah Gilbert, MD
University of Arizona Emergency Medicine
Tucson, AZ

ART PHOTOGRAPHY
RUNNER-UP
Reflections on the Streets of Bangalore
Adriana De La Rosa, MD
UT Southwestern/Parkland Hospital
Dallas, TX

SPORTS & EVENTS
WINNER
Floating High
Preston Fedor, MD
St. Luke’s Hospital
Fountain Hill, PA
NATURE & WILDLIFE
WINNER
Green Parrot
Eric Ernest, MD
University of Nebraska Medical Center
Omaha, NE

NATURE & WILDLIFE
RUNNER-UP
Moon over El Capitan
Nick Bosch
New York Medical College
Valhalla, NY

SPORTS & EVENTS
RUNNER-UP
Skiing in Pine
Jesse Fisk, MD
University of Connecticut
Glastonbury, CT

EM Resident is the bi-monthly magazine of the Emergency Medicine Residents’ Association (EMRA). The opinions herein are those of the authors and not those of EMRA or any institutions, organizations, or federal agencies. EMRA encourages readers to inform themselves fully about all issues presented.

EM Resident reserves the right to review and edit material for publication or refuse material that it considers inappropriate for publication.

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TRAVEL & LANDSCAPES WINNER
Sand Angel
Travis Brown, DO
Integris Southwest Medical Center
Moore, OK

TRAVEL & LANDSCAPES RUNNER-UP
Sunset on a Lake
Eric Ernest, MD
University of Nebraska
Omaha, NE

PORTRAITS WINNER
Crossing the Blue Nile, Ethiopia
Russell Davidson
Wayne State Medical School
Detroit, MI

PORTRAIT RUNNER-UP
Father and Son
Christopher Dang, DO
Maimonides Medical Center
Brooklyn, NY
As my obligations to the board and EMRA membership approach an end, I write my last report for *EM Resident*. The presidency, a three-year commitment, culminates its final year as the Treasurer and institutional memory for the organization. As the only three-year member on the board, the Treasurer aids in guiding the organization towards its long-term goals and objectives, providing feedback and advice on past successes and failures.

I proudly write this summation on the state of the Emergency Medicine Residents’ Association. When I started with this organization, our finances were not as rocky as they were in years past, but they were far from stable. I watched EMRA grow over the years from an operating budget of $582,834 to its current operating budget of $1,536,335. We have gone from employing two full-time staff members to four, and the productivity has exponentially increased as is evident by our annual programming, job and residency fairs, and new regional meetings.

An organization’s financial security is measured by its reserves with a goal of six months in savings. When I began serving the board, we only had a couple of tens of thousands locked away in equity. I am proud to announce that our equity has now reached $1,322,750, allowing us to operate for over a year in the event of financial apocalypse.

What brought us to this great success? Besides dedicated staff and board members, it was the advent of new product line-ups and creative marketing. Phenomenal resources such as the Antibiotic Guide and Intern Starter Kits, albeit free or heavily discounted for our members, were aggressively marketed and sold to other specialties and mid-level practitioners. These sales through Amazon ($21,257) and iPhone applications ($104,639) allowed us to keep membership dues at an extremely low cost of $60 annually to residents. With only one dues increase in the past twenty years, we have still expanded our membership benefits to include many new products, regional meetings, and improved national events.

The board of directors itself has expanded over the last few years. With increased funding available, we were able to make the Legislative Advisor a full board position that will be voted in for the first time at this meeting. The Medical Student Committee has expanded as well. With a medical student joining us at all board meetings, we are able to better gauge the demands of our future residents. We have added additional medical students to the council to aid in projects such as the Mentorship Program, Regional Programming, and Osteopathic Outreach.

With our financial success come other great success stories. Our ability to market new products as well as new avenues for current products has increased. For example, the Antibiotic Guide is now available on the Droid platform as well as Blackberry! Medical student education on emergency medicine and the match process has increased substantially. EMRA has trialed and successfully completed two annual medical student symposiums in Baltimore, attracting more than one hundred medical students to each event. In the upcoming fiscal year, we anticipate another annual event in Baltimore and expansion into another region.

As I close, I just want to thank the members for giving me this great opportunity to serve. The experience and education I have received outside of residency is incalculable. I want to thank all the board members I have served with throughout my years, as they are some of the finest emergency medicine physicians with whom I have collaborated. Lastly, thank you to the staff of EMRA—without you, we simply would not function. Good luck to everyone as you transition to the job hunt, residency, or new EMRA officer positions.

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**Joshua Moskovitz, MD, MPH**  
North Shore LIJ  
New York, NY  
Immediate Past President/Treasurer

“What brought us to this great success? Besides dedicated staff and board members, it was the advent of new product line-ups and creative marketing.”
and forwarded two resolutions to ACEP, *Violence Prevention in the Emergency Department* and *Advocacy and Emergency Medicine Training*.

The Representative Council is also challenged to elect the next EMRA Board of Directors. This fall, you could be a candidate for the positions of President-Elect, Vice-Speaker, Legislative Advisor, ACEP Representative, or Member at Large. The best way to meet the candidates and inquire about their platform is to attend the breakfast prior to the council meeting. Also, since going green is the new black, this year’s Representative Council meeting will be paperless. We expect that you bring your computer and follow along with the electronic handbook.

Finally, the Town Hall Meeting is an informal forum where residents can discuss any pressing issues. If I were a gambling woman (and I am—find me at the craps table!), I would anticipate a lot of energetic conversation about the new ACGME proposed resident work hour guidelines. While all program reps are required to attend the Rep Council meeting, this is an open session, and everyone (including YOU) is encouraged to stop by and participate.

**EMRA Resident Forum and fiesta**

In addition to the Representative Council Meeting, EMRA has organized a day dedicated to developing leadership skills and planning for life after residency. The morning commences with a Bloody Mary Breakfast (just say yes to Lycopene in your eye opener) and concludes with a free networking lunch. In the evening, we hold the largest job fair in the field of emergency medicine. There are more than 150 companies expected to participate, and you can see a list of them by region, using the legend posted on our website. Speaking of legends, the EMRA party is always a highlight of *Scientific Assembly*. It is a great way to unwind after a long day of academics. So start planning your outfits now!

**EMRA Medical Student activities**

Let’s not forget our roots! Students, in an effort to guide you as you start your career in emergency medicine, we have compiled a panel of distinguished emergency medicine physicians to answer all of your questions regarding residency applications, interviews, and beyond. There is also an informal mixer, giving you the opportunity to meet other medical students and EMIG (Emergency Medicine Interest Group) representatives. Finally, the networking luncheon provides life-sustaining nutrition, as well as an opportunity to interact with program directors in a more relaxed setting.

In closing, I look forward to seeing all of you there. As always, we welcome your input. Please contact us with any suggestions or if you need to borrow my gold sequined pants.
From the front lines: Duty hours? Not on groundhog day

It is 0500 in the morning, and I scramble in the dark to silence my once indispensable iPhone whose role has been relegated to that of a very expensive alarm clock since arriving in country. Now, amidst the gentle snores of my tent mates, I try to shake off the gogginess from my eyelids and slip my running shoes on. Emerging from behind my makeshift “privacy” curtain made from a translucent rain poncho, I can’t help but smile at the irrational belief anything is actually private. With toothbrush in one hand and razor in the other, I begin a silent march, high stepping in the dark to avoid the wayward shower shoe or water bottle intent on interfering with my silent egress.

I slide out the door as the first rays of sunlight break through the dusty horizon to wage their own war against this harsh landscape. Shuffling one hundred yards to the bathroom, each step raises my GCS. I relieve my bladder of its dilated misery and proceed to the sink.

Today, I use sink #2 to brush my teeth and then shave. The importance being that yesterday I used sink #1 to shave first and then brush my teeth. This tiny rebellion from the monotony of a set morning routine helps enforce in my mind that, despite the overwhelming sense of another Groundhog Day and that I have no clue whether it’s Saturday or Tuesday, I know now that it is in fact not yesterday.

I find this reassuring considering “yesterday” only ended two and a half hours ago after watching the MEDEVAC helicopter whisk away my last of four patients who had the unfortunate luck of falling asleep closest to the eventual landing site of a Taliban rocket.

As I type this article and enter the 1104th hour of my “shift” as the sole emergency medicine physician here in Delaram, Afghanistan, I cannot help but reflect on the proposed duty hour changes released by the ACGME this past June in the New England Journal of Medicine.1

As I have previously written since the IOM report2 first emerged in December 2008, the recommendations come without any adequate studies evaluating the impact on patient safety from the previous changes in 2003. Evidence even suggests that reducing duty hours was not necessarily linked to lower incidence of medical errors or even increased average sleep time for residents.

As the ACGME Task Force considers feedback from the medical community regarding the new recommendations, the British Royal College of Surgeons (RCS) released on Aug 1, 2010 results of a survey conducted one year after the European Union’s implementation of the European Working Time Directive which limited all physicians to a 48 hour work week.3 This survey reported the opposite of the desired effect: training time decreased; trainee quality of life did not improve; and patient care deteriorated. Perhaps, the words of John Black, the President of the RCS best summarize the results: “To say the European Working Time Regulations has failed spectacularly would be a massive understatement.”

Obviously, my situation here is different from both the US and British training systems in that I do not see two and a half patients per hour in overcrowded, demanding emergency departments. I am, however, “on call” 24 hours a day, seven days a week—never able to wander more than running distance from my Shock Trauma Platoon. And despite the fact that patients tend to present as clusters in the evenings and require care through the night, there is no option of refusing patient care because it is 0100 in the morning and I haven’t slept in 30 hours. Would doing the same in residency have helped prepare me any better for these days of glory? Doubtful, but if I had never challenged myself before to accomplish tasks under the stress of fatigue, my confidence in knowing that I can still perform and trust in my training to get me through those sleepless nights might waver.

I imagine that several years from now under the examining light of the retrospectoscope, we will either damn or praise the changes, and I do hope for the latter for fear of the repercussions of the former. Particularly since I or a family member may be under the care of one of the next generation of physicians trained (or not) in this new kinder, gentler system. For now, I think I’m just going to remember that tomorrow I have to use sink #1.

References
Have we lost a little luster?

One year out from residency, I find myself repeatedly asking, what happened to the luster? When did the Marcus Welby compassion and Norman Rockwell paintings get lost? As we have debated the inner workings of health care reform and the nuances of billing or coding procedures, I find myself at times searching for those once hallowed images of medicine.

We have reminded legislators that day in and day out, we are the ones who work to coordinate care and touch every specialty in the house of medicine. We personally know the challenges that exist for our patients as they navigate the health care system that at times views them as customers rather than patients. While the business of medicine is important, I do not recall that motivating many medical students.

Yet how often do we hear consultants complain about the uninsured patient we want them to evaluate or the admitting physician that does not want to care for another chronic pain patient? While these are challenging issues that require a national redress, they are also an opportunity to remind our colleagues of the privilege of practicing medicine and do a bit of local advocacy. Instead of tolerating complaints, we should consider advocating for our patients and reminding ourselves and our brethren about the reasons we all got into medicine.

This local advocacy is often what gets overlooked in our work to improve the care and satisfaction of our patients. The little things we take for granted, like a warmer for our blankets or chiller for our beverages, can mean a world of difference to our patients. These processes often require advocacy with fellow physicians, allied health staff, and hospital administration to get completed.

A few months back, I began working as the Associate Medical Director of our Emergency Department, a 60,000-visit, tertiary care center. One of the first projects I was involved in was a Rapid Process Improvement Workshop to decrease our door-to-doctor time and length of stay. In the end, we created a team-assessment process with a pull instead of push mechanism for patient assignment. We met our goals and have additionally reduced our number of “left without being seen” and patient complaints.

Beyond those metrics that matter to our administration, we have also seen other benefits. Patients have not been repeating their stories to multiple care providers, have reported better coordination of their care, and decreased delay of treatment implementation. I would bet that my patients care more about these improvements than any advocacy work we have done on a national level.

We need to remember that although we work hard for our patients in advocating legislative changes, we cannot forget their everyday needs. We have many levels of improvement that can be made in our system. As patients struggle with these system changes, let us be their Marcus Welby, meeting them with compassion and knowledgeable care. Be their advocate with colleagues to provide your best care and improve their care in the emergency department. While the improvements may not be as flashy as a new healthcare reform law, the differences in the lives of your patients will be far more immediate and dramatic. I encourage you to start your journey to advocacy in your own department this week and restore a little bit of that luster to your practice today.
What is your emergency?

In our society, people are used to getting whatever they want, exactly when and how they want it. This attitude is certainly reflected in the thoughts and attitudes of the patients that we see. Take, for example, the following chief complaints, which are all from patients that I encountered in my last two shifts:

- “My fingernails were green after I took my fake nails off two months ago.”
- “My back is killing me...I’ve had back pain for five years. I just saw my doctor yesterday, but he told me he’s not giving me any more pain medicine.”
- “My pinky toe has been numb for three weeks and it’s not getting better.” (On exam this patient had absolutely no sensory deficit.)
- “I’ve had a toothache for three months. I have a dentist, but I have to work [as a grocery store cashier] every day and can’t miss work to go see him.”

Now, all of us know that these are not true medical emergencies. The question is, who should make that final determination? And how many of our patients genuinely have an urgent or emergent medical condition? The answer depends on whom you ask.

In a paper that was released by Excellus Blue Cross/Blue Shield of New York this spring, the assertion was made that a large percentage of emergency department visits in the state of New York were either “unnecessary” or “potentially unnecessary.” The study defined visits as follows:

- “Non-emergent” - immediate medical care was not needed within 12 hours
- “Emergent/primary care treatable” - treatment was needed within 12 hours, but could have been rendered in a primary care setting
- “Emergent/ER care needed/preventable/avoidable” - ER care was needed, but could have been avoided if the patient had received timely and effective outpatient care while they were sick
- “Emergent/ER care needed/not preventable/avoidable” - ER care was needed and outpatient treatment could not have prevented the condition

According to their analysis, in 2008, 44 percent of ED visits in Upstate NY were “potentially unnecessary.” Of those visits, 25 percent were deemed “non-emergent” cases and another 18 percent were conditions that could have been treated in a primary care setting.

They also looked at how these “unnecessary” visits were spread out over a 24-hour period. They found that 45 percent were seen between 9:00am and 5:00 pm. If that time period was stretched to begin at 6:00 am, the percentage increased to 54 percent. These numbers imply that many of these visits could be seen in a primary care office instead of an emergency department. The visits were spread evenly across the days of the week, with no significant increase on weekends.

Are there really this many “unnecessary visits” in our emergency departments? Are we really nothing more than glorified primary care doctors? The answer is, obviously, no. First, consider who wrote the paper—a health insurance company whose primary interest is the bottom line. There is a strong bias from the start.

Additionally, the data is inherently flawed. Rather than using the CDC’s definition of “non-urgent care” as treatment not needed within 24 hours, this paper used a more stringent criterion of 12 hours. Plus, it relied on the diagnosis at discharge to arrive at these numbers. Which means, if a patient went into the ED with chest pain and the fear that he or she was having a heart attack, but it turned out to be GERD or costochondritis, then the visit would have been considered “unnecessary” in this study.

How is Joe the plumber supposed to know the difference when he has chest pain? This is one of the main reasons ACEP has worked for years to have the prudent layperson standard adopted on a national level. If this standard were adopted, coverage would be based upon the patient’s symptoms and not their discharge diagnosis.

If a patient believes that they are having a true medical emergency, then they should be the one to decide that they need to go to the emergency department. They shouldn’t have to worry about whether or not their emergency department visit will be covered by their health insurance. This fight is finally ending, as the prudent layperson standard has been included in the national health care reform bill.

Although we all see patients for “non-urgent care” in the ED, the reality is that the majority of our patients need care, and many times, they have no other place to go. During a busy shift, when seeing patients with what seem to be trivial complaints, it is important to remember that, to each of our patients, he or she is truly experiencing a medical emergency.
The new ACGME duty hour standards

As residents, we are all fully aware of the current duty hour standards. This includes the 80-hour workweek and 30-hour on call periods. Do these guidelines allow you to take better care of patients and improve your education? In 2003, the Accreditation Council for Graduate Medical Education (ACGME) created a new set of standards. The purpose of these new standards was to improve resident education and patient safety by reducing resident fatigue. Since the creation of these new standards, some physicians have argued that the rules are too restrictive—they reduce the amount of education available to residents and prevent continuous care of sick patients. Other physicians have argued that the standards have not gone far enough—residents are still fatigued, and this results in inadequate time for studying and increases opportunities for medical errors.

Unfortunately, several reports have shown that, since the implementation of these standards, patient safety has not improved and the amount of time available for residents to study has not increased. Marking the five-year anniversary of the enactment of these standards, the Institute of Medicine (IOM) released the report, *Resident Duty Hours: Enhancing Sleep, Supervision, and Safety.* The report provided suggestions aimed at improving resident education. The report’s critique of the ACGME duty hours and the enforcement of these standards have garnered the greatest amount of attention (including the infamous required “nap time,” for example).

In response, the ACGME created a 16-member task force to review research and hear testimony in order to revise the current standards. Concern existed over applying the same standards across all specialties and all levels of training. Much debate also exists over the IOM’s recommendation to further limit resident work hours. The ACGME has recently released a report detailing the proposed changes. Below is a table that compares the current standards, standards proposed by the IOM report, and the new standards released by the ACGME.

After reviewing the changes, I am concerned about the potential outcomes. For example, many programs employ the concept of graduated responsibility as well as allowing senior residents to supervise junior residents. It is important to recognize that junior residents work on average more than senior residents and require more supervision. Yet by limiting interns to 16-hour shifts, for example, several negative consequences may occur.

First, by reducing a shift to 16 hours, more patient handoffs will tend to occur. This would challenge the emphasis on improving safety through the reduction in patient handoffs. Second, the reduction in hours will reduce the amount of patient encounters available to the least experienced residents. Will this reduction increase the length of training programs or the amount of supervision needed as residents progress? Third, the elimination of on call responsibilities will create an inpatient “shift work” mentality. The outcome of this change is unknown.

Additionally, many residents are concerned about the need to provide a written explanation to their program directors when an extension beyond 28 hours is necessary in order to take care of a sick patient. This requirement places an unfair burden upon the resident, as they are faced
with remaining with a sick patient while simultaneously obeying the “rules.”

The “strategic napping” clause also concerns residents as this phrase is left to be interpreted by programs. Will residents have to keep track of their sleep while working? Will residents have to explain why they are not sleeping during the “napping hours?” Further documentation of adherence to such rules would be an unfair burden to residents, in my opinion.

While it is impossible to foresee what the outcomes of these standards will be, change is inevitable.

If you have any questions or concerns, please email the EMRA RRC Representative for more information.

### ACGME Resident Duty Hour Rules

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<tbody>
<tr>
<td><strong>Maximum hours of work per week</strong></td>
<td>80 hours/week, averaged over 4 weeks</td>
<td>No change</td>
<td>80 hours/week averaged over 4 weeks (includes moonlighting time)</td>
</tr>
<tr>
<td><strong>Maximum shift length</strong></td>
<td>30 hours (admitting patients up to 24 hours then 6 additional hours for transitional and educational activities)</td>
<td>30 hours (admitting patients for up to 16 hours, plus 5-hour protected sleep period between 10 p.m. and 8 a.m. with the remaining hours for transition and educational activities) or 16 hours with no protected sleep period</td>
<td>PGY 1 shifts max 16 hours, PGY2 and above 24 hours max with “strategic napping” after 16 hrs (between 2200-0800), 4 hours transitional time post call. [Residents can stay beyond 28 hr but have to report/track each instance]; No clinics post call</td>
</tr>
<tr>
<td><strong>Maximum in-hospital on-call frequency</strong></td>
<td>Every third night, on average</td>
<td>Every third night, no averaging</td>
<td>PGY2 and above no more than every 3rd night (no averaging)</td>
</tr>
<tr>
<td><strong>Minimum time off between scheduled shifts</strong></td>
<td>10 hours after shift length</td>
<td>10 hours after day shift 12 hours after night shift 24 hours after any extended duty period of 30 hours and not return until 6 a.m. of next day</td>
<td>Interns should have 10 hrs between shifts (min 8 hrs). Residents 10 hours off suggested, 8 hours min. 14 hours free after 24 hrs on call</td>
</tr>
<tr>
<td><strong>Maximum frequency of in-hospital night shifts</strong></td>
<td>Not addressed</td>
<td>4 night maximum; 48 hours off after 3 or 4 nights of consecutive duty</td>
<td>No more than 6 consecutive nights of float</td>
</tr>
<tr>
<td><strong>Mandatory time off duty</strong></td>
<td>4 days off per month, 1 day (24 hours) off per week, averaged over 4 weeks</td>
<td>5 days off per month 1 day (24 hours) off per week, no averaging One 48-hour period off per month</td>
<td>1 day free every week (may be averaged over 4 weeks) No at home call</td>
</tr>
<tr>
<td><strong>Moonlighting</strong></td>
<td>Internal moonlighting is counted against 80-hour weekly limit</td>
<td>Internal and external moonlighting counted against 80-hour weekly limit All other duty hour limits apply to moonlighting in combination with scheduled work</td>
<td>Internal and External moonlighting counted against the 80-hour week limit</td>
</tr>
<tr>
<td><strong>Limit on hours for exceptions</strong></td>
<td>88 hours for select programs with a sound educational rationale</td>
<td>No change</td>
<td>Exception 10% or up to 88 hours must be justified</td>
</tr>
<tr>
<td><strong>Emergency room limits</strong></td>
<td>12-hour shift limit, at least an equivalent period of time off between shifts, 60-hour workweek with additional 12 hours for education</td>
<td>No change</td>
<td>Not addressed</td>
</tr>
</tbody>
</table>
Hiccups

The patient is a 65-year-old female with a history of sick sinus syndrome who presents to the emergency department with increasing fatigue and intermittent hiccups for the last week. Twelve lead ECG obtained at the time of arrival is below.

What findings on the initial twelve lead suggest the etiology of symptoms?
What are the common causes of this electrocardiographic finding?

The EKG tracing reveals dual chamber pacing with intermittent atrial and ventricular pacing, 100 percent ventricular capture, and complete failure of atrial capture. Note the absence of atrial activity following atrial pacing impulses.

The differential for lead failure to capture includes: lead dislodgement or fracture, battery depletion, or elevated pacing thresholds due to ischemia, medications, or metabolic derangements. Common symptoms associated with failure to capture include evidence of decreased cardiac output (syncope, fatigue, shortness of breath) and neuromuscular stimulation from a misplaced lead (hiccups, muscle twitching).

This patient had the dual chamber pacemaker placed one week prior to presentation for sick sinus syndrome. On exam, the hiccups were reproduced intermittently when she lay on her left side due to neuromuscular stimulation from a displaced atrial lead. Her chest x-ray confirmed the diagnosis of lead dislodgement with the right atrial lead misplaced into the azygos vein through the SVC.
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10:30 pm – 4:00 am

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Residency is like a backstage pass

Imagining the thrill of seeing your favorite band and winning a backstage pass to meet the musicians. Well, some may think of residency as a 36-month-long boot camp, but I liken it to a three-year backstage pass.

Why? Well, I loved residency. I truly did. The thrill was mine to now be able to reduce a dislocated shoulder, give conscious sedation for performing spinal taps, and give thrombolytics for STEMIs (which at that time was the greatest therapy available).

Emergency medicine changes so much. When you get to the future and look back, you will be surprised by some of your previous practices. Some things that you do currently will be considered outrageous in the future due to newer and sleeker technologies. During residency, I never would have dreamed that I would be searching the internet to help provide patient care, but today I cannot imagine a shift during which I do not “google” for something.

Emergency medicine is a specialty that will continue to evolve. Our knowledge base is so broad that we inevitably will see changes. Some of them might be significant and drastically alter patient care, while others will help improve outcomes or streamline certain aspects of what we do. One thing I know will not change is how valuable it is to have access to a specialist’s inner sanctum.

As you move through rotations outside of the ED, I suggest that you try to maximize the information and experience that you glean from these docs. You can always watch a YouTube video that explains how to perform a knee arthrocentesis or even a lateral canthotomy, but you have something in residency that you will never have again—a backstage pass into a specialists’ world. You have the chance to observe them in their office or their O.R. suite, wherever they perform their specific blend of art and science, but only for a limited time. Of course, you will still be able to call and talk to specialists when you are an attending, but you will never get that privileged access like you do during residency.

My recommendation or “words of wisdom” is to make these moments count. Ask questions. Pose scenarios. Create “what if?” situations. Essentially, try to perform mind melds with the specialists. Learn their lingo, what questions they ask, how they examine things, what medications they prescribe, and what warnings and treatment advice they give. Everything that you learn from them is priceless information.

Again, you can always learn how to do the Lachman’s maneuver from a video, but it doesn’t compare to getting the experience firsthand with the specialist. When you work with the specialist, not only do you actually feel the ligamentous laxity, but you also listen to what the patient is told about having a torn ACL and learn about the controversy regarding whether or not it should be surgically repaired. What you will discover is that the information you gather from the specialist is not just a script—it is the essence of the experiential wisdom that they have collected. That essence is yours to absorb during your backstage pass time.

Unfortunately, after residency, no matter how much you try, gaining the right of entry to that part of medicine is pretty much off-limits. So, enjoy the access now, and try to take away from each rotation the best of what the specialists offer their patients. You will be using that wisdom for years to come.
Meet your match... If you are a medical student looking for the perfect residency program be sure to attend the EMRA Residency Fair!

*Confirmed exhibitors as of 9/2/2010*
Some people know from childhood what they will be when they grow up. Some people know when they start medical school what kind of specialty they will practice. Some people finish third year, have nightmares about ERAS and continually play U2’s classic “I still haven’t found what I’m looking for.”

My mom loves to tell everyone the story of when I was a little, and adorable, girl I would proclaim, “When I grow up I’m going to be president… or a singer on a cruise ship.”

Clearly I’ve been what some call indecisive from a young age, but I like to call it a strong desire to do everything. Who knew that sea sickness (and a total inability to sing) would lead to medical school?!

When I started medical school I had no idea what I wanted to do, except for graduate. My love for the television show ER (I’m not going to lie) led me to an emergency medicine interest group lunch meeting, which led to a summer research project in the emergency department, which led to my involvement in EMRA. So I guess I have Dr. Carter to thank for putting me on my current career path.

Sometimes fortuitous events put you in the right place at the right time. However, most of us medical students are a little too type A to leave things to chance. The timeline of medical school does not permit the luxury of exposure to the true aspects of every field of medical practice.

There are so many different residency specialties, in addition to combined training programs and the endless combination of fellowship and subspecialty training programs available. Everything seems like a lot of fun for four weeks, even q3 call, but how do you know you’re ready to commit your career to that specialty? Fortunately there are lots of options for you, no matter your current position in medical school, to solidify your future specialty.

Early in medical school, it is important that find ways to learn what specialties are out there. Most specialty interest groups host lunchtime talks to present interesting cases or residency information. In addition to getting free lunch, you’ll get a sneak peak into that specialty. When you’re ready to take it a step further, look into the shadowing opportunities available to you. Most physicians will allow you to follow them around for a day and some schools even have established shadowing programs that you can take advantage of. The medical student pearls section of the EMRA website has excellent resources for ways to incorporate these activities into your emergency medicine interest group as a way to recruit students to your group and to pique their interest in emergency medicine.

One of the most valuable resources a medical student can have is access to a fantastic mentor. Having a mentor in the specialty of your interest has incredible benefits. You will be able to get your burning questions answered and receive advice and guidance tailored to a specific career path. Independent of specialty, it is important to get connected to the right person. You should be able to trust your mentor and respect their feedback.

The EMRA mentorship program, available to all EMRA members, links interested medical students with knowledgeable and helpful emergency medicine residents. I recommend that all students with an interest in emergency medicine get connected with a mentor. Who doesn’t need friends who can provide insight on your residency application and recommend suture technique on the laceration you saw last week?

As I went through third year, I loved every rotation. At the end, I felt so confused. How could I really enjoy every rotation? Then I realized that liking every rotation just meant that I really love emergency medicine. The most interesting and challenging cases of every specialty come through the emergency department doors. Choosing emergency medicine allows me to be what I’ve always been: someone who likes to do everything. Be honest about the things you like and the things that you are good at, and you’ll find what you are looking for in the end.
Three years ago when I donned the three-quarter length lab coat at my White Coat Ceremony, I felt like I had arrived. All the hours spent isolating the essential oils of an orange peel in organic chemistry lab were finally paying off. I was going to become a doctor. Whatever I lacked in coat length, I made up in pride and confidence. But now as I transition from third year to fourth year of medical school and face the looming pressures of residency application, well, let’s just say my white coat has never looked shorter.

The preferences, procedures, and politics of residency application feel like a vast no-man’s-land waiting to swallow any medical student foolish enough to venture in. Luckily, you and I are EMRA student members. We have access to a personal guide, someone who has successfully navigated this quagmire before: a mentor. The EMRA Mentorship Program matches medical students with resident members to help with this transition from student to resident.

I’ve been nagging my mentor, Mike, with questions for the last several months. Why did you choose emergency medicine? What’s it like as a resident? Why did you pick your program? Three or four years? And Mike isn’t just a random resident. I’m an older medical student considering not just my own career, but opportunities for my wife as well. Mike has been through that too. I go to school in Ohio, but I am interested in programs in the West. Mike is at the Denver Health Residency and applied to other programs in the area. I’ve been matched with a resident who can advise me on topics others can’t.

Also, the politics of being a medical student can be tricky. I was being evaluated by the residents I worked with during the emergency medicine rotation at my home program. I wanted them to think I was a superstar, not a medical student wracked with uncertainty. Mike isn’t evaluating me, so I don’t have to worry about what he thinks of the questions I ask him.

ERAS has just opened up, interview season will soon be upon us, and Mike, if you’re reading this, get ready for some more emails, my friend, because I have questions. Do yourself a favor and head over to the EMRA website, sign up for the program, and let someone who knows what you’re dealing with help out. It is an easy way to establish a professional relationship with a resident able to offer timely advice and support while we navigate the complex transition from medical student to resident.

To sign up to receive (or become) an EMRA mentor, simply go to www.emra.org, click on the Articles and Resources link and select the option Medical Students. From there, click on the link for Mentorship Website, answer a few questions and you will be given a mentor within a few weeks. For further questions, you can contact the Mentorship Coordinator, James Luz, at mscmentor@emra.org.

“The preferences, procedures, and politics of residency application feel like a vast no-man’s-land waiting to swallow any medical student foolish enough to venture in.”
The familiar jolt of excitement ran through my body, and the rest of the ED sprung into organized action as only an Emergency Department can. EMS pulled into the ambulance bay and quickly unloaded the patient. You know how they always teach you that the first step is to figure out whether the patient looks sick or not? This patient looked sick—very sick.

She was conscious but gasping for air and was a very pale shade of gray. The nurses expertly hooked her up to the monitor and found that her blood pressure was 70/40, with a pulse of 140 and an O2 sat of 65 percent. The patient could barely talk, but she managed to pitifully ask, “Am I going to die?”

Another commonly taught piece of knowledge is that if patients say they are going to die, they’re usually right. This patient was certainly heading in that direction. Despite her vital signs, she was maintaining her airway and was conscious. The team went to work in the controlled and efficient manner of the ED that always continues to amaze me.

The clinical picture began to come together: sudden onset dyspnea, history of cancer, clear lungs, normal chest x-ray. Despite thorough resuscitation, the patient’s vital signs and clinical status remained abysmal, with her systolic pressure getting as low as 60. The attending physician made the split-second decision to take the patient to the ED’s CT scanner to take a quick image of the lungs to confirm our suspected diagnosis.

We went with the patient because she was so ill, prepared to intubate and start chest compressions at any given moment. As I
watched in awe, the scan that appeared in front of us looked just like those example images they had shown us during the radiology course we took as second-year medical students: a massive saddle embolus. As soon as we got the patient back to the resuscitation bay, tenecteplase was bolused rapidly.

Interestingly, tenecteplase, which was approved in 2000 for treatment of acute MI, is not approved for treatment of pulmonary embolism. However, several small studies\(^1\)\(^2\) suggest that tenecteplase, when used in patients with massive pulmonary embolism resulting in hemodynamic instability, may act faster, work more specifically, and have similar safety to earlier generations of lytics.

While large controlled studies are clearly needed, the effects of tenecteplase in our patient were remarkable: she went from a patient on the verge of death to a very pleasant woman, sitting up and talking to us in less than half an hour. Her vital signs all normalized. As the nurse wheeled her up to the MICU for admission, the patient happily chatted about her grandchildren during the entire trip upstairs to the MICU. It was truly the most remarkable recovery I had ever seen. The entire ED team, as well as the patient herself, had been convinced she was going to die. As a result of the quick thinking, teamwork, and expert management of the ED team, this patient survived.

I urge you to recall your own experiences with patients who have made astonishing recoveries. As future emergency medicine physicians, we will face some of the most tragic circumstances imaginable. Remembering patients like this lady, who I will never forget, can give us the encouragement to face every single shift with a hopeful smile.

References
Clinical informatics and emergency medicine

In June of 2010, Steven Davidson, MD, FACEP, began a new chapter in his long and productive career in emergency medicine. He stepped down as Chairman of Emergency Medicine at Maimonides Medical Center—a tertiary, community teaching hospital with its own EM residency—to take up the role of Chief Medical Informatics Officer. As CMIO, he will focus on the implementation and support of the electronic medical record (EMR) system for Maimonides’ network of voluntary physicians. But he will also be responsible for developing a culture of knowledge management from the data silos extant at MMC.

“Emergency Physicians—as patient advocates—are uniquely positioned to catalyze the most effective system implementations by information technology professionals and the hospital administrators who have overall organizational responsibility. EPs utilizing adept implementations of clinical IT systems improve quality of care by increasing the flexibility and efficiency of the entire system of ED care.”

“Medical informatics supports a transformation of care that can improve the quality, accountability and consequently value emergency physicians bring to their patients. In daily work, well-implemented systems can support and enhance communications among the complex matrix of professional and support staff that care for patients.”

Clinical informatics is an increasingly viable career choice for emergency physicians, and a formal fellowship certification process is expected to be approved by the American Board of Medical Specialties (ABMS) in 2011. The field’s impact on the practice of medicine has expanded in recent years, stimulated by President Bush’s 2004 campaign challenge to develop a nationwide EMR system by 2014. This trend was further strengthened by the establishment of the Office of the National Coordinator (ONC) in 2004 and passage of the Health Information Technology for Economic and Clinical Health (HITECH) Act of 2009.

Despite these advances, our healthcare system still lacks properly-trained physician leaders to help guide this important evolution. It is clear that clinical informatics subspecialists will play an important role in the future of not only patient care, but also in the areas of research, public health, and health policy.

Development of the subspecialty

In 2007, a grant from The Robert Wood Johnson Foundation funded the American Medical Informatics Association’s (AMIA) efforts to petition the ABMS for a fellowship certification in Clinical Informatics. From the beginning, the goal of this program was to create a subspecialty available to diplomates of all the primary specialties. The AMIA convened two groups of national informatics experts. The first was charged with constructing the Core Content for Clinical Informatics (http://jamia.bmj.com/content/16/2/153.full), while the second would draft the Training Requirements for accreditation of fellowship training programs (http://jamia.bmj.com/content/16/2/158.full). During this time, a robust communication process was initiated between the AMIA and member boards of the ABMS. The consensus of opinion was that this subspecialty was needed and would be of interest to a wide range of primary specialties.

The fellowship application has been submitted under the administrative sponsorship of the American Board of Preventive Medicine (ABPM). Under ABMS guidelines for joint subspecialties, one primary board generally takes responsibility for developing and administering a certifying exam for all of the diplomates.
of participating specialties. The ABPM Residency Review Committee will also grant accreditation to those training programs sponsored by participating specialties. Emergency medicine residency graduates are expected to be eligible for fellowships sponsored by any of the core specialties.

Role of the emergency physician

The career options available to physicians inevitably broaden as their specialty evolves and matures. This has proven true for the older specialties and is happening now in emergency medicine. An example of this trend is the increasing number of emergency physicians who are accepting appointments to major administrative roles in both the academic and private sectors. There is every reason to believe that this will be true for physicians with an interest in clinical informatics.

Chief Medical Information Officers (CMIO) positions are being created in hospitals, clinics, medical systems and large group practices across the country. This trend has been fueled by the recent emphasis on a systems approach to medical practice and an increased focus on standardized and compatible approaches. Until now, emergency physicians who have moved into these roles have relied upon generic management training such as a MBA degree, self-study, or “on the job training.”

Despite the lack of formal training, emergency physicians have taken a leading role in this new area of medicine. Not surprisingly, they have come to it from a variety of directions. William Gotthold, MD, FACEP, of Wenatchee, Washington, transitioned from over 30 years of clinical work to a new job as Associate Medical Director and Medical Informatics Officer for a large multi-specialty group in 1999. Bill is a senior emergency physician with a long interest in informatics. He now oversees the implementation of a wide variety of informatics tools for his group.

“Emergency physicians are an excellent fit for Medical Informatics. We deal with every specialty and are used to a multi-tasking environment, where each patient’s record has multiple contributors. Way too many EHRs are designed by linear thinking computer people, and physician input, from early design to clinical implementation, is crucial.”

A more recent graduate, Albert Villarin, MD, FACEP, trained at Thomas Jefferson in both emergency medicine and informatics, with a focus on computer-aided instruction. He practiced emergency medicine at Albert Einstein Medical Center, where he served as CMIO through mid-2009. Since then, he has combined his experience in the military with academics as Clinical Advisor: Informatics & Workflow for Patient Care Technologies Systems, and Solution Executive-Healthcare US for Thomson Reuters.

“Physicians experienced in clinical informatics have the opportunity to translate the clinician’s needs at the point of patient care into systems that can create true added value. Clinicians will not accept new information systems that do not contribute to a more efficient environment or improved patient care.”

“I look forward to going beyond standard vendor-provided informatics solutions to one using artificial intelligence that can anticipate the needs of clinicians and the patients that they serve.”

Leading the field

Gregory Brown, MD, FACEP, has been the Clinical Informatics Officer for TeamHealth since 2005. His interest in informatics was influenced by his clinical and management experiences in the public and private sectors in Alaska and Washington states. In his present position, he is responsible for informatics as it relates to the collection and use of clinical data within a designated AHRQ Patient Safety Organization. Brown has served as President of the Washington Chapter of ACEP and has been active with several national ACEP informatics-related committees.

“Clinical Informatics is now a key component of emergency medicine practice. Success will be measured by the rapidity of adoption of electronic health records and management by the use of timely and accurate information. To meet this challenge and gain a competitive edge, physicians groups will seek to hire and retain experienced, well-trained physician informaticists.”

Emergency physicians are well-positioned to lead this emerging clinical informatics movement. We are integrated into the hospital environment, interact with physicians from almost every other specialty, and have a practice that is informatics-intensive. Emergency medicine residency programs are also well-equipped to sponsor these fellowships, in collaboration with other informatics resources.

Fellowship training programs

Information on existing fellowship programs in clinical informatics can be found on the EMRA (www.emra.org/) and SAEM (www.saem.org/saemdnn/) websites. Contact the individual program directors for more information on fellowship opportunities.
History and physical exam

A 57-year-old male with no significant past medical or surgical history presents with a chief complaint of “constipation.” He states he has been unable to have a bowel movement for more than seven days. He now feels it is so severe that he is having difficulty breathing and trouble sleeping, particularly when he lies flat. He was seen at another ED the day prior where they “ran all sorts of tests” and discharged him with a recommendation to take dulcolax and an enema (over the counter). Review of systems is negative for chest pain, fever, cough, vomiting, urinary symptoms, and is otherwise unremarkable. The patient smokes a half pack of cigarettes per day and drinks several beers each night.

• Exam reveals a patient who is mildly tachypneic but conversant.
• Vital signs are: heart rate of 96 beats per minute, blood pressure 108/81, temperature of 98.4 degrees, respiratory rate of 22 and oxygen saturation of 94 percent on room air.
• Mucous membranes are moist and jugular venous distension is present.
• Lungs are clear but diminished at the bases.
• Cardiac exam reveals tachycardia with no murmur.
• His abdomen is distended and mildly diffusely tender with no guarding or rebound.
• Bowel sounds are diminished but intermittently present.
• Rectal exam reveals brown stool in the vault, non-impacted and hemoccult negative.
• Extremities show no cyanosis or edema.

Questions to consider

1. What is your differential diagnosis?
2. What diagnostic studies would you perform?
3. Would you administer fluids, diuretics, or neither?
4. Do you think point of care bedside ultrasound would be helpful in this case and if so what are you looking for?

Patient course and bedside ultrasound

Chest xray and labs (blood count, electrolytes, cardiac enzymes, and BNP) are pending.

A bedside ultrasound is performed and shows the following images:

• What do these images show?
• What is the first line therapy for this patient, particularly if his vital signs worsen?
• What is definitive therapy?

Patient course

A large pericardial effusion with ultrasound evidence of hemodynamic compromise was identified. Intravenous fluids were administered. Cardiology was consulted, and the patient was consented and taken to the cardiac catheterization laboratory for pericardiocentesis. As the patient was laid flat during the procedure, he experienced a respiratory arrest requiring emergent intubation. Over a liter of blood tinged fluid was drained from the pericardium resulting in normalization of vital signs. The effusion showed evidence of adenocarcinoma cells, although a primary tumor
was not identified during the patient’s hospital stay. The patient was discharged home in good condition for outpatient oncology follow-up. His abdominal constipation also resolved with the dulcolax.

**Answers and discussion**

Pericardial effusions may result from pericarditis (infectious or inflammatory), malignancy, dialysis, trauma, and other etiologies.

Pericardial effusion most typically presents with shortness of breath, tachycardia, or both. Chest pain may be associated with effusion in trauma, infection, or pericarditis but pericardial effusion is often painless. Hypotension, lightheadedness, and syncope may also result but are typically late findings.

Pericardial tamponade is defined as actual or imminent hemodynamic instability caused by pericardial effusion. This results from extrinsic compression of the heart by the fluid which restricts cardiac filling. The volume of effusion which will cause tamponade varies depending on the rate of collection and the fluid status of the patient.

The classic physical findings of pericardial tamponade are described by Beck’s triad of hypotension, jugular venous distension, and muffled heart sounds; however, residents should remember that patients don’t read the textbooks. Hypotension is a late finding, and while JVD may be identified (as in this patient), it may be limited by obesity. Additionally, muffled heart sounds may be difficult to identify in the emergency department setting.

A narrow pulse pressure is also a clue, as was present in this patient. Pulsus paradoxicus (exaggerated respiratory variation of the systolic blood pressure) may be found. In cases of effusion, a chest radiograph will usually show an enlarged heart, classically with a characteristic “water bottle” shape.

While physical examination and plain x-ray findings may provide a clue, ultrasound of the heart (echocardiography or echo) is definitive for diagnosis. The increased availability of point-of-care ultrasound and point-of-care echo have allowed this diagnosis to be made more expeditiously than in the past. Point-of-care echo should be used liberally in unexplained tachycardia, dyspnea, or hypotension—particularly when the patient is at risk for effusion.

Point-of-care echo is best conducted with a phased array probe but may be done with a microconvex or larger footprint curvilinear probe. Probe frequency is typically 3-5 MHz. A cardiac preset should be used, and tissue harmonic imaging (THI), if available, will help to delineate the effusion. The physician should be aware that the orientation convention for cardiology (and thus often on the cardiac preset) is reversed from other ultrasound imaging. To generate an image that is oriented correctly the orientation may be switched on the machine or on the patient.

The most sensitive view for effusion is the subcostal view, as effusions collect inferiorly. Typically this starts with a transverse subcostal view. The inferior vena cava can be identified and tracked as it drains into the right atrium. The area between the border of the right ventricle and the liver should be examined for an anechoic (black) space that indicates fluid. A sagittal or long axis subcostal view may show the inferior pericardium as well as the inferior vena cava.

Other views such as the parasternal or apical view may identify effusion. Care should be taken to look posteriorly in a parasternal view for effusion. An isolated hypoechoic area on the anterior part of the parasternal view typically represents a fat pad and should not be mistaken for effusion.

Pericardial or epicardial fat may be quite prominent in some patients and should not be mistaken for significant effusion. A fat pad may be differentiated from effusion by the presence of some echoes in the hypoechoic space and the near disappearance of the space in diastole.

Another potential pitfall is a pleural effusion, particularly a left pleural effusion which may be adjacent to the heart. The thoracic spaces should be inspected using a coronal flank view to look for pleural effusion. If the descending aorta can be identified on echo pleural fluid can be differentiated from pericardial fluid as it will track posterior to the aorta rather than between the heart and aorta.

Effusions may be graded as small, moderate or large. Most commonly, small is defined as less than one centimeter in diastole, moderate as one to two centimeters, and large as greater than two centimeters.

Tamponade is a clinical diagnosis but signs may be seen on echo. The right side of the heart (right ventricle and atrium) are lower pressure and more easily compressible by extrinsic fluid. Diastolic collapse or indentation of the right ventricle as seen in the first image indicates tamponade. Right atrial systolic collapse and indentation may also be seen.

In tamponade the inferior vena cava (IVC) is typically distended (more than two centimeters) and shows no respiratory variation, as seen in the second image.

More advanced echo techniques include pulsed wave spectral Doppler of mitral inflow which should show more than 20 percent inspiratory variation in tamponade.

First line therapy for effusion or tamponade should be to increase filling through intravenous fluid (normal saline or other crystalloid) and may provide added time for definitive intervention.

Definitive intervention is pericardial drainage through pericardiocentesis and/or pericardial window. Ultrasound guidance for this procedure has been shown to improve results.
Pediatric RSI: When to use what

Emergent interventions involving critically-ill children usually evoke a heightened sense of anxiety in medical providers. It can be challenging to simultaneously manage both a critically-ill child and the child’s overwhelmed parents. But life-saving interventions demand intense focus on the part of the provider, especially when a child requires emergent intubation.

For this reason, emergency physicians must feel confident in their decisions regarding sedative and paralytic agents and know which agents are appropriate for pediatric patients. This article will discuss the selection of appropriate and safe rapid sequence intubation (RSI) agents for some common clinical scenarios.

Scenario One: You are working in the ED when a father walks in carrying his 5-year-old son. The child was found down, with an altered level of consciousness for the past 30 minutes. He is arousable to painful stimulation only. He is breathing spontaneously with shallow, slow breaths. He has a regular pulse and a normal blood pressure. Other than his altered mental status, he has a normal physical exam. He needs to be intubated. What do you do?

Scenario Two: A father rushes into your Urgent Care carrying his 6-year-old daughter. The child is in obvious respiratory distress with tachypnea, accessory muscle use, and a wide-eyed, anxious appearance. She is unable to speak and has decreased mental status. Dad reports the acute onset of coughing and choking in the car while she was eating. The patient has severe asthma with a history of previous intubation. On exam, she is hypoxic, tachypneic, and minimally responsive. She needs to be intubated. What do you do?

The two essential classes of medications in RSI are sedatives and paralytics. The sedative agent is given first, followed by the paralytic after the child is unconscious. An ideal sedative rapidly induces unconsciousness, has a short duration of action, and has minimal side effects.

Clinical conditions to consider when choosing a sedative agent are cardiovascular instability, neurologic abnormalities (including seizure or increased intracranial pressure), and bronchospasm or a history of asthma. Options for sedation include etomidate, thiopental, ketamine, propofol, and midazolam. Remember that these medications will ameliorate the sympathetic cascade that accompanies respiratory failure. Consequently, a pre-RSI fluid bolus may be needed to prevent post-RSI hypotension.

There is no perfect sedative, but you can choose the best possible agent for your patient based on certain clinical features. Etomidate and thiopental are acceptable sedative agents for the undifferentiated pediatric patient with no significant past medical history. Etomidate has minimal hemodynamic effects, making it an excellent choice for hypotensive patients, though it should be avoided in sepsis due to a decrease in cortisol production. Ketamine is a good choice for asthmatic patients, due to its bronchodilatory properties, but there is limited evidence that ketamine may also increase intracranial pressure. Consequently, it should not be used in hypotensive patients with suspected head injury.

Etomidate, thiopental, or propofol can generally be used in children with increased intracranial pressure. However, propofol should only be used if the child is hemodynamically stable, since it can depress myocardial function, thereby worsening hypotension. Propofol is also contraindicated...
in patients with a known or suspected allergy to egg products.

For the pediatric patient with a history of seizures or presenting in status epilepticus, you could consider using thiopental or midazolam. Remember that most sedatives do not provide analgesia, so consider adding fentanyl or another analgesic agent to help with pain management and anxiolysis.

Paralytics provide neuromuscular blockade, facilitating glottic visualization and rapid endotracheal intubation. They do not, however, provide sedation, analgesia, or amnesia. Consequently, they should be used in combination with other agents that provide these effects. Selection of a paralytic is far simpler than the choice of a sedative. There are only two real options in RSI—succinylcholine and non-depolarizing agents, such as rocuronium.

Succinylcholine is a depolarizing agent with a rapid onset of action (30-60 seconds) and a short duration of action (4-6 minutes). But succinylcholine can cause a variety of life-threatening adverse effects, especially in children. These effects include bradycardia, severe hyperkalemia (in patients with neuromuscular disease or renal failure), malignant hyperthermia, and increased intracranial or intraocular pressure.

Rocuronium is a non-depolarizing agent with short onset of action (60 seconds), a longer duration of action (30-40 minutes), and none of the adverse effects of succinylcholine. There is also increasing evidence that rocuronium is just as effective as succinylcholine in pediatric patients. Regardless of the paralytic that you use, be sure to wait at least 60 seconds and to test jaw tone prior to attempting intubation.

When approaching a pediatric patient that requires RSI, the three basic questions one must answer are:
- Is my patient hypotensive?
- Is there a history of increased intracranial pressure or seizures?
- Is there a history of asthma?

Applying these three questions, we can come to some general conclusions about the appropriate choice of RSI medications in the two clinical scenarios described above. In the first scenario, our patient was hemodynamically stable, with altered mental status and no past medical history. Consequently, etomidate and rocuronium would be the most appropriate choices. In the second scenario, our patient had a history of asthma, with suspected foreign body aspiration and impending respiratory failure. In that case, ketamine and rocuronium would be appropriate choices.

Intubating a child is an anxiety-provoking procedure. Consequently, it is important that emergency physicians feel comfortable with all of the steps of RSI, including preoxygenation, pretreatment, sedation and paralysis, and post-treatment. Please use this article to help you tailor your choice of sedative and paralytic agents in RSI to fit the clinical scenario.

References

<table>
<thead>
<tr>
<th>Drug</th>
<th>Type / Class</th>
<th>Side Effects / Considerations</th>
<th>Pediatric Dosing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Etomidate</td>
<td>Ultra-short actingimidazole derivative</td>
<td>Stable hemodynamic profile; decreased cerebral oxygen consumption; possible adrenocortical suppression</td>
<td>0.3-0.5 mg/kg IV</td>
</tr>
<tr>
<td>Thiopental</td>
<td>Short actingbarbiturate, rapidonset</td>
<td>Neuroprotective /anticonvulsant properties; myocardial depression</td>
<td>3-5 mg/kg IV</td>
</tr>
<tr>
<td>Ketamine</td>
<td>Dissociative amnesticagent</td>
<td>Bronchodilation; anticonvulsant properties; increased heart rate and blood pressure</td>
<td>1-2 mg/kg IV</td>
</tr>
<tr>
<td>Propofol</td>
<td>Rapid, short actinglipid soluble sedative-hypnotic</td>
<td>Myocardial depression; decreased cerebral perfusion pressure</td>
<td>2.5 mg/kg IV</td>
</tr>
<tr>
<td>Midazolam</td>
<td>Rapid actingbenzodiazepine</td>
<td>Myocardial depression; respiratory depression</td>
<td>0.1-0.3 mg/kg IV</td>
</tr>
</tbody>
</table>
**Chief complaint:** altered mental status

**History of presenting illness**
A 52-year-old female with history of alcohol intoxication and depression is brought in for altered mental status and agitation. Patient is disoriented and could not clearly answer simple questions. No family or friends are at bedside. Patient is alert but uncooperative and will not respond to verbal redirection. There is very limited history in the electronic medical record.

**Physical exam**
Triage vitals: BP 142/72 HR 100 RR 20 temp 36.8 C accucheck 124
Repeat vitals several hours later: BP 205/97 HR 124 RR 20 temp 37.0 C
Gen: agitated, diaphoretic
HEENT: dilated pupils, intermittently reactive pupils—pupil reactivity is fatigable, no nystagmus noted.
CV: tachycardia, regular rhythm, no rubs, gallops, or murmurs
Lungs: clear to auscultation bilaterally
Abd: soft, no distension or tenderness, positive bowel sounds
Ext: no edema, no rashes
Neuro: generalized muscle rigidity in all extremities (lower greater than upper). Patellar tendon reflexes are hyperreflexive with three to four beats of clonus. Up going Babinski bilaterally.
Skin: positive axillary sweat

**Labs/studies**
- WBC 4.7
- Na 137, K 3.7, Cl 103, HCO3 22, BUN 17, Cr 0.9 Glucose 148
- AST 28, ALT 26, ammonia 652, INR 1.2, ETOH 203
- Lipase 23
- Urine Analysis: WBC 42, RBC 2, squamous epithelial cells 57, bacteria 4+, Leukocyte Esterase 3+, Nit NEG
- Acetaminophen 2, Salicylate < 0.5
- Urine tox screen: + barbiturates, +phenobarbital, +opiates
- Head CT: normal

After the patient is intubated for severe agitation, family brings in a large bag of prescription pills. The patient has been alone earlier in the day, so the family does not know what specific medications the patient recently ingested, if any at all. The medications are: cyclobenzaprine (Flexeril), propranolol (Inderal), trazodone (Desyrel), bupropion (Wellbutrin), olanzapine (Zyprexa), captopril (Capoten), prednisone, escitalopram (Lexapro), primidone (Mysoline), duloxetine (Cymbalta), quetiapine (Seroquel), promethazine (Phenergan).

**Learning objectives**
1. Be able to diagnosis Serotonin Syndrome (SS) and Neuroleptic Malignant Syndrome (NMS)
2. Know the subtle differences in the clinical presentation of SS versus NMS

---

**Agitated delirium**

**Chief complaint: altered mental status**

**History of presenting illness**
A 52-year-old female with history of alcohol intoxication and depression is brought in for altered mental status and agitation. Patient is disoriented and could not clearly answer simple questions. No family or friends are at bedside. Patient is alert but uncooperative and will not respond to verbal redirection. There is very limited history in the electronic medical record.

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**Learning objectives**
1. Be able to diagnosis Serotonin Syndrome (SS) and Neuroleptic Malignant Syndrome (NMS)
2. Know the subtle differences in the clinical presentation of SS versus NMS
3. Know the different treatment algorithms for SS versus NMS
4. Know what other important emergency medicine etiologies can mimic SS and NMS

Since the patient has acute altered mental status with history of depression and substantial catalog of antidepressants and antipsychotics, a drug overdose is high on the differential. Attempting to count her pills is impossible since she had old and new pill bottles. SS or NMS are both a concern. Before discussing the patient’s clinical picture, however, it would be beneficial to first discuss the both syndromes.

Serotonin Syndrome is caused by an increase activation of serotonin receptors in the brain and spinal cord. “Increased serotonin activity can result from inhibition of serotonin metabolism (MAO inhibitors), potentiation of serotonin activity, activation of serotonin receptors, inhibition of serotonin uptake (SSRI’s), or increased substrate supply.” The pathophysiology of how hyperserotonergic states cause the clinical findings of serotonin syndrome are complex; therefore, the clinically symptoms will be the focus. Symptoms of SS include:

- tachycardia, hypertension, diaphoresis, mydriasis, myoclonus, hyperreflexia, spontaneous/inducible clonus (lower extremities usually greater than upper extremities, diarrhea, vomiting, agitation, and most importantly severe hyperthermia which can lead to metabolic acidosis, rhabdomyolysis, seizures, renal failure, and disseminated intravascular coagulation. 

Diagnosis of SS can be determined by using Hunter’s Criteria, which states that a patient must have a possible ingestion of a Selective Serotonin Receptor Inhibitor (SSRI) and one of the following symptoms. 

**Hunter’s criteria**

1) History of possible SSRI ingestion
2) AND one of the following
   a. Spontaneous CLONUS = Serotonin Toxicity
   b. Inducible CLONUS and AGITATED = Serotonin Toxicity
   c. Inducible CLONUS and DIAPHORESIS = Serotonin Toxicity
   d. TREMOR and HYPERREFLEXIA = Serotonin Toxicity
   e. HYPERTONIC and FEBRILE and INDUCIBLE CLONUS = Serotonin Toxicity

Now, let’s discuss Neuroleptic Malignant Syndrome. NMS occurs due to the lack of dopamine activity, either by medications inhibiting dopamine receptors (antipsychotics) or dopamine agonists that are suddenly stopped (methyldopa).

Clinical signs and symptoms are numerous (and some overlap SS):

- hyperthermia, agitation, and skeletal muscle rigidity, akinesia or dystonia, hypertension, tachycardia, diaphoresis, and like SS—severe hyperthermia can lead to metabolic acidosis, rhabdomyolysis, seizures, renal failure and disseminated intravascular coagulation. 

**Diagnosis of NMS**

1) Severe muscle rigidity AND fever
2) AND two of the following
   a. diaphoresis
   b. altered mental status
c. tremor
d. tachycardia
e. hypertension
f. incontinence
g. leukocytosis
h. elevated CK

As you have noticed there are many signs and symptoms common to both SS and NMS, such as tachycardia, hypertension, altered mental status, fever, diaphoresis, and incontinence. To help organize the clinical picture of SS versus NMS, the following chart illustrates the importance difference that can tip the scales to the correct diagnosis.

Let’s review the patient’s physical exam. The patient is agitated with altered mental status, diaphoretic, rapid heart rate, hyperreflexia with clonus, and generalized muscle rigidity with lower extremities more rigid than upper extremities. This patient is particularly difficult because she demonstrates important elements of SS (hyperreflexia, clonus) and NMS (lead pipe rigidity). Furthermore, the patient has medications which could cause SS and NMS

<table>
<thead>
<tr>
<th>Medications that can cause SS</th>
</tr>
</thead>
<tbody>
<tr>
<td>trazodone (inhibits serotonin reuptake)</td>
</tr>
<tr>
<td>escitalopram (inhibits serotonin reuptake)</td>
</tr>
<tr>
<td>duloxetine (inhibits serotonin/norepinephrine reuptake)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Medications that can cause NMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>quetiapine (inhibits dopamine receptor)</td>
</tr>
<tr>
<td>olanzapine (inhibits dopamine receptor)</td>
</tr>
<tr>
<td>promethazine (inhibits dopamine receptor)</td>
</tr>
</tbody>
</table>

Are there any labs that could help clear the picture? In short, no. A serum comprehensive drug panel takes too long for the results to return, which commonly is the following day. There are no practical assays to measure the levels of the aforementioned medications. (They do exist but are used for research).

Even if the patient’s medication levels could be detected, the utility would still be of little use for the following reasons. A patient does not have to have elevated levels of an SSRI or antipsychotic medication to develop SS or NMS, respectively. Simply switching from one antipsychotic or SSRI to another or just increasing the dose can trigger NMS or SS. Therefore, if the history or pill count just does not support massive overdose, do not rule out either syndrome since the majority of them are not caused by massive overdoses.

Fortunately, the first stages of SS and NMS treatment are the same, if clinically continued on page 32
indicated—nasal gastric tube, charcoal (for other possible coingestions), ‘banana bag’ (glucose, thiamine, pyridoxine and folate), and aggressive intravenous fluids to prevent renal failure along with a foley catheter to monitor urine output. If the patient shows agitation, hyperthermia, or muscle rigidity, a liberal use of intravenous lorazepam is necessary. Lorazepam will help ‘break’ the muscle rigidity and hyperthermia.

The importance of controlling muscle rigidity and hyperthermia is to prevent rhabdomyolysis and hyperthermic shock, respectively. If the patient is still hyperthermic after aggressive lorazepam treatment, then active external cooling should be started. Of note, using a cooling blanket is counter productive since the cooling blanket will vasoconstrict the cutaneous vasculature, decreasing blood flow to the skin and thereby limiting heat exchange—evaporation is a more effective cooling method.

What about antidotes? The recommended antidote for SS is cyproheptadine. The primary mechanism of action of cyproheptadine is inhibition of histamine receptors. However, cyproheptadine also inhibits serotonin receptors which is why cyproheptadine is effective in SS.

Of note, if there is concern for a concurrent anticholinergic toxicity, cyproheptadine should not be administered since cyproheptadine inhibits acetylcholine receptors. Therefore, noting any axillary sweat and bowel sounds are just a few of the important physical finds that should be present prior to administrating cyproheptadine. One dosing regiment is 12 mg down a nasogastric tube (since there is no intravenous formulation), then 2mg every 2 hours as needed with a max of 32 mg per day.

For NMS, bromocriptine can be used since it is a dopamine receptor agonist. However, there is no proven benefit of using bromocriptine, and dantrolene has not proven to be efficacious in animal models. However, bromocriptine is believed to activate central serotonin receptors.

What did we do for our patient? Lets review the physical findings:

<table>
<thead>
<tr>
<th>SS and NMS</th>
<th>SS</th>
<th>NMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>patients physical exam findings</td>
<td>hypertension tachycardia agitated</td>
<td>dilated pupils hyper-reflexive with clonus</td>
</tr>
</tbody>
</table>

As you can see, the patient had many concerns for SS; however, the generalized muscle rigidity and more importantly the ‘grab’ bag of medications included many antipsychotic medications which made a concurrent NMS possible. Overall, it would not be unreasonable to believe the patient’s clinical picture could be due to SS and NMS. Therefore, the patient was not given any antidote since there was no hyperthermia. Bromocriptine would have exacerbated the symptoms for reasons previously mentioned. Why not give cyproheptadine? We could have, since the patient had notable axillary sweat and bowel sounds (making an anticholinergic toxidrome unlikely); however, the patient was normothermic. In spite of multiple pushes of lorazepam, the patient was ultimately intubated for extreme agitation and airway protection.

Of note, many believe hyperthermia is a requirement to diagnosis SS or NMS. Throughout the emergency stay, the patient remained normothermic. However, when the patient was in the medical intensive care unit (several hours after leaving the emergency department), the patient developed hyperthermia and worsening muscle rigidity. The lorazepam drip that was started in the emergency room (5-10mg/hr) was increased to 30-35mg/hr to ‘break’ the hyperthermia and muscle rigidity. So the learning point is that hyperthermia may present later in the patients course if the patient was quickly brought to the emergency center such as the case of our patient.

In summary, if signs of anticholinergic toxidrome are present, do not administer cyproheptadine. If the clinician is unclear where the patient has SS or NMS then do not administer bromocriptine.

What about the hyperammonemia? The patient had hyperammonemia with normal liver function test. Valproic acid is well
known to cause hyperammonemia (patient had a negative valproic acid level), but serotonin syndrome can also produce an isolated elevation of ammonia. During patient’s course in the medical intensive care unit, the elevated ammonia levels rapidly decreased and were within a normal range within day four of hospitalization.

What are the other commonly used medications that are associated with SS?
- Opioids (fentanyl, tramadol)
- Antibiotics (linezolid)
- Antiemetics (ondansetron, metoclopramide)
- Herbal supplements (ginseng, St. John’s wort)
- Antitussive (dextromethorphan)
- Lithium.

Table 1

<table>
<thead>
<tr>
<th>Increase in Serotonin Synthesis</th>
<th>Inhibition of Serotonin Metabolism</th>
<th>Increase in Serotonin Release</th>
<th>Stimulation of Postsynaptic Receptors</th>
<th>SSRIs and Some Related Drugs</th>
</tr>
</thead>
</table>
| MAOIs:                         | L-tryptophan                       | Amphetamines                  | Buspirone (BuSpar) Lithium            | **SSRIs:** Citalopram (Celexa) Fluoxetine (Luvux) Paroxetine (Paxil) Sertraline (Zoloft) **MOA-B** inhibitors: Moclobemide (Aurorix) Anorectics Low-dose venlafaxine (Effexor)
| MAO-A inhibitors:             | Tranylcypromine (Parnate)         | Mirtazapine (Remeron) Anorectics | **MOA-B** inhibitors: Moclobemide (Aurorix) Amphetamine (Percodan) **MAO-B** inhibitors: Selegline (Eldepryl) Trazodone (Desyrel) Sibutramine (Meridia) TCAs: Amitriptyline (Elavil) Clomipramine (Anafranil) Doxepin (Sinequan) Imipramine (Tofranil) |


What happens if the patient continues to have hyperthermia greater than 40-41 degrees Celsius after aggressive lorazepam dosing, external cooling and possible administration of antidote? In such a case, chemical paralysis is recommended to prevent rhabdomyolysis, renal failure, metabolic acidosis, and possible disseminated intravascular coagulopathy which can arise from severe hyperthermia.1

What are the other etiologies for agitated delirium?
- Stimulants such as cocaine and methamphetamine
- Sedative-hypnotic withdrawal
- Encephalitis
- Lithium toxicity
- Strychnine poisoning
- Tetanus
- Rabies

Table 2

<table>
<thead>
<tr>
<th>Clinical Presentation</th>
<th>Serotonin Syndrome</th>
<th>NMS</th>
<th>Anticholinergic Delirium</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tachycardia</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Hypertension</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Muscle rigidity</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Hyperthermia &gt;41.1°C</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Hyperreflexia</td>
<td>+</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Myoclonus</td>
<td>+</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Shivering</td>
<td>+</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Acute onset</td>
<td>-</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Restlessness, confusion, agitation</td>
<td>+</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Bowel sound</td>
<td>+</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>


Questions
1. Cyproheptadine inhibit receptor(s)?
   a. histamine receptors
   b. dopamine receptors
   c. serotonin receptors
   d. acetylcholine receptors
   e. a, b
   f. a, b, c
g. a, c, d
h. a, b, c

2. What medication can cause a elevated ammonia levels but not cause SS?
   a. paroxetine
   b. lithium
   c. valproic acid
   d. strychnine

3. Hyperreflexia is rare in
   a. serotonin syndrome
   b. neuroleptic malignant syndrome
   c. hyperreflexia is rare in both syndromes

4. Select all the medications which are associated with serotonin syndrome
   a. promethazine
   b. trimadol
   c. cyclobenzaprine
   d. methamphetamine
   e. dapomycin
   f. ondansetron
   g. valproic acid
   h. prochlorperazine
   i. linezolid
   j. fentanyl

References
Approximately three million Americans are currently diagnosed with congestive heart failure, with 400,000 new cases identified each year. While only a small subset of these patients will experience cardiogenic acute pulmonary edema (APE), the mortality of this clinical entity approaches 15 to 20 percent. Despite this mortality rate, there is little high-grade research on any of the interventions we use on a daily basis to treat these patients.

APE is defined as the leakage of fluid from the pulmonary capillaries into the alveolar space due to increased hydrostatic pressure. This results from the inability of the left ventricle (LV) to adequately handle pulmonary venous return. The focal points of APE treatment are preload and afterload reduction.

Decreasing preload reduces venous return thus decreasing hydrostatic pressure within the pulmonary capillaries. It is generally accepted that nitrates are the most effective preload reducing agents. They can be given via sublingual, transdermal, or intravenous routes—making them both easy to administer and titrate.

Improving LV emptying with afterload reduction can also reduce the hydrostatic pressure. Decreasing the afterload, or the amount of pressure work the left ventricle must do, results in “unloading” the heart and decreasing pulmonary hydrostatic pressure. A number of different interventions have been suggested to decrease afterload including morphine, furosemide, angiotensin converting enzyme inhibitors (ACEI), and mask positive pressure ventilation. We will address the evidence behind each of these modalities.

Morphine has been a mainstay in the treatment of APE for decades. Historically, the use of morphine was based on the belief that it reduces preload and afterload, and reduces anxiety in patients by attenuating sympathetic nervous system activation. In recent years, evidence has emerged that has led to decreased morphine use. Sacchetti et al. found that morphine use was associated with increased rates of intubation (OR = 5.04) and admission to the ICU (OR = 3.08). Analysis of the Acute Decompensated Heart Failure National Registry (ADHERE) demonstrated a 5-fold increase in intubation rates, 2.5-fold increase in ICU admissions, and 4.5-fold increase in mortality. Based on this data, morphine should no longer play a role in APE management.

Loop diuretics represent a second mainstay in the treatment of APE. Their benefit is thought to be two-fold: immediate improvement from preload and afterload reduction (via vasodilation) and diuresis. Although the literature on the efficacy of loop diuretics is sparse, Kraus et al. showed a mild increase in afterload and preload during the first 15 minutes after administration of a loop diuretic.

The latter benefit of diuresis has also been shown to be suspect, as most patients in APE are not volume overloaded. In addition, blood is shunted away from the splanchnic circulation in APE leading to decreased renal blood flow. As a result, diuresis will not occur early in APE management from failure of the loop diuretic to reach the kidneys.

Conceptually, Sacchetti et al demonstrated this in a study comparing patients in APE with chronic renal failure to those with normal kidneys. Those with renal failure did just as well waiting several hours for dialysis as did those with intact renal function, negating the proposed benefit of diuresis in the initial treatment of APE.
PPV can be applied either via continuous positive airway pressure (CPAP) or bilevel positive airway pressure (BiPAP). Both are effective at decreasing the work of breathing. APE patients have decreased lung compliance because they have washed away their surfactant and have atelectatic lungs or alveolar collapse. The “threshold work” or energy necessary to open these alveoli is dramatically higher in APE (over 25 percent consumption of energy from less than three to four percent in the normal lungs).

CPAP and BiPAP reduce the work of breathing by “stenting” the alveoli open during expiration and thus diminishing the energy consumption needed to open the alveoli during each inspiration. The resultant decrease in work of breathing allows for a greater amount of energy to be devoted to cardiac work and thus potentially increases LV function.

To date, the data on superiority of CPAP or BiPAP is inconclusive but tends to favor BiPAP. This advantage may be due to the fact that BiPAP decreases afterload and leads to improved cardiac output while CPAP does not. The mechanism of this afterload reduction is not fully understood. Despite its advantages, BiPAP’s safety has been called into question as the result of increasing inspiratory times and placed on pressure settings higher than are used today.

A number of small studies support the use of ACEI in the treatment of cardiogenic APE. In APE, left ventricular impairment leads to decreased cardiac output. Decreased blood flow to the kidney activates the rennin-angiotensin system resulting in the release of angiotensin II.

Angiotensin II is a potent vasoconstrictor and sympathetic agonist; it also increases sodium absorption and promotes aldosterone release thereby increasing the blood volume. All of these actions lead to an increased afterload and worsening cardiac function.

ACEI attenuate this reaction by blocking that critical conversion of angiotensin I to angiotensin II. In addition, ACEI increase circulating levels of bradykinin, a potent vasodilator. Hamilton et al found a reduction in the need for mechanical ventilation in patients receiving ACEI. Sacchetti et al showed that ACEI use in APE patients was associated with a lower ICU admission rate (OR = 0.29) and lower intubation rates (OR = 0.16).

In summary, cardiogenic APE is a life-threatening disease process that can be reversed with an understanding of the pathophysiology, and interventions that aim to reduce both preload and afterload. Nitroglycerin is the accepted preload agent, while CPAP/BiPAP and ACE Inhibitors are slowly gaining acceptance and validation for afterload reduction.

References
"Is there a doctor on the plane?" If you have not been in this position yet, you likely will be. With nearly 7,000,000 passengers on US domestic flights annually¹, and better access to air travel for the aging and infirm, the number of in-flight medical incidents is on the rise.

A survey of five US domestic air carriers comprising 1,400,000 passengers during the period from October 1, 1996 to September 30, 1997, revealed 1,132 in-flight medical incidents. Furthermore, a physician was available on flight in 40 percent of those incidents.² Knowing what resources are available to you in flight can help you and your unexpected patient survive the flight.

‘Commercial airlines are taxis, not flying emergency rooms’,³ carrying minimal resources to aid in an in-flight medical incident. In 2004, the Federal Aviation Administration (FAA) mandated that commercial aircrafts with a maximum payload capacity of more than 7,500 lbs and requiring at least 1 flight attendant (i.e., a flight with at least 30 passengers)⁴,⁵ be equipped with first aid kit (Table 1), an enhanced emergency medical kit (EEMK) (Table 2), and an AED.

In addition to the required equipment, many commercially available EEMKs contain additional equipment and medications (Table 3). Only a licensed medical professional, i.e., physician, nurse, or EMT, may be granted permission by the flight crew to open an EEMK⁶, as the equipment there in may cause harm if used improperly. Emergency oxygen is also available in-flight, but has low flow rates of four liters per minute and is in limited quantity. Other passengers’ medications and equipment provide another resource. Though not in common use, telemedicine devices, such as the Tempus IC, acquire and transmit video and other data to ground medical support including expanded vital signs, 12-lead EKG, and blood sugar.
The flight crew is an invaluable resource to you in case of an in-flight medical incident. The FAA mandates that flight crew receive recurrent training in CPR, AED, EEMK, and supplemental oxygen use. Though there are no federal guidelines for the management of specific in-flight medical conditions, flight crews are educated in the recognition and initial treatment of common medical conditions per airline specific policies. Flight crew training, however, is not to the standard of a medical professional, and flight crews should not be expected to start IVs or administer medications. Other passenger volunteers are another source of assistance.

While most in-flight medical incidents are adequately handled by flight crew, ground medical support is also available either as in house airline medical departments or contracted groups such as MedAire MedLink. Available by phone or via radio patch, emergency medicine physicians with additional training in aerospace medicine can provide advice regarding specific medical situations and necessity for diversion. Ground medical support can also verify medical credentials, find nearest appropriate medical facility (i.e., STEMI center), and arrange airport and ground transportation emergency medical services.

As a physician volunteer in flight, our role is strictly advisory. The flight crew coordinates care, and the captain is ultimately responsible for the safety of everyone on the flight. Keeping that role in mind, there is a lot we can do with resources available in flight, especially if we are cognizant of the unique cabin environment.

The cabin environment is inherently hypoxic and arid which may exacerbate chronic medical conditions. Most commercial airlines cruise at an altitude of 8,000 feet above sea level but are required by the FAA to be pressurized to 5,000 feet, resulting in a decreased partial pressure of arterial oxygen from about 95mm Hg to 56mm Hg.

In healthy passengers, this change—resulting in only a 4 percent reduction in oxygen carrying capacity along the flat part of oxyhemoglobin dissociation curve—is virtually unnoticeable. However in patients with poor oxygen carrying capacity, such as COPD, this change may fall along the steep part of the curve, precipitating acute decompensation. Providing supplemental oxygen and recommending decreasing cruising altitude may improve the patient’s condition.

At maximum cabin pressure, gas volume may expand up to 30 percent. While in healthy passengers this change may cause minor abdominal cramping or disturbed aura, passengers with recent surgery may have complications and severe symptoms. Pneumatic medical devices and fresh platter casts may also be adversely affected.

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### Resources for responding to in-flight medical emergencies

**Table 1. First Aid Kit Contents**

<table>
<thead>
<tr>
<th>Equipment</th>
<th>No.</th>
<th>Equipment</th>
<th>No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adhesive bandage compress 1&quot;</td>
<td>16</td>
<td>Arm splint</td>
<td>1</td>
</tr>
<tr>
<td>Antiseptic swab</td>
<td>20</td>
<td>Leg splint</td>
<td>1</td>
</tr>
<tr>
<td>Ammonia inhalant</td>
<td>10</td>
<td>Roller bandage 4&quot;</td>
<td>4</td>
</tr>
<tr>
<td>Bandage compress 4&quot;</td>
<td>8</td>
<td>Adhesive tape 1&quot;</td>
<td>2</td>
</tr>
<tr>
<td>Triangular bandage compress</td>
<td>5</td>
<td>Bandage scissors</td>
<td>1</td>
</tr>
</tbody>
</table>

**Table 2. EEMK Contents**

<table>
<thead>
<tr>
<th>Equipment</th>
<th>No.</th>
<th>Medications</th>
<th>No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sphygmomanometer</td>
<td>1</td>
<td>Analgesic, non-narcotic tab 325mg</td>
<td>4</td>
</tr>
<tr>
<td>Stethoscope</td>
<td>1</td>
<td>Antihistamine inj 50mg</td>
<td>2</td>
</tr>
<tr>
<td>Airways, oropharyngeal</td>
<td>3*</td>
<td>Antihistamine tab 25mg</td>
<td>4</td>
</tr>
<tr>
<td>Self-inflating manual resuscitation device with mask</td>
<td>3*</td>
<td>Aspirin tab 325mg</td>
<td>4</td>
</tr>
<tr>
<td>CPR mask</td>
<td>3*</td>
<td>Atropine 0.5mg/5cc</td>
<td>2</td>
</tr>
<tr>
<td>IV admin set including 2 Y connectors</td>
<td>1</td>
<td>Bronchodilator, inhaled MDI</td>
<td>4</td>
</tr>
<tr>
<td>Alcohol sponge</td>
<td>2</td>
<td>Dextrose 50%/50cc inj</td>
<td>1</td>
</tr>
<tr>
<td>Adhesive tape 1&quot;</td>
<td>1</td>
<td>Epinephrine 1:1000/1cc inj</td>
<td>2</td>
</tr>
<tr>
<td>Tape scissors</td>
<td>1</td>
<td>Epinephrine 1:10,000/2 cc inj</td>
<td>2</td>
</tr>
<tr>
<td>Tourniquet</td>
<td>1</td>
<td>Lidocaine 20mg/mL</td>
<td>5 inj</td>
</tr>
<tr>
<td>Protective Gloves</td>
<td>1</td>
<td>Nitroglycerin tab, 0.4mg</td>
<td>10</td>
</tr>
<tr>
<td>Needles (18, 20, 22 ga)</td>
<td>2w</td>
<td>Saline solution 500cc</td>
<td>1</td>
</tr>
<tr>
<td>Syringes (5cc, 10cc)</td>
<td>2w</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basic Instructions for use of drugs</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Medications</th>
<th>No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diazepam, pre-filled syringe</td>
<td></td>
</tr>
<tr>
<td>Epinephrine auto-injector</td>
<td></td>
</tr>
<tr>
<td>Furosemide**</td>
<td></td>
</tr>
<tr>
<td>Sodium bicarbonate, pre-filled syringe</td>
<td></td>
</tr>
<tr>
<td>Digoxin**</td>
<td></td>
</tr>
<tr>
<td>Nalbuphine**</td>
<td></td>
</tr>
<tr>
<td>Naloxone**</td>
<td></td>
</tr>
<tr>
<td>Procainamide**</td>
<td></td>
</tr>
<tr>
<td>Promethazine**</td>
<td></td>
</tr>
<tr>
<td>Hydrocortisone**</td>
<td></td>
</tr>
<tr>
<td>Activated charcoal</td>
<td></td>
</tr>
<tr>
<td>Clonidine tab</td>
<td></td>
</tr>
</tbody>
</table>

**Table 3. Additional resources available in some commercial EEMK**

<table>
<thead>
<tr>
<th>Equipment</th>
<th>No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Endotracheal tube with stylets*</td>
<td></td>
</tr>
<tr>
<td>Laryngoscope (small and large)</td>
<td></td>
</tr>
<tr>
<td>Scalpel</td>
<td></td>
</tr>
<tr>
<td>Suture</td>
<td></td>
</tr>
<tr>
<td>Hemostat</td>
<td></td>
</tr>
<tr>
<td>Needle holder</td>
<td></td>
</tr>
<tr>
<td>Thumb forceps</td>
<td></td>
</tr>
<tr>
<td>AHA algorithm book</td>
<td></td>
</tr>
</tbody>
</table>

* EEMK must contain 1 item in 3 sizes: pediatric, small adult, large adult. AHA = American Heart Association. * ampule and vials for IV administration. tab = tablet.
Continued from page 37

Cabin quarters are tight; in event of in-flight medical emergency, ask to move the patient. The galley offers the most space, but a patient may also be moved to an aisle or a cleared row of seats. Despite the tight space, the chance of accidentally shocking other passengers while using the AED in cabin is low. Note the AED can also be used as a monitor.

The decision to divert the plane must take into consideration the seriousness of illness, availability of medical facilities at the diversion site, feasibility, and safety. Decision to divert is best discussed with ground medical support, and should be considered in case of chest pain, shortness of breath, severe abdominal pain not improved with initial interventions, persistent unresponsiveness, cardiac arrest, acute coronary syndrome, stroke, refractory seizure, or severe agitation.

The pilot ultimately decides whether to attempt diversion. Note that even under the best circumstances, diversion takes at least 20 minutes. Though important to be aware of these considerations, the need for diversion is rare; in the aforementioned survey of in-flight medical incidents, only 13 percent resulted in diversion with a diversion rate of about one per million enplanements. Alternatively, a physician samaritan may request ground medical services meet the plane at the gate and transport patient to closest facility.

Liability is limited for both the airline and individual samaritans responding to in-flight medical incidents by the Aviation Medical Assistance Act of 1998. In order for good samaritan protection to apply, the air carrier or passenger must volunteer, render care in good faith and to the standard of medical providers of similar training in similar circumstances, and receive no monetary compensation. Travel vouchers, seat upgrades, and wine are not considered compensation.

Of note the federal government does not require any action by the airline or individual medical professional to aid an ill passenger. While this is also the case in Canada and the United Kingdom, there is a duty to act in many European countries and Australia punishable by fine or imprisonment. On international flights, which countries laws apply are complicated.

While this legislation offers samaritan medical professionals assisting an ill passenger some protection, it is prudent to take additional steps to further limit liability. Before establishing a physician-patient relationship, identify yourself with credentials, consent before history and physical, and obtain an interpreter when appropriate. Inform the patient, family and flight crew of your impression and discuss the situation with ground medical support. Document the patient encounter. Lastly, do not perform any intervention you are not comfortable with or which is outside your scope of practice.

With our tendency as emergency medicine physicians to work hard, play hard, and rest well all over the world, you will likely be asked to aid an ill passenger in flight. As emergency medicine physicians, we are in the best position to act. With the knowledge of the resources available to you on commercial airlines, you are now prepared to save a life in flight.

For additional information about aerospace medicine and federal regulations governing aerospace medicine, visit www.asma.org, www.faa.gov, and www.gpoaccess.gov/ecfr.

Special thanks to Edwin Lopez, MD, EMRA President, Loma Linda University Medical Center, Loma Linda, CA for his contributions.

References

5. Emergency Medical Equipment. Washington, D.C.: Federal Aviation Administration, 1/12/06. (Advisory Circular no. 121-33B)
8. Emergency Medical Equipment Training. Washington, D.C.: Federal Aviation Administration, 1/12/06. (Advisory Circular no. 121-34B)
Posterior knee dislocation

S.G. is a 25-year-old, African American female who tripped over a shoe at her house. She presented complaining of left knee pain. Upon initial evaluation, patient was quite stoic with some underlying mental retardation. Patient was noticed to have obvious deformity to left knee. Pt was found to have a significantly weaker dorsalis pedis pulse to palpation on the left compared to the right. Emergent bedside x-ray confirmed diagnosis of left posterior knee dislocation.

Knee dislocations, in general, are significant injuries and carry an approximately 30 percent rate of amputation because the popliteal artery is interrupted and sometimes unrecognized.

If a knee dislocation is suspected, all patients should receive x-ray as well as vascular evaluation by way of testing the ankle-brachial index (ABI). The ABI is measured by taking the systolic blood pressure in the affected lower extremity, proximal to the ankle, and dividing it by the systolic blood pressure taken in the upper extremity on the same side. This should be repeated on the opposite side as well. Typically, a Doppler and manual blood pressure cuff should be used when taking pressures in lower extremities. Both should measure equally (typically over 1.0) unless history of known peripheral vascular disease. If the difference is greater than 0.1, one should investigate further into possible vascular injury.

Historically, as mentioned, the amputation rate has been approaching 30 percent; however, with CT Angiography more accessible at more hospitals, these numbers seem to be in the decline due to detection and repair of vascular occlusion. Sometimes this injury is quite obvious due to lack of blood flow distally, and other times quite subtle, only seeing a flap in the popliteal artery on CT scan.

Reduction of knee is an emergent procedure and will often improve the vascular flow to the distal lower extremity. In many cases, procedural sedation is not necessary as the peroneal nerve is affected as well. Patients will have minimal to no sensation prior to reduction.

An emergent vascular surgical consultation is needed if a vascular lesion is present. Patients will often need orthopedic consultation, typically in the urgent setting as repair of ligaments and tendons often occurs days later. On occasion, external fixation will be required after vascular repair to keep all vasculature patent. When vascular occlusion is found on CT angiography, patient is taken to the operating room for an open bypass. Endovascular repair is not favorable because the place of occlusion is typically at the crease of the knee and there are often complications because of occlusion months to years post-op.

S.G. required two milligrams of Versed intravenously, and her left knee was reduced. Upon evaluation of ABI’s, right side was 1.1 and left side was 0.5. Patient was taken emergently to CT and found to have a five centimeter segment of interrupted flow in the left popliteal artery. Vascular surgery was consulted and taken to the operating room for open bypass. Pt was discharged from hospital four days later with a bounding DP pulse and upon three month follow up had no signs of vascular compromise.

References

“Knee dislocations, in general, are significant injuries and carry an approximately 30 percent rate of amputation because the popliteal artery is interrupted and sometimes unrecognized.”
EMRA gratefully acknowledges these organizations for their generous support of the many EMRA activities during Scientific Assembly.
**Saturday, September 25**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 am – 8:00 pm</td>
<td><strong>EMRA Board of Directors Meeting</strong></td>
<td>Admirals Boardroom, MBCC South</td>
</tr>
<tr>
<td>1:00 pm – 5:00 pm</td>
<td><strong>EMRA Medical Student Governing Council (MSGC) Meeting</strong></td>
<td>Commanders Boardroom, MBCC South</td>
</tr>
<tr>
<td>5:30 pm – 7:30 pm</td>
<td><strong>EMRA MSGC/EMIG Representative Mixer</strong></td>
<td>(by invitation) Border Grill, MBCC North</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:00 am – 10:50 am</td>
<td><strong>Getting into the Residency of Your Choice</strong></td>
<td>Eagles Boardroom, MBCC North</td>
</tr>
<tr>
<td>11:00 am – 11:50 am</td>
<td><strong>Interview Day Tips</strong></td>
<td>South Pacific J, MBCC North</td>
</tr>
<tr>
<td>12:00 pm – 1:00 pm</td>
<td><strong>Medical Student Luncheon</strong></td>
<td>Islanders Ballroom FC, MBCC North</td>
</tr>
<tr>
<td>2:00 pm – 3:00 pm</td>
<td><strong>EMRA Residency Fair Exhibitor Registration</strong></td>
<td>Islanders Ballroom I Entrance, MBCC North</td>
</tr>
<tr>
<td>3:00 pm – 5:00 pm</td>
<td><strong>EMRA Residency Fair</strong></td>
<td>Islanders Ballroom I, MBCC North</td>
</tr>
<tr>
<td>7:00 pm – 10:00 pm</td>
<td><strong>EMRA Board of Directors Meeting</strong></td>
<td>Admirals Boardroom, MBCC South</td>
</tr>
</tbody>
</table>

**Sunday, September 26**

**MEDICAL STUDENT FORUM**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00 am – 8:50 am</td>
<td><strong>Which Type of Residency Program is Right for Me?</strong></td>
<td>Islanders Ballroom I, MBCC North</td>
</tr>
<tr>
<td>9:00 am – 9:50 am</td>
<td><strong>Common Mistakes Made When Applying to EM and How to Avoid Them</strong></td>
<td>South Pacific J, MBCC North</td>
</tr>
<tr>
<td>10:00 am – 10:50 am</td>
<td><strong>Getting into the Residency of Your Choice</strong></td>
<td>Sails Boardroom, MBCC South</td>
</tr>
<tr>
<td>11:00 am – 11:50 am</td>
<td><strong>Interview Day Tips</strong></td>
<td>South Pacific J, MBCC North</td>
</tr>
<tr>
<td>12:00 pm – 1:00 pm</td>
<td><strong>Medical Student Luncheon</strong></td>
<td>Islanders Ballroom FC, MBCC North</td>
</tr>
<tr>
<td>2:00 pm – 3:00 pm</td>
<td><strong>EMRA Residency Fair Exhibitor Registration</strong></td>
<td>Islanders Ballroom I Entrance, MBCC North</td>
</tr>
<tr>
<td>3:00 pm – 5:00 pm</td>
<td><strong>EMRA Residency Fair</strong></td>
<td>Islanders Ballroom I, MBCC North</td>
</tr>
<tr>
<td>7:00 pm – 10:00 pm</td>
<td><strong>EMRA Board of Directors Meeting</strong></td>
<td>Admirals Boardroom, MBCC South</td>
</tr>
</tbody>
</table>

**Tuesday, September 28**

**RESIDENT FORUM**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:30 am – 8:00 am</td>
<td><strong>EMRA Representatives to ACEP Committees Meeting</strong></td>
<td>Coral C, MBCC North</td>
</tr>
<tr>
<td>7:30 am – 8:30 am</td>
<td><strong>Resident Welcome Reception and Bloody Mary Breakfast</strong></td>
<td>Edwin Lopez, MD, EMRA President Islanders Ballroom E, MBCC North</td>
</tr>
<tr>
<td>8:30 am – 10:00 am</td>
<td><strong>Financial Planning for Young Physicians</strong></td>
<td>M. Shayne Ruffing, CIU, ChFC, AEP Islanders Ballroom H, MBCC North</td>
</tr>
<tr>
<td>10:00 am – 11:30 am</td>
<td><strong>Taking Care of Business: What You Should Know about Fair Business Practices and Contracts</strong></td>
<td>Todd Taylor, MD, FACEP and Joseph Wood, MD, JD, FACEP Islanders Ballroom H, MBCC North</td>
</tr>
<tr>
<td>11:30 am – 12:30 am</td>
<td><strong>Your Job Search: Identifying and Evaluating Real Opportunity</strong></td>
<td>Barb Katz - The Katz Company EMC, Inc. Islanders Ballroom H, MBCC North</td>
</tr>
<tr>
<td>12:30 pm – 1:30 pm</td>
<td><strong>Resident Networking Lunch: Been There, Done That: Tips from EMRA Alumni on Life After Residency</strong></td>
<td>Islanders Ballroom E, MBCC North</td>
</tr>
<tr>
<td>1:30 pm – 2:15 pm</td>
<td><strong>Regional Job Market Breakouts</strong></td>
<td>Islanders Ballroom E, MBCC North</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:30 pm – 2:00 pm</td>
<td><strong>EMRA Rep Council Conference Committee Orientation</strong></td>
<td>Explorers Boardroom, MBCC South</td>
</tr>
<tr>
<td>2:00 pm – 3:00 pm</td>
<td><strong>EMRA Regional Representative Meeting</strong></td>
<td>Admirals Boardroom, MBCC South</td>
</tr>
<tr>
<td>3:00 pm – 4:30 pm</td>
<td><strong>EMRA Reference Committee Public Committee</strong></td>
<td>TradeWinds D, MBCC North</td>
</tr>
<tr>
<td>4:00 pm – 5:00 pm</td>
<td><strong>EMRA Exhibitor Job Fair Registration</strong></td>
<td>South Pacific F Entrance, MBCC North</td>
</tr>
<tr>
<td>5:00 pm – 7:00 pm</td>
<td><strong>EMRA Job Fair</strong></td>
<td>Refreshments Co-Sponsored by Florida Emergency Physicians and Staff Care South Pacific F Entrance, MBCC North</td>
</tr>
<tr>
<td>6:00 pm – 8:00 pm</td>
<td><strong>EMRA Reference Committee Work Meeting</strong></td>
<td>Admirals Boardroom, MBCC South</td>
</tr>
</tbody>
</table>

**Wednesday, September 29**

**REP COUNCIL ACTIVITIES**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00 am – 8:30 am</td>
<td><strong>EMRA Representative Council Welcome Breakfast and Candidate’s Forum</strong></td>
<td>Islanders Ballroom I, MBCC North</td>
</tr>
<tr>
<td>8:30 am – 12:30 pm</td>
<td><strong>EMRA Representative Council Meeting and Town Hall</strong></td>
<td>Islanders Ballroom I, MBCC North</td>
</tr>
<tr>
<td>12:30 pm – 1:30 pm</td>
<td><strong>EMRA Representative Council Luncheon</strong></td>
<td>Islanders Ballroom I, MBCC North</td>
</tr>
<tr>
<td>1:30 pm – 2:30 pm</td>
<td><strong>EMRA New Board Member Orientation</strong></td>
<td>Commanders Boardroom, MBCC North</td>
</tr>
<tr>
<td>1:30 pm – 5:30 pm</td>
<td><strong>EMRA Resident Sim Wars Competition</strong></td>
<td>South Pacific F, MBCC North</td>
</tr>
<tr>
<td>2:00 pm – 3:00 pm</td>
<td><strong>EM Resident Editorial Advisory Committee Meeting</strong></td>
<td>Explorers Boardroom, MBCC South</td>
</tr>
<tr>
<td>6:00 pm – 7:00 pm</td>
<td><strong>EMRA Fall Award Reception</strong></td>
<td>Islanders Ballroom I, MBCC North</td>
</tr>
<tr>
<td>10:30 pm – 4:00 am</td>
<td><strong>EMRA Party</strong></td>
<td>Sponsored by Emergency Medical Associates LAX Nightclub, Luxor Hotel</td>
</tr>
</tbody>
</table>

**Thursday, September 30**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:00 am – 12:00 pm</td>
<td><strong>EMRA Committee Meetings</strong></td>
<td>Captains Boardroom, MBCC North</td>
</tr>
<tr>
<td>12:00 pm – 1:30 pm</td>
<td><strong>EMRA Technology Committee</strong></td>
<td>Captains Boardroom, MBCC North</td>
</tr>
<tr>
<td>1:00 pm – 3:00 pm</td>
<td><strong>EMRA Board of Directors Meeting &amp; Committee Updates</strong></td>
<td>Islanders Ballroom E, MBCC North</td>
</tr>
<tr>
<td>2:00 pm – 6:00 pm</td>
<td><strong>EMRA Board of Directors Meeting</strong></td>
<td>Islanders Ballroom E, MBCC North</td>
</tr>
</tbody>
</table>

**Regional Job Market Breakouts**

<table>
<thead>
<tr>
<th>Region</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>North</td>
<td>South Pacific A, MBCC North</td>
</tr>
<tr>
<td>South</td>
<td>South Pacific B, MBCC North</td>
</tr>
<tr>
<td>East</td>
<td>South Pacific C, MBCC North</td>
</tr>
<tr>
<td>West</td>
<td>South Pacific D, MBCC North</td>
</tr>
</tbody>
</table>
Looking for the perfect job?
Find it at the

Tuesday, September 28
5:00 pm - 7:00 pm • South Pacific F Entrance, MBCC North

Fellowship/Academic

Baylor College of Medicine
Boston EMS Fellowship
Brigham & Women’s Hospital/Harvard
University International Emergency Medicine Fellowship
CAL/ACEP Health Policy & Advocacy Fellowship
CEP America
Christiana Care Emergency Ultrasound Fellowship
Christiana Care Health System
Cleveland Clinic
Drexel University
Emory University School of Medicine
Loma Linda University School of Medicine
Maimonides Medical Center
MedStar Emergency Physicians/
Georgetown University/Washington Hospital Center
MSU/Sparrow Hospital/Lansing
New York Hospital Queens
PACEMD
R Adams Cowley Shock Trauma Center
Resurrection Medical Center EM Ultrasound Fellowship
St. Joseph’s Regional Medical Center
SUNY Downstate
Texas Tech Health Sciences Center
The University of Arizona
UCSF Fresno Emergency Ultrasound & Wilderness Medicine Fellowships
UMass Medical School
UMDNJ-New Jersey Medical School
University Hospitals Case Medical Center
University of California San Francisco
University of Maryland
University of Missouri/Columbia
University of Pittsburgh
University of Rochester
University of Texas Health Science Center/San Antonio
University of Texas Southwestern
Medical Center at Dallas
University of Utah
University of Virginia

International

Global Medical Staffing
HealthForce Ontario
VISTA Staffing Solutions

North Central

4M Emergency Systems, Inc.
ApolloMD
BestPractices, Inc.
CEP America
EmCare, Inc.
Emergency Consultants, Inc.
Emergency Medicine Consultants of Lorain County
Emergency Physicians Medical Group EMP
Henry Ford Health System
Hospital Physician Partners
Indiana Emergency Care
Infinity Healthcare
Marquette General Health System
Marshfield Clinic
MEA Management
MEDS
Ministry Health Care
Prairie Emergency Services, S.C.
Premier Health Care Services, Inc.
Qualified Emergency Specialists, Inc.
Schumacher Group
Staff Care, Inc.
Team Health

North East

ApolloMD
Bassett Healthcare
BestPractices, Inc.

CompHealth
Eastern Maine Healthcare Systems
EmCare, Inc.
Emergency Consultants, Inc.
Emergency Medical Associates (EMA)
Emergency Medicine Associates, PA, PC
Emergency Physicians Medical Group EMP
Geisinger Health System
Health Quest/Vassar Brothers Medical Center
Jersey Emergency Medicine Specialists
Johns Hopkins Emergency Medical Services
Maryland Emergency Medicine Network
MedExcel USA, Inc.
Medical Emergency Professionals
MedStar Emergency Physicians/
Franklin Square Hospital Center
and Union Memorial Hospital
New York Methodist Hospital
North Shore LIJ Health System
Phoenix Physicians, LLC
PracticeMatch Career Center
Rochester General Health System
Saint Francis Hospital and Medical Center
Schumacher Group
Sheridan Healthcare, Inc.
South Jersey Healthcare
St. Joseph’s Hospital Health Center
Staff Care, Inc.
Team Health
Teed & Company
The Reading Hospital and Medical Center
TIVA Healthcare, Inc.

South Central

Affilion
ApolloMD
Belleville Memorial Hospital
C&M Medical Services
CEP America

Special thanks to Florida Emergency Physicians and Staff Care
EMRA Job Fair!

*Confirmed exhibitors as of 9/2/2010

CompHealth
Cornerstone Physicians Management Group
EmCare, Inc.
Emergency Consultants, Inc.
Emergency Physicians of St. Louis
Emergency Service Partners, LP
EMP
Greater Houston Emergency Physicians (GHEP)
Greater San Antonio Emergency Physicians, PA
Hospital Physician Partners
MEA Management
Mercy Physician Recruitment
Midwest Emergency Physicians, LLC
PracticeMatch Career Center
Questcare Partners
Schumacher Group
Team Health
Valley Baptist Health System
Via Christi Health

Southwestern Emergency Physicians, PC
Staff Care, Inc.
Team Health
Teed & Company
Titan Emergency Group
VISTA Staffing Solutions
Weatherby Locums

Western
Affiliation
CEP America
CompHealth
Dartmouth/Hitchcock Medical Center
EmCare, Inc.
Emergency Consultants, Inc.
Emergency Professional Services, PC
EMP
Evergreen Emergency Physicians
Fremont Emergency Services
Group Health Permanente
HEPA, Inc.
Hospital Physician Partners
JJ&R Emergency Medical Group, Inc.
Kaiser Permanente
MedStaff Locums, LLC
PracticeLink.com
PracticeMatch Career Center
Provider Health and Services
Schumacher Group
SEMA/Sutter Emergency Medical Associates
Sierra Emergency Medical Group, Inc.
Southern Colorado Emergency Medical Associates
St. Agnes Medical Center
Staff Care, Inc.
Tacoma Emergency Care Physicians
Team Health
Valley Emergency Physicians
VISTA Staffing Solutions

for sponsoring the refreshments at the Job Fair!

Emergency Medicine Residents’ Association

Join Today!
Don’t miss out on the benefits of EMRA!
As a member you’ll receive many benefits to help you advance your career in emergency medicine.

Membership includes
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When you are ready to reveal your research to the world, the first step is often to present either a poster or abstract at a national meeting. This is an important step on the way to preparing a full-length, peer-reviewed manuscript, as you can convey your ideas as well as collect valuable feedback on your project. As these formats may represent the first critical assessment of your project, budget enough time to allow for considerable writing and rewriting, as well as reviews by objective mentors. As an investigator so invested in your project, you may not recognize some basic flaws in the study or write-up—an independent review is essential. Seek out help early and often.

Follow all instructions and requirements provided by the relevant national organization, as most will have specific length, format, and font guidelines. It may often be helpful to review accepted abstracts from past meetings to help guide your writing and editing. If you are fortunate enough to attend a meeting between now and your own conference, pay close attention to the posters, and ask lots of questions.

**General template for posters or abstracts**

**Title:** This should be 10 to 12 words in length, with the goal of describing the investigation without overstating the study’s conclusions. Consider including the basic study design as part of the title.

**Authors/Affiliations:** List the authors in order from most to least amount contributed, along with each author’s home institution. In some settings, it is customary to list the most senior author last and the investigator presenting the project first.

**Introduction/Background:** In one or two sentences, concisely summarize past research on the topic and how your project will advance the knowledge in this particular field.

**Hypothesis/Study Objective:** Describe the question you are trying to answer with your project, and then clearly state your hypothesis in one sentence. Framing your project as well as the abstract/poster around the objective is critical to guiding the reader and eventual reviewer.

**Methods:** Use four to five sentences to concisely state the techniques used to test your hypothesis. Be sure to include the study design and type, study setting, patient selection process (with inclusion and exclusion criteria), and whether any randomization or blinding was utilized. This section should also clearly state the pre-specified primary and secondary outcomes and how they were measured. Conclude with one sentence listing the statistical methods used.

**Results:** In four to five sentences describe the core of what your study found. Include the number of patients studied as well as the relevant demographic and clinical characteristics of the patient population (age, gender, race, comorbidities). Use numerical data to state your results, focusing on your primary outcome measures. Be sure to report the main result, standard error, and level of significance. Results that are not central to the project’s objective do not have to be included in the abstract or poster. Tables and figures are typically
“As an investigator so invested in your project, you may not recognize some basic flaws in the study or write-up—an independent review is essential. Seek out help early and often.”

not used in an abstract, but work great for the poster.

Conclusion: Summarize the project’s findings in one to two sentences. Explain whether or not your results support the primary hypothesis, what implications your study has, and what may be the logical next step in research. Be sure not to exaggerate the significance of your study.

Crafting the poster

There are a few additional considerations specific to making a poster that are worth noting. In general, the content of the poster should be an expanded version of the content of the abstract, though pasting your abstract verbatim onto a poster with some pictures and figures is a reasonable approach. Alternatively, you can convert many of the paragraphs into crisp bullet points to minimize clutter and maximize readability.

Again, you should strongly consider utilizing graphs, tables, and pictures for your study design and results sections. This will not only help your reader more effectively grasp the material, but also will break up the otherwise massive columns of text on the poster. Be sure to include a title or brief summary of each visual aid.

The last major addition is that posters typically will display a brief section detailing major limitations of the study and a place at the end for two or three highly relevant references. There is no need to include a complete bibliography.

When it comes time to physically construct the poster, the most important step is to match your poster’s dimensions to the space allotted by the organization. Check the conference website or poster acceptance letter for that crucial information. You may either create the poster yourself or have a graphic design company do it for you. Some hospitals have an entire department that design and print the poster too, so ask around. If you opt to craft your own, programs such as Microsoft Word and Powerpoint have templates that are easy to use. Lastly, be sure to have multiple people proofread your work on the computer before you spend money to have it printed.

An abstract or poster is a fantastic way to initially present your research to the academic community. Though the task may seem daunting and overwhelming at first, you can put together a professional and effective abstract and poster by using the guidelines above. Remember to use your mentors and colleagues as resources that can proofread and advise you along the way. See you at the next conference.

References
Be prepared!

You should be receiving this in early October. Your Scientific Assembly is at hand, and with it comes the opportunity to get out of the ED and find out what is going on around the country. I encourage you to spend some brief time catching up on various topics of interest. If you only have ten minutes to think about your finances, here are the things that I would like for you to know:

The basics

Cash savings
Money market accounts remain an effective cash savings vehicles. Look outside of your bank to brokerage or online accounts for higher yields (+/- 1.5% as of this writing) as well as complete mobility of services. I strongly recommend starting a monthly draft in to your savings account to build your cash reserves.

Disability income protection
The disability market is now very competitive with four insurance companies offering true own occupation / specialty specific contracts for emergency physicians in most states. If you are in your final year of residency, make sure you start to evaluate disability protection prior to signing a contract. Within the last six months of your training it is now possible to get up to $7,500 of tax free benefit! Two carriers may penalize you if you have already committed to a future practice or hospital.

IMPORTANT: If you have health complications that could make insurance difficult to obtain, find out what provisions your house staff disability might have for non-medical conversions.

*As EMRA members, you can obtain a personal analysis and apply for benefits by visiting http://www.integratedwealthcare.com/education/ and clicking on the EMRA link. You can also view two educational videos on the topic, further explaining this opportunity.

Life insurance
After several years of being overly competitive, the life insurance industry has reacted to the global economic climate by gradually increasing insurance costs and reducing dividend yields. If you anticipate changes in the foreseeable future that will dictate the acquisition of life insurance, start to take a look at this now. Residents are most often best suited for term life insurance and these types of contracts have long term guaranteed premiums. Lock in a competitive rate NOW! Also consider permanent plans for accumulating wealth, while you are healthy and administrative costs in these plans are low.

Estate planning
If you own stuff, have a will. If you have children, include Guardian and Trustee provisions. It is a lot easier to make estate
decisions while you are still alive…. many house-staff benefit plans will offer free will preparation, typically as part of the group life insurance plan.

**Growth**

**Retirement planning**

Please, please understand the advantages of investing in a Roth IRA. As residents, you are in the lowest income tax bracket that you are likely to ever be in. Use it to your advantage! If you follow anything that is going on in Washington, you will understand the likelihood of higher taxes and inflation over the next stage in your career. If you can contribute more than the federal limit for Roth IRA’s, enroll in your house-staff 403(b) and get a dollar for dollar tax break as you fund your future.

**Strategy**

**Tax review**

Pay attention to the healthcare and financial bills that are winding their way through the legal system at this time. The net impact will likely be higher taxes for most, starting January 1st, 2011. Consider how this will impact your future earnings and plan accordingly, if finishing training in 2011.

**IRA strategy**

Talk to your tax advisor or financial planner about the conversion opportunity in 2010. For this year only, there are expanded opportunities to convert future taxable retirement funds in to Roth funds. You pay taxes as you convert, but that may be very advantageous if you are still in residency or completing your training in 2011.

Anything more and this article will be too lengthy. I wish you well and hope that you find value in this information.

Best wishes and safe travels if you are heading out to Las Vegas. Don’t hesitate to stop me, if we cross paths at the Assembly.

Shayne Ruffing, CLU, ChFC, AEP is the creator of the Confident Transition Plan™ for medical residents, the Physician Disability Income Analyzer™ and the Physician’s Financial Navigator™. Shayne specializes in executive benefit planning for physicians and medical practices. He can be reached at 800.225.7174, or via e-mail at shayne@mybpginc.com or on the web at www.IntegratedWealthCare.com.

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New Resident Fellow Announced

Each year, Annals of Emergency Medicine selects a Resident Fellow (formerly the Resident Editor) to serve on the Editorial Board. We are pleased to announce that Melinda J. Morton, MD, MPH, of Johns Hopkins University, Baltimore, MD, has been selected to serve as the new Editorial Board Resident Fellow for the coming year. Dr. Morton received her MD in 2008 from the University of Pennsylvania School of Medicine.

Jason D. Heiner, MD, of Brooke Army Medical Center, San Antonio, TX, and Nadia Huancahuari, MD, of Boston Medical Center, Boston, MA, are the immediate past Resident Fellows for the journal. Dr. Heiner and Dr. Huancahuari began their terms in October 2009. Their service concluded in October 2010.

If you have an idea, an issue, or an experience about which you would like to write, submit an abstract (limit 250 words, double-spaced) outlining your idea. Give the names of your coauthors, if any. If your idea is chosen, you will be asked to write an article for the “Residents’ Perspective” section.

Submit your abstract to Melinda J. Morton, MD, MPH, Resident Fellow, Annals of Emergency Medicine, 1125 Executive Circle, Irving, TX 75038-2522 Fax: 972-580-0051 E-mail: annalsfellow@acep.org.

Join us in improving patient safety in emergency medicine

The Emergency Medicine Patient Safety Foundation (EMPSF) is looking for Emergency Department providers (physicians, residents, nurses and paramedics) who are interested in joining our Education Committee. The purpose of the Education Committee is to identify topics of interest and concern to Emergency Medicine providers, to identify and help describe best practices, and to provide input and editorial support for material developed for our newsletter and website. We meet by conference call on the first Friday of each month. Current members of the committee include physicians, nurses and lawyers all who are committed to improving patient safety in our nation’s Emergency Departments.

If you are interested in learning more about how you can advance your own knowledge in patient safety in Emergency Medicine and want to collaborate with similar professionals, please send a current CV or resume along with a brief statement of interest to Barbara Youngberg, Chief Learning Officer of the Emergency Medicine Patient Safety Foundation at barbara.youngberg@gmail.com. Deadline for submission of materials is December 1, 2010.

Alphabet Soup  Benjamin Lawner, DO, University of Maryland
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October/November 2010 49
Risk management pearls for management of postpartum emergencies in the emergency department

From the July 2010 issue of Emergency Medicine Practice. Reprinted with permission. To access your EMRA member benefit of free online access to all EM Practice and Pediatric EM Practice issues, go to www.ebmedicine.net/emra, call 1-800-249-5770, or email ebm@ebmedicine.net.

1. Late postpartum eclampsia can rapidly develop with only one or no premonitory signs and symptoms of elevated blood pressure, proteinuria, or headache.

2. Preeclampsia should be considered in postpartum patients with mildly elevated blood pressure and/or proteinuria.

3. Symptoms of preeclampsia post partum include headache, nausea, vomiting, visual disturbances, abdominal pain, and malaise.

4. Patients with postpartum preeclampsia can progress very rapidly from relatively mild symptoms and an elevated blood pressure to seizures.

5. Even mild abnormalities on CBC or liver or renal function tests post partum may be indicative of the HELLP syndrome.

6. Although a urine dipstick result of 1+ for protein roughly correlates with 300 mg of protein in a 24-hour urine sample (a diagnostic criterion for preeclampsia), a negative dipstick result is not sufficiently sensitive to rule out preeclampsia.

7. Headache post partum can be from a number of serious neurovascular abnormalities, including preeclampsia, subarachnoid hemorrhage, stroke, or cerebral venous sinus thrombosis.

8. Peripartum cardiomyopathy can often be mistaken for mild upper respiratory congestion but can quickly deteriorate into fulminating congestive heart failure.

9. Dyspnea in the postpartum patient may be indicative of postpartum cardiomyopathy, pulmonary embolism, or preeclampsia.

10. Magnesium sulfate is the drug of choice for the prevention and treatment of postpartum eclamptic seizures.
1. “The child did not appear blue, so I didn’t investigate the possibility of a cyanotic cardiac anomaly.”
   Apparent cyanosis requires 5 g/dL of deoxygenated hemoglobin. Early in the neonatal period, most infants are polycythemic and can manifest cyanosis overtly at an oxygen saturation of 85%. However, later in the neonatal period or in the anemic neonate, the oxygen saturation required to produce a blue appearance is much lower.

2. “The neonate had some bilious emesis, but the plain radiographs of the abdomen were normal.”
   A surgical cause of bilious emesis in the neonate is found in 30% to 40% of cases. In malrotation specifically, findings from plain radiographs are often normal. A UGI study should still be considered, but if it is not possible, the patient should be observed or a pediatric surgeon consulted.

3. “The mother reported a temperature at home, but the infant had no fever in the ED.”
   Tactile fevers can be difficult to interpret. Nevertheless, one retrospective study indicated that in infants with a documented rectal temperature at home, 92% had a fever either on presentation to the ED or during a subsequent 48-hour hospitalization for observation. The safe course is always to take a parent’s history of fever seriously unless there is a compelling reason not to.

4. “The parents say the child rolled off the bed, which may explain the intracranial hemorrhage.”
   Being responsible for removing an infant from his or her home can be difficult; it is even harder when the diagnosis is unclear. It is important to remember, however, that any suspicion on the part of the emergency clinician requires a DCFS report, and further action is up to the legal system and child abuse teams. Rolling is unlikely in an infant under 4 months of age, making the history suspect. Additionally, although skull fractures and epidural hematomas have been reported in infants after a 3-foot fall, subdural hematomas are highly implausible from that mechanism.

5. “I was waiting for the results of the herpes simplex virus PCR before starting the acyclovir.”
   About 1% of neonates with a fever and CSF pleocytosis have herpes meningitis. It is a high morbidity and mortality disease with improved outcomes when treatment is started early in the disease course. As the side effect profile is minimal for acyclovir, it is reasonable to start the drug in the ED.

6. “I was waiting for the nurses to secure an IV in order to start therapy.”
   It is easy to fall into the trap of waiting for the nurse to obtain an IV, whether the delay involves awaiting the arrival of a NICU nurse or a lack of communication about whether access has been established. In the critically ill neonate, a few attempts should be made before moving on to obtain an intraosseous line. Alternatively, an emergent umbilical line can be attempted in neonates up to 10 days old.

7. “I did everything right with the diagnosis of hypoplastic left heart syndrome. Why did the patient die after transfer?”
   The gut hypoperfusion associated with hypoplastic left heart syndrome can cause bowel ischemia and resultant sepsis. Although some patients clearly die from the cardiac lesion itself, it is important to have a low threshold for diagnosing and/or empirically treating infections in these infants.

8. “The patient’s glucose level was 35 mg/dL. I understood that to be normal in the neonate.”
   Historically, lower values were tolerated. Current recommendations consider values below 45 mg/dL to be hypoglycemic, requiring treatment.

9. “I’ve intubated the child, but I’m still having trouble ventilating her.”
   Neonatal intubations can be difficult, but when one does not have the desired result, following the adult algorithm of reconfirming placement, assessing for equipment failure, ruling out pneumothorax, and checking for obstruction is appropriate. Additionally, it is easy to intubate the right mainstem bronchus in an infant; generally, the tube measurement at the lip should be 3 times the size of the ETT (ie, a size 4 tube will be inserted at 12). Finally, gastric distension from bagging can be significant enough to impair ventilation. Placing an NGT or OGT may improve the ability to ventilate the infant.

10. “An infant brought in died in the department, and it sounds like a clear-cut case of SIDS. The parents are strongly against an autopsy.”
    Unfortunately, any unexpected neonatal death does require an autopsy. Sudden infant death syndrome is a diagnosis of exclusion and requires an autopsy to ensure that other potential causes (such as abuse) have been ruled out.
Bone tenderness along distal 6cm of the posterior edge of the bone.

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Rubeal Mann, MD
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Appendix I  Procedures and Skills

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

1. The preferred site for placement of an intraosseous line in an adult patient is:
   A. Anterior superior iliac spine
   B. Anterior surface of the clavicle
   C. Anteromedial surface of the proximal tibia
   D. Distal tibia just proximal to the medial malleolus
   E. Proximal subcutaneous border of the olecranon

2. Which of the following is most likely to be a complication of placing an internal jugular central venous catheter compared to a subclavian venous catheter?
   A. Air embolism
   B. Arterial puncture
   C. Infection
   D. Pneumothorax
   E. Venous thrombosis

3. Contraindications to cricothyrotomy include:
   A. Acute airway obstruction
   B. Age younger than 5 years
   C. Apnea
   D. Inability to orotracheally or digitally intubate
   E. Severe facial trauma

4. A 40-year-old woman presents with epistaxis of 3 hours’ duration. Pressure has not slowed the bleeding. On examination, bleeding from the septum is noted. After initial cautery, reexamination shows continued bleeding. The next step in management should be:
   A. Anterior nasal packing
   B. ENT consultation
   C. Posterior nasal packing
   D. Pressure
   E. Repeated cautery

5. In needle aspiration of a peritonsillar abscess, aspiration of only the superior pole of the tonsil will:
   A. Avoid possible vascular injury
   B. Be sufficient if it is negative
   C. Be sufficient if it is positive
   D. Miss 30% of abscesses
   E. Require incision and drainage if positive

Answers
1. D
2. B
3. A
4. D
5. A

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**Darren Braude, MD, EMT-P**  
EMS Fellowship Director  
DBraude@salud.unm.edu

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**Darryl Macias, MD**  
Wilderness, Austere & Intl. EM. Fellowship Director  
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**Applicant Information**

International Emergency Medicine Fellowship  
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Wilderness, Austere & International Emergency Medicine Fellowship  
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Ready to go the distance? Our two-year program trains tomorrow’s leaders in international emergency care systems and global humanitarian crisis response.

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www.brighamandwomens.org/DHHP/EEM

Ready to go the distance? Our two-year program trains tomorrow’s leaders in international emergency care systems and global humanitarian crisis response.
PROGRAM PURPOSE
To provide clinical training, process improvement, hands-on bedside teaching, and supervision of clinical service delivery, using United States trained emergency physicians at district level hospitals in Ghana.

PROGRAM OBJECTIVES
With the support of GE Foundation and in collaboration with the Ghana Health Service, we have developed a pilot project to provide technical knowledge transfer at Kintampo and Mampong District Hospitals for 3 years, using United States trained emergency physicians.

ELIGIBILITY
Emergency Medicine Resident Physicians must be in their third or fourth year of training at an accredited US program in Emergency Medicine by July 2010.

Emergency Medicine Attending Physicians who are board prepared or board certified in EM are also welcome to apply.

Please send all information to our Senior Program Officer, Beth Rubenstein, MPH, MBA via email at: sidharte@columbia.edu.

PROCESS
Please email CV immediately with possible travel dates. You will receive application materials on receipt of email.

Physicians are later asked to submit two letters of recommendation addressed to Rachel Moresky, MD, MPH, FACEP.

The sidHARTe Program consists of the following components:
1. Supervising clinical service delivery at either Kintampo District Hospital or Mampong District Hospital
2. Training of health staff which includes: physicians, medical officers, midlevel providers, nurses and midwives
3. Health systems process improvement with the Ghana Health Service and other programs
4. Monitoring & Evaluation (external evaluation)

4 to 8 weeks in Ghana
(all expenses covered)

The sidHARTe program will cover all costs related to the rotation, including international travel. Details to follow upon acceptance.

REACH YOUR POTENTIAL

Columbia University Medical Center / New York-Presbyterian Hospital International Emergency Medicine Fellowship

2 Year IEM Fellowship with MPH
Application Deadline: November 1st
Send completed applications to:
Rachel T. Moresky, MD, MPH, FACEP
Email: rtm2102@columbia.edu

More information visit:
http://www.nypemergency.org/fellowships/int_eme.html?name1=International+Emergency+Medicine+Fellowship&type1=2Active
The Emory/Centers for Disease Control
and Prevention (CDC)
Medical Toxicology Fellowship Program
Panama, Kenya, Bangladesh, Ethiopia, Mexico, Nicaragua
and the Ukraine.....

These are just a few of the places where our Medical Toxicology Fellows have traveled while investigating outbreaks of chemical-associated illness, mass poisonings, and environmental health threats. These outbreaks and investigations have included:

- Suspected cholinesterase inhibitor poisoning among children
- A mystery illness characterized by severe hepatic dysfunction
- Mass poisoning from diethylene glycol contaminated cough syrup
- Potential occupational exposures to manganese
- Aflatoxicosis from contaminated maize
- And others....

This two-year program offers you affiliations with the Emory University School of Medicine, CDC, the Agency for Toxic Substances and Disease Registry (ATSDR), and the Georgia Poison Center. The Georgia Poison Center is among the 5 busiest poison centers in the United States and receives more than 90,000 calls per year. As an Emory/CDC Medical Toxicology Fellow you will:

- Participate in the toxicological evaluation, management and bedside care of patients at five Atlanta-area metropolitan hospitals
- Provide expert toxicological guidance and consultation for the Georgia Poison Center
- See a wide variety of environmental and occupational cases of illness through the Grady Toxicology Clinic
- Learn from a diverse faculty that includes more than 10 board-certified medical toxicologists
- Work and train with international Medical Toxicology Fellows and Pharmacy Clinical Toxicology Fellows as well as mentor/teach medical students and rotating residents
- Have protected time to moonlight and maintain your primary clinical skills within and/or outside of the Emory system
- Participate in international and domestic chemical-associated outbreak and public health investigations
- Receive formal training in epidemiology, statistics, scientific writing, medical management of both biological and chemical casualties, public health risk assessment, laboratory science, and more

For more information please contact:
Brent Morgan, M.D.
Director, Emory/CDC Medical Toxicology Fellowship
Georgia Poison Center
50 Hurt Plaza SE, Suite 600
Atlanta, GA 30303
(404) 616-6651
bmorg02@emory.edu
www.emory.edu/em/fellowships_toxicology.html

THE GEORGE WASHINGTON UNIVERSITY
DEPARTMENT OF EMERGENCY MEDICINE
FELLOWSHIP PROGRAMS
WASHINGTON DC- The Department of Emergency Medicine at the George Washington University is offering Fellowship positions beginning in July, 2011:

- Disaster/EMS
- ED Operations & Leadership
- Ultrasound
- Health Policy
- Clinical Research
- International Emergency Medicine
- Travel & Transport
- Toxicology
- Operations Research
- Telemedicine

Fellows receive an academic appointment at George Washington University School of Medicine and work clinically at a site staffed by the Department. The Department offers fellows a common interdisciplinary curriculum, focusing on research methodologies and grant writing. Tuition support for an MPH or equivalent degree is also provided.

Complete descriptions of all programs, application instructions and Fellowship Director contacts can be found at http://www.gwemed.edu/fellowships/.

The Emory/Centers for Disease Control
Medical Toxicology Fellowship Program
Panama, Kenya, Bangladesh, Ethiopia, Mexico, Nicaragua
and the Ukraine.....

These are just a few of the places where our Medical Toxicology Fellows have traveled while investigating outbreaks of chemical-associated illness, mass poisonings, and environmental health threats. These outbreaks and investigations have included:

- Suspected cholinesterase inhibitor poisoning among children
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- Receive formal training in epidemiology, statistics, scientific writing, medical management of both biological and chemical casualties, public health risk assessment, laboratory science, and more

For more information please contact:
Brent Morgan, M.D.
Director, Emory/CDC Medical Toxicology Fellowship
Georgia Poison Center
50 Hurt Plaza SE, Suite 600
Atlanta, GA 30303
(404) 616-6651
bmorg02@emory.edu
www.emory.edu/em/fellowships_toxicology.html

The Global Health Division of the Department of Emergency Medicine at St. Luke’s Roosevelt Hospital is offering a two-year fellowship focusing on HIV/TB, Tropical and Travel Medicine.

Within this program fellows will acquire public health and clinical training in the most pressing global health issues of our time, while working in a highly-regarded adult and pediatric emergency department in New York City.

Features include:

- Adult and pediatric HIV, TB, and Travel Medicine rotations
- Diploma in Tropical Medicine
- Diploma in Humanitarian Relief
- Structured overseas rotations
- Opportunity to work with NGOs
- Weekly modular coursework
- Opportunity for research and publication
- ED volume of 150,000+ per year
- Academic center with 3-year residency program and ultrasound fellowship

Accepting qualified adult and pediatric EM trained applicants.

Contact: applications@sleredglobalhealth.com
Visit our website at: www.sleredglobalhealth.com
Multiple States, Alabama, Louisiana & Pennsylvania: Hospital Physician Partners seeks qualified candidates for immediate opportunities. Full Time Directorships and FT/PT Physician positions. ED volumes ranging from 8K to 40K. Candidates should be residency trained BC/BP in EM with ACLS, ATLS and PALS with recent ED experience. What’s important to YOU is what matters to US…Excellent compensation, sign-on & tuition bonuses, paid malpractice with tail, flexible scheduling and excellent team support. Contact Jimmique Jones-Guthrie: (800) 815-8377 ext. 2262; email jjones-guthrie@hppartners.com or visit www.hppartners.com/emra.

Multiple States, North Carolina & South Carolina: You have the training and skills, we have the locations! The Carolinas offer some of the most desirable lifestyles in the country. Full-Time and Part-Time Physician opportunities available in 12 & 24 hour shifts. ED Volumes ranging from 10K to 50K. Enjoy working in metropolitan areas (Chapel Hill, Raleigh, Greensboro & Winston-Salem); Mountain regions (Asheville, Boone & up-state South Carolina) or Coastal regions (Wilmington & Myrtle Beach). Make the right move for your family and career! What’s important to YOU is what matters to US…excellent compensation, independent contractor status, paid malpractice with tail, flexible scheduling and great team support. Contact Arman Razavipour: (866) 628-5531; email arazavipour@hppartners.com or visit www.hppartners.com/emra.

Emergency Medicine Fellowships Available
Three Positions Available: Beginning July 1, 2011
Deadline for Application: February 1, 2011

ADMINISTRATIVE FELLOWSHIP
Fellows will work with the Chairman of Emergency Services clinically, participate in research projects, and work on committees at St. Joseph’s Regional Medical Center while also interfacing with St. Joseph’s Healthcare System Administration, Board of Trustees and Emergency Department Administration.

EMS & DISASTER FELLOWSHIP
Fellows will develop leadership skills in field operations, communications, training, research and administration in a variety of settings. The Fellow will be prepared to lead their institutions and/or EMS services in all EMS activity and disaster planning.

EM ULTRASOUND FELLOWSHIP
Fellows will learn to perform and apply bedside ultrasonography, for basic and advanced applications in the Emergency Department allowing for skill development of both performing and accurately interpreting bedside ultrasonography in a busy urban Emergency Department setting.

Additional Information
- 4 weeks paid vacation
- Child care services
- PGY-5 pay scale
- On-site parking
- Paid tuition to ACEP
- Health Benefits

Affiliation: Administrative Fellows will complete a significant number of credits toward a MPH, MBA with Montclair State University

For more information or an application, please contact Sharon Eitel, Emergency Services Administrative Assistant, 973.754.2240.

Where patient care and technology intersect—THAT is the future of Emergency Medicine.

Apply for the Emergency Medicine Fellowship in Clinical Informatics
The University of Arizona Department of Emergency Medicine in cooperation with the Department of Biomedical Informatics at Arizona State University offers the TeamHealth Fellowship in Clinical Informatics.

• Earn a generous salary while completing a Master’s Degree in Biomedical Informatics and preparing for the promising technological future of emergency medicine.
• Live, work, and play in sunny Phoenix, Arizona.
• Work with highly esteemed faculty and practice with prestigious Banner Healthcare System in Arizona.

FOR MORE DETAILS, CONTACT BENSON MUNGER, PH.D., 520.626.1553 OR BMUNGER@AEMRC.ARIZONA.EDU OR VISIT WWW.TEAMHEALTH.COM.

“Physicians must be the bridge between technology and medicine in this transition.”
—Gregory A. Brown, M.D., FACEP, Director, Clinical Informatics Division, TeamHealth

The University of Arizona
College of Medicine
Department of Emergency Medicine

TEAMHealth

Arizona State University
Department of Biomedical Informatics
RELAX, YOUR CAREER IS WAITING...

Partner with Hospital Physician Partners today for a rewarding Emergency Medicine career. Choose from opportunities Nationwide with volumes ranging from 15K to 50K. It’s time to get the reward you deserve!

What’s Important to YOU, is What Matters to US!

- Free CME and Tuition Reimbursement
- Physician-Led & Managed
- Lucrative Compensation Packages
- Paid Malpractice with Tail
- Sign-On Bonuses
- Relocation Assistance

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BOSTON – Caritas Emergency Medicine is a network of 70 Emergency Medicine physicians providing quality care to more than 250,000 patients a year. We are an innovative, quality oriented system situated for growth, seeking Emergency Medicine administrative/leadership applicants with demonstrated potential. In addition, we are building 3 new Emergency Departments where one night position and staff opportunities are available.

Caritas Emergency Medicine is part of the Caritas Christi Health System, a network of six hospitals that is the second-largest health system in New England. Three hospitals have resident rotations, including Emergency Medicine. This dedicated EM group is physician governed with a competitive compensation package, unique and attractive year end incentive bonus, comprehensive benefits package, including creative tax deferred retirement plans.

If you would be interested in receiving additional information about these positions, please submit a CV and Cover Letter addressed to:

Mark Pearlmutter, MD, Chair and Vice President, Network Emergency Services
c/o Christine.Kady@caritaschristi.org
or call 617-562-7717

Learn more about us: www.CaritasChristi.org
MULTIPLE STATES, OHIO & ILLINOIS: Excellent Emergency Medicine opportunities available in the Midwest. Hospital Physician Partners is seeking FT/PT Physicians in Central Ohio (near Columbus) and in Southern Illinois (near St. Louis). ED volumes are approximately 27K with outstanding double coverage provided by Physicians and Mid-Levels. Physicians must be BC/BP in EM. What’s important to YOU is what matters to US…competitive rate and stipend, paid malpractice with tail, flexible scheduling and great team support. Contact Molly Smith: (800) 877-5520 ext. 6301; email msmith@hppartners.com or visit www.hppartners.com/emra.

Arizona, Kingman: The Heart of Historic Route 66 and the home to western wagon trails, Kingman, AZ is filled with historic charm. At an elevation of 3,300 feet, a temperate climate is offered all year round. Conveniently located within 1.5 hours of Las Vegas and 2 hours from Flagstaff. Hospital Physician Partners seeks a qualified Physician to work Full-Time in the ED. Annual Volume is 12K to 15K with 22 ED beds. Qualified candidates should be BC/BP in EM. ACLS required, ATLS and PALS preferred. What’s important to YOU is what matters to US…lucrative compensation, paid malpractice with tail, flexible scheduling and a great team environment. Contact Nicole Tarrence: (877) 278-2056; email ntarrence@hppartners.com or visit www.hppartners.com/emra.
ESP is a democratic physician-owned group with over 20 hospital partners across Central and East Texas. Our partner sites include D/FW, Austin, Bryan/College Station, San Antonio area and the Texas Hill Country, and we will work to find the right position for you. With compensation models to maximize income, fair scheduling, paid malpractice and tail, mentoring/leadership programs and Partnership opportunity, we truly have our physician’s best interests at heart.

For more information, contact us today at 888-800-8237, or visit our website at www.eddocs.com

Arkansas, Multiple Cities: Hospital Physician Partners welcomes you to explore the fantastic opportunities available in beautiful northeast Arkansas! Rich in history and heritage, the cities of Helena, Forrest City and Newport lie within the Arkansas Delta near the Mississippi River. All within approximately one hour’s drive of Memphis; Helena, Forrest City and Newport offer the comforts of small town living with big city amenities nearby. The outdoors enthusiast will enjoy the scenic natural beauty and mild climate of northeast Arkansas, perfect for year round activities. What’s important to YOU is what matters to US… attractive compensation packages, paid malpractice with tail, flexible scheduling and great team support. Contact Deanna Maloney: Toll Free at 866-maloney (866-625-6639); fax your CV to (972) 562-7991; email dmaloney@hppartners.com or visit www.hppartners.com/emra.

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

EmCare is committed to giving you the freedom to balance the medical career you’ve worked for with the lifestyle you deserve. Let us manage the business of emergency medicine so you can focus on practicing medicine. At EmCare, we make professional development and continuing education a priority for our physicians. EmCare physicians have the opportunity to continue publishing in medical journals, maintain membership in professional organizations and provide industry leadership. With a comprehensive package of benefits, including malpractice coverage, educational resources and extensive career development programs, you are sure to be rewarded and given opportunities to take your career to a higher level. Grow your career with EmCare.

Visit booth #1051 at ACEP Scientific Assembly
**Register to win an iPad**

SAVE THE DATE:
September 29th
Exclusive Party at Moon Nightclub
**Classified Advertising**

**Illinois, Kankakee:** EM position available at Riverside Medical Center. The 40,000 annual visit ED is located 60 miles south of Chicago and has 36 hours of physician coverage per day/11 hours mid-level FastTrack coverage. EPMG offers paid family health, prescription, vision, dental, life, LTD, flexible scheduling, 401(k) employer contribution, paid malpractice, and much more. Contact Andy Roy at 800-466-3764, x329 or aroy@epmgpc.com. Visit us at ACEP booth # 1919.

**Illinois, Rockford:** Outstanding opportunity for ABEM (or AOBEM) certified / EM residency trained physicians to join a well-established, top quality group in an exciting practice setting. Excellent compensation and comprehensive benefit package including the exceptional benefit of distributed ownership/equity. The practice is 61K patients/annum & growing, Level II Trauma Center & Paramedic Training Center, newly constructed state of the art ED with in-Dept. dedicated Xray / CT, Fast Track, Holding and Observation Beds having a high quality nursing and support staff. Hospital accolades include Top 100 US Hospitals & 100 Most Wired Hospitals boasting a nationally recognized cardiac program. Please direct inquiries and CV to Mary Schwei or Johanna Bartlett, Recruitment Coordinators, Infinity HealthCare 111 E. Wisconsin Ave, Suite 2100 Milwaukee, WI 53202 E-mail: ihc-careerops@infinityhealthcare.com or by phone 888-442-3883.

**Pennsylvania’s Leader in Emergency Medicine**

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

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

For more information about joining Pennsylvania’s emergency medicine leader, contact Robert Maha, MD, at 888-647-9077, or send an e-mail to mahar@upmc.edu.

**EOE**
Exceptional opportunity to join a cohesive team of Emergency Physicians at a prestigious healthcare system located in Hartford, CT. We are presently expanding our group as we prepare to move into our newly constructed state-of-the-art 70 bed Emergency Department in May of 2011. We, therefore, have immediate opportunities as well as positions in 2011. Saint Francis Hospital and Medical Center is a Level II trauma and tertiary referral center with 70,000 emergency department visits per year.

We desire that one of the physicians be trained as a toxicologist in order to contribute to our Emergency Department Toxicology Program.

Successful candidates should be Board Prepared or Board Certified in Emergency Medicine and may be eligible to hold an academic appointment at the University of Connecticut School of Medicine.

Hartford, located in central Connecticut, is a vibrant community in the midst of significant growth with a wide range of city or upscale suburban living choices, access to first-rate schools, cultural activities, and the best of New England’s country and coastal environments with easy access to New York and Boston.

To obtain further details, please call Christine Bourbeau, Director of Physician Recruitment at 800-892-3846 or fax/email your CV to 860-714-8894.

E-mail address: cbourbea@stfranciscare.org

Visit our Website at: www.saintfranciscare.com

EOE-AA-M/F/D/V

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**Indiana, Hobart:** EPMG is seeking BC/BP EM physicians at St. Mary Medical Center. EPMG offers paid family health, prescription, vision, dental, life, LTD, flexible scheduling, 401(k) employer contribution, paid malpractice, and much more. Contact Ruth Ann Sheets at 800.466.3764 x332 or rsheets@epmgpc.com. To complete an application or to learn more visit www.epmgpc.com. Visit us at ACEP booth # 1919.

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**Kentucky, Owensboro:** Start your career in the top 5% of pay and quality. Democratic fee-for-service 9 physician group seeks 2 residency trained or BC emergency physicians for 63K visit regional hospital. Six year old 27,000 ft 33 bed facility with adjacent radiology dept with 2 CTs. Double and triple physician coverage plus PA/NP midlevel providers. Total package over 200 dollars per hour total compensation. Owensboro is a great place for families, plenty of recreation, a performing arts center, symphony, great public schools, 3 universities and is centrally located between Louisville and Nashville. Low crime, low cost of living, listed as one of the best 100 towns in which to live. Contact Walter Green, MD, FACEP 270/313-8312 cell or greenky@roadrunner.com.

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**Maryland, Eastern Shore:** Full-time opportunities available for BC/BP Emergency Medicine physicians at University of Maryland’s Emergency Medicine Network community sites on the beautiful Eastern Shore. Join a well established practice committed to excellence in our newly renovated and expanded facilities located not far from Baltimore & Annapolis. Live and work close to the spectacular Chesapeake Bay in these ideal locations that offer excellent schools, outdoor family fun, gourmet restaurants & shopping. We offer a very competitive salary & full benefit package that includes health/disability/life insurance, incentives, pension, and malpractice. To apply, please forward CV to Susan Kamen at skamen@umem.org. For additional info, call 410-328-1859.

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**Michigan, Battle Creek:** BC Emergency Medicine physician sought for democratic group in 50,000 volume ED. Excellent package offers shareholder status at one year with no buy-in! Benefits include pension, family medical plan, CME, incentive income, malpractice, more. Stable group with outstanding physician retention record. Contact Kim Rooney, Premier Health Care Services, (800)726-3627, ext. 3674, krooney@phcsday.com, fax (937)312-3675.

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**Michigan, Grand Blanc:** Full Time/Part Time EM or EM/IM BC/BP physician for 60,000 volume ED and Obs. Unit. Genesys Regional Medical Center is a beautiful, 400 bed, state-of-the-art hospital built in 1997 with a 27-position EM Residency and most specialty residencies. Our EM physician corporation offers employee status with full benefits, including CME allowance, dues coverage, first year Profit Sharing, malpractice coverage, and very competitive hourly compensation. Applicants please call or send CV to: Michael J. Jule, DO, FACEP, Director Emergency Services, One Genesys Parkway, Grand Blanc, Michigan 48439-1477, or email to mjule@genesys.org, or call (810) 606-5951.

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**Michigan, Tawas:** EPMG is seeking BC/BP EM physicians for a 15,000 annual visit ED located in Tawas City, Michigan. 12-hour shifts. Tawas City is located on the beautiful shores of Lake Huron. EPMG offers paid family health, prescription, vision, dental, life, LTD, flexible scheduling, 401(k) employer contribution, paid malpractice, and much more. Please contact Carrie Dib at 800-466-3764, x336 or cdib@epmgpc.com. Visit us at ACEP booth # 1919.

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**Mississippi, Multiple Cities:** Great College Towns in Mississippi! Hospital Physician Partners welcomes you to explore the fantastic opportunities available in the cities of Booneville, Oxford and Columbus! Located just 85 miles southeast of Memphis, TN, Oxford is home to the University of Mississippi (affectionately known as Ole Miss) and boasts a cost of living below the national average. Oxford has been listed among the “Best 100 Small Towns” by USA Today; one of Time magazine’s “7 Great Places to Retire;” and is a Money magazine’s top six...
“Best Places to Retire.” Come join the Baptist Memorial Health System in Oxford, Columbus or Booneville and work in a state-of-the-art emergency department. What’s important to YOU is what matters to US…attractive compensation packages, sign-on bonuses, flexible scheduling and great team support. Contact Deanna Maloney: Toll Free at 866-maloney (866-625-6639); fax your CV to (972) 562-7991; email dmaloney@hppartners.com or visit www.hppartners.com/emra.

Missouri, St. Louis & Dexter: The Gateway to the West has it all! Jazz, Blues, Baseball, Arts & Culture, History, Urban Life and Wide Open Country Spaces. Hospital Physician Partners seeks qualified physicians for immediate opportunities. FT/PT EM positions available with ED volumes ranging from 12K to 22K. Candidates will be residency trained, BC/BP in EM. This is an independent contractor position and we offer access to Financial Services, Guaranteed Board Preparation Courses, Competitive Compensation, Sign-On Bonus, Paid Malpractice with Tail, 12 Hour Shifts, Flexible On-Line Scheduling, Full Support Administrative Teams, State Licensing Assistance and Relocation Bonus Packages. What’s important to YOU is what matters to US…Contact Nicole Tarrence: (877)278-2056; ntarrence@hppartners.com or visit www.hppartners.com/emra.

Nebraska, Omaha: BC/BP EM physician sought for stable group at suburban ED. Excellent package with shareholder opportunity at one year plus family medical plan, employer-funded pension, malpractice, expense account and more. As Nebraska’s
Emergency Medicine Physicians

Need an incentive to leave urban life? How about a significant financial bonus plan to help defray those student loans? With the recent demand for ED physicians, rural areas have had challenges recruiting BC/BP physicians to staff their Emergency Departments. Lehigh Valley Health Network—now managing Hazleton General Hospital’s ED—is offering financial retention bonuses for those qualified physicians who want to work in the comfortable and affordable community of Hazleton, Pennsylvania. Join the Lehigh Valley Physician Group (LVPG) and share in our success. The greater Hazleton area is nestled in the foothills of the beautiful Pocono Mountains—a vacation spot where opportunities abound for skiing, boating, fishing, hunting, mountain biking, golf, and more. Hazleton is a friendly, family-oriented community located 2 and 1/2 hours from NYC, 2 hours from Philadelphia, and 1 hour from the Lehigh Valley. It offers a choice of solid public or private schools, many surrounding colleges and universities, and some of Pennsylvania’s most breathtaking scenery. The 17-bed ED receives 30,000 visits per year and has a robust MI alert process and a certified stroke and bariatric center. Benefits include:

- Significant Financial Retention Bonus
- Generous Base Salary
- Superior Healthcare Benefits for you and your Family
- 6 weeks time off + 1 week of CME
- Reimbursement for ACEP/ACOEP boards
- Paid Medical Liability Coverage
- 3 Methods of Retirement Saving

Interested, energetic and talented BC/BP Emergency Medicine Physicians should send CV to:
Richard MacKenzie, MD, Chair of LVH Emergency Medicine

c/o Debra.D’Angelo@lvhn.org or call 610-969-0216
Akron General Medical Center, the leading Level One trauma center in Summit County, Ohio, home to the nation’s oldest community-based emergency medicine residency and the area’s only Accredited Chest Pain Center, is looking to add outstanding physicians to its Emergency Medicine staff.

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**New York, Brooklyn:** Maimonides Medical Center, Department of Emergency Medicine is seeking full-time teaching staff, ABEM / ABOEM prepared or certified.

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Brian A. Nobić, MD, FACEP
or David Sarkarati, DO, FACEP
At (800) 268-1318
Email CV’s to Susan Yarcheck at: syarcheck@psrinc.net or by fax to (407) 875-0244
Maimonides, a nationally recognized teaching hospital and research center, 705 bed tertiary medical center with an annual Emergency Center census of 110,000. Our Emergency Medicine residency program, Pediatric Emergency Medicine fellowship, Emergency Ultrasound fellowship, Clinical Operations research, Pre-hospital services and other activities diversified career development for academically-minded emergency physicians who enjoy living in or around New York City. Contact John Marshall MD, Chairman, Department of Emergency Medicine, Maimonides Medical Center, 4802 Tenth Avenue, Brooklyn, NY 11219. Or phone (718) 283-6028; fax (718) 635-7274; E-mail:jmarshall@maimonidesmed.org.

New York, Brooklyn: The Chair of EM at Lutheran Medical Center (LMC), Brooklyn, NY is seeking full-time emergency medicine physicians. LMC is a Level I Trauma Center and a designated stroke center. With an annual volume of 66,000, LMC offers a wide range of major clinical programs, a cutting edge 30-bed rehab unit and 476 acute beds. Candidates must be BC/BP EM and have current EM experience. Competitive compensation and bonus program offered. Contact: Megan Evans, Physician Recruiter, 1-800-394-6376, mevans@neshold.com or fax CV to 631-265-8875.

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**For more information, contact:**
Roger McMahon
Director, Physician Employment Services
P: (515) 643-8323  F: (515) 643-8943
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**Ohio, Lima:** Outstanding package with democratic group. Level II, 57K volume ED has separate pediatric ED and hospitalist support. Features shareholder status without buy-in, loan repayment, pension, family medical, more. Full benefits included and not deducted from outstanding clinical compensation. Contact Kim Rooney, Premier Health Care Services, (800) 726-3627, ext 3674, krooney@phcsday.com, fax (937) 312-3675.

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**Ohio, Marion:** Appealing Columbus area opportunity. Enjoy equity ownership with democratic group in 48,000 volume ED, 45 miles north of Columbus. State-of-the-art ED, excellent coverage of 62 physician & 18 PA hours daily. Benefits include incentive compensation, employer-funded pension, malpractice and family medical plan. Contact Amy Spegal, Premier Health Care Services, (800) 726-3627, ext 3682, aspegal@phcsday.com, fax (937) 312-3683.

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Ohio, Portsmouth: Full time opportunities available at 52,000 volume ED. Candidates will be BC/BP EM. Facility offers $250,000 toward student loan repayments! EPMG offers paid family health, prescription, vision, dental, life, LTD, flexible scheduling, 401(k) employer contribution, paid malpractice, and much more. Contact Sarah Hysell at 800-466-3764, x327 or shysell@epmgpc.com. Visit us at ACEP booth # 1919.

Ohio, Toledo: Opportunity for solid EM physician within democratic group. This Level III facility has an annual volume of 42,660 visits with outstanding physician coverage plus PA coverage. Appealing package includes equity ownership eligibility, employer-funded pension, family medical plan, malpractice CME and more. Contact Amy Spegal, Premier Health Care Services, (800)726-3627, ext. 3682, e-mail aspegal@phcsday.com, fax: (937)312-3683.

Pennsylvania, Northwestern: Join Pennsylvania’s Leader in Emergency Medicine. UPMC Northwest is Emergency Resource Management’s newest site. UPMC Northwest is a state-of-the-art facility located in Seneca, PA, halfway between Erie and Pittsburgh. The ED sees approximately 30,000 patients with excellent coverage. The surrounding community is situated in the foothills of the Allegheny Mountains, offering a great lifestyle with plentiful outdoor activities and a low cost of living. We offer an outstanding compensation/benefit package.
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Pennsylvania, Pittsburgh: Join Pennsylvania’s Leader in Emergency Medicine. UPMC Passavant Hospital is located in an affluent suburban area with excellent housing and schools, and is a short commute from the amenities of Pittsburgh. The newly expanded ED sees 35,000 patients annually with 39 hrs of physician coverage and 20 hrs of mid-level provider coverage daily. An outstanding compensation/benefit package includes paid malpractice with tail, employer-funded retirement plan, paid health insurance, CME allowance, and much more. EM board-certification/preparation required. Contact Dr. Robert Maha at 888-647-9077/ Fax 412-432-7480 or e-mail mahar@upmc.edu. EOE

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Virginia, Blacksburg: Seeking full-time BC/BP EM physician for 26,000 visit ED located just 40 miles south of Roanoke. Level III trauma center. Great work environment. EPMG offers paid family health, prescription, vision, dental, life, LTD, flexible scheduling, 401(k) employer contribution, paid malpractice, and much more. Please contact Ruth Ann Sheets at 800-466-3764, x332 or rsheets@epmgpc.com. Visit us at ACEP booth # 1919.

Washington, Tacoma: TACOMA EMERGENCY CARE PHYSICIANS. Looking for one more excellent emergency physician to join our group in the beautiful Northwest! Need another BC/BP emergency physician for FT position (12-14 eight hr shifts/mo). Practice high acuity emergency medicine in a supportive environment w/highly competitive compensation & a quick transition to full shareholder status. Brand new ED at Tacoma General Hospital opened April 2010! Visit our website www.tecp.net or contact Jaime Delcampo, MD at delcampo@tecp.net.

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West Virginia, Wheeling: Full time position available at 36,000 visit ED located just one hour from Pittsburgh. Wheeling Hospital was recently named among the top 10 best hospitals in the nation for quality healthcare. BC/BP EM. EPMG offers paid family health, prescription, vision, dental, life, LTD, flexible scheduling, 401(k) employer contribution, paid malpractice, and much more. Contact Sarah Hysell at 800-466-3764, x327 or shysell@epmgpc.com. Visit us at ACEP booth # 1919.

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Immediate openings are available for full time and part time Emergency Medicine Physicians at UMDNJ-New Jersey Medical School, Department of Emergency Medicine, established in 2009. This academic department at the medical school has a fully accredited residency program, based at UMDNJ-University Hospital in Newark, NJ, the site of the busiest Level I Trauma Center in the state, with over 99,000 annual visits. We would welcome enthusiastic new faculty members to join our cadre of high quality faculty to further enhance our patient care, research and educational missions. Responsibilities will include direct patient care, supervision of residents and medical students. Candidates should be board certified/eligible in Emergency Medicine and qualify for an academic appointment.

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Wisconsin, Appleton/Oshkosh: Excellent opportunity for EM residency trained/BC emergency medicine physician to join our highly regarded group. This practice site consists of two community hospitals: St Elizabeth Hospital in Appleton and Mercy Medical Center in Oshkosh. The Fox Valley area offers great quality of life and excellent schools. Infinity HealthCare offers outstanding compensation and comprehensive benefits and features a distributed ownership structure. Please direct inquiries to Mary Schweig, e-mail: msschweig@infinityhealthcare.com, Infinity HealthCare, Inc. 1035 W. Glen Oaks lane, Suite 101 Mequon, WI 53092, 888-442-3883, fax (414) 290-6781. ■

Wyoming, Cheyenne: Join a dynamic emergency physician team in beautiful, historic Cheyenne, Wyoming. Frontier Emergency Physicians (FEP) is seeking an energetic and enthusiastic team member, a physician who is board certified/board prepared in emergency medicine. He or she would fill a position at Cheyenne Regional Medical Center, which hosts a level II trauma center, operated by FEP, that sees about 35,500 patients a year. FEP offers a competitive salary, benefits, and partnership opportunities. Interested physicians should send a cover letter and a copy of their curriculum vitae by email to tlong@seriolc.com or by mail to SERIO Physician Management, Attention: Teresa Long, 1241 W. Mineral Ave., Suite 100, Littleton, CO 80120. Or, call Dr. Mike Means at (307) 633-7550. ■
Top 10 things kids want to be when they grow up

1. Astronaut
2. Athlete
3. Doctor (Was this you as a kid?)
4. Singer
5. Pastor
6. Inventor
7. Veterinarian
8. Teacher
9. Actor
10. Firefighter

Bonus
11. The President

Check out pg 20 for some of Shae Patyrak's musings on becoming a doctor and figuring out what you're going to do with it – you know, now that you're grown up.

Source: http://www.faqs.org/shareranks/4780,Most-Popular-Careers-Children-Want-when-they-Grow-Up

Physicians in the military

In 2009, more than 2.4 million people served in the United States Armed Forces. Approximately 100,000 of these personnel employed by the 5 branches of the military were in healthcare occupations. A great deal of these doctors, nurses, and other healthcare workers are stationed overseas at any given time in order to serve fellow soldiers as well as civilians. For a peek into a day in the life of one of these American heroes, visit page 11.

Source: http://www.bls.gov/oco/ocos249.htm

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