“Hopefully the Canadians are working on an algorithm for happiness, but in the meantime, here is some advice from both attending and fellow residents regarding how to thrive after graduation.”

As another new class of interns agonizes over what to wear for their first day of school, our senior residents are preparing for life in the real world. And while they have become accustomed to dealing with difficult decisions in the ED, they might not have considered some challenging crossroads that lay ahead in their personal and professional lives. Hopefully the Canadians are working on an algorithm for happiness, but in the meantime, here is some advice from both attending and fellow residents regarding how to thrive after graduation. Congratulations on completing a long journey!

**Friends, family, and finances**
Choosing your mate is the most important decision of your life. You must always protect and nurture the sanctity of that relationship. Spend uninterrupted time with your spouse, and have a retreat or honeymoon at least every 2 years.

Prioritize your family. Find time to be with each of your children for a least a few minutes each day. You never want them to resent your commitment to this profession.

Don’t stress about your loans--you can and will actually pay them off! No matter what your quantity of debt, take that first pay check and spoil yourself. And spoil those who have helped you survive residency. If you don’t have time to learn to be financially savvy, seek the advice of those you trust. And always check in with your lenders--many of us are working in underserved communities and don’t realize that we are eligible for financial incentives.

One of the biggest decisions you have to make is deciding where to live. Your overall satisfaction is based on multi-factorial criteria, and a big piece of that puzzle is geography. You will not stay in a place if you and your partner are not

*continued on page 8*
The ACEP Bookstore’s “Special Sale” for EMRA resident and medical student members will end on June 30. But you’ve still got plenty of time to take advantage of the great prices on more than 50 titles that are available! The complete list is online at the ACEP Bookstore, www.acep.org/bookstore, under “Resident’s Interests” in the Browse categories.

Hurry, sale ends June 30, 2010!

Here are just a few of the titles you’ll find and the savings you can realize if you hurry:

- **SAVE $10**
- **SAVE $20**
- **SAVE $20**
- **SAVE $23**
- **SAVE $25**
- **SAVE $40**

Contact the ACEP Bookstore by phone, 800-798-1822, ext. 4; or e-mail, acepbookstore@acep.org; or mail your order to ACEP Bookstore, PO Box 619911, Dallas TX 75261-9911.
Upcoming events

- June 3-6, 2010: SAEM Annual Meeting, Phoenix, AZ
- June 5, 2010: EMRA Representative Council Meeting, Phoenix, AZ
- June 12-16, 2010: AMA MSS / YPS / RFS and House of Delegates Meeting, Chicago, IL
- July 15, 2010: EMRA/ACEP Health Policy Mini-Fellowship Application Deadline
- August 12-18, 2010: ACEP Teaching Fellowship, Dallas, TX
- August 15, 2010: EMRA Travel Scholarship to ACEP’s Scientific Assembly Application Deadline
- August 15, 2010: EMRA Fall Awards Application Deadline
- August 15, 2010: EMRA Fall Representative Council Resolutions Deadline
- August 30, 2010: EMRA Board of Directors Candidate Application Deadline
- September 10-11, 2010: RRC-EM Meeting, Chicago, IL
- Sept 26-30, 2010: EMRA Events at ACEP’s Scientific Assembly, Las Vegas, NV
- Sept 28-Oct 1, 2010: ACEP’s Scientific Assembly, Las Vegas, NV
- September 29, 2010: EMRA Representative Council Meeting at ACEP’s Scientific Assembly, Las Vegas, NV
- October 9-11, 2010: ABEM Oral Certification Exams, Nationwide
- October 9-11, 2010: ABEM Oral Certification Exams, Nationwide
- November 1-8, 2010: Emergency Medicine Basic Research Skills (EMBRS) Meeting, Dallas, TX
- November 6-9, 2010: AMA House of Delegates Interim Meeting, San Diego, CA
- November 15-20, 2010: ABEM Qualifying Exams, Nationwide

Advertising guidelines

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.

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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 July 1 will appear in the August/September 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.
Dr. Virchow was among the most prominent physicians of the 18th century. He was a formidable proponent of cell theory in pathophysiology, and is credited with describing many cellular substances including myelin and disease processes such as leukemia. Among his notable claims to medicine was the first description of thromboembolic disease. He coined the terms venous thrombosis and pulmonary embolism (PE), describing their relationship in a landmark 1856 publication which preceded any form of medical imaging. X-ray imaging in fact, was not invented until 1895 by Wilhelm Conrad Roentgen.

In keeping with old traditions, Dr. Virchow wore many hats. He was a physician, pathologist, anthropologist and politician among other things. But it was his contributions to medicine for which he would become most famous, earning him the name of a triad that he did not himself describe – “Virchow’s Triad.” It includes endothelial damage, altered venous blood flow, and hypercoagulability.

Approximately 150 years later and long after his death, the origin of the term “Virchow’s Triad” remains as elusive as the condition which it seeks to describe. Furthermore, despite medical achievements, the overarching question is now when to pursue the diagnosis in patients without clinically significant emboli. The reasons for posing this question are several and require a brief review in order to better understand.

First is the issue of CT utilization. Although Virchow’s triad is widely accepted nowadays, its clinical applicability for the practicing physician is limited. The diagnosis of PE is based on clinical probability and selective imaging. Probability in turn is a function of risk factors, signs and symptoms. Given that the history and physical cannot definitively differentiate other causes of similar presentation, imaging is often required with CT angiograms being the most common modality.

The perceived severity of illness, improved imaging, increased availability of CT scanners, and the medical legal climate in which we practice have prompted a drastic increase in CT angiogram utilization and irradiation of patients – the affects of which we may see later in our careers. Couple this with our perceived acceptable miss rate of zero. But there are certainly early signs that the pendulum is now starting to swing back the other way. This is largely driven by concerns regarding cumulative lifelong radiation, healthcare resource utilization and the cost to society.

This surge in CT angiograms has also prompted the evolution of a collection of clinical decision instruments, geared to assess clinical probability and curtail CT utilization. Among the most recognized are the Well’s Criteria and PERC Rules. Interestingly, there are suggestions that they may in fact increase CT utilization leading to more radiation and false positives.

Next is the issue of treatment, which adds yet another level of complexity. Remember the oath, “Primum non nocere” or “First, do no harm”? The pathophysiology of pulmonary emboli has been well described and extensively studied since Virchow’s early discoveries. Treatment has similarly evolved and currently consists of anticoagulation therapy, and thrombolysis or embolectomy for patients with evidence of marked right heart strain or clinical deterioration.

Recognizing that the risk of anticoagulation is great and even potentially catastrophic for our patients, should we pursue subclinical patients as aggressively? This refers to patients, for example, with nothing more than mild pleurisy. And if so, will the risk from the PE outweigh the cumulative risk of long term anticoagulation? The jury is still out.
Emergency medicine is a unique specialty in that the critical aspects of our training focus on ruling out serious pathology rather than diagnosing minor ones. There are certain diagnoses that are more elusive, but with potentially catastrophic outcome for the patient if gone unrecognized. Pulmonary emboli are on that list and present a clinical challenge for practicing emergency physicians every day. Controversy exists regarding the need to diagnose clinically relevant PE’s vs. all PEs, in light of risks and cost to the patient and society at large. This is confounded by the lack of description of clinically insignificant PEs.

Board update

- **Welcome to Phoenix!** If you’re joining us for the EMRA events at SAEM’s Annual Meeting, please refer to page 33 for the full schedule of events. Be sure to attend the Annual EMRA EM Jeopardy contest, EMRA Resident SimWars competition, and of course the acclaimed EMRA Party!

- **You’re the reason we do it!** Thank you for making the 2nd Mid-Atlantic Medical Student Symposium & Residency Fair a huge success! 115 students joined us in Baltimore on April 10th for this FREE event, featuring fantastic lectures, workshops, and more. Be on the lookout for our next regional symposium, it might just be in your area!

- **Vegas, baby!** It’s “in the cards” for you to start planning your trip to Vegas for the 2010 ACEP Scientific Assembly! Visit www.emra.org this summer for a complete schedule of EMRA activities.

- **Congratulations, Graduates!** Whether you’re graduating from residency or finally able to add that MD, DO, or MPH to your name, we wish you the best! As always, let EMRA know if there’s anything we can do to make your transitions easier – from school to residency to fellowships and beyond!

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Ankle sprain. Bronchitis. Flank pain. Seizure. It was a typical rural nightshift, except for one thing: my ED was located in the middle of a 2.66-mile racetrack. That’s right—I was working Talladega Nights!

For those of you who are not a resident in the middle of NASCAR country, let me tell you a little about what makes Talladega so special. Talladega Superspeedway, located 40 miles east of Birmingham, has been thrilling fans since 1969. With banks at 33 degrees (the 2nd steepest in NASCAR) and drivers reaching speeds of over 210 miles per hour, Talladega attracts people from all over the nation. Drawing approximately 200,000 people to the biannual event, Talladega becomes the third largest city in Alabama twice a year.

The Infield Care Center (ICC) sits at the entrance to pit road and right adjacent to the Sprint Cup Garage. Each of the 10 beds has its own Philips cardiac monitor, capable of 12-lead ECGs and defibrillation. Although unable to order labs or imaging, the ICC has all the necessary tools for resuscitation (RSI drugs, chest tubes, difficult airway cart). Two of the beds are set up for critical trauma care to handle any serious injuries to drivers or critical illness in the infield fans.

The track physicians are charged with taking care not only of Talladega’s fans, but also its drivers. During the races, one of the physicians must medically clear every driver unable to drive off of the track. Although the majority of these drivers have no injuries, they occasionally suffer from traumatic injuries, dehydration, and even carbon monoxide poisoning.

During the event, the race teams, NASCAR officials, media, security personnel, and other track workers utilize the ICC for their medical care. Race fans come to the Infield Care Center and the Aid Stations in the grandstands with the same complaints one would see in the typical city emergency department including heart attacks, strokes, injuries, burns, seizures, abdominal pain, and dehydration. Probably the only major thing not YET done in the ICC is to deliver a baby!

My interest in working at Talladega began with its medical director and my attending, Dr. Bobby Lewis, who took my friends and me on a tour of the ICC and the garages during last year’s fall race. Granted, I have always been impressed with his continued enthusiasm for EM after 32 years of practice, but he seemed to be a different person here.

While walking through the pits, I heard countless workers greet him with a friendly, “Hey, Dr. Bobby!” Although never much of a grease monkey myself, I couldn’t help but be impressed watching the mechanics work to unload, build and set up a racecar capable of running at over 210 miles per hour.

“Although never much of a grease monkey myself, I couldn’t help but be impressed watching the mechanics work to unload, build and set up a racecar capable of running at over 210 miles per hour.”

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His relationship with Talladega Super Speedway began in 1981 as a physician on the LifeSaver helicopter, volunteering to help with medical transport for the
drivers. He became medical director at the track 15 years ago as Carraway Hospital served as the medical service provider for the speedway and remains in that position today.

In 2002, NASCAR instituted the Medical Liaison program with nurses and physicians traveling to all the tracks where national NASCAR races are held to oversee and standardize medical care. Dr. Lewis was chosen to be one of the five physicians to help develop the program and remains in that position today.

Dr. Lewis serves as an example for anyone wishing to combine emergency medicine with a passion. Whether you enjoy sports, camping, or music, if it attracts people, there’s an opportunity for event medicine. All it takes is a little initiative—so go out there and get ER done. Residents, start your engines!

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Above: Rescue crews practicing extraction during a simulation.

Below: High speed drafting.
Critical decisions – advice to our graduating seniors

continued from cover

happy there, despite how ‘perfect’ the job may be. So be honest with yourself about what you need in your surroundings.

Invest in the following: good pens, good socks, good shoes, and comfortable, yet professional clothes. They’ll be on you more hours than you ever planned. Don’t invest in lots of other stuff for yourself too early.

Don’t sacrifice your well being for money; keep your shift load moderate and healthy, especially at the beginning. Don’t just equate more work hours with more money—that’s a dangerous cycle.

The department
Always thank your staff and coworkers—it’s a team effort. Get to know your consultants; it will be easier to work with them when you are colleagues rather than just a voice on the other end of the line.

The literature shows that applicants are more likely to be offered a job in academic emergency medicine if they know how to write a grant. To be able to write a grant, you need mentorship, preferably through a research fellowship.

Become a citizen of your hospital, and be involved in committees and in the community. Your personal investment will prevent you from feeling like just another anonymous number.

Strengthen your relationship with your classmates in the hope of establishing and maintaining a supportive bond with one another in the future. Moreover, your continued contact with residents still in the training program is a vital repayment and is invaluable to them if done constructively and supportively.

Find your niche within the field. It can be unconventional, but it has to be something that lights your fire. There is tremendous pressure on new graduates to excel and make a name for themselves. Don’t do things just because you think you have to. You will be happier if you prevent your schedule from becoming congested with meaningless obligations.

You need to be able to leave work at work. Find something cathartic. Decompress regularly. Find a sleep regimen that works for you. Build a reservoir of sleep hours and access that reserve when you are tired. Replenish that resource with naps when you can.

Keep things in perspective. The literature shows that most EM physicians will only stay at their first job for one to two years. Your first employment does not have to be your dream job. You do, however, need to be challenged, or your growth as a clinician will be stunted. Make sure the practice you choose is not constricted, with no limitations to the types of patients to which you are exposed.

Decide early on what your niche is going to be. If you want to be a bench researcher, it is probably best to take a more traditional path by staying in academics and doing a fellowship. However, if you want to be a clinical teacher/writer/lecturer, do at least a year of private practice at a busy community hospital. It is easier to learn to stand on your own two feet when you are out there alone. You will also get more practice with procedures and develop your own style and finesse for working up patients. It is difficult to do this in an
academic setting because one of your primary responsibilities is guiding and supervising residents.

Listening to your patients is your best diagnostic skill. Albeit indirectly at times, they will tell you what’s wrong with them. Also, you can gain a lot of knowledge by following up on your patients, either in the hospital or via phone.

Strive to become the local expert in some topic or disease.

Medicine is very difficult—be humble. Sometimes even when you do everything right, outcomes are bad. There are no ‘text book’ cases in real life.

Practice emergency medicine abroad. It will allow you to experience medicine in a different capacity. Take a sabbatical. It gives you a chance to recharge your emotional batteries and to see what healthcare is like in a system that is less technology-oriented, and wrought with less medical-legal complications.

Never start a new shift somewhere without knowing your airway equipment and where other critical procedure gear may be.

Give your new job and environment a chance. You just left a place of relative comfort, with an intact social and professional framework. It takes a little time to build that anew.

The big picture

Set your short and long-term goals (life, family, and career) and write them down. This is the first step to reaching them. Revise this list as you mature, but never throw away the original. Also, reread your personal statements for medical school and especially residency. They can remind you of who you were, what you held dear, and what you still hope to become.

Protect yourself from tunnel vision. Be prepared to change, and look for the opportunity to do so. It takes courage to admit that you may have misread a situation or taken a lateral step.

Take time off! This journey is like a pie-eating contest—even when you are ‘winning’ all you ever get is more pie. There should not be a rush to the finish. Take time to enjoy your experience—travel, scrapbook, adopt a street, save the spearmint rhino. Do whatever it is that makes you a complete human being. The patients will always be waiting for you when you return, and you can serve them better if you are happy.

Find your version of God. You will have some very demoralizing days, and believing in a higher power or purpose will comfort you. Pray or meditate to refresh yourself as you help others.

Fashion speaks volumes and people listen. You will feel more confident if you present yourself well.

Be prepared to say “yes” to the opportunities that may land in your lap. Some of them may bring new avenues for success your way. But just as important, be prepared to say “no.” Doing a select few things right, early on, may be better than getting overextended and underperforming on a task.

And most of all, feel the calling of medicine, accept your limitations and always place your patients first in any decision. Really.

Special thanks to Drs. Jayne Batts, Stephen Colucciello, Alan Heffner, Jeff Kline, JP McBryde, Parker Hays, Robert Schafermeyer and all the residents at Carolinas Medical Center for their contribution to this article, and more importantly, their guidance of my career in general.

Welcome New Program Reps

Congratulations on being selected as your program’s representative. Start the new academic year off right! Find out exactly what your responsibilities are as a Program Representative. Visit www.emra.org and click on the Program Representative link (under “About EMRA” tab). Review the short EMRA 101 Power point presentation and make sure to update your contact information online so you can stay current on all EMRA activities and opportunities.

If you are not a program representative, but are interested in becoming one, talk to your program director or residency coordinator about representing your program to EMRA.

You can always contact your Representative Council Officers, Kaedrea Jackson at speaker@emra.org or Angela Fusaro at vicespeaker@emra.org, for more information.

We look forward to working with you this year.

MAKE YOUR VOICE HEARD

Call for Resolutions

Get involved and steer the future of EMRA by writing a resolution. A resolution is a directive for EMRA to take certain action or to form a policy. These resolutions are discussed and voted on at the EMRA Representative Council Meeting at ACEP’s Scientific Assembly in Las Vegas, Wednesday, September 29, 2010.

The deadline for submissions is August 15, 2010.

For more information on authoring a resolution or to see recent adopted resolutions, visit www.emra.org or email Kaedrea Jackson at speaker@emra.org.
Trouble brewing in Texas?

Recently, the Texas Medical Board ruled that those physicians who are certified in emergency medicine by the ABPS/BCEM could advertise themselves to the public as “board certified.” Similar efforts at obtaining recognition are also underway in other states.

EMRA and ACEP continue to stand behind the assertion that the only pathway to board certification in current times is having completed an emergency medicine residency.

It’s what we all strive for, the defining moment of our careers – passing the boards and finally being able to add “board certified emergency medicine physician” to our CV. The American College of Emergency Physicians (ACEP) and the Emergency Medicine Residents’ Association (EMRA) both equate board certification to having passed the written and oral portions of the certification exam administered by the American Board of Emergency Medicine (ABEM) and the Emergency Medicine Residents’ Association (EMRA) both equate board certification to having passed the written and oral portions of the certification exam administered by the American Board of Emergency Medicine (ABEM) and the American Osteopathic Board of Emergency Medicine (AOBEM). Only physicians who have successfully completed an ACGME accredited residency in emergency medicine can take these exams.

To most of us, it seems rather clear. However, ABEM and AOBEM are not the only organizations providing “certification” in emergency medicine. The American Board of Physician Specialties (ABPS) also offers both written and oral certification exams through the Board of Certification in Emergency Medicine (BCEM) and allows its members to declare themselves “board certified” in emergency medicine after passing these exams. However, completion of an emergency medicine residency is not a requirement to sit for the ABPS/BCEM certification exam.

As outlined on the ABPS Website at http://www.abpsus.org/emergency-medicine-eligibility, the requirement to sit for the qualifying exam is to have completed any ACGME approved residency that includes “substantial and identifiable training in Emergency Medicine as determined by the Board of Certification in Emergency Medicine and approved by the ABPS.” In addition, applicants must also meet only one of the following criteria:

1. Completed an ACGME or AOA-accredited residency in Emergency Medicine.

2. The applicant must have practiced Emergency Medicine on a full-time basis for five (5) years AND accumulated a minimum of 7,000 hours in the practice of Emergency Medicine AND satisfy either I or II:
   i. Completed an ACGME or AOA-accredited Primary Care or Anesthesiology residency.
   ii. Be certified in a Primary Care specialty or Anesthesiology by an ABPS, ABMS or AOA-recognized board of certification.
3. Graduate Training Program: completed either a 12 or 24-month Emergency Medicine graduate training program approved by the BCEM. Physicians completing a 12-month graduate training program must have practiced Emergency Medicine on a full-time basis for an additional 12 months, before or subsequent to completing the graduate training program.

Recently, the Texas Medical Board ruled that those physicians who are certified in emergency medicine by the ABPS/BCEM could advertise themselves to the public as “board certified.” Similar efforts at obtaining recognition are also underway in other states.

What does all of this really mean?

As an emergency medicine resident, how does this affect you?

We all know that the physician shortage is not going to disappear anytime soon. In the meantime, there will continue to be physicians practicing in emergency departments across the country who are not emergency medicine residency trained. Many of these spots are filled by “legacy physicians,” some of the founding fathers of our specialty who trained before emergency medicine residencies were in existence or widely available. Yet there are still many more spots that are filled by family medicine physicians, internal medicine physicians, surgeons, and other specialists who never received any formal emergency medicine training.

It is imperative not to discredit the clinical ability and expertise of some of these physicians or the value of their vision and groundbreaking efforts, our specialty may never have been born.

However, times have changed. Emergency medicine residencies now exist across the country, and currently represent the “gold standard” in emergency medicine training. This is perhaps best stated by Dr. Larry Weiss, Immediate Past President of AAEM, who said: “The ABPS largely exists to grant board certification to untrained physicians working in emergency medicine. Most of the public knows that if someone is board certified, it means they have some advanced training in a specialty. It’s a public health issue. Should I be able to call myself a board certified surgeon if I never completed formal training in surgery? At the core of this controversy is whether emergency medicine is a legitimate specialty.”

There continues to be significant debate over ABPS/BCEM status, and the debate exists even within the ACEP membership. A simple Google search will yield numerous comments on both sides of the issue.

EMRA and ACEP continue to stand behind the assertion that the only pathway to board certification in current times is having completed an emergency medicine residency.

For now, buyers beware – in some states “board certified in emergency medicine” does not necessarily mean emergency medicine residency trained.

For more information, please refer to the President’s Address in the April/May issue of EM Resident and Dr. Angela Gardner’s statement at http://www.acep.org/pressroom.aspx?id=47259.

To join, call 1-866-566-2492, touch 5
“. . .what happens when that rescue technique you’ve trained for doesn’t work or isn’t available? What do you do then?”

As I count down the days until I graduate from residency, I cannot help but wonder whether my training has adequately prepared me for the real world. I run mental simulations of scenarios where “standards of care” break down, and I am left with nothing but my training and ingenuity to rescue a critically ill patient from a poor outcome.

Sure, there are certain scenarios that we all train for: the failed airway, the difficult reduction, the breech delivery. But what happens when that rescue technique you’ve trained for doesn’t work or isn’t available? What do you do then? To illustrate my point, consider the task of confirming a central line placement.

As emergency physicians, we routinely place central lines in critically ill patients. These lines generally go very smoothly. You get dark red blood on the first stick. The guide wire passes easily. Insertion is uneventful. Drawback is easy from all three ports, and the catheter flushes easily. Lastly, a post-procedure CXR shows the catheter in good position.

Now, consider the same scenario in a crashing, severely hypotensive, and hypoxic patient with a catheter placed by a novice trainee who you are supervising. The X-ray system is down for maintenance. The patient is in dire need of intravenous intervention now, but you aren’t sure if the catheter is in an acceptable position. I would like to share some adjuncts that you may add to your verification armamentarium.

We are commonly taught to inspect the color and flow of the blood coming out of the introducer needle after disconnecting the syringe. This can sometimes be misleading. Arterial blood can look venous in the hypoxic or hypotensive patient, as can venous blood appear arterial in the aggressively ventilated patient or those with elevated right heart pressures, as with CHF.

Instead of eyeballing this, compare a blood gas from the catheter to a standard ABG. If they are similar, the catheter is arterial; if they are markedly different, the sample is venous. Additionally, you can use manometry to formally investigate blood flow. If you don’t have a CVP pressure transducer, you can build a simple manometer out of a piece of tubing held vertically and connected to the introducer needle. You can then determine placement by analyzing the flow waveform.

On top of blood return, clues about placement can be obtained from the guide wire itself. If the patient complains of ear pain or throat tickling or if you palpate the guide wire tracking upwards in the supraclavicular fossa as you insert the wire (finger in the fossa technique), you are likely going in the wrong direction. Conversely, should you elicit PVC’s, you likely have threaded the guide wire correctly toward the myocardium. Also, a metal detector can be used to confirm a caudally directed guide wire, since most have a stainless steel core.

Besides directionality, the guide wire can give you information on position. If you
connect the guide wire to the cardiac monitor, you will effectively make the guide wire an intra-atrial lead and can confirm placement using ECG guidance much as you would a transvenous pacemaker. As the guide wire passes the pericardial reflection, you will see an increase in the amplitude of the p wave.

If you have already removed the guide wire, you can flush normal saline through the catheter and feel for a thrill in the distribution of the IJ. Although the catheter is often difficult to visualize by ultrasound, the rapid flow of saline can be used as contrast to delineate the lumen of the catheter using power doppler. Of course, you could always just ultrasound the guide wire if it is still available.

Another modality is to inject agitated-saline into the catheter while simultaneously obtaining a subxiphoid or apical view of the heart. In this scenario, the agitated saline will work as ultrasound contrast. If the contrast appears within two seconds and shows lamellar flow, the catheter is in good position. If the flow is turbulent, however, the catheter is too deep and needs to be withdrawn until the flow is lamellar. If no contrast is seen, or delayed, the catheter is either arterial or too proximal.1

Obviously some of these confirmation adjuncts might not be appropriate for every situation. Bedside ultrasound is not universally available and blood gas results might take longer than you can wait. Clinical judgment, patient circumstances, and operator experience should dictate when some of these adjunct techniques can be considered.

References
Thanks to the 2010 Chair’s Challenge Participants

EMRA would like to thank the following Emergency Medicine Residency Programs and ACEP Chapters for meeting this year’s “Chair’s Challenge” by sponsoring one or more residents to attend the ACEP Leadership and Advocacy Conference in Washington, DC.

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Find the leader in you

Theodore Hesburgh once said, “The very essence of leadership is that you have to have vision. You can’t blow an uncertain trumpet.” Have you found your vision yet?

Many times throughout residency we find ourselves blindly swimming from one task to another, trying to keep our heads above the crashing waves, grateful to survive until the next morning. When opportunities arise, for better or worse, many young physicians eagerly snap them up, jumping out of the water in eager anticipation – not realizing it may be the fisherman’s boat they land in. Often we follow these assigned leadership opportunities instead of our own vision. How many chief residents do you know that truly lead? How many instead only lead as they are told?

It is a significant challenge to find your vision in the rat race of residency before it is over. I have been incredibly fortunate to have the opportunity to work for you and with the great people of EMRA. It was a once in a lifetime opportunity, but at first my vision was clouded. However, after settling in I quickly found vision was no longer the problem; it was my time that was in high demand. Someone wants too much of it, or you have none left to give.

The demands on your time will change in many ways upon completion of residency, but there is one universal truth: it will only get more limited. Since graduating I have seen the demands on my time escalate exponentially. But, for the first time in my life, I learned to say no thanks. Harvey MacKay once said “Time is free, but it is priceless. Once you have lost it you can never get it back.” Have you lost time to leadership without vision?

Finding vision and the right opportunity to implement it is the greatest challenge. Do not simply take the next position, job, or assignment given to you if it does not help meet your vision. Find the route that will help get you where you want to be in five or ten years. Do not give up just because the first opportunity does not fit; you will find your niche. Do not waste time on titles or positions that do nothing for your dreams and only take away time from the ones you love.

We now find ourselves at the end of another academic year; new interns starting, new attendings minted, the next step on your own residency journey. Take the time this month to find your vision. Find your perfect picture for the next year, next job, next leadership opportunity, and your life. Do not wait for someone to hand you the opportunity and substitute their vision for yours. Instead, seize the opportunity for a fresh beginning this year and become the leader you were meant to be. Now is the time!

EMRA would like to welcome these new Osteopathic Emergency Medicine Resident Programs

<table>
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<tr>
<th>Lakeland Regional Medical Center</th>
<th>Columbia Hospital / St Lucie Medical Center</th>
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<tr>
<td>St. Joseph, MI</td>
<td>Port St Lucie, FL</td>
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<td>Program Director: Michelino Mancini, DO</td>
<td>Program Director: Thomas H. Matese, DO</td>
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“...seize the opportunity for a fresh beginning this year and become the leader you were meant to be.”
**It’s no joke**

**History and presentation**
You haven’t even had your morning coffee yet when paramedics bring your first patient of the day into the trauma resuscitation room. “We have an unhelmeted cyclist who was just struck by a city bus and knocked off his bike,” they shout out. The patient complained of headache, left shoulder pain and left hip pain on scene and has become more agitated and combative during the transport. They finish up their report, “Oh, by the way, the patient said that he was a hemophiliac just before he started to get really confused.”

You are tempted to laugh out loud for a moment. They just said, “Hemophiliac.” That’s funny. Is it April 1st? Surprising that they didn’t say that the bus that hit the cyclist was full of hemophiliacs. Now that would be funny, but this is no joke. You look down at the patient and the ecchymosis on the left side of the face appears to be getting bigger right before your very eyes. The paramedics provide that kick to your morning that no cup of coffee could do, “Yep, he said that he has severe hemophilia A.”

**Physical exam**
On arrival to the emergency department, the 30-year-old male is getting agitated and keeps asking the same questions over and over. He has a large stellate laceration of his left forehead and a rapidly expanding left periorbital ecchymosis. Vitals are temperature 37.3 C, heart rate 94, blood pressure 138/72, respiratory rate 21, and O2 saturation 93 percent on 10L facemask. The patient has a cervical collar in place with a left shoulder deformity and complains of left hip pain when you assess stability of the pelvis. Neurologically, the patient is moving all four extremities and has symmetric pupils but he is not cooperating with commands and keeps trying to get up from the stretcher. The rest of the physical exam is unremarkable and initial FAST exam is negative.

**Initial thoughts and differential diagnosis**
Care of the trauma patient follows a strict algorithmic approach in order to identify life-threatening injuries rapidly and takes steps to correct injuries once they are discovered. Based on the severity of the mechanism of injury and the underlying coagulopathy, this critically injured trauma patient is without question going to get a full diagnostic trauma assessment. A thorough progression through the ABC’s of trauma assessment will identify injuries, but it is the timely administration of factor replacement, decisive management decisions, and skillful resuscitation of a competent emergency physician that will allow the patient to be stabilized.

Classic hemophiliacs with hemophilia A have a hereditary X-linked bleeding disorder due to deficiency of factor VIII that occurs in 1 in 10,000 live male births. Hemophilia B, factor IX deficiency, is also an X-linked recessive disorder but is ten times less common than hemophilia A. Given the X-linked genetics of the disease, males present with disease and females are almost always carriers.

The clinical classification of both A and B hemophiliacs is based on the severity of the deficiency with mildly deficient patients having five to 50 percent factor activity, moderately deficient patients having one to five percent activity, and severely deficient patients having less than one percent of normal factor activity. Even in the absence of trauma, severe...
hemophiliacs, such as this patient, are prone to have spontaneous bleeding into the CNS, the retroperitoneum, joints and muscle compartments. Most importantly for emergency physicians, patients with moderate or severe hemophilia and significant bleeding will require emergent treatment with factor concentrates to prevent major morbidity and mortality.

**Initial management**

Due to the patient’s agitation and need for additional imaging, the patient was quickly intubated. Portable X-rays of the lateral cervical spine, chest and pelvis revealed a displaced left mid-clavicular fracture and comminuted fractures of the left iliac wing, left acetabulum and left superior and inferior rami. Immediate consultation with the blood bank and hematology confirmed that the patient was indeed a severe hemophiliac with less than 1 percent factor VIII activity. Given the likelihood of severe bleeding, 100 percent factor replacement was recommended. A 50 unit/kg bolus dose of recombinant factor VIII was given to the patient BEFORE he was taken to radiology.

CT scanning demonstrated a left frontal lobe parenchymal hematoma with associated depressed left orbital roof fracture, a small right-sided pneumothorax, and the aforementioned clavicular and complex pelvic fractures. Despite worsening left eye proptosis and an enlarging periorbital hematoma, the ocular pressures in the patient’s left eye remained normal. After repair of the patient’s facial lacerations in the ED, he was transferred to the ICU for a nine-day stay in the hospital. While hospitalized, the patient received complete factor VIII replacement for seven days with the size of the patient’s intra-parenchymal hemorrhage remaining stable.

**Final thoughts**

Hemophilia, although a relatively uncommon disorder, will likely be encountered by most emergency physicians given the relatively high incidence of complications from the disease. Fortunately, indications and dosing of factor replacement can be simplified and remembered easily. Table 1 outlines specific treatment recommendations based on the types of bleeding for initial factor VIII and IX replacement in severe hemophiliacs. Dosing for factor IX is double that of factor VIII for all types of bleeding.

Factor replacement concentrates obtained from donor sources are purified but still carry risks of transmitting blood borne infection; therefore, the factor replacement of choice when available is recombinant DNA derived products.

In settings where factor replacement is not available, cryoprecipitate, whole blood and fresh frozen plasma (FFP) can be used. Each bag of cryoprecipitate contains about 100 units of factor, while both whole blood and FFP contain one unit of factor per 1mL of plasma. Finally, patients with mild hemophilia A may respond to treatment with desmopressin (DDAVP) at 0.3 micrograms/kg IV every 12 hours. The mechanism through which DDAVP works is not entirely understood but likely acts through increasing von Willebrand factor. DDAVP can raise factor VIII activity level threefold within one hour of administration.

**References**

EMRA Local Action Grant provides high school students CPR training

Armed with a 2009 Local Action Grant from EMRA, several University of Arizona College of Medicine (Phoenix Campus) students visited Alhambra High School in Phoenix in an effort to combat the documented low rates of bystander cardiopulmonary resuscitation (CPR) in the Phoenix Hispanic community. A 2008 study performed in Phoenix highlighted that Hispanic out-of-hospital cardiac arrest (OHCA) patients are 22 percent less likely to receive any form of bystander CPR during their resuscitation. Studies from Los Angeles reveal an even bleaker picture, with a Hispanic bystander CPR rate approximately 50 percent that of Caucasians. CPR is one of the few factors that has consistently been shown to improve overall survival from OHCA. Therefore the medical student team believed that a novel approach to targeted and language-specific CPR instruction could help reverse this disparity and increase OHCA survival in Phoenix. With the rapid expansion of the Spanish-speaking population in the United States, many leading CPR-promoting agencies such as the American Heart Association and the American Red Cross are beginning to target Hispanics. CPR trainings are now offered in Spanish, and advertisements are being placed in the Spanish-speaking news media. However, there is a dearth of data on the optimal approach to gain access to older members of the Hispanic community. This is urgent as they are both more at risk for OHCA and less likely to speak English fluently.

A recent report from Europe showed that once high-school students were instructed in proper CPR they were able to effectively re-teach CPR at home to others. Importantly, those trained by the high school students were significantly older, which is the same population that is most likely to witness or experience cardiac arrest. The UA medical student team hoped to apply this same creative technique to the Alhambra High School students and their families.
Including other community training events, this program has trained 243 high school students to date with more events planned in the future.”

The Alhambra training was held over eight hours and involved 192 high school students in six class periods. The CPR classes were incorporated as part of the required health curriculum and involved the active participation and support of the health and physical education faculty. All four high school grades were represented, with the majority being freshmen. More than 90 percent of Alhambra students identify themselves as Hispanic, and the majority speaks Spanish at home. Students actively participated in the training sessions that included viewing the training video, conducting a question and answer session and then practicing the CPR technique.

During their training the high-school students were instructed in the compression-only CPR technique which was developed at the University of Arizona College of Medicine in Tucson. Compression-only bystander CPR has recently been endorsed by the American Heart Association as an acceptable alternative for those who have not been trained and certified in traditional CPR. Furthermore, 911 operators in the Phoenix area support compression-only CPR during OHCA calls by incorporating this technique in their instructions to bystanders as they wait for the paramedics to arrive.

In the lessons to the high-school students, the medical student instructors utilized pillows covered with t-shirts as the training dummies. This choice was made because it could be easily replicated in the student’s home when they were training their family members. The training mantra was simple: Call 911, push hard and push fast! Once each of the students had demonstrated proficiency in compression-only CPR, they were provided with a DVD produced by the Sarver Heart Center, dubbed into Spanish by the medical student team, and duplicated with the funds from the EMRA local action grant. Including other community training events, this program has trained 243 high school students to date with more events planned in the future. With the Alhambra training, students were asked to record the number of persons they home trained, their age, relationship to the student, and whether the training took place in English or Spanish. Once the information was collected and analyzed, the UACOM team discovered that each student had on average taught at least six additional people, resulting in approximately 1,400 people instructed in compression-only CPR as a result of one single community intervention! Importantly, almost one-third of the home-training sessions were conducted in Spanish and utilized the Spanish language feature of the DVD. Almost all of the DVDs were returned so that they can be used for future trainings.

Thanks to the investment by EMRA this project was able to procure DVDs and other training materials, creating a sustainable CPR training program in a traditionally neglected population that can be replicated by future medical student classes. While the long-term effects of this intervention requires further study, it is clear that a small and dedicated group of medical students with targeted funding from EMRA has provided a comparatively large section of the community with potentially life-saving skills and a greater understanding of compression-only CPR.

This community service intervention demonstrates that high-school students can be asked to serve as “ambassadors” and bring compression-only CPR into areas that have been historically refractory to CPR education efforts. Group leaders hope that by demonstrating the feasibility of this program, compression-only CPR may some day be added to the standard Arizona state high-school curriculum.
Food for thought: Reflecting back and looking forward

This is my last article as chair of the Medical Student Governing Council. Looking back through some of the past pieces I have written, I seem to draw inspiration from food. Once I wrote of cafeteria eggs, once a projectile potato, once a large burrito… the list goes on. Perhaps I should have gone into gastroenterology rather than emergency medicine. Upon closer scrutiny of prior articles, it is apparent that the foods were merely props, and the true players were the people beyond my epicurean musings. These people are the ones I would like to thank.

I am lucky to be surrounded by mentors and colleagues who seek excellence and inspire others to greatness. These are the type of leaders that emergency medicine, and frankly, the community in general needs. Given the dedication of the members of the Medical Student Council, I believe the future of our specialty will be bright in a time that most certainly needs it. They made my job easy, accomplished a great deal, and even managed to keep me from wearing a Yankees hat during last year’s ACEP Scientific Assembly in Boston (probably keeping me out of the local emergency department). Going above and beyond the call of duty, the Council provided educational resources such as the updated “Articles for Students” section on www.emra.org, advanced outreach projects to EMIGs around the globe, helped coordinate the largest-ever medical student turnout at ACEP’s Scientific Assembly, as well as many other projects. Many of them move on to outstanding residency programs across the country, while others continue their commitment to the council in medical school.

The next Medical Student Governing Council and Medical Student Council have been selected, and I have full confidence that they will do well to further the interests of medical students. In the near future, these pages will introduce the new chair, Shae Patyrak, from the University of Texas-Southwestern. She has both the attitude and the aptitude to serve the Council; plus, her accent is much cooler than mine, and she will make Vegas even more fun (if that’s possible) for ACEP’s Scientific Assembly in September 2010.

Finally, I would like to thank all of the medical student members of EMRA. I appreciate your earnestness and dedication to our specialty. We currently have more medical student members than ever before, and undoubtedly have tremendous student zeal and enthusiasm. It is in large part because of people like you that I believe in emergency medicine. I look forward to seeing you all in the future (as colleagues, not as patients).
Global emergency medicine: Four perspectives from three continents

Emergency medicine continues to evolve and grow as a specialty around the world. This series presents four perspectives on the current state and development of emergency medicine from students and young physicians in four unique settings: the Philippines, Rwanda, South Africa, and the Netherlands.

The Philippines

Adhara Gomez Lazaro, MD
University of the Philippines College of Medicine
Philippine General Hospital

Background
Emergency medicine in the Philippines started around two decades ago and is one of the most promising and fast-growing fields of medicine.

Emergency medicine training
Medical students have varying exposure to emergency medicine, depending on the institution where they are enrolled. In the case of the University of the Philippines – Philippine General Hospital, emergency medicine has been well represented in the medical school curriculum such that the medical clerks are required to complete a two-week rotation in the emergency department. They are expected to have a good grasp of the basic concepts and philosophy of emergency medicine, as well as learn the basics of emergency management, i.e., resuscitation and stabilization of acutely ill patients. Students are also expected to understand the emergency triage system, emergency department patient flow, emergency department patient disposition protocol, and standard monitoring techniques.

At present there are no structured emergency medicine student organizations in the country. It is hoped that through the concerted efforts of the young emergency medicine residents and interested medical students, a formal Emergency Medicine Interest Group (EMIG) will soon be established. At present there are at least seven tertiary hospitals offering structured training programs in emergency medicine. The program is three to four years in length, depending on the institution, with an additional year of chief residency that focuses primarily on administrative skills. In general, emergency medicine residents are expected to gain expertise in the recognition, stabilization, and management of acutely ill and injured patients and also do rotations in other specialties (e.g., Trauma, OB-GYN, Pediatrics, and Medical ICU).

As of this writing, there are two organizations providing accreditation to emergency medicine residency programs in the country; the Philippine College of Emergency Medicine and Acute Care (PCEMAC) and the Philippine Society of Emergency Care Physicians (PSECP). The former was organized by a group of doctors from Makati Medical Center, a private tertiary hospital while the latter was initiated by the University of the Philippines – Philippine General Hospital, the largest university-based, government tertiary hospital in the country.

Emergency medicine practice
To date there have been several graduates of emergency medicine residency training programs in the country. An estimate of 30-40 trainees would graduate each year. About half of them opt to go abroad to work and/or pursue further training while the rest decide to stay and contribute to further strengthening the practice of emergency medicine in the Philippines. Most secondary and tertiary hospitals in the country have basic emergency facilities and a growing number of which are presently being staffed by trained and certified emergency medicine specialists, both in the Metro Manila and provincial regions. In some areas with no emergency medicine physicians, an emergency department would be run by a family medicine consultant, internal medicine specialist, or a general practitioner.

In terms of the EMS systems, a nationwide EMS setup is not yet available. In the past few years however, efforts were made to organize and sustain community-based pre-hospital EMS.

Rwanda

Zack Ndirima
MD Candidate, 2011
National University of Rwanda Medical School

Background
Rwanda is a developing country in the heart of Africa. Civil war and armed conflicts in 1994 left more than 800,000 people dead and destroyed most of the health care infrastructure. Today, emergency medicine is a very primitive state in Rwanda. The country has feeble emergency medical services and many hospitals are only now recovered from the ravages of war. But in the past several years, there have been many successful efforts to improve on its current state, both from the state and the private sector.
Medical student news

continued from page 21

Pre-hospital emergency care

Currently, there are no formal emergency services in the pre-hospital setting. The most common emergency cases are related to obstetric emergencies, road traffic accidents, post-traumatic stress disorders due to recent wars, fires, and infectious diseases. The government has put in place a system of two ambulances per district hospital. Each district hospital serves a population of approximately 150,000 people. However, there are also private ambulance service providers that are mainly based in the city health facilities and at each of the tertiary hospitals in the country. The ambulances range from sophisticated jeeps to ingobyi (traditionally fabricated stretchers) that are ironically called “helicopters,” that are used to transfer patients to the nearest health care facility.

In many cases, the best pre-hospital measures have involved preventive programs, such as more stringent traffic rules that have decreased the incidence of vehicle crashes by nearly 65 percent in the past four to five years. Additionally, the ministry of health has put in place a system of nearly 20 psychotherapists/social workers in each catchment area of about 20,000 people to serve the mental health needs of the community. Community midwives are too few in number to meet the need for obstetrical care, and in most instances the fire brigades are not well organized to assist during emergency situations with injured patients.

Emergency departments

In a country adopting the primary health care system, the quality and availability of emergency services improves from the community and district health centers to the tertiary hospitals. However, the five tertiary hospitals in the country have greater demand for services than available resources, and there are far more patients than available hospitals. This mismatch in demand and resources has an adverse impact on the ability of staff to be adequately trained in quick, appropriate action in emergency situations. The physical resources, such as infrastructure, supplies and equipment are also currently not sufficient to meet the demands of emergency care. Many emergency-related deaths are could potentially be prevented if adequate resources were available for emergency care.

Recently, more health learning institutes are being established, and government health budgets have been increased with a special focus on improving emergency care. Hopefully, these efforts will result in improved emergency care in Rwanda.

Emergency medicine training for doctors and students

Currently, Rwanda has a single medical school and there is little formal training in emergency medicine for students or the general practitioners who are graduated from the school. There are no formal training programs, although many medical students are becoming more interested in learning about emergency care, and formal student organizations will likely encourage that interest and help in the development of emergency medicine in Rwanda.

The Netherlands

Shiromani Janki
Erasmus MC / University Medical Center
Rotterdam, the Netherlands
President EM Student Organization

Background

The development of emergency medicine in the Netherlands began in 2000, with many landmark achievements in the past decade, including specialty recognition in 2009.

Pre-hospital emergency medicine

Patients arrive to the emergency department in three ways: referral by a general practitioner; walk-in; or by EMS ambulance/helicopter. Paramedics are frequently the first responders on the ambulance and are authorized to perform medical procedures and administer medications without consulting a physician in the hospital. Depending on the injuries of the patients the help of a Mobile Medical Team (MMT) is called in. The MMT, consisting of an anesthetist or a surgeon, a nurse and a driver/pilot, will provide more advanced care to stabilize the patients for transport. The 10 trauma centers in the Netherlands provide their own MMT. Every MMT has a van with five seats, medical equipment and medication, and four MMTs have a helicopter.

Emergency departments

Currently, the majority of the nearly two million patients visiting Dutch emergency departments annually are seen by newly graduated medical students who are waiting to be accepted into a residency position, by nurse practitioners, by resident physicians of other specialties, and by attending from other specialties. Usually residents from other specialties are called to assess a patient with complaints related to their specialty. This system is currently being transformed into the model seen in other countries, where trained emergency medicine physicians assess, diagnose, treat and admit or discharge the patients, in cooperation with the various specialists.

EM student organization

Because emergency medicine is a new medical specialty, it is not well represented in the medical school curriculum. There are eight medical schools in the Netherlands, with most teaching first aid, CPR, and AED. Some schools have a dedicated emergency medicine course ranging from two to eight weeks, often taught by other
The SEHSO goals are:

- To support the medical student in making career choices related to emergency medicine.
- To provide interested medical specialists with extra information about emergency medicine in addition to the existing curriculum.
- To support the medical student in understanding the demand for emergency care.
- To form a student emergency medicine organization by formatting a local SEHSO at all eight Dutch medical schools that will represent hundreds of Dutch medical students.

By the end of this year, we hope to have formatted SEHSO’s on every medical school and will provide all Dutch medical students with information and access to this new and exciting specialty.

South Africa

Lesley Tumai Kaseke, MSIV
University of Cape Town, South Africa
President Medical Students’ Association (2008–2009)

Background

Emergency medicine in South Africa is a developing field of medicine, with great interest from medical students and the community. As many other countries, South Africa uses the district health system which has primary, secondary, and tertiary health facilities.

Emergency medicine practice

From the moment an emergency call is made, the district ambulance services are notified. Paramedics are then summoned to provide initial assessment and aid to the patient. There are different paramedic services in this country, both public and private that transport patients to the hospital. Ideally the patient is then transferred to the nearest hospital until their condition becomes stable; they are then referred to another to be treated at the appropriate level of care if necessary. The personnel at the hospital which are involved in caring for the patient are the attending physicians and nurses, although not all of the attending physicians have been formally trained in emergency medicine.

From these experiences, it is safe to say that South Africa has a comprehensive system for emergency medicine in place, from initial emergency call to the patient’s admission, and subsequent treatment. However, many challenges are still present, including: patients being turned away from treatment by private hospitals if they do not have medical aid to pay for treatment; delays in ambulances arriving to injured or ill patients; poor communication systems between medics and physicians located in the hospitals; and, a general lack of resources to meet all of the demands for emergency care.

Emergency medicine training for medical students

Many medical schools have formal training in emergency medicine, coordinated by an emergency medicine specialist. For example, at the University of Cape Town (UCT), Dr. Anne-Marie Kropman, an emergency medicine physician coordinates student training in emergency medicine. Medical students are given training in emergency medicine in the 3rd and 4th years of study, learning resuscitation protocols for different scenarios. Students also ride with ambulance crews, giving them hands-on experience with medics, and teaching them about the initial management and referral of patients to hospitals.

Medical student interest groups for emergency medicine have also been established and continue to grow across South Africa. These groups will help to train the future emergency specialists in South Africa and therefore will be critical to the future development of the specialty here.
EM perspective on critical care fellowships

Dr. Julie Mayglothling is an assistant professor of Emergency Medicine and Surgery at Virginia Commonwealth University in Richmond, Virginia, and is the Fellowship Director for the emergency medicine critical care fellowship. She serves as the president of the Emergency Medicine Section of the Society for Critical Care Medicine (SCCM). She completed emergency medicine residency at NYU/Bellevue Hospital in NYC and a critical care and trauma fellowship at the University of Maryland R. Adams Cowley Shock Trauma Center. In this interview, Dr. Mayglothling sheds light on the future of emergency medicine critical care.

Dr. Julie Mayglothling
Assistant Professor of Emergency Medicine and Surgery
Virginia Commonwealth University
Richmond, Virginia

What advice do you have for the resident or medical student who is thinking about going into critical care and emergency medicine?

The first step for an emergency medicine resident thinking about critical care is to decide what your eventual practice is going to be. It is essential to figure out if you want to practice in-patient critical care. I love the fact that I do one week per month in the ICU, one week as the trauma attending, and six to seven shifts a month in the emergency department.

The second step is to decide whether you like medical critical care or surgical critical care. The patients in each discipline are very different. The patients in medical critical care are sick, complicated, and have a lot of co-morbid conditions. Surgical critical care patients include trauma, post-surgical, pancreatitis, vascular surgery, and transplant patients. There is a lot of different pathology. You should tailor your training to your clinical interests and the patient population you want to work with.

What are the different types of critical care fellowships? What are the differences?

There are four main types of critical care fellowships.

The first are anesthesia programs. These are mostly focused on surgical critical care, based out of the SICU, and are mostly one year. Examples of anesthesia-based critical care programs that have accepted emergency medicine residents are Massachusetts General Hospital, Johns Hopkins, and the University of Washington.

The second type of fellowships is a surgically based program. These are also one-year programs that combine both surgical critical care and trauma care. These programs train...
What is the impact of the recent American Board of Emergency Medicine (ABEM) and the American Board of Internal Medicine (ABIM) agreement on critical care training? Recently, ABEM and ABIM agreed that if an emergency-medicine-trained physician does an ACGME approved two-year medical critical care fellowship they will be board eligible for critical care. I did a surgical critical care fellowship and enjoy surgical critical care, but to this date, there is no board pathway if you do anesthesia or surgical critical care from emergency medicine.

There is an opportunity to be board certified through the European Society for Intensive Care Medicine, but you are not board eligible in the U.S. Presently, many critical-care-trained emergency physicians are practicing in hospitals where board certification is not an issue. The future is uncertain—lack of board certification could become a barrier in the future and may push one towards seeking a training pathway that would allow for board certification.

Can you talk about the opportunities for residents to be involved in emergency medicine critical care on the national level? There are three main bodies: the EMRA Critical Care section, the ACEP Critical Care section, and the SCCM EM Critical Care section. There is a lot of overlap, but these groups work to promote emergency medicine critical care. Most critical care emergency physicians are active in at least one of these groups.

The physicians involved in these groups have a wealth of knowledge and experience that can be useful for residents who are considering fellowship training. Whatever question a resident might have, if we didn’t know the answer, we would be able to at least get you in touch with someone who did.

What is your general sense of the job opportunities for people coming out of critical care training? Are institutions supportive or welcoming to have physicians who split their time between the emergency department and the ICU? We have a paper coming out in *Academic Emergency Medicine*. We surveyed all of the physicians who have done an emergency medicine and an accredited critical care fellowship. We found that 2/3 practice emergency medicine, 2/3 practice CC, and 40 to 45 percent of them practice both emergency medicine and critical care. These physicians practice in a variety of settings—community, academics, and level one trauma centers. Some even split their time between multiple institutions, with the opportunities to do so increasing annually.

Any last comments? I cannot imagine my job being any better than it is. I did a four-year residency and a one-year fellowship, but it was worth the long hours and the sacrifice because this job is everything that I could want.
Pediatric suicide

History and presentation

An 11-year-old male was found hanging by a leather belt around his neck in a closet, 20 minutes after an argument with his parents. On initial EMS evaluation, he was unconscious, apneic, and pulseless.

CPR was initiated, and an intraosseous line was placed. After a dose of epinephrine, the cardiac rhythm revealed ventricular fibrillation, prompting defibrillation and further CPR. After intubation, repeated defibrillation, and interventions with epinephrine, lidocaine and atropine, the patient developed return of spontaneous circulation.

Epidemiology

According to the Centers for Disease Control and Prevention (CDC), suicide is the fourth leading cause of death in the U.S. among children ages 10 to 14, behind accidental injury, malignant neoplasm and homicide. The CDC categorizes hanging as a type of suffocation, which has accounted for 63 percent of suicides committed by 10 to 14 year olds and has seen a sharp rise among young females since 2001 (Figure 1). Breaking the data down by race and ethnicity shows that American Indians and Alaskans across all age groups have the highest rate of suicide in the U.S. (Figure 2). Certain native subgroups, such as youth (ages 10 to 24) of the White Mountain Apache Tribe in Arizona, have a strikingly high rate (80 percent) of death due to hanging2.

Treatment

When treating a patient after a hanging, airway management may present a significant challenge, as direct trauma from the ligature may lead to laryngeal edema or fracture. Patients may have tenderness over the larynx, hoarse voice, stridor or be in respiratory distress. Fiberoptic intubation should be considered in awake, stable, and cooperative patients. A surgical airway may be required in unresponsive or unstable patients if direct laryngoscopy is unsuccessful.

Cardiovascular status is dependent upon the time until rescue. Blood vessels in the neck and head are affected as venous obstruction and arterial spasm decrease blood flow to the brain. Arrhythmias and cardiac arrest may occur. Skin findings can include ecchymosis of the neck, petechiae on the neck and head, or hemorrhages in the eyes. The carotids may be damaged, so imaging should be considered. Resuscitate cautiously with fluids because these patients are at high risk for cerebral edema and ARDS.

When treating a patient after a hanging, maintain cervical spine stabilization. The classic Hangman’s Fracture, or C2 traumatic spondylolisthesis, results from forced hyperextension and distraction of the neck and is almost always an unstable fracture (Figure 3). Risk of cervical spine injury increases with large dropping distances, so Hangman’s Fractures are rare in suicidal hangings. In patients who survive the initial airway insult of hanging, morbidity and mortality generally are a consequence of cerebral hypoxia.

Once the patient has been stabilized, other interventions may include consultations with ENT, neurology, neurosurgery, psychiatry and social services. Patients should be monitored closely for airway
obstruction, pneumonia, ARDS, blood pressure instability, arrhythmias, mental status changes, and seizures. Other self-inflicted injuries such as toxic ingestion should also be considered.

**Prevention**

Hanging does not require expensive or specialized equipment, and lethality is high. Consequently, this may be an appealing method for suicide among the pediatric and adolescent populations, as firearms and poisons are generally more difficult to access. Cultural and religious factors may also influence the mechanism an individual uses to commit suicide.

One suicide screening tool implemented in a pediatric emergency department was evaluated in a small, cross-sectional study in 2001. Among the 14 screening questions, four questions showed significant predictive value of suicidal risk when compared to an extensive questionnaire. The four items assessed were: present suicidal behavior, past suicidal ideation, past self-destructive behavior, and current stressors. The survey offers non-mental health professionals the means to rapidly assess the major facets of suicide risk in children.

**Case conclusion**

On arrival to the emergency department, the patient was hypotensive with a non-sedated Glasgow Coma Scale of three. He had no gag-reflex, absent corneal reflexes, and equal, nonreactive pupils. Therapeutic hypothermia was initiated. After admission, an EEG showed decreased cerebral activity. Computed tomography showed loss of brain gray-white matter distinction, but no c-spine fracture, vascular injury, or intraventricular hemorrhage.

The ICU course included treatment for labile blood pressures with pressors, trauma-induced diabetes insipidus with vasopressin, and impending herniation with mannitol. The patient was declared brain dead after extensive, independent examinations by the intensivist and neurologist.

**References**


EMRA ABX GUIDE

or Download through your iTunes account on Apple.com

AN ABOVE AVERAGE APP FOR THE ABOVE AVERAGE PHYSICIAN

EMRA Antibiotic Guide by Salibad the Sinner – Version 1.0.1 – Jan 22, 2010
“Excellent format and interface.”

Best of Class by Sardamann – Version 1.0.1 – March 23, 2010
“As an Infection Preventionist and a Microbiologist I find it an incredible source of information. Flow is very logical and essentials are readily available. Perfect work.”

Easier than Sanford by Geekstrap – Update
“It’s easier to navigate and the suggestions actually seem more in line with actual practice.”

EMRA ABX GUIDE iPhone App

Available on the App Store
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Dead emergency medicine resident running: Finding balance while training

Are you as excited about going to work today as you were on your first day as an intern? When we start residency, we are filled with an incredible amount of energy, involvement, and engagement; however, it seems that for many of us this excitement tends to fade and may be replaced by exhaustion and cynicism. This process does not happen all of a sudden, but is a gradual and insidious process that may take over if we are not aware.

The main culprit in this transition is frequently erosion in the balance in our lives. As physicians, we are trained in a manner that leads almost inevitably to this loss of balance. It is vital to be aware of this transition in order to avoid irreversible consequences. The ACEP Wellness Book has a chapter on burnout, which highlights several reasons while physicians are at such great risk for this transformation:

1. Medicine monopolizes our whole identity
2. Establishment of an overdeveloped sense of responsibility
3. Feeling entitlement to respect
4. Expectations not to display vulnerability including sadness
5. Work intensity
6. Disruption of circadian rhythms

The transition from medical school to residency is a time of great excitement and trepidation. As you progress through residency, however, have you noticed a change in your personality or in the personality of your colleagues? As we lose balance in our lives, our personal relationships begin to suffer. One common complaint that residents have is that they miss the time they spent socially with their fellow residents. Instead of viewing their classmates as friends, they begin to see others with mistrust for “using sick call too much” or “refusing to help out by trading that shift.”

For residents with families, the relationship with their spouse is also frequently stressed. While you may view the amount of time you spend on residency activities as being your responsibility and commitment towards personal success, your spouse may feel that you have placed work as a priority over family life. The loss of balance in our lives also leads to erosion in our performance at work. As interest in work declines, so goes our performance – no matter the time spent on work activities. The attraction we once felt for residency may be replaced by avoidance, isolation, and dread of working another shift.

What are the consequences of not properly balancing your life? For many residents the answer may be simply a loss of enjoyment in their work. For other residents, more irreversible outcomes such as divorce or inability to complete residency may result. Other residents may turn to alcohol or substance abuse as a means to manage their stress.

Once you recognize that balance has been lost, what should you do? First, it is important to recognize that there are multiple areas in life that require attention:

1. Physical balance – i.e., stay in shape! Physical fatigue can lead to mental and emotional fatigue.
2. Relationship balance – connect with old friends with whom you lost touch during the marathon of your training. Refocus your attention to your family – including your spouse. Our family members are usually our greatest supporters, and it is important to show them that appreciation.
3. Community balance – remember that there is a world outside of the hospital. Be involved with groups outside of the hospital. Be involved with volunteer activities, church groups, hobbies, etc.
4. Work balance – work towards being the best possible physician you can become, but remember there is a limit to the amount of work that one person can reasonably accomplish.

Residency is a time of great excitement and development. We are given the incredible privilege and responsibility of helping patients when they are at their sickest, but in order to provide the best possible care, we must first be healthy and content.

References


“We are given the incredible privilege and responsibility of helping patients when they are at their sickest, but in order to provide the best possible care, we must first be healthy and content.”
Asking the research question: How to develop an original hypothesis

Asking an original research question comes more naturally than you may think. In fact, if you are a resident or medical student in emergency medicine, you do it every day. Every time you ask yourself or a colleague “why do we do this?,” “why don’t we do that?,” or “upon what evidence are we basing our approach?,” you have created a research question.

The first step in developing your idea is to comprehensively review the literature available on the topic. If there is “too much to read,” then your question may be too broad. The next step is to develop a testable hypothesis. Make sure your question is narrow enough to yield meaningful results. Understand (and be prepared to explain) exactly how answering your question would change or reaffirm your clinical practice.

The next step is to select a study design suited to your question. Selecting the correct design can make executing your project much easier, while selecting the incorrect design can result in a fatally flawed approach. The type of study design will depend primarily on the question you ask and the resources you have available. A good resource is: Rennie D, Guyatt G, eds. Users’ Guide to the Medical Literature: A Manual for Evidence-Based Clinical Practice.

One relatively painless way to start is with a retrospective chart review. Institutional Review Board (IRB) approval is usually relatively easy to obtain for chart reviews, as there is no direct contact with patients, and data collection is much easier since you are analyzing existing data. What would such a project look like? How about reviewing all of the patients admitted through your emergency department with sepsis to see if an association exists between time to first antibiotic and survival to discharge?

Your initial conclusions from a retrospective study can build the hypotheses for future advanced projects directed at building your area of expertise. Simply put, doing a well-defined project on 3rd metatarsal fractures could make YOU the department expert!

It is important to realistically assess the time and resources required to answer your question from start to finish. Part two of the EMRA Research Committee series, in the December/January 2010 issue of EM Resident, highlighted the importance of building a student-mentor relationship to help define a realistic timeline for each project step from IRB approval to publication. Team building is an integral part of emergency medicine, and emergency medicine research is no exception. You should not hesitate to bring others into your project if they complement your skills and contribute to the overall outcome of the project.

Emergency medicine is the most diverse specialty in the house of medicine—it touches every other specialty from infectious disease to gynecology to sports medicine. The specialty is still in its infancy, however, and that means the sky is the limit for emergency medicine research. As you develop your clinical skills, you will be exposed to numerous original ideas and have the opportunity to select from a vast array of research questions.

You may find it more rewarding to study a topic in which your program has readily available expertise. Identify the content area experts in your department and seek them out. Of course, if your interests take you in a novel direction, it is perfectly acceptable to seek appropriate support and carve out your own niche.

The most important thing to remember is this: only study a topic about which you are passionate. Following this advice will make the process easier, enhance the quality of your results and keep you fulfilled. Now get to work!
Case presentation

A 42-year-old man presents to your emergency department complaining of severe malaise and postural lightheadedness. He has a history of long-standing hypertension though admits to being non-compliant with medications. His VS are notable for a HR in the 30s and a BP of 80/40. He is listless but arousable and oriented. The exam is otherwise unremarkable. Nurses obtain an ECG and present it to you (Figure 1). What is your diagnosis and treatment?

Discussion

The ECG demonstrates a slow regular rhythm with a ventricular rate of approximately 30. The narrow QRS complexes and absence of P-waves are suggestive of a junctional rhythm, although the rate is slower than a typical junctional escape rhythm (usually 40-60 beats/min). Another notable feature is the presence of tall, peaked T-waves in the anterior leads. This T-wave morphology is typical of hyperkalemia. The peaked T-waves of hyperkalemia are most notable in the precordial leads, as noted in this case.

When this patient initially presented to the emergency department, the health care providers focused their attention on the patient’s heart rate and hypotension. Typical Advanced Cardiac Life Support (ACLS) protocols dictate that unstable bradydysrhythmias should be treated with atropine, transcutaneous or transvenous pacing, and vasopressors such as epinephrine or dopamine in a sequential manner until the ventricular rate improves. This patient did, in fact, receive atropine, transcutaneous pacing, and was then started on a dopamine infusion without any improvement in his heart rate. The laboratory then called the emergency department to report a “panic” potassium level of 7.7 mEq/L (normal value 3.5-5.0 mEq/L).

Hyperkalemia is the most common deadly electrolyte disorder that we encounter in the emergency department. The traditional teaching regarding ECG findings of hyperkalemia includes peaked T-waves, widening of the QRS complexes, flattening and eventual loss of the P-waves, ventricular dysrhythmias, and a sine-wave appearance of the rhythm as the patient approaches cardiac arrest. However, bradydysrhythmias are common in cases of severe hyperkalemia as well—slow atrial fibrillation, slow junctional rhythms, slow junctional rhythms, and advanced AV blocks are all potential manifestations of severe hyperkalemia.

Unfortunately, many physicians fail to recognize hyperkalemia in the setting of these bradydysrhythmias because they are not often taught. Further confounding the care of these patients is the fact that ACLS treatment algorithms for unstable bradydysrhythmias frequently fail in these cases because these patients are often severely acidic. Atropine, vasopressors, and even transcutaneous pacing may be ineffective in the setting of severe acidosis.

For Case Resolution see page 39
You think Phoenix is HOT... the EMRA Party is HOTTER!!

Saturday, June 5, 2010
9:30 pm - 2:00 am

Say “EMRA” at the door to receive your wristband to enjoy NO cover and extra drink specials in the UV Room!

$5.00 wells/calls and $4.00 beer/wine all night!

2 dance floors with DJs spinning top 40s with the largest light show in town!

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EMRA Activities at the

2010 SAEM Annual Meeting

June 3-5, 2010
JW Marriott Desert Ridge Resort & Spa
5350 East Marriott Drive • Phoenix, AZ 85054

Thursday, June 3, 2010
1:00pm-5:00pm EMRA Board of Directors Meeting

Friday, June 4, 2010
8:00am-9:00am EMRA Technology Committee
8:30am-9:30am ACEP/EMRA Officers Meeting
8:30am-11:30am EMRA Board of Directors Meeting
10:30am-11:30am ABEM/EMRA Officers Meeting
11:30am-1:00pm EMRA Leaders Luncheon (invitation only)
1:00pm-1:30pm EMRA Committee Chair Orientation
1:00pm-2:00pm EMRA Regional Representative Meeting
1:00pm-3:00pm EMRA Medical Student Governing Council Meeting
1:00pm-5:00pm EMRA Resident Sim Wars Competition
1:30pm-3:00pm EMRA Health Policy Committee Meeting
1:30pm-3:00pm EMRA Critical Care Committee Meeting
1:30pm-3:00pm EMRA International Committee
2:00pm-3:00pm EMRA Conference Committee Orientation
3:00pm-4:00pm EMRA Reference Committee Public Hearing
4:00pm-5:00pm EMRA Reference Committee Work Meeting
4:00pm-5:30pm EMRA Research Committee Meeting
5:30pm-6:30pm EMRA Spring Awards Reception

Saturday, June 5, 2010
8:30am-9:00am EMRA Rep Council Welcome Breakfast & Registration
9:00am-12:30pm EMRA Rep Council Meeting/Town Hall
12:30pm-1:30pm EMRA Rep Council / Resident Luncheon
3:00pm-5:00pm EMRA Board of Directors Meeting (Committee Updates)
5:30pm-7:00pm EMRA National EM Jeopardy Contest
9:30pm-2:00am EMRA Party
Emergency medicine residents are familiar with change. To stay on top of your game, you must juggle shift schedules, training, patient care, income limitations, practice opportunities, debts, expenses, budgets, families, and numerous other situations. As you balance your personal and professional lives, I want to take this opportunity to provide you with an update of the most recent changes in the financial community, as they relate to you. The following information is current as of April 15th, 2010.

**Savings rates**

For the most part, savings rates (money markets, CD rates, savings accounts) are less than inspiring. This is not a reason to move that money into something else like gold. Keep your cash savings in savings and remember that it is for emergencies and financial confidence.

Because of member benefits, many credit unions have the most competitive rates at the moment for these cash assets.

Another source of good cash yields is in permanent life insurance contracts. Some of the guaranteed accounts in these plans are paying in excess of 5.0 percent, although there are restrictions and considerations involved in using such an asset as your savings account.

**Student loans**

It was just a year ago that the Higher Education Act took effect and upended residents’ cash flow across the country. It appears that the next development involves a significant change in the way student loans are to be structured. As a result of the recent bill signed into law by the President, the government will be the first lender for all student loan programs, with the goal of using the +/- 4.5 percent interest spread (difference between their actual borrowing rate and your loan interest rate) to fund the new healthcare bill. It is likely that there will be increased incentives to practice in various areas that the government sees as critical. I am not yet confident enough of the provisions to provide advice in this regard, but I encourage you to contact your lender and find out what this means for you personally.

**Disability insurance**

Always in a state of change, the disability industry continues to provide increasing opportunities for emergency medicine residents. These are the most recent movements in that industry:

Residents are now able to purchase up to $7,500 of monthly specialty-specific/own-occupation coverage and lock in the ability to increase by up to another $7,500 in the future. You must be within six months of completing training to be eligible for this benefit.

There are four companies with specialty-specific contracts through age 65 or 67.

Three of the four major disability companies now limit the amount of DI a resident can get if they have a signed
“As a result of the recent bill signed into law by the President, the government will be the first lender for all student loan programs.”

contract that will have group long term disability benefits – **Obtain disability insurance before you sign your contract!**

Conversion options can often provide great benefits if you have a medical history and are unable to purchase individual disability coverage or have medical history that would lead to an undesirable contract. Consult your GME or human resources department for information. **If you have a significant medical history, it is critical that you do this before you finish your training!**

**The EMRA Disability Program provides you with an independent analysis of the most competitive contracts in your state and recommends the most competitive plan, doing all the work for you! For more info: complete the EMRA survey at www.integratedwealthcare.com/financialeducation.**

**Life insurance**
The life insurance marketplace is interesting. Term insurance is still very competitive, but permanent plans have seen increases in costs to adjust for longer life spans. I believe that the trend will be to continue increasing rates over time.

**Insurance Tip –** This is a good time to “warehouse” insurance. Buy a lot more than you need and lock in a low premium now, while in your most healthy and lowest-age bracket. In the future, you will already have coverage; if you don’t need it, you can cancel or potentially sell it to a settlement company.

**Buy Term** – There are a lot of good reasons to buy permanent life insurance. Not many of them make sense during residency. In the early years of your training or practice, buy lots of term insurance for pennies on the dollar and direct your other cash towards paying off debt, building savings and funding retirement.

**Retirement strategies**
The Roth IRA continues to provide significant tax leverage for residents.

**Tax Tip –** If you have been max-funding your Roth IRA during residency and will soon lose the ability to do this due to increased income, consider max-funding a non-deductible traditional IRA. In the year 2010, you can convert any funds in that IRA into your Roth IRA (paying taxes on any gains) and ultimately end up being able to get two or three more years of Roth funding! Consult your tax advisor or financial planner for planning strategies.

**Independent contractors**
If you are pursuing a position as an independent contractor, the following may be helpful in getting started and staying organized:

- Establish yourself as an actual legal entity such as an LLC or S-Corp
- Establish a separate checking account in the name of the entity and also get a credit card in that entity name
- Deposit all EM-related income into that corporate account and pay yourself a salary or “owners draw” from those funds
- Run all business expenses through that corporate account and all individual expenses through your individual account
- Hire an outside practice manager or bookkeeper to maintain all of your contracting, billing, coding, and reimbursements and to maintain your bank accounts.

Learn the difference between a SEP IRA, 401(k), and defined benefit plan and structure the optimal program that allows you to make the largest contribution to your own retirement.

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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Abdominal & Gastrointestinal Disorders

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

1. A 46-year-old woman presents with constant abdominal pain with associated nausea that started 8 hours earlier. She appears nontoxic and is lying still on the bed. Blood pressure is normal; pulse rate is 95, respiratory rate is 16, and temperature is 37.8°C (100°F). Physical examination is remarkable for RUQ and epigastric tenderness to palpation without rebound or guarding. Laboratory test results reveal elevated ALT, AST, and alkaline phosphatase, normal lipase and total bilirubin, and a negative urine hCG. The next most appropriate management step is:
   A. Acute abdominal series
   B. CT scan
   C. General surgery consultation
   D. Oral cholecystography
   E. RUQ ultrasonography

2. Which of the following statements regarding ingested foreign bodies is correct?
   A. All children with a suspected foreign body ingestion should undergo x-ray
   B. Ipecac can be used safely to dislodge a button battery in the esophagus
   C. Meat tenderizer can be used safely to dissolve an impacted meat bolus
   D. Most common site of esophageal foreign body entrapment in pediatric patients is the thoracic inlet
   E. Objects longer than 5 cm and wider than 2 cm should be removed before they pass through the stomach

3. A 40-year-old man presents with severe chest and neck pain. He is otherwise healthy but says that he “threw up really bad” 6 hours earlier at a tailgate party. The neck pain is made worse by swallowing and by flexing his neck. What is the appropriate next management step?
   A. Broad-spectrum antibiotics
   B. Endoscopy
   C. Laboratory testing, to include lipase
   D. Soft-tissue neck x-ray
   E. Treatment with H2 blockers

4. A 53-year-old man with cirrhosis presents with a 12-hour history of diffuse abdominal pain. Physical examination reveals a positive fluid wave, mild diffuse abdominal tenderness, and a temperature of 38°C (100.4°F). Paracentesis reveals 2,000 WBCs/microliter and 280 PMNs/microliter. Which of the following is the most appropriate management?
   A. Administer oral antibiotics, and discharge home
   B. Culture ascitic fluid, and treat if cultures are positive
   C. Order triple-contrast abdominal CT to look for causes of abdominal pain
   D. Perform RUQ ultrasonography to look for cholecystitis
   E. Start cefotaxime 2 g IV q8h, and admit

5. A 54-year-old man with a history of “alcoholic liver disease” presents with frank hematemesis, a blood pressure of 80/40, pulse rate of 110, and respiratory rate of 26. After assessing and managing the airway, which of the following is most likely to provide definitive treatment?
   A. Blood products
   B. Emergent endoscopy with sclerotherapy
   C. Normal saline 1 L bolus IV
   D. Sengstaken-Blakemore tube
   E. Vasopressin

PEER VII is ACEP’s Gold Standard in self-assessment and educational review for emergency physicians. EMRA members can purchase PEER VII at a significant discount at www.acep.org/bookstore.
EMRA’s 2nd Annual PHOTO CONTEST

A call for photos: Send us your best shots!

“A great photograph is one that fully expresses what one feels, in the deepest sense, about what is being photographed.” – Ansel Adams

If you’ve been inspired lately to capture images from an away rotation, the changing of the seasons, or the sights of your city, we want to see! Send entries to photocontest@emra.org by July 20, 2010. Indicate a title for your photo, your name, School/Program/Hospital, and the category in which your photo belongs.

One winner and one runner-up from each category will be selected and displayed in the October/November issue of EM Resident.

2010 CATEGORIES
Nature & Wildlife
Travel & Landscapes
Art Photography
Portraits
Sports & Events
Miscellaneous

Submissions will be judged by our editorial staff along with award winning photojournalists: Lisa Bundy, MD, and Giuliano De Portu, MD.

A few of the 2009 Winners

PORTRAITS 1st PLACE WINNER
Young Warrior | Jason Hamel, MSIV
Loma Linda University School of Medicine, Loma Linda, CA

ART PHOTOGRAPHY 1st PLACE WINNER
The City from the Gate | Julio Manuel De Peña-Batista, MD
Kendall Regional Medical Center, Miami, FL

ART PHOTOGRAPHY RUNNER-UP
Spring Reflection
Sarah Medeiros, MPH, MSIV
David Geffen School of Medicine
Los Angeles, CA

NATURE RUNNER-UP
Cheetah with Prey
Natalie Anne Ayres, MD, MS
Carolinas Medical Center
Charlotte, NC

A call for photos: Send us your best shots!
Letter to the Editor

Dear EMRA Leadership,

I received my EM Resident publication in the mail last night, and I feel that I must comment on one of the articles – “Consultant’s Corner: Orthopedics Observation.”

While I found that the piece did provide some useful information and suggestions for EM physicians, there are aspects of the article which I feel do not have a place in a publication that is aimed at EM residents. Specifically, I take exception with Dr. Sutherland’s comments that “…if your workup is inadequate, if you don’t know something you should, or if you forget something, own up to it, apologize, and take it when the consultant reams you out.” I do not think that I am alone in teaching my residents that unprofessional behavior such as “reaming out” a colleague is never acceptable, and I find it troubling that a publication which should be supporting EM residents is instead advocating for the acceptance of such behavior. It is widely accepted (and well published in the medical literature) that environments in which intimidation, fear of questioning the actions of colleagues within the medical environment, and a lack of collaboration contribute to and often lead to medical error. Most hospitals (including the one in which I work), as well as the Joint Commission, have taken very strong stands against ‘disruptive physicians,’ and behaviors such as “reaming out” a resident are not acceptable in any circumstance.

I suspect that EMRA and EM Resident did not intend to advocate for the acceptance of unprofessional behaviors such as the one described in the article. Unfortunately, I fear that some residents may interpret the article in this fashion.

Again, I find your publication to be outstanding and EMRA a fantastic resource and advocate for EM residents. In the future, I hope that you might carefully consider instances in which aberrant behavior by some of our medical colleagues is portrayed and accepted.

Thank you for your time and attention.

Sincerely,
Jeff Schneider, MD, Residency Program Director
Department of Emergency Medicine
Boston Medical Center
Boston University School of Medicine

Response: Thank you for your thoughtful review of our publication and for taking the time to bring this to our attention. Allow me to start by agreeing with you wholeheartedly. Our new “Consultant Corner” section was meant to educate and facilitate interactions with consultants. We certainly do not want to promote anything that creates animosity between services nor do we feel that it is acceptable to “reaming out” a resident. We support functional, professional and amicable interactions between consulting services and we sincerely regret that this oversight took place.

We are now taking a look at our guidelines for guest authors and will be paying particular attention to this section. This publication has made great strides over the years thanks to the help of numerous authors (residents, attendings, fellows, medical students). Your feedback is key and it helps us keep our publication where it needs to be.

Thank you kindly for your comments.
Edwin Lopez, MD
President, Emergency Medicine Residents’ Association
EMRA Fall Elections

EMRA elections will be held during ACEP’s Scientific Assembly in Las Vegas, Nevada, September 29, 2010 for the following positions:

- **President-Elect:** Candidates for President-Elect must make a three-year commitment to EMRA. The first year serving as President-Elect. The second year in the term is as the President. The third and final year is spent as Immediate Past President/Treasurer.

- **Vice Speaker of the Representative Council:** This two-year term with the first year serving as Vice Speaker and the second as Speaker, assists Speaker as Parliamentarian for the Representative Council, acts as director of all Representative Council taskforces, and is the EMRA Delegate to the AMA Resident and Fellows Section at the annual and interim AMA meetings.

- **Legislative Advisor:** Candidates for Legislative Advisor must make a two-year commitment to EMRA. Position is responsible for coordinating and running the Residents and First-Timers Track at ACEP Leadership and Advocacy Conference. Generating and updating the EMRA Emergency Medicine Advocacy Handbook. As well as helping foster resident advocacy.

For full position descriptions please visit www.emra.org.

If you are interested in running for a position, please email your CV, a statement of interest (200 words or less), letter of support from your residency director, and a photo (jpeg format) to mbyers@emra.org by **August 30, 2010**. EMRA will post statements and photos received from candidates on the EMRA Website. Nominations from the council floor will also be accepted.

Can’t miss ECGs

**Case resolution**

Once the diagnosis of hyperkalemia was discovered, the health care providers gave the patient 1 gram of calcium gluconate, 88 mEq of sodium bicarbonate, and 10 units of regular insulin (with dextrose) intravenously. The patient quickly converted to normal sinus rhythm with a rate of 110 and a normal blood pressure. The dopamine infusion was discontinued, and the patient remained stable. His laboratory studies were consistent with acute renal failure. He was admitted to the hospital and received urgent hemodialysis.
1. “But they looked so good!”
   Children may not demonstrate the signs and symptoms commonly seen in adults that may warn of impending cardiovascular decompensation. It is imperative that health care providers closely monitor the vital signs and mentation of potentially poisoned children.

2. “It was an herbal product, and herbals are natural and safe.”
   A number of herbal products can be deadly to children even if small quantities are ingested. “Natural” cannot be equated with safe.

3. “We monitor all overdoses for four hours.”
   Numerous toxins require monitoring for longer than four hours, such as the sulfonylureas and sustained-release calcium channel blockers.

4. “The literature recommendations are too conservative regarding the length of observation time.”
   Studies pertaining to pediatric toxicology are limited. Many recommendations regarding the length of observation time are based on the available evidence. It is better to be too conservative and avoid adverse outcomes in young children as we await more comprehensive studies.

5. “They are not moving, so they are not seizing.”
   Certain toxins can cause non-convulsive status epilepticus, such as with organophosphates toxicity. If non-convulsive status epilepticus is suspected, an electroencephalogram should be obtained.

6. “Charcoal must be administered to every overdose patient.”
   Charcoal does not need to be administered in every case of poisoning. In fact, there are contraindications to charcoal administration such as the ingestion of caustics and hydrocarbons.

7. “Ipecac is a mainstay ofprehospital treatment.”
   Prehospital administration of syrup of ipecac is no longer recommended in the routine management of poisoning.

8. “All caustics are the same.”
   There are numerous caustics on the market, and the astute health care provider should not only be concerned about local tissue damage, but also about systemic effects from such agents (i.e., hydrofluoric acid).

9. “The patient’s oxygen saturations on a 100 percent non-rebreather are 98 percent, so he does not need to be intubated.”
   Adequate evaluation of the patient’s neurologic status, ventilatory status, and gag reflex should guide the need for intubation. Too often clinicians may be complacent about the patients at risk for aspiration and carbon dioxide narcosis when a patient’s oxygen saturation is adequate.

10. “We do not need an x-ray to confirm the position of the nasogastric tube position; just push the charcoal.”
    The administration of charcoal prior to confirmation of tube position by x-ray is a dangerous practice. Charcoal aspiration can lead to marked respiratory difficulty and significant long-term sequelae. Proper placement of the nasogastric tube should be confirmed prior to administration of charcoal.
1. “Although this cancer patient said he had a fever at home today, he doesn’t have one here. Plus, results of his chest radiograph are normal, his urine is clean, and his physical examination doesn’t show any infection. I’m going to send him home.”

Patients with neutropenic fever often have subtle or no signs of infection other than the fever, and only about 30 percent have an infectious cause identified by the time of hospital discharge. Neutropenic fever results in high morbidity and mortality if not treated aggressively and early. Additionally, neutropenic individuals who are afebrile in the ED but report fevers at home need to be evaluated and treated just as aggressively as those who have a fever in the ED.

2. “I read EM Practice, so I knew that this leukemic patient who recently received chemotherapy needed antibiotics promptly. It looked like she had a urinary tract infection, so I gave her sulfamethoxazole-trimethoprim right away!”

Prompt and appropriate antibiotic administration is fundamental in the treatment of patients with neutropenic fever. Except in very rare instances, broad IV antimicrobial coverage (e.g., cefepime, imipenem, piperacillin/tazobactam) is necessary.

3. “I’m not worried about neutropenic fever because the patient’s ANC is 800 cells/μL, which doesn’t meet the criterion of less than 500 cells/μL for a diagnosis.”

Although an ANC of < 500 cells/μL is what most physicians recognize as neutropenia, another defining characteristic is an ANC of < 1000 cells/μL with a predicted nadir of < 500 cells/μL over the ensuing 48 hours.

4. “I thought TLS only occurred in patients with leukemia.”

Although TLS is much more common with lymphoproliferative malignancies, it certainly occurs with solid tumors as well, especially in metastatic and therapy-sensitive cancers. The high 36 percent mortality rate associated with solid tumor TLS can be partially attributed to the lack of anticipation and delayed recognition of TLS following chemotherapy.

5. “The patient did not have a recent history of chemotherapy. I didn’t think TLS could occur without it.”

If a patient has electrolyte abnormalities in the setting of an underlying malignancy, one should consider TLS in the differential diagnosis. Patients with a large tumor burden can present with TLS even in the absence of antitumor treatment (e.g., chemotherapy, radiotherapy, surgery, endocrine therapy, corticosteroids).

6. “This patient with TLS has a creatinine value of 2.4 mg/dL, so I am going to gently hydrate him to avoid volume overload.”

Most patients with TLS are intravascularly depleted and will require aggressive volume resuscitation to prevent significant kidney injury and severe electrolyte abnormalities. An abnormal serum creatinine value in a patient with previously normal renal function is a red flag that kidney injury is imminent if fluid resuscitation is not aggressive. Aggressive IV fluid administration is the cornerstone of treatment for TLS, so large volumes of fluid must be given to induce forced diuresis unless the patient is clinically fluid overloaded or has congestive heart failure.

7. “Intravenous fluid is really the only significant treatment for TLS.”

Although IV fluids are very important, rasburicase is a very effective and increasingly common adjunctive medication for TLS. It works by converting uric acid to allantoin, a substance that is five to ten times more soluble than uric acid in the blood, facilitating its urinary excretion. Because of rasburicase’s high cost, however, it should be given only after discussion with the oncologist.

8. “The patient has hypercalcemia, most likely due to hyperparathyroidism or another metabolic problem. I’ll give her some fluids and tell her to avoid milk and other calcium-containing products, and she’ll be ready for discharge and outpatient follow-up in the next two to three weeks.”

Hypercalcemia occurs in a quarter of cancer patients, and half die within a month after diagnosis of this metabolic complication. More than a third of all hypercalcemic patients presenting to the ED have a malignancy. In patients with mild hypercalcemia, it is important to stress the need for close follow-up to ensure adequate screening for potential cancer.

9. “This patient doesn’t have hypercalcemia. Her calcium level is only 9.5 mg/dL.”

Although the total calcium level may appear normal in the laboratory results, a serum albumin level or an ionized calcium level is needed to more accurately assess the true degree of hypercalcemia. Remember that for every 1 g/dL decrease in albumin, the corrected calcium level should increase by 0.8 mg/dL.

10. “She has breast cancer, and now she’s here with hypercalcemia. To lower her calcium level, she needs some furosemide ASAP.”

Loop diuretics exacerbate hypokalemia, which is present in approximately half of patients with hypercalcemia of malignancy. Additionally, most patients with hypercalcemia of malignancy are significantly volume depleted. Unless volume overload is already a concern, furosemide should be held until the patient is euvolemic.
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New Mexico, Albuquerque: Live, Work and Play in the Land of Enchantment. Hospital Physician Partners seeks qualified physicians for immediate opportunities. FT/PT EM positions available with ED volumes ranging from 22K to 32K. Candidates will be residency trained, BC/BP in EM with recent ED experience, ATLS, ACLS and PALS. New graduate candidates will be ABEM certified within 5 years of residency completion. This is an independent contractor position and we offer access to Financial Services, Guaranteed Board Preparation Courses, Competitive Compensation, Sign-On Bonus, Shift Bonus Pay, Holiday Bonus Pay, 10 Hour Shifts, Double MD Coverage, Double MLP Coverage, Paid Malpractice with Tail, 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 Catherine Marvez: (800) 815-8377 ext. 2252; cmarvez@hppartners.com or visit www.hppartners.com/emra.

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.

North Carolina, Charlotte: EMP is partnered with 6 community hospitals in Charlotte, Lincolnton, Pineville and Statesville. A variety of partnership opportunities are available in urban, suburban and smaller town settings with EDs seeing 8,000-70,000+ pts./yr. EMP is an exclusively physician owned/managed group with open books, equal voting, equal profit sharing, equity ownership, funded pension, full benefits and more. Contact Steve Rudis, MD (careers@emp.com), Emergency Medicine Physicians, 4535 Dressler Rd, NW, Canton, OH 44718. 800-828-0898 or fax 330-493-8677.

North Carolina, Kinston: Located in the center of eastern North Carolina, Kinston is less than 60 miles to the east are some of the most beautiful beaches of the Carolina coast and 35 miles from Greenville. 200-bed full-service community hospital treats 41,000 ED pts./yr. Outstanding partnership opportunity

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North Carolina, Morehead City: Located in a sound-side seaport, Morehead City is a thriving, growing community. Modern, 21,000 sq ft ED sees 40,000 ED pts./yr. Outstanding partnership opportunity includes equal profit sharing, equity ownership, funded pension, open books, full benefits and more. Contact Steve Rudis, MD (careers@emp.com), Emergency Medicine Physicians, 4535 Dressler Rd, NW, Canton, OH 44718. 800-828-0898 or fax 330-493-8677.

North Carolina, New Bern: Respected 313-bed regional medical center located at the intersection of the Trent and Neuse Rivers just off the central coast. 74,000 ED pts./yr. Outstanding partnership opportunity includes equal profit sharing, equity ownership, funded pension, open books, full benefits and more. Contact Steve Rudis, MD (careers@emp.com), Emergency Medicine Physicians, 4535 Dressler Rd, NW, Canton, OH 44718. 800-828-0898 or fax 330-493-8677.

Ohio, Barberton: SUMMA Health System-Barberton Hospital is a full-service community hospital in southern suburban Akron with 44,000 ED visits/yr. Outstanding partnership opportunity includes equal profit sharing, equity ownership, funded pension, open books, full benefits and more. Contact Steve Rudis, MD (careers@emp.com), Emergency Medicine Physicians, 4535 Dressler Rd, NW, Canton, OH 44718. 800-828-0898 or fax 330-493-8677.
Ohio, Cambridge: Southeastern Ohio Regional Medical Center is a 177-bed, full-service facility and Level III Trauma Center treating 34,000 ED pts./yr. Outstanding partnership opportunity includes equal profit sharing, equity ownership, funded pension, open books, full benefits and more. Contact Steve Rudis, MD (careers@emp.com), Emergency Medicine Physicians, 4535 Dressler Rd, NW, Canton, OH 44718. 800-828-0898 or fax 330-493-8677.

Ohio, Cincinnati: EM Physician opportunity with Democratic group north of Cincinnati. Newer hospital with state-of-the-art expanded ED. Annual volume of 63,000 with 61 physician and 24 MLP hours daily. Terrific package includes family medical plan, employer-funded pension, expense account, malpractice, incentive plus shareholder opportunity with no buy-in; Contact Kim Rooney, Premier Health Care Services, (800) 726-3627, ext. 3674; krooney@phcsday.com.

Ohio, Columbus: Doctors Hospital is a 256-bed teaching facility representing all major specialties and hosting Osteopathic residency programs in Emergency Medicine, and 12 other specialties. The ED is treating approximately 67,000 patients per year. Outstanding package includes partnership, open books, full benefits package and more. Contact Dan Phillips, MD, FACEP (careers@emp.com), Emergency Medicine Physicians, Ltd. 4535 Dressler Rd, NW, Canton, OH 44718. 800-828-0898 or fax CV to 330-493-8677.

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.

Ohio, Lodi: Fully accredited 30-bed hospital with acute and skilled care facilities is part of the Akron General Health System. Brand new 12-bed ED has 12 private rooms including cardiac and trauma. 11,000 ED pts./yr. with 12 and 24 hr. shifts. Outstanding partnership opportunity includes equal profit sharing, equity ownership, funded pension, open books, full benefits and more. Contact Steve Rudis, MD (careers@emp.com), Emergency Medicine Physicians, 4535 Dressler Rd, NW, Canton, OH 44718. 800-828-0898 or fax 330-493-8677.

Ohio, Tulsa: Modern 800+ bed community hospital hosts new (7/08) allopathic EM residency program and sees 77,000 ED patients per year. Broad pathology, high acuity, modern facilities and supportive environment. Outstanding partnership opportunity includes equal profit sharing, equity ownership, funded pension, open books, full benefits and more. Contact
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Pennsylvania, York: Memorial Hospital in York is host to a respected osteopathic EM residency program and sees 40,000 annual ED visits. Enjoy equal equity ownership/partnership and a high quality of life. Outstanding package includes partnership, open books, full benefits and more. Contact Dan Phillips, MD, FACEP (careers@emp.com), Emergency Medicine Physicians, Ltd. 4535 Dressler Rd, NW, Canton, OH 44718. 800-828-0898 or fax CV to 330-493-8677. EOE

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**Texas, Fort Worth**: John Peter Smith Hospital in Fort Worth is seeking an Emergency Medicine Associate Residency Director, Ultrasonound Director and academic faculty positions for its newly accredited EM residency program. John Peter Smith Hospital is a Level I Trauma Center and county teaching hospital with an annual census of 90,000 and academic affiliations with UT Southwestern and UNT. Criteria: ABEM certified or eligible. Position offers attractive benefits and compensation while Fort Worth offers character, charm and entertainment that will not disappoint. Contact Katie McPike, CPC at 214.712.2072 or katie_mcpike@emcare.com for more information. Email: katie_mcpike@emcare.com. Websites: www.jsphealthnet.org, www.emcare.com.

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West Virginia, Weirton (near Pittsburgh, PA): Weirton Medical Center affords easy access to desirable residential areas and amenities in WV and PA. The ED treats 40,000 patients annually. Outstanding partnership opportunity includes equal profit sharing, equity ownership, funded pension, open books, full benefits and more. Contact Steve Rudis, MD (careers@emp.com), Emergency Medicine Physicians, 4535 Dressler Rd, NW, Canton, OH 44718. 800-828-0898 or fax 330-493-8677.

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 medical benefits, paid malpractice, 401(k), flexible scheduling, incentive bonuses, and more. Contact Tynia Arnold at 800-466-3764, x335 or tarnold@epmgpc.com.

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Wisconsin, Wisconsin Rapids: Partnership Opportunity. Infinity HealthCare a well-established Emergency Medicine group with over 30 years of experience in staffing and managing emergency physician practices invites you to join us in a new exciting practice at Riverview Hospital. Located on the banks of the Wisconsin River; this area provides an outdoor recreational playground for camping, hiking, skiing and fishing. Centrally located it is within a few hours from Milwaukee, Madison and the Twin Cities. Comprehensive package includes competitive salary and incentive compensation, in addition outstanding benefits, retirement plan and equity participation. Please direct inquiries to: Johanna Bartlett or Mary Schweir, Infinity HealthCare, 111 E. Wisconsin Ave, Suite 2100, Milwaukee, WI 53202, Toll Free 888-442-3883, email: ihc-careerops@infinityhealthcare.com.

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@seriollc.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.

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