EM Resident

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On EMRA's 40th Anniversary, We Celebrate Your Heroism

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MISSION

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

* * * *

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VALUE of SERVICE

Giving your time

Jordan Celeste, MD
EMRA President
Florida Emergency Physicians
Orlando, FL

As I approach the end of my year as EMRA president, I think it's natural to get a bit sentimental. And while yes, I do have one year remaining as immediate past-president, the end of my active EMRA years are on the horizon. It's been a long journey — I served on the EMRA Medical Student Council, then had the privilege of being elected ACEP representative on the board my intern year, and finally I have had the honor of serving as president of this wonderful organization. **Each and every year I learn more about medicine, managing, and myself** — which is why I want to highlight the value of service and giving your time to something you are passionate about.

Yes, I am suggesting that in addition to your clinical duties and all the long hours you are already putting into studying, that you set aside time to give even *more* of yourself. I know this sounds crazy, and I may have already lost some of you, but **when you spend time on things that you care about, what you get in return will more than make up for the time invested**. I make the case for giving your time to organized medicine, as this is clearly where my interests lie, but I truly believe that it can add to your career satisfaction, both immediately and in the long term.

By design, organized medicine gives you the opportunity to be around like-minded people; but perhaps more importantly, it also gives you the chance to be around people that may NOT think exactly like you. And while we may not always all agree, we still have a home in the organization. Maybe they have a different practice setting, maybe they do things differently in their training program – but chances are, new people bring new ideas to the table that can challenge you to broaden your current way of thinking. Organized medicine is a great way to learn about topics that you may not have known existed — or perhaps you just thought weren't for you. A great example of this is advocacy. Some members think that this is for "others" to do, but after they come to the ACEP Leadership and Advocacy Conference in Washington, D.C., they realize that this is something that *they* can — and want — to do.

Involvement in organized medicine provides ample opportunities to network at meetings, as part of workgroups, and in both formal and informal settings. The term "networking" often brings to mind images of folks schmoozing and trading business cards, but it does not have to be forced, and it can be a much more organic experience. **Why not go up and introduce yourself to that person who is doing something exciting that is aligned with your interests?** Why not ask a question to start a conversation with an expert? By meeting people and engaging them in conversations, you can form relationships that enhance your career and perhaps provide insight and mentorship along the way.

Being involved with medicine outside of the clinical arena enriches your career, but it is also a two-way street. Your own clinical experiences give you a certain perspective to bring to discussions, whether they are about health policy, member benefits, or educational products. Perhaps you had a patient whose story you relate to a congressman, who then decides to support a piece of legislation. Maybe you see a need in your community and help to develop an outreach program. Likewise, discussions from the world of organized medicine will undoubtedly influence how you see the world while at work. Maybe you are more tuned in to the specific social struggles of your patient population, or you are more mindful of your documentation, or maybe you see the effects of healthcare reform real-time. ***Involvement with organized medicine gives you the sense that your reach can go beyond the patient in front of you*** — and if that isn't fulfilling, I don't know what is.

At the end of the day, EMRA members have many things in common. We are busy studying, working, and living our lives, despite the first two items listed. We are committed to emergency medicine — to our patients, our practice, and the public. And we are part of an organization that provides countless opportunities to be involved at many levels. **Giving your time to serve can help to balance the stresses of training with a sense of the big picture**, providing you with new perspectives, the chance to contribute, and a home within the specialty of emergency medicine. ✶

To work for the common good is the greatest creed.

— Woodrow Wilson

Accelerating Toward the Future

EMRA takes new directions for 2015

Matt Rudy, MD
President-Elect
University Hospital
Augusta, GA

I am humbled and thrilled to begin my year of service as your incoming EMRA president. As you may know, I have been involved with EMRA for years – joining as a medical student and becoming more involved throughout residency, first serving as a program and regional rep, and then as your council speaker before becoming president-elect last year. My time with the organization has been the highlight of my professional career. One of the reasons I chose emergency medicine as a specialty was the ability to balance cutting-edge and fast-paced clinical medicine with advocacy and engagement in organized medicine. **Our specialty is unique in that we interact with all other specialties on a regular basis**, breaking out of traditional silos, and striving to coordinate efforts centered on the goal of quality patient care.

I want to stress that EMRA is really about ***you***. It is my goal over this next year as your president to keep our great organization member-focused and delivering all the benefits and resources you enjoy. We want you to get the most out of being an emergency medicine physician-in-training. As EMRA turns 40, we now support and are proud to represent over 13,000 members around the world. Our challenge as we grow will be to remain focused on our constituents, and ensure we are truly representing our membership and delivering value for the time and dues you've given to EMRA. **Our membership has reached a tipping point where our diversity and size requires us to critically evaluate our identity as an organization.** Practically speaking, this means EMRA board members and staff have begun a comprehensive review of our bylaws and policy compendium, the governing documents that define how we operate and what we do.

All EMRA members have the opportunity to shape the future direction our organization. This is often done in the form of suggesting policy changes at our biannual EMRA council meetings. Such member direction has led us to focus specifically on **the representation of fellows in emergency medicine**. When EMRA was founded in 1972, the idea of a board-certified fellowship beyond EM residency training was anything but a front-burner issue. At that time, we faced a myriad of challenges as a new specialty striving to establish itself and gain acceptance in the house of medicine. Now it is safe to say that our specialty's relevance and value are unquestionable. Many of us chose EM because of the incredible diversity of opportunities we are offered — both in terms of actual clinical practice and in scope of influence, from advocacy to administration. No other specialty offers this range of practice opportunities. From working as part of a large academic medical center with every specialty on call 24/7, to being the only physician available on a cruise ship, to helping build emergency medical services in developing countries, the thing that connects us in our diversity is our EM training.

Our fellows are challenged by their position in between residency and complete independent practice. As the number of board-certified EM fellowships has grown, so have the voice and needs of EM fellows. From palliative care to critical care, EM physicians are choosing to pursue further specialized training that benefits our entire specialty. EMRA recognizes the need to offer support and resources to these members. **As we work to meet the needs of our EMRA fellow members, we need your help!** Your perspective is critical to ensuring EMRA provides the resources and opportunities to both secure the fellowship that fits your career goals, and then thrive in that role. Starting with focus groups and discussions at ACEP 14, we will continue to seek your input and ideas.

No matter what stage of training you are in, EMRA's objective is to be your voice and offer invaluable resources to enhance your career. With your support and help, we will achieve our goal. ✶

Celebrating a banner year

As our young leaders now step into more senior roles, there is no doubt that EMRA is on track to another 40 years of unparalleled success.

Cameron Decker, MD
Immediate Past-President/Treasurer
Baylor College of Medicine
Houston, TX

As we enter October our cycle comes to a close, and EMRA marks another historic year. This month also signifies the end of my term as your treasurer. Looking back on what our members, staff, and board have accomplished over the last three years is incredible. **Your tireless efforts have placed EMRA in a fiscally sound position**, ensuring that we can still offer the best available resources and opportunities to our membership.

To guarantee our continued excellent financial health, the EMRA Board of Directors approved the creation of the EMRA Finance Committee. A concept of our membership coordinator, Dr. Kene Chukwuanu, and our legislative advisor, Dr. Sarah Hoper, the committee is charged with primarily providing financial oversight for the organization, including budgeting and financial planning, financial reporting, and the creation and monitoring of internal controls and accountability policies.

As chair of the inaugural EMRA Finance Committee, I have witnessed careful and prudent fiscal decisions with the goal of supporting our membership at the heart of every resolution. As a testament to the growing support our organization provides to medical students, residents, and alumni, our FY14-15 annual budget has expanded to over $2.2 million in expenditures. These funds are dedicated to supporting programs that serve you as our members, and they are higher than ever before.

While EMRA's financial investments supporting member benefits have increased, they are also balanced by continued revenue growth. Though the climb in total membership of nearly 8% over the last year has contributed to some revenue, it is not the primary reason for the augmented income. Rather, our board and staff have worked hard to diversify sources of income, make prudent investment decisions, and keep membership fees low. In fact, only about 20% of our earnings are from member dues. Because of our organizational investments and diversification, we have been able to maintain incredibly low dues, despite the continued growth of our organization. It is a testament to our commitment to members that **EMRA's resident dues have only increased *once* in our 40-year history**!

The financial stability of EMRA is further appreciated by our increasing net equity. Entering FY14-15, our net equity totals approximately $2.8 million — up from about $2.5 million in 2013, and close to $1.3M in 2010. This financial reserve speaks to the health of the association. Strong fiscal responsibility has further allowed the organization to make substantial donations to support our members, our specialty, and other worthy groups. **This includes $50,000 donated to the Emergency Medicine Foundation, and $25,000 to the Emergency Medicine Action Fund.**

As my three years at EMRA come to a close, I cannot thank my fellow volunteers, friends, and family enough for making this one of the most rewarding experiences of my life. It has truly been an honor to serve this astounding association. As our young leaders now step into more senior roles, there is no doubt that EMRA is on track to another 40 years of unparalleled success. ✶

EMRA BY THE NUMBERS

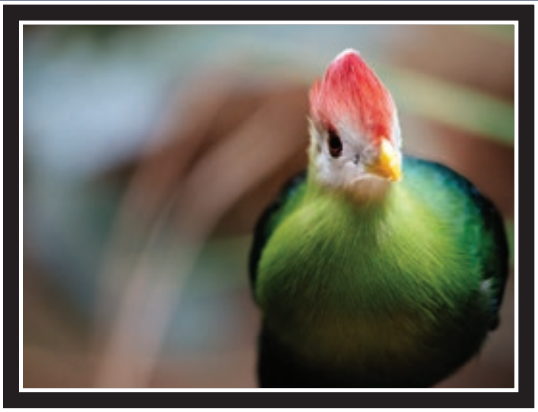
EMRA Membership as of August 2014	Total: 13,493 — Alumni: 3,321 — Fellows: 379	— Residents: 7,366 — Medical Students: 2,206 — Other (Honorary, Life, etc): 221
Financial Snapshot as of June 2014	June 2014 Total Assets $3,512,658 Total Liabilities $721,576 Net Equity $2,791,082	June 2013 Total Assets $3,829,579 Total Liabilities $1,370,079 Net Equity $2,459,500
Year-to-Date Budget as of June 2014	Membership Dues $ 572,955 Non-Membership Dues Revenue $2,263,250 Total Revenue $2,836,205 Robust non-dues revenue and sound investments are why EMRA has raised membership dues only once in its almost 40-year history!	
EMRA Facts	Number of Full-Time EMRA Employees 4.5 Founding of the Organization 1974 Original Member Dues 1974 $15** Amount Donated to EMAF and EMF this Year $75,000 **EMRA operated in debt until 1979, when it had its first positive budget.	

PHOTO CONTEST WINNERS

EMRA is pleased to announce the results of the 5th Annual EMRA Photo Contest. Wonderful photographs streamed in from all over the world, once again reinforcing the broad talents of our members.

NATURE AND WILDLIFE WINNER
Elephant
Keith Rosenberg, MD, MPH
Michigan State University/Sparrow Hospital
East Lansing, MI

SPORTS WINNER
Going Big
Kenton Asche, DO
University of Kentucky
Lexington, KY



NATURE AND WILDLIFE RUNNER-UP
Nicobar Pigeon
Chris Crowder, MD
Eastern Virginia Medical School
Norfolk, VA

MISCELLANEOUS RUNNER-UP
A Comparison of Horsepower
Sean Bandzar, MSIV
Medical College of Georgia
Augusta, GA

MISCELLANEOUS WINNER
Surf's Up
Marion-Vincent Mempin, MD
New York Hospital Queens
Flushing, NY

TRAVEL AND LANDSCAPES WINNER
Luangprabang, Laos
Howard Choi, MSIV
Johns Hopkins University School of Medicine
Baltimore, MD

TRAVEL AND LANDSCAPES RUNNER-UP
Gone Fishing (Mountain Restaurant in China)
Ignasia Tanone, MD
University of Nevada School of Medicine
Las Vegas, NV

TRAVEL AND LANDSCAPES RUNNER-UP
Reflections (Jiuzhai Valley National Park, China)
Bailey Zhao, MD
University of Nevada
Las Vegas, NV

PORTRAITS RUNNER-UP
Baby Geese
K Kay Moody, DO, MPH
Einstein Medical Center
Philadelphia, PA

PORTRAITS WINNER
Turkish Schoolchildren
Alan Hsu, MD
Johns Hopkins Medicine
Baltimore, MD

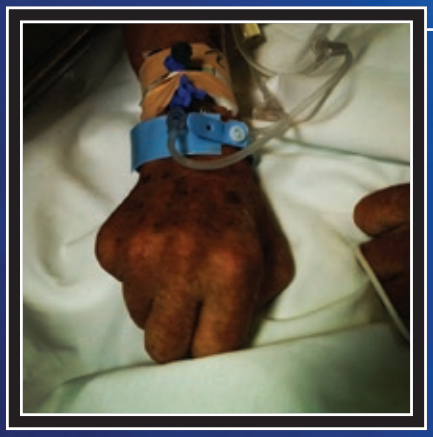
PORTRAITS RUNNER-UP
Jumbe Locals
Keith Rosenberg, MD, MPH
Michigan State University/Sparrow Hospital
East Lansing, MI

PHOTO CONTEST WINNERS

ART PHOTGRAPHY WINNER
Raindrops
Christopher Dang, DO
Brookdale University Hospital and Medical Center
Brooklyn, NY

ON-THE-JOB WINNER
Virginia Beach Volunteer Rescue Squad
Chris Crowder, MD
Eastern Virginia Medical School
Norfolk, VA

ART PHOTOGRAPHY RUNNER-UP
Paris from Arc de Triomphe
Juliana Lefebre, DO
University of South Florida
Tampa, FL



ON-THE-JOB RUNNER-UP
The Patient's Hands
Murat Cetin, MD
Dokuz Eylul University
İzmir, Turkey

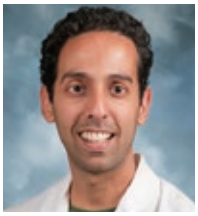
GRAND PRIZE WINNER
Aguas Calientes
Benjamin Thomas, MD
Highland Hospital
Oakland, CA

The winning image is of the famous Aguas Calientes, about 100 miles south of the Salaar de Uyuni in Bolivia.

GRAND PRIZE RUNNER-UP
Speed of the Planet
Kenton Asche, DO
University of Kentucky
Lexington, KY

Small Bugs with Big Bites

James Hall, MD
Univ. of Missouri-Kansas City
Kansas City, MO



Sajid Khan, MD
Clinical Assistant Professor
Dept. of Emergency Medicine
Univ. of Missouri-Kansas City
Kansas City, MO

A review and discussion of North American tick-borne diseases.

Case Presentation

*A 51-year-old female presents complaining of vague abdominal and back discomfort and a rash in her right popliteal fossa, where four days ago she noticed an embedded tick. She has not been traveling, camping, or hiking, but lives in a wooded area and owns several dogs. The rash is not painful or pruritic, but has been expanding since the day the tick was removed (*Image 1*). She has no fevers, chills, headache, or arthralgias. A 10-day course of doxycycline is prescribed, and close follow up is arranged. A three-week phone ED follow up reveals that she developed diffuse arthralgias and myalgias, but these resolved — along with her rash — after a few days.*

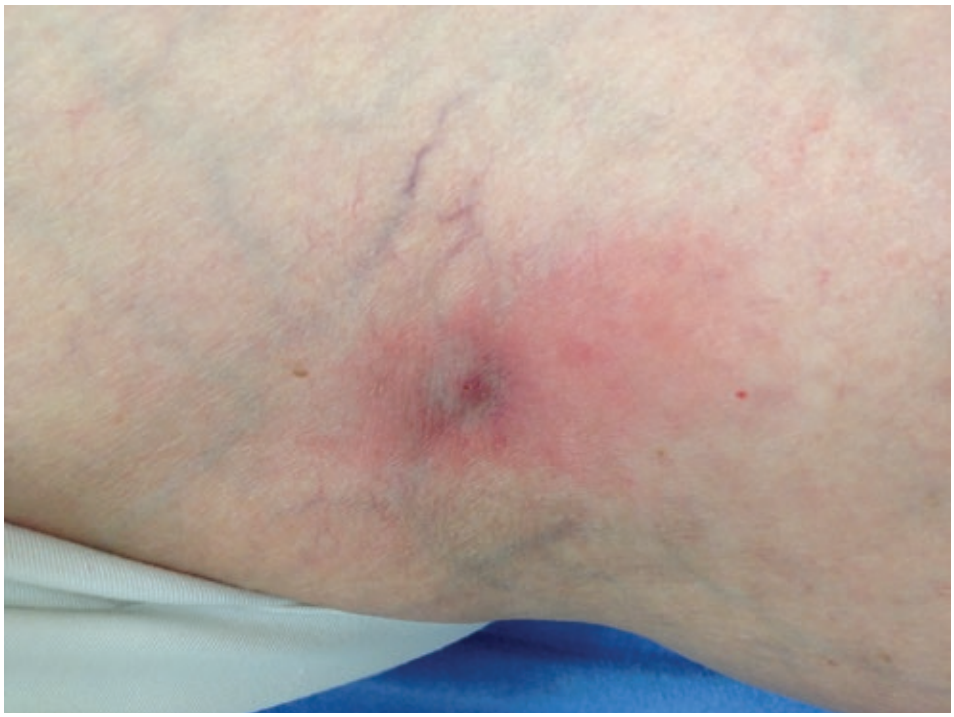
Introduction

There are many diseases that are transmitted by ticks in the United States, including Lyme disease, Rocky Mountain spotted fever, southern tick-associated rash illness, tularemia, anaplasmosis, and ehrlichiosis, as well as the newly discovered Heartland virus, of which eight cases had been reported to the Centers for Disease Control (CDC) as of March 2014.[1] **All of these illnesses occur almost exclusively in the summer months.** Ticks naturally gravitate to protected areas of the skin: the axillae, popliteal fossae, belt line, or other skin folds. The best method of prevention is to reduce exposure. Vaccines are always in a state of development, but most have limited access and questionable benefit. Since the majority of patients don't feel any pain when they are bitten, it can be difficult to ascertain how long the bite has been present before care is sought. However, it is generally considered unlikely that a tick will transmit disease if attached for only a few hours, or if it shows no signs of engorgement. General principles of care for tick bites include removal of the tick and initiation of antibiotics (typically doxycycline), followed by supportive management. Listed here is a review of some of the more prominent tick-borne illnesses seen in the United States.

Lyme disease

According to the CDC, Lyme disease is the most common vector-borne disease in the United States.[1] It infects approximately 20,000 people each year. The black-legged tick (*Ixodes Scapularis)* that transmits Lyme disease is endemic to several parts of the U.S., most notably from northern Virginia through southern Maine, as well as parts of Wisconsin and Minnesota. It has also been found on the Pacific coast, and has been reported in nearly every state. The responsible organism is the spirochete *Borrelia burgdorferi.*

The rash of Lyme disease, termed erythema migrans, is annular in nature and extends out from the site of the bite. It typically begins 3-30 days after exposure to the tick, with the median presentation being on day seven. The tick must have been in place for greater than 48 hours for the rash to appear, though rates of transmission after 72 hours have been reported as no more than 25%.[2] As per the CDC, erythema migrans is only significant when it reaches 5 cm in diameter. Though a rash is common (approximately 70% of cases), Lyme disease can also present with a wide range of **vague constitutional symptoms, including arthralgias, myalgias, headache, fever, and fatigue**. This makes it difficult to distinguish clinically from many of the other tick-borne illnesses that share these presenting symptoms. Testing for Lyme disease with *Borrelia* titers is available, but may not be helpful in the early stages of the disease, particularly if there are not significant systemic symptoms present.[3] There are well-known complications and long-term sequelae, including the Jarisch-Herxheimer reaction, neurologic problems, facial nerve palsy, and



Since the majority of patients don't feel any pain when they are bitten, it can be difficult to ascertain how long the bite has been present before care is sought.

Image 1. Circumferential rash surrounding a tick bite in the popliteal fossa.

arthritis.[4] The Infectious Disease Society of America recommendations are for antibiotic treatment with doxycycline, amoxicillin, or cefuroxime for 10-21 days.

STARI

Southern tick-associated rash illness (STARI) resembles Lyme disease in a number of ways. The appearance of the rash, timeline of the clinical course, and the presence of constitutional symptoms are all comparable. It is transmitted by the lone star tick (*Amblyomma americanum*), and some conflicting data suggests that it may be caused by the spirochete *Borrelia lonestari*. It is most often found on the fringes of Lyme-endemic regions throughout the Midwest and Mid-Atlantic states. Recommended treatment is similar to Lyme disease; a 10-day course of doxycycline or amoxicillin is typically prescribed.[5] Interestingly, patients bitten by the lone star tick may develop IgE antibodies to a specific glycoprotein found in the meat of mammals. Such patients, who may have always enjoyed consuming red meat, will present with delayed anaphylaxis 3-6 hours after eating. They will often have negative allergy skin tests, further obscuring the diagnosis. This phenomenon has been seen most frequently in the northeastern states.[6]

Tularemia

Tularemia can be transmitted in a variety of ways: handling of sick animals, inhaling dust particles, drinking contaminated water, and through tick bites. Ticks that transmit tularemia include the dog tick (*Dermacentor variabilis*) the wood tick (*Dermacentor andersoni*), and the lone star tick. Most cases are discovered in the western states.

Symptoms depend on the method of transmission; when associated with tick bites, patients can develop either a glandular or ulceroglandular form of tularemia. Ulceroglandular tularemia is characterized by the presence of a skin ulcer and regional lymphadenopathy, which develop at the site of entry. **Regardless of the method of transmission, the presence of a high fever is almost universal.**

There is no spread from human to human, so isolation is unnecessary in the hospital. The treatment of choice is streptomycin for ten days.

Ehrlichiosis

Ehrlichiosis is a broad term referring to several different infections. *Ehrlichia chaffeensis* and *Ehrlichia ewingii* are the most common disease-causing organisms, and are transmitted by the lone star tick. **Infection can cause prolonged fever, chills, arthralgias, myalgias, and headache.** In some cases a rash can develop, but this cannot be used to establish a diagnosis. When present, the rash may appear petechial, or may be indistinguishable from the rash caused by Rocky Mountain spotted fever. Severe clinical presentations may include difficulty breathing, and it may prove fatal if not diagnosed and treated promptly. Diagnosis is based on clinical presentation and can later be confirmed with specialized laboratory tests.[7] Titers and PCR testing lack sensitivity and specificity. Leukopenia, elevated transaminases, and thrombocytopenia are often present. The Infectious Disease Society of America recommends treatment with 10 days of doxycycline.[4] Patients who are treated early may do well on outpatient antibiotics, while those who have a more severe course may require hospitalization, intravenous antibiotics, and even intubation for respiratory support.

Anaplasmosis

Human granulocytic ehrlichiosis, also known as anaplasmosis, is transmitted by tick bites primarily from the black-legged tick *Ixodes*. It is most noticeably present in the southern and western states. Symptoms are virtually indistinguishable from ehrlichiosis and include fever, headache, chills, and myalgias.

Furthermore, **co-infection with tick-borne microorganisms is being increasingly reported, leading to a variety of clinical manifestations**. As for ehrlichiosis, doxycycline is the antibiotic of choice for treatment.

Babesiosis

Most cases are spread by the black-legged *Ixodes* tick. It is mostly found in the Northeast and upper Midwest during the warm months. Infections can range from subclinical to severe and include symptoms such as fever, body aches, and weakness. Some patients may have hepatomegaly, splenomegaly, or jaundice. Severe cases may be associated with thrombocytopenia, DIC, hemodynamic instability, renal failure, and death. Diagnosis is initially made based upon clinical suspicion, but a peripheral blood smear should be ordered early – presence of the protozoan *Babesia* parasites within red blood cells is confirmatory. Differentiating this illness from malaria may prove difficult, as both can appear very similar microscopically. The presence of "maltese cross" formations is essentially diagnostic of babesiosis.[8] Asymptomatic patients do not require treatment, and in mild to moderate cases a combination of atovaquone and azithromycin may be used. In severe cases, exchange transfusions may be necessary.

Heartland virus

A phlebovirus first discovered in 2012 in northwestern Missouri, cases associated with this virus have only been reported in Missouri and Tennessee. Like STARI, it is thought to be transmitted by the lone star tick. **Since its discovery, there have been eight reported cases and one fatality.** In addition to causing diarrhea, infection with the virus shares the constellation of constitutional symptoms with the other tick-borne illnesses: fatigue, fever, arthralgias, and myalgias. Like ehrlichiosis, it can produce findings of leukopenia, thrombocytopenia, and elevated transaminases.

Initial cases of Heartland virus were thought to be ehrlichiosis. Little is known about the virus at this time, and there is no confirmatory lab test. Treatment consists only of supportive measures. The single fatality was an elderly man with multiple comorbidities.[1,9]

Rocky Mountain spotted fever

One of the most well-known tick-borne diseases, Rocky Mountain spotted fever (RMSF) is caused by the bacteria *Rickettsia rickettsii*, and it is perhaps something of a misnomer. While it was first described in the mountain states of Idaho and Montana, today the majority of cases are found not in the Rocky Mountains, but instead lengthwise across the nation from North Carolina to Oklahoma, with wider extension through the Southeast and Mid-Atlantic.[10] It has, however, been reported in nearly all of the contiguous states, in addition to Canada, Mexico, and beyond. Similar to tularemia, the tick vector is either the American dog tick (*Dermacentor variabilis*), or the Rocky Mountain wood tick (*Dermacentor andersoni*).

Rickettsia has a propensity to infect the vascular endothelium, which then leads to microinfarcts and hemorrhages, often in the brain, lung, kidneys, liver, and spleen. While the most easily recognizable symptom of RMSF is the characteristic centripetal rash, which begins in the distal extremities, this is actually only present in about 75% of individuals. The most common findings are fevers, headaches, and myalgias, all of which are present in about 90% of patients.[11] First-line treatment is with doxycycline or another tetracycline antibiotic. If needed, chloramphenicol can be used, though its side effects often limit its scope. While introduction of these antibiotics in the late 1940s greatly decreased mortality from the disease, the overall incidence has been increasing as more and more individuals are exposed in outdoor activities. Current mortality stands at about 3-5%, even with treatment.[12] Like most other tick-borne diseases, the months in which RMSF is most commonly reported are May-August.

Conclusion

Many tick-borne illnesses are clinically indistinguishable from one another. Symptoms are often vague, but the most common presentations include **flu-like illnesses with fever, myalgias, and rash**. Early recognition and treatment is of utmost importance as these illnesses can prove fatal. Most patients will notice an onset of symptoms 1-2 weeks after the tick bite is presumed to have occurred, and antibiotic treatment should begin immediately. Laboratory testing and confirmation is of limited value in the emergency department, though can help distinguish particularly difficult cases after admission. ✶

Overall incidence of tick-borne diseases has been increasing as more and more individuals are exposed in outdoor activities.

IF ONLY I KNEW HOW TO SPEAK IN "DOCTOR"

THE COMMON VERNACULAR

Using our education in speech can sometimes become a barrier to patient emotions, and more often than we realize, restricts our own feelings.

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

"Dude, he talked to me today!" I couldn't help but express my joy in what seemed to be a milestone achievement for our struggling 5-year-old ICU patient. For weeks he had been battling through a combination of iatrogenic-driven illness worsened by his persistent congenital difficulties. The rest of the team on rounds muffled giggles and some were silent; the attending looked perplexed.

"Nobody here says 'dude' on rounds," whispered my co-resident quietly, as she verbally nudged me in the ribs. After nearly a month at the off-site facility, perhaps I still wasn't "in-the-know." It didn't change the fact that hearing this young man hoarsely squeak out his own name was essentially a modern-day miracle. I continued with my formal presentation, decidedly unperturbed by their reactions. Until then, I hadn't noticed that I am often guilty of common school-yard speech spilling into my medical circles, and that I am reticent to let the stream flow the other way.

We learn a lot through medical school and residency. That's something we should be proud of. When we come out the other end, we've learned more than facts and figures; we've learned a whole lot of vocabulary — it is as if we've learned an entirely new language. Even though we see patients every single day, it's easy to forget that they haven't been a part of the same linguistical journey we have. Leiomyosarcoma, pancreaticoduodenectomy, and polycythemia rubra vera all have more syllables than I can count – they are a mouthful. We can hardly expect our patients to follow our thought process when we speak like that. **While these words do convey competence and signal to our colleagues that we're one of *them*, they often insert a wedge of distance between us and our *patients*.**

Using our education in speech can sometimes become a barrier to patient emotions, and more often than we realize, restricts our own feelings. Intellectual verbalization of tough scenarios seems to somehow separate us from them, and our big words can form an unconscious floodwall that protects us from the waves of discomfort all around us. This can keep us sane, but on the other side, it can keep us from being vulnerable when that's what we should be. We all strive to be the emergency physician who keeps the level head no matter what – that's an admirable goal. We work to internalize, analyze, and react appropriately to each scenario among the onslaught of varied emotions that come with our job. Our perseverance in many ways depends on our uncommon dialect, but **I believe our humanity finds itself in much smaller terms**.

I'm sure I couldn't count the number of times we were told in medical school not to use "medical jargon" with patients. My friend used to joke that he never would because he couldn't learn the words in the first place. I usually felt the same way. Nevertheless, those words of admonition never really struck home until I began to realize what words really are. They're more than the sounds that escape our mouths. Words carry meanings and intone ideas sometimes altogether different from their definitions. Words are only part of the conversation. Sometimes, words cannot be spoken, as I learned one day…

Surrounded by pictures of family, get-well cards, and personal effects from home, the 75-year-old grandpa almost looked like he was just taking a late afternoon nap. Despite the setting of the surgical ICU, the ventilator and drips all seemed to be out of place.

"See, here he is with our three grandkids; and there he is sitting in his favorite chair by the window." His wife of more than 50 years and I were seated next to his bed, our knees nearly touching, as she passed me pictures of her husband from before the accident. I could smell the slight scent of perfume and noticed that she was wearing nice shoes – she had dressed up to look good for him.

Despite her stalwartness, her husband was in a slow, unstoppable, downward spiral. The car crash from just a few days ago had left him with 16 broken ribs, 3 fractured limbs, and massive internal injuries. Not to mention, severe brain trauma. He tenuously clung to life, and she was still clinging to every bit of hope. But I knew, and deep down so did she, that in the end nothing was going to change the outcome. I sat silently next to her, feeling useless. Meanwhile, the slow churning of his artificial life support mechanisms filled the dead space. Distant sounds of nurses' footsteps drifted in from outside of the room's curtain.

I bet I've been in nearly 100 situations similar to this one, but sometimes it still hits me out of the blue. Quickly I noticed how sad I felt, and it seemed to come without warning. Lifting my gaze to meet hers, I could read all of her emotions as she silently transferred some of her burden to me. The moment of human connection in the room between me, her, and the patient we shared, was so strong it couldn't help but be expressed in silent, warm tears. I let mine drop, and she politely wiped hers away. That was the moment that she finally let herself realize what she already knew. It was sad but cathartic, and somehow we both felt better about it in the end.

Walking out of that patient's room, I realized that his wife and I had communicated, not through our words, but through our common feelings. We had made a connection. While his ultimate outcome was as we knew it would be, in those few minutes together there was still a small moment of victory as his wife was able to overcome an emotional barrier. She and I had shared a healing moment, and **for those few minutes *she* was my patient, and *I* was her friend**. Like my sick 5-year-old miracle, this woman had made a step forward, though in a different sense. Both of these moments shared a common language, though through different interchanges. It was the person inside of the doctor, and the feelings inside of the patient that made it work.

So for now I will continue to celebrate the small victories, and the large ones. **I embrace the moments of tragedy.** These occasions are at times marked by quiet and welling eyes, but others are met with animation and school-ground jargon. What makes them real is that they don't require an extensive vocabulary or an advanced degree. Both silence and simple expressions are part of our common vernacular. They connect us to each other, and that's stronger than educated words. ✶

The Value of Supporting Student Interest Groups

The contributions of emergency medicine residents and faculty members to their local emergency medicine interest group (EMIG) can provide medical students with a valuable introduction to the specialty. Early experiences working with EM physicians through an EMIG can be one of the most important factors in a student's decision to pursue a career in our field. There are a number of great ways to become involved and help engage the next generation of EM physicians.

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Get students involved early

At many medical schools, students aren't exposed to EM until their fourth year, when the residency application process is already in motion. This can make it much more challenging for students to consider emergency medicine as a potential specialty. By offering mentoring and shadowing opportunities, as well as volunteering for skills workshops and lectures, residents and faculty give students critical insight into the clinical and research opportunities available to EM practitioners. **Events hosted by an EMIG are often a student's first introduction to the specialty** and initial point of contact with EM physicians.

Volunteer a unique skill set

Introduce students to the potential career paths in EM by sharing an area of research, subspecialty interest, or clinical skill. My school's EMIG has held a wide array of events, including panels on pediatrics, toxicology, and sports medicine; talks on international work in Haiti, disaster medicine, and wilderness medicine training; workshops on EKGs, splinting, and ultrasound; and even a day-long regional EM symposium. By showcasing the wide variety of options available in the field, these events help to attract students who might not have otherwise considered the specialty.

Teach fundamental clinical skills

Practical skills workshops and simulation sessions are helpful for all medical students, especially those still deciding on a specialty. Workshops introduce students to fundamental skillsets like suturing, intubation, IV placement, and ultrasound. Likewise, simulation sessions help students integrate clinical skills and understand the practice environment of the emergency department. The involvement of experienced residents is essential for making these events a success. By volunteering time through the local EMIG to facilitate workshops and simulation sessions, residents offer students a window into the specialty and also enrich their experience in third-year clinical clerkships.

Connect with students through a mentoring program

Participating in a one-on-one mentoring program is another great way for residents to help those interested in potentially matching in EM. A mentoring program allows students to gain exposure to the specialty early on through shadowing. In addition, having a resident mentor who is close to the application process is critical when the time comes for a student to apply in EM. Matching students with designated resident mentors gives them an approachable contact within the EM community; these connections can often grow into mutually beneficial collaborations and friendships.

Become a faculty advisor

Although emergency medicine is a rapidly growing specialty, the number of students matching per class remains relatively small

compared to specialties such as internal medicine and surgery. In addition, as a younger specialty, emergency medicine may not have as many faculty in medical school advising positions.

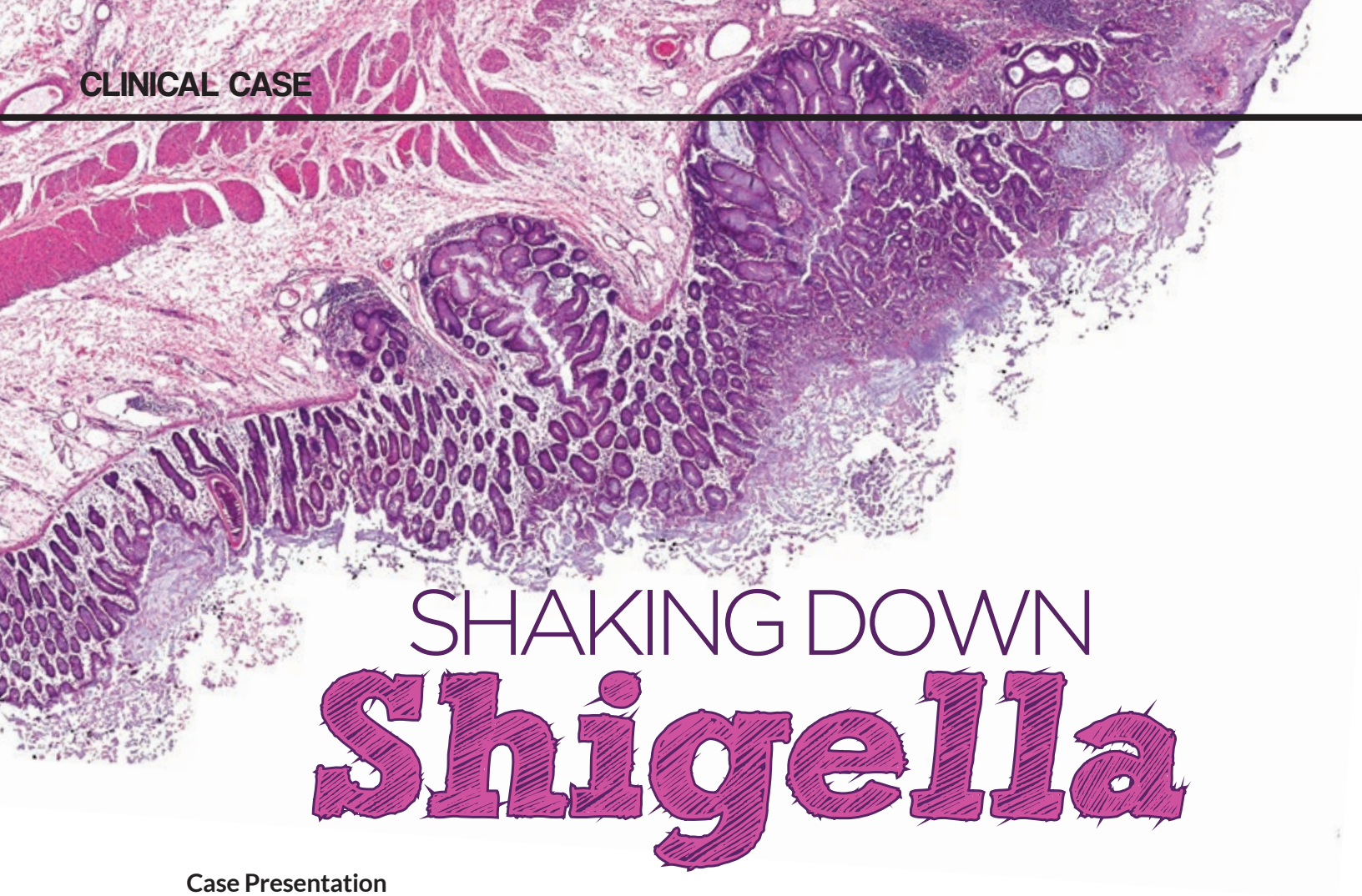
As a result, students may find it comparatively more challenging to reach out and connect with EM faculty. By becoming involved in the medical school community as advisors, faculty can provide a valuable resource to students, teaching them about the clinical practice environment, directing them towards research opportunities, and modeling the varied career paths available to physicians in the field.

Lead an EMIG

One of the most significant contributions a resident or faculty member can make is to serve as the primary advisor to an EMIG. **An EMIG advisor acts as a crucial point of contact for students** involved in the group and assists in planning events, securing speakers, recruiting residents for talks, organizing skills workshops and mentoring programs, and connecting students with faculty for research opportunities and advising. EMIG advisors also act as a resource for students by providing advice on careers, fellowship options, and the residency application and interview process. Those physicians who have the commitment to teaching and the time to devote to being an EMIG advisor will provide students with an incredibly important connection to resources and advice on emergency medicine.

The time and thoughtful guidance that EM residents and faculty give students through participation in EMIGs is invaluable when students are choosing their medical specialty. **All emergency medicine physicians should consider becoming involved in some way with their local interest group.**

For more information and resources on organizing an EMIG, visit EMRA.org.✶



SHAKING DOWN Shigella

Case Presentation

Your next patient is a 6-year-old girl with abdominal pain and diarrhea. Her mother tells you her daughter has had a fever, abdominal pain, and frequent bouts of watery, mucus-like diarrhea, and that today she saw blood in her stool. She has been eating and drinking well, and has had no vomiting or urinary complaints. She is otherwise healthy, and her immunizations are up-to-date. There has been no recent travel, but she does attend daycare while her parents are at work. On examination, her temperature is 100.9F, HR 116, BP 102/55, RR 20, and SpO2 100%. She appears to be well-hydrated. Her abdomen is diffusely tender to palpation, but without peritoneal signs. Her mother is concerned because she heard something on the news about an outbreak of potentially life-threatening bacterial diarrhea, and so she is requesting antibiotics.

What's in the bloody differential?

Parents are often concerned about the color of their child's stool – especially if there is the appearance of blood. Many foods can mimic hematochezia after their transit through the GI tract. If clinical suspicion is low, a hemoccult test can often help the clinician and alleviate parents' fears, though false positives can occur. If blood *is* present, the differential diagnosis in the pediatric population is vast. More serious causes of GI bleed in the child include intussusception, a Meckel's diverticulum, necrotizing enterocolitis, inflammatory bowel disease, and toxic ingestion. Bacterial dysentery (e.g., diarrhea with blood and mucus) should be considered, especially if symptoms include fever, greater than 10 stools in 24 hours, or travel outside of the U.S.[1] Of infectious diarrheal cases, bacteria have been implicated in up to 20%.[2] Other historical features that are positively associated with bacterial pathogens include **abdominal tenderness, duration <10 days, symptom onset between the months of May and October, and lack of vomiting**.[1,3] Parents may request antibiotics, so knowledge of historical differences between bacterial and viral etiologies of diarrhea can help with antibiotic stewardship. When the diagnosis suggests a bacterial etiology, the most common culprits are *Escherichia coli, Shigella*, *Salmonella*, and *Campylobacter* species.

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Working out the workup

If a bacterial pathogen is considered likely, a sample of the stool should be sent for culture. Although not a sensitive test, the results can be very important with regard to public health surveillance. **In a well-appearing child with diarrhea, further workup is not necessary.** If there is concern for an electrolyte

imbalance or hemolytic uremic syndrome (HUS), additional lab work may be indicated. Fecal leukocyte testing is neither sensitive nor specific enough to change management decisions.[2] Examination for ova and parasites may be indicated in immunosuppressed patients, those with chronic diarrhea, or after known/possible exposure (travel to developing countries, known outbreaks).[2] *Clostridium difficile* toxin assay is recommended only in the appropriate clinical context.[4] It is important to remember that as many as 40% of children < 1 year old may be colonized and therefore test positive for the toxin (after age 3, carriage rates approximate those in adults).[4]

Most cases of acute bacterial enteritis resolve without antibiotic therapy. In fact, there is some debate whether antibiotic therapy for dysentery *increases* the risk of developing HUS – especially in those infected with Shiga toxin-producing *E. coli* O157:H7.[5] However, a meta-analysis of the available research failed to demonstrate that antibiotics increase the risk of HUS.[6] The risk of developing HUS in non-Shiga toxin-producing bacterial infections is very low.

Shigella outbreak?

The patient's mother was referring to the increase in cases of shigellosis reported in central Indiana, where her daughter had been attending daycare. In the U.S. there have been many epidemics of shigellosis reported in the literature, especially in daycare settings. There are four common serotypes of *Shigella*: *S. sonnei*, *S. flexneri, S. boydii*, and *S. dysenteriae*. In 2012 the CDC reported that 75% of the isolates were of the subtype *S. sonnei*.[7] Only 0.3% of the *Shigella* isolates were of the subtype *S. dysenteriae*, which is known to produce Shiga toxin (the others do not). This subtype causes more severe disease, and has a greater association with HUS.[8]

Shigella species are transmitted via the fecal-oral route and can contaminate inanimate objects, food, and water. Depending on the patient scenario, ingestion of as few as 10-200 organisms may be sufficient to develop an infection. The incubation period is 1 to 3 days (range 1 to 7 days). The symptoms range from watery stools to acute dysentery, with many suffering from fevers, abdominal pain, and mucoid or bloody stools. The classically taught complication of generalized seizure is not common, and its pathophysiology is not well understood. Other **potential consequences of *Shigella* infection include toxic megacolon, sepsis, and HUS**.

Despite the potentially serious complications, most cases of *S. sonnei* shigellosis are mild and symptoms typically resolve in 2 to 3 days, making it a self-limited disease. However, the carrier state can be prolonged, lasting as many as 4 weeks. **Antibiotics can help reduce the duration of symptoms and decrease the length of the carrier state**. It may be important from a socioeconomic standpoint to start treatment early; for each day that the child must remain out of daycare (or school), the parent must arrange an alternative form of childcare or take off from work.

The majority of *S. sonnei* isolates are now resistant to trimethoprim/sulfamethoxazole and ampicillin. Current therapies for children include azithromycin as a first-line agent[8] (12mg/kg up to 500 mg on the first day, and 6mg/kg up to 250mg on days 2 through 5), cefixime, parenteral ceftriaxone, or a fluoroquinolone (not approved for patients <18, though they have been used successfully).[9] The first-line therapy for adults is a fluoroquinolone, typically ciprofloxacin.

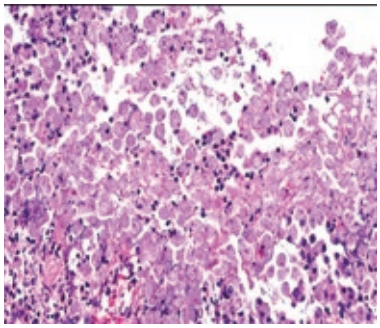
What do I tell Mom?

As with most problems, return precautions and follow-up instructions are crucial, especially in the pediatric population. It is also important to check your local health department recommendations during any epidemic. **All four of the most common bacterial enteritis-causing organisms are reportable to the health department.** More information can be found on local health department and CDC websites. You should know the guidelines so that you can provide the appropriate instruction to parents. For instance, the Marion County Public Health Department in Indiana requires that infected children be excluded from daycare until they have COMPLETED antimicrobial therapy (OR have two successive negative stool cultures), AND have been symptom-free for >24 hours. The rules for healthcare or daycare workers and food handlers are even stricter: they must be asymptomatic for >24 hours AND have TWO successive negative stool cultures (collected 24 hours apart). There is no need to treat asymptomatic contacts prophylactically.

Case resolution

While stool culture results were pending, our patient was treated with a 5-day course of azithromycin with the presumptive diagnosis of shigellosis. During this outbreak, the pre-test probability of Shigella was sufficiently high to further support early empiric therapy. The patient did well and returned to daycare after resolution of her diarrhea and completion of the 5-day course of antibiotics. Three days after her visit to the ED, her stool culture results were finalized: Shiga toxin-negative, Shigella sonnei, resistant to trimethoprim/sulfamethoxazole. ✶

As few as 10-200 organisms may be sufficient to develop an infection.



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FROM DISASTER TO SUCCESS
The Roll-Out of Health Insurance Exchanges

On October 1, 2013 U.S. health insurance exchanges opened to enrollees. Individuals were eligible to use the exchanges if they were employees of small employers (defined as an employer with less than or equal to 100 employees), an individual, a part-time employee, or a pre-Medicare retiree (a person that retired before the age 65 when he/she would be eligible for Medicare). Applicants with incomes between 100% and 400% of the federal poverty level (FPL) were eligible for a tax credit.

2014 Federal Poverty Level Guidelines[1]

Family of	100%	400%
1	$11,490	$45,906
2	$15,510	$62,040
3	$19,530	$78,120
4	$23,550	$94,200
5	$31,590	$126,360

While there was a lot of talk and preparation for the exchanges, **the roll-out was essentially a disaster**. During the first month of open enrollment, only 50,000 applicants enrolled in the exchanges due to the failure of the healthcare.gov website. This was only one-tenth of the expected number of enrollees for the month of October.

By December 24, 2013 (the deadline for enrollment to ensure insurance coverage starting on January 1, 2014), 2.1 million Americans had signed up. By March 31, 2014 — the deadline to avoid the tax penalty on 2014 taxes — 8 million people had enrolled through the exchanges.

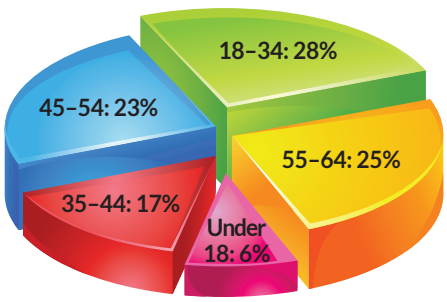
The federal government's goal was an enrollment of 7.1 million. **Miraculously, the exchanges exceeded this goal by 15%**,[2] and an additional 400,000 individuals completed their applications after the March 31 deadline.[3] The Obama administration gave registrants an extension until April 15, 2014 if they had tried to apply prior to March 31, but were unable to complete the application. The late enrollees brought the total number to 8.5 million. However, there were another 5.5 million enrollees that started an application, but never finished it. Also of note, only approximately one-third of new enrollees did not have prior insurance coverage.[4]

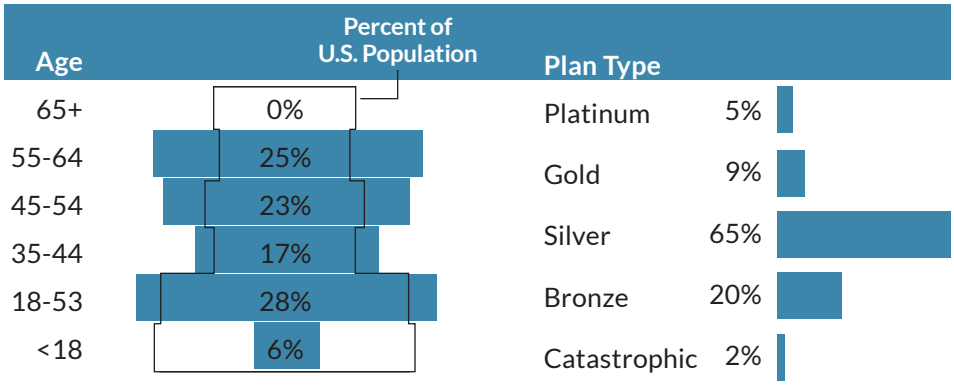
The success of the exchanges was dependent upon the enrollment of young, healthy patients to subsidize the older and less healthy patients. Young individuals aged 18-34 were the largest group of enrollees, representing 28% of the total enrollment. However, it was hoped that this age group would have made up 40% of all enrollees. Additionally, the majority of all applicants only enrolled in a silver plan, which has a lower premium and a higher deductible ($2,500-$5,000). There was some concern that the new enrollees would not pay their premiums; however, insurance companies are reporting an 80-90% payment rate.[4]

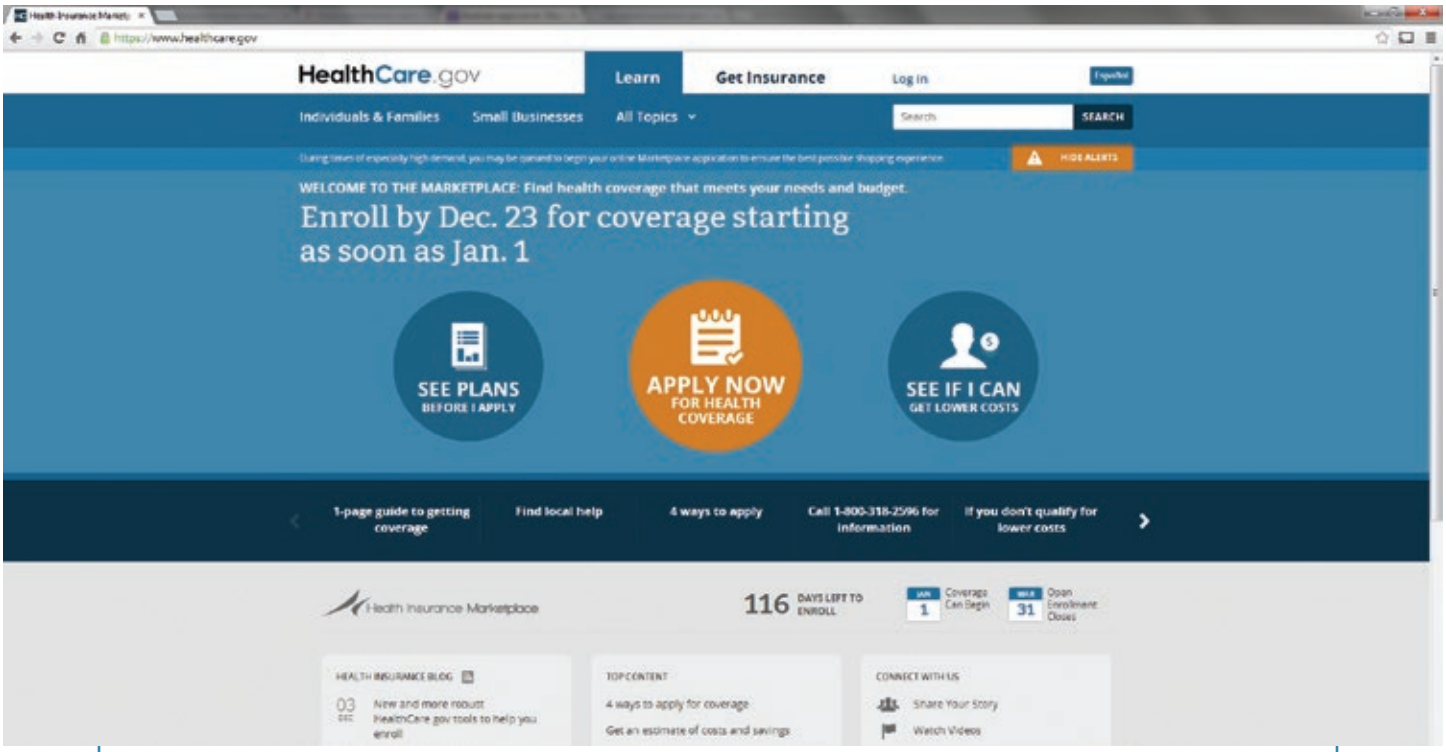
For the 2014 enrollment period, 26 states and Washington, D.C. ran their own marketplaces, 17 states had federally-run exchanges, and seven states had a partnership exchange with the federal government.

The five states that enrolled the largest percent of their potential marketplace populations were Vermont, California, Rhode Island, Florida, and Idaho. All of these had state-based marketplaces,

Enrollment by Age Group







During the first month of open enrollment, only 50,000 applicants enrolled in the exchanges due to the failure of the healthcare.gov website. This was only one-tenth of the expected number of enrollees for the month of October.

except for Florida, which had a federally-facilitated marketplace.[4,5]

The five states that enrolled the smallest percent of their potential marketplace population were Hawaii, North Dakota, Massachusetts, South Dakota and Iowa. Both Hawaii and Massachusetts had state-based exchanges, whereas the Dakotas had federally-run exchanges, and Iowa had a partnership exchange.[5]

Several state-run exchanges were plagued with technical difficulties, including those of Hawaii, Maryland, Massachusetts, and Oregon. Of these states, only Oregon will be using healthcare.gov next year. However, Oregon state officials will continue to regulate which plans are offered and other details of the exchange, so that it is still considered "state-run."[6] Nevada will also be using healthcare.gov, but will maintain control of its own exchange.[7] Hawaii, Maryland, and Massachusetts are continuing to develop their own websites. Massachusetts is working on a dual track, attempting to rebuild its state exchange with a new vendor, while also working on a plan that involves ceding control of its marketplace to the federal government in case its state website is not ready.[6]

States had until May 1, 2014 to decide if they wanted to switch models. However, the federal government received no new requests. As previously planned, Idaho and New Mexico will be switching from a federal to a state-run exchange this year. These two states recognized their websites would not be ready for the 2014 enrollment period and opted to use healthcare.gov.[8]

The seven states with partnership exchanges, including Iowa and Illinois, were expected to have state-run exchanges in 2015, but all of these states have opted to stick with a partnership exchange. In Iowa and Illinois, state legislation that would have given the states full control of the exchanges failed to pass.[6]

There have been many complaints that the exchanges' networks are too narrow. In California, UCLA Medical Center and Cedars-Sinai Medical Center were excluded from all exchange plans. In Washington, Seattle Children's Hospital was also excluded from all plans.

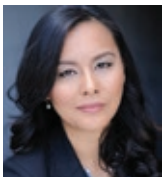
For coverage starting in 2015, the proposed open enrollment period is November 15, 2014 through February 15, 2015. Many patients are still unaware they may qualify for a reduced premium insurance policy. Still others are weary of even trying to sign up on the exchanges due to the poor roll-out in the early months. As physicians, we should be knowledgeable about the issues and options available to patients, and **provide education where it is needed**. Increased coverage has the potential to improve both their health, and the health of our emergency departments. ✶

BRAIN STORM

Case

A 38-year-old African American male abruptly develops left anterior chest pain followed seconds later with left arm and leg weakness while waiting at a bus station at 13:45. He arrives via EMS at 14:30, at which time he reports steady chest pain, loss of left-side motor and sensory function, and loss of vision in his left eye. He denies any loss of consciousness or recent trauma, any history of prior similar events, seizures, or any significant psychiatric or medical history other than hypertension. His presenting vitals reveal only a mild tachycardia and a BP of 179/99. His glucose is normal, as is his EKG. His initial NIH stroke scale score is 12, and his exam includes slow comprehension, a left facial droop with diminished sensation, an absent left shoulder shrug, and lack of sensation and motor movement in the left upper and lower extremities. Hoover's sign is positive, however. His syndrome is suggestive of a deficit involving the right middle cerebral artery (MCA). A stroke alert is called, and an emergent CT brain and chest x-ray are ordered. The chest x-ray is unremarkable, and CT shows no acute bleeding, hypodensities, or loss of gray-white differentiation. He is subsequently treated with intravenous (IV) thrombolytic therapy, admitted to neurology, and later taken for MRI imaging.*

Treating Acute Stroke — and its Mimics



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Background

In 2008, stroke dropped from the third to the fourth leading cause of death in the United States, likely due to advances in management, particularly early intervention. The 2013 AHA/ASA Guidelines for early management (48 hours since onset) of acute ischemic stroke provide recommendations for limiting the morbidity and mortality associated with stroke. Highlights from these guidelines are discussed here, in addition to the initial ED management of stroke. Also discussed are common stroke mimics, their clinical prevalence, and the safety of treating mimics with thrombolytic agents.

ED management of acute ischemic stroke

A consensus panel of the National Institutes of Neurological Disorders and Stroke (NINDS) established time-based goals for the evaluation of stroke patients in the ED:[1]

Door to physician	**≤10 minutes**
Door to stroke team	**≤15 minutes**
Door to CT initiation	**≤25 minutes**
Door to CT interpretation	**≤45 minutes**
Door to drug (≥80% compliance)	**≤60 minutes**
Door to stroke unit admission	**≤180 minutes**

The main components of the initial evaluation of a potential stroke patient include the ABCs, determining time of "last seen normal" or symptom onset, identification of comorbidities and medications, assessment of neurological deficits using the NIH Stroke Scale, a fingerstick glucose, and a non-enhanced computed tomography (NECT). The goals of this quick assessment are to determine candidacy for thrombolytic therapy or intervention, identify any likely etiologies, and to exclude stroke mimics. Causes

of mimics include, but are not limited to, hyper- or hypoglycemia, seizure, complex or atypical (hemiplegic) migraine, hypertensive encephalopathy, psychogenic, CNS abscess or tumor, and drug toxicity.

History and physical

A history, which includes the time *last seen normal*, is critical because symptom onset defines the start of the narrow therapeutic window when assessing a patient's candidacy for treatment. The history must also include risk factors for stroke, recent trauma, medications, and toxins.

A physical exam is an invaluable tool for identifying potential causes or comorbidities. **If an initial history and a brief exam suggest a stroke, the stroke protocol is activated and assessment using formal stroke scales, such as the NIHSS** or Canadian Neurological Scale (although NIHSS is preferred) is performed. These scales can be performed swiftly and easily by most providers, can help to localize and quantify the deficit, and can be used to assess clinical improvement.

Although NECT is relatively insensitive in identifying new and small cortical or subcortical regions of non-perfusion and more sophisticated imaging modalities are available, it remains a reliable technique for identifying acute contraindications to thrombolytic therapy, particularly intracranial hemorrhage. It is performed emergently with any suspicion of stroke.

Vitals and biochemistry

Patients who present with a temperature >38°C are given an anti-pyretic because hyperthermia can increase oxygen demand and lower the brain's metabolic reserve in an already ischemic process. Chest x-ray and ECG are also obtained to identify any potential causes, including a widened mediastinum suggesting dissection, or an irregular rhythm suggesting an embolism-generating atrial fibrillation. Permissive hypertension is recommended because the ischemic brain's perfusion becomes dependent on cerebral perfusion pressure as auto-regulation fails acutely. Typically pressures up to 220/120 are tolerated. A small subset of patients with perfusion deficits may improve from pharmacologically-induced blood pressure elevation.

However, if a patient is a candidate for thrombolytic therapy, blood pressure goals change. Pressure-lowering agents should be implemented to keep systolic blood pressure at or below 180/110 mm Hg, as persistent hypertension may increase the propensity for thrombolytic-induced bleeding.[1]

The criteria for use of vasopressors is unclear, although current guidelines suggest that a short period (30-60 minutes) of vasopressor infusion may help identify patients whose deficits resolve with treatment.[1]

Many laboratory tests are recommended as part of the initial stroke management, including serum electrolytes, CBC (with attention paid to the platelet count), cardiac markers, prothrombin time or international normalized ratio, and activated partial thromboplastin time. While all of these tests are important, **a fingerstick glucose is the only laboratory component that is required prior to thrombolytic treatment**.

Hypoglycemia is known to mimic stroke and seizures due to autonomic and neurological dysregulation. Hypoglycemia (typically < 60 mg/dl) is correctable with a slow IV push of 50% dextrose or oral glucose solutions.[1] Hyperglycemia is also associated with stroke-like presentations, due to an induced hyperosmolar state. But beyond this, hyperglycemia is also connected with worse outcomes in acute stroke, including longer hospital stays and higher rates of death at 30 days, 1 year, and 6 years. Additionally, it has been shown to be an independent predictor for intracerebral hemorrhage.[2] As many as 40% of patients admitted for acute stroke presentations have hyperglycemia; this is especially the case in patients with diabetes mellitus.[2,3]

Thrombolytic therapy

In the absence of hemorrhage on CT scan and alternative identifiable etiologies on history and physical exam, patients should be assessed for candidacy for thrombolytic therapy. Tissue plasminogen activator (tPA or rtPA – recombinant tPA) is the *only* FDA-approved treatment for ischemic strokes, which make up approximately 85% of strokes. Broad inclusion and exclusion criteria warrant further review by treating physicians, as complications from tPA treatment do occur. The major risk of treatment remains sICH (symptomatic intracranial hemorrhage), but additional risks include both major and minor systemic bleeding, anaphylaxis, and angioedema. Notwithstanding the risks, the NINDS rtPA stroke trial and international community-based SITS registry covered hundreds of centers worldwide and supported the overall safety of tPA when given within the three-hour window from symptom onset.

Stroke mimics: Incidence, etiology, and safety with thrombolytics

The disparity in how stroke mimics are classified leads to a wide gap in reported incidence. Winkler, et al., report 3% of 250 patients treated with thrombolytics were identified as stroke mimics, with seizures identified as the most frequent etiology.[4] There were significantly fewer complications for mimics treated with fibrinolytics than there were with ischemic stroke patients.

In a review of 512 patients treated with IV thrombolysis by Chernyshev, et al., 21% were later determined to be mimics.[5] The diagnosis of a mimic in this study was the absence of alternative diagnoses or cerebral infarction on imaging. Most of the stroke mimics had a final diagnosis of seizures, complicated migraines, or conversion disorders. None of the stroke mimics in this study had sICH, and 87% were functionally independent at discharge.[5]

A recent retrospective cohort study of stroke patients performed by Zinkstok, et al., was based on 12 European Centers and

*Hoover's sign is a means to assess organic from non-organic (functional or lack of effort) causes of paresis. Normally, in the supine patient, flexion of the affected straight leg at the hip causes an extension (or pushing down) of the normal leg that the examiner can feel under the normal heel. The test in this case is positive because when the patient was asked to flex his affected left leg, the contralateral leg did not push against the bed, indicating a lack of effort – a positive Hoover's sign.

5518 patients. In this study, 1.8% of patients were ultimately diagnosed as having a stroke mimic.[6] Patients were determined to have a mimic when their clinical workup did not suggest vascular or alternate diagnoses. However, stroke was the default if history, examination, and disease progression suggested intracerebral vascular pathology, or if patients had nonspecific clinical features that could not be explained by a stroke mimic. Of the mimics, 81% were diagnosed with epileptic seizure, psychogenic disorder, or migraine.[6] Other causes included demyelination, encephalitis, or brain tumor. For patients with stroke mimics treated with tPA, the sICH rate was estimated between 1-2%. When compared to those with true strokes, whose sICH rates were estimated between 5.5-7.9%, this represents a statistically significant difference. While the complication rate for tPA administration among mimics was not zero, it was considerably less than that seen in patients with true stroke.

Differentiating stroke from mimic

In the same study by Zinkstok, et al., global aphasia without hemiparesis (GAWH) was found to be more common in stroke mimics. However, differences in NIHSS between true stroke and global aphasia without hemiparesis were not distinctive enough to reliably differentiate the two etiologies, though there tended to be a lower score for patients with GAWH.[6] The lower scores can be attributed to the fewer points being assigned to paresis. Ultimately this European cohort study suggested that stroke mimics were more common in younger patients, female patients, and those with fewer risk factors, except smoking and previous stroke or TIA.[6]

Summary

In patients presenting with stroke-like symptoms, rapid action by the ED physician includes the ABCs; an accounting of all symptoms; obtaining a history, which should include time of onset or last seen normal; a brief physical exam; activation of the stroke protocol; and imaging to evaluate for hemorrhagic stroke. Vital signs, glucose, EKG, and chest x-ray are also performed to determine comorbidities or potential causes. History, physical exam, and ancillary tests also help identify stroke mimics. Most stroke mimics are eventually diagnosed as seizures, complicated migraines, or psychosomatization, but **few diagnostic clues reliably differentiate a stroke from an impostor**.

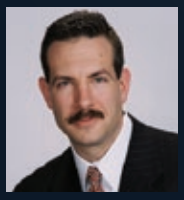
The benefit of early therapy with thrombolytics must be weighed against the risks, and patients should be screened for candidacy of treatment. The major risk of thrombolytics is intracerebral hemorrhage; however, in stroke mimics, current studies show a low risk of complications.

Patient case follow up

MRI imaging and further workup do not show ischemia or hemorrhage, and clinical improvement is eventually achieved. There were no adverse effects from tPA administration. Further investigation of the patient's records revealed a recent admission to a psychiatric facility for schizophrenia and documented non-compliance with psychotropic medication. His discharge diagnosis was right MCA distribution syndrome of psychogenic etiology. ✶

What? I Have to Leave Residency?

Planning for your "real world" future



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It happens every late fall and accelerates into spring; graduating residents start to stress about the move *into practice*. Not the medical, professional transition — that is relatively easy. **The stress starts at negotiation and continues through benefits enrollment.** How much of a house can we afford? How much should we contribute to retirement? Do we need this supplemental insurance? What do all of these retirement booklets mean? This article is intended to provide a framework for making informed, effective, confident decisions.

Preface

There is a logical progression of decisions that need to be made, and they start with confirming your new practice. Until you know what that looks like in terms of location, type of practice, compensation, and benefits, it is difficult to plan the transition. Below are guidelines for mapping this out.

Practice type

- **Independent Contractor (IC)—** As an IC, you will have significant flexibility, as well as the responsibility of being self-employed. You need to understand self-employment income, structure your business and personal expenses so they can easily be identified, set up an additional account to maintain tax payments, and plan a forward-looking budget. Based on your hourly rate and expected shifts, determine your gross monthly income and develop a ratio that will divide your income in to **three categories**: 1) taxes, 2) retirement, 3) discretionary. This will enable you to be well organized, as well as make prudent use of your earnings. It is often more effective to *hire* someone to provide this guidance.
- **Private or Democratic Group —** Consider that you will commonly have 1-3 years as an employee before making partner and becoming self-employed. During the employee period, you will likely have fixed income, minimal business expenses, a limited ability to contribute to retirement, and you will not have to think like a business person. **Your budget should be well defined.** As you transition in to a partner role, it will be important to have an accountant and other financial advisors guide you in navigating the changes in taxation, retirement eligibility, and medical benefit limitations.
- **Hospital Employee—**A W-2 employment position with a hospital provides financial stability, diverse resources, and often competitive scheduling. In exchange for security in these areas, employees typically do not earn as much as private practitioners and have less flexibility in designating money to retirement and other important programs. For many, a significant advantage of hospital work is the ability to do research, train residents, and be involved in the collaborative, educational side of medicine.

Goals

It is important to articulate what you want to accomplish and when. **Below is a common set of goals.**

- Buy a new home in the next 12 months.
- Pay down student loans aggressively.
- Develop sufficient retirement income beginning at age 60.
- Put your three children through four years of undergrad.
- Minimize income taxes.
- Eat, live, and enjoy a reasonable standard of living.

Pieces

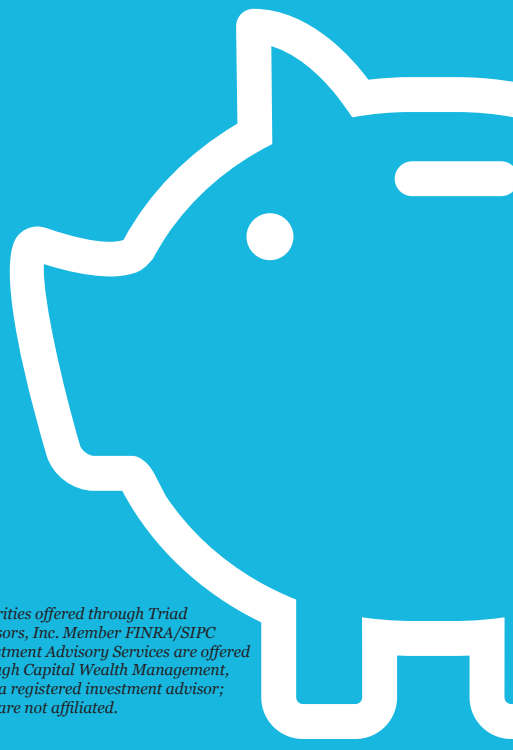
With a set of goals and some numbers, it comes down to developing an actual *plan*. This is equivalent to putting together a financial puzzle, setting up bank accounts, obtaining insurances, starting investment programs, and developing a portfolio. These are all pieces that need to be identified and fit into your plan, based on your time horizon and objectives.

Action plan

The rubber meets the road when you confirm your objectives and have specific next steps to take. The **greatest plans fall victim to inaction when they are in the hands of the wrong people**. Identify the goals, agree on the steps to get there, and delegate the implementation to someone who does it for a living.

The Confident Transition Plan

Thousands of residents have benefited from our direction during the transition between training and practice. Appropriate direction can enable you to reduce debt faster, build wealth more rapidly, have confidence, and enjoy the freedom and flexibility that you have worked so incredibly hard to attain. ✶

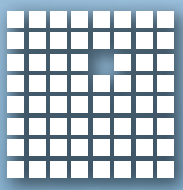


Congratulations

EMRA

On Your 40th Anniversary

We are proud to be your colleagues and grateful for your commitment to patient care.



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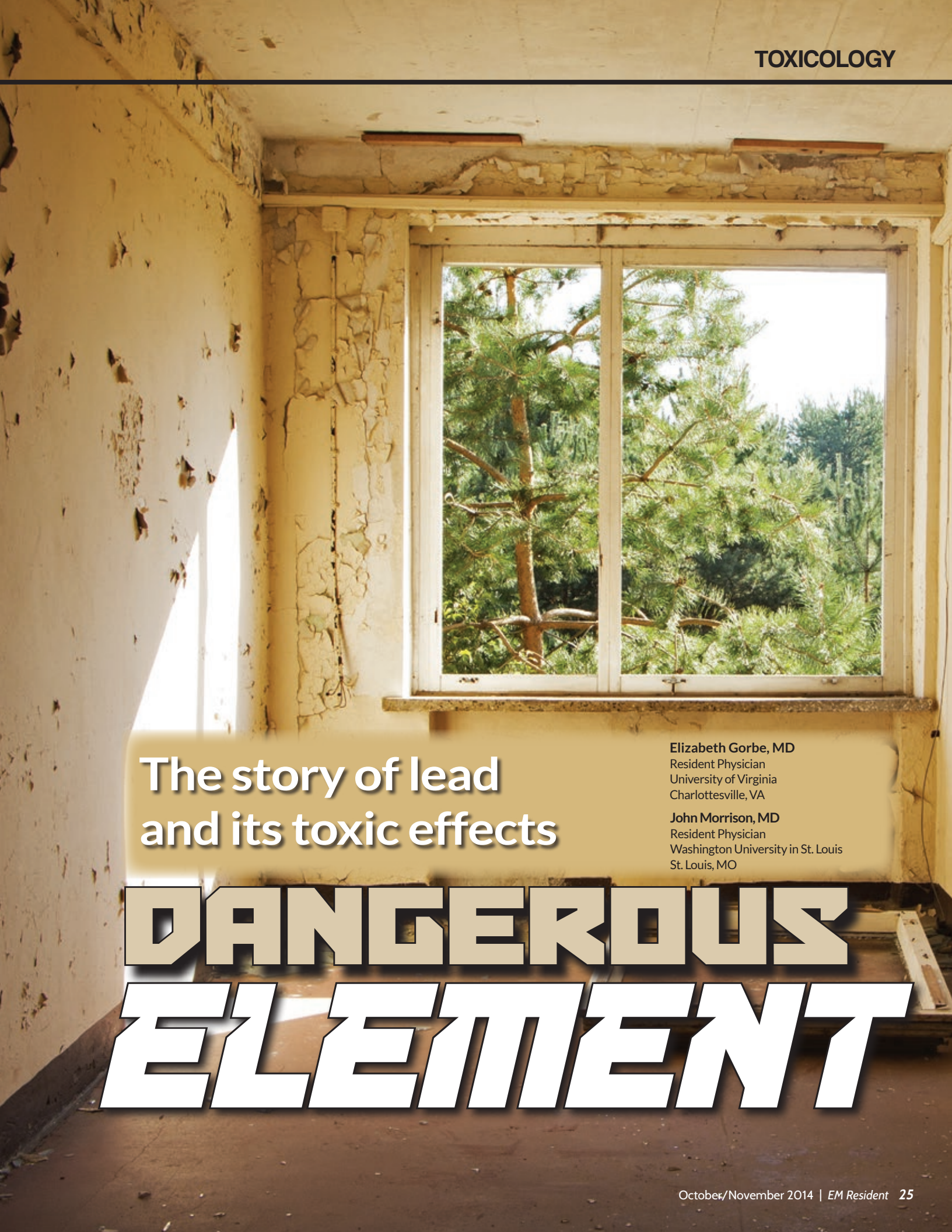

The story of lead and its toxic effects

DANGEROUS ELEMENT

Elizabeth Gorbe, MD
Resident Physician
University of Virginia
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John Morrison, MD
Resident Physician
Washington University in St. Louis
St. Louis, MO

Lead use declined for a century or so, but re-emerged as a mainstay during the industrial revolution in household paint, light bulbs, shoes, toys, and in TEL as an anti-knock additive for gasoline.

A brief history

In the roaring twenties, New York City was known to have the United States' premier forensic toxicology lab. Appointed in 1918, Dr. Charles Norris became the city's first chief medical officer. With his own finances, Norris quickly recruited Dr. Alexander Gettler to be his chief chemist. The two were quite a team; Norris was a man "with a powerful flair for publicity and organization,"[1] and Gettler was a "dark, cigar-smoking… famously dogged researcher."[2] Today, they are commonly regarded as the fathers of American forensic toxicology. **One of their greatest achievements was shedding light on one of America's largest public health crises.**

The Norris and Gettler lab quickly burgeoned with the installation of a phone line that was available to the police 24 hours a day. Their operation screened thousands of suspicious deaths every year and performed autopsies in up to one-third of them.[1] In the fall of 1924, the lab received a particularly noteworthy tip. A new gasoline additive was being manufactured in a Bayway, NJ refinery. Within three months, the building where tetraethyl lead (TEL) was being processed had come to be known as the "Loony Gas Building." Of the 49 workers who worked there, 32 had been hospitalized for intoxication, and 5 of these men died. **Their symptoms included intermittent fits of rage, memory loss, confusion, delirium, and convulsions.**[2] At the time, the agent causing these deaths was still uncertain.

Potential sources for toxicity

Despite the more modern-day quandary in New Jersey, lead has actually been used since antiquity. It has been suspected as a toxin responsible for multiple historical incidents. The ancient Romans used it in their face powders, blush, mascara, paint, dishware, and as a wine preservative. In fact, a group of modern historians believe the decline of the Roman Empire was due in part to their lead plumbing. In the medieval age and renaissance, it continued to be used in dishware and paint. The Baroque painter Caravaggio is suspected to have died from lead exposure. Chastity belts were also frequently made from the heavy metal. Lead use declined for a century or so, but re-emerged as a mainstay during the industrial revolution in household paint, light bulbs, shoes, toys, and in TEL as an anti-knock additive for gasoline. In North America today, the most common sources of lead exposure come from **household paint made prior to 1978, soil, water, moonshine, old firearms, and bullet cartridges**.[3] In other regions of the world, lead-based gasoline emissions continue to be a source of exposure. Patients with access to some of these sources should raise a red flag for the emergency physician evaluating the undifferentiated patient.

Metabolism

Lead can be inhaled, ingested, or absorbed transdermally. Lead is absorbed most rapidly as an inhalant; the previously mentioned Bayway TEL refinery tragedy is just one potent example history has provided. Lead can also be readily absorbed when ingested. Luminal absorption is enhanced in the presence of nutritional deficiencies. Transdermal absorption is the least effective and is typically negligible. After absorption, the cation then distributes to one of three compartments: intravascular, soft tissue, or bone. The half-life of lead in the blood is a few days to weeks. In the bone, the half-life is estimated to be approximately 30 years. Lead may be leeched from the bone during stressful events such as pregnancy; it is also released from osteoporotic bones. Lead is cleared renally, but excretion is limited.

Signs and symptoms

Because of the absorption and metabolism of lead, lead toxicity can present either acutely or chronically. Regardless, it affects nearly every system. In the blood, lead disrupts porphyrin metabolism, leading to hemolysis and microcytic anemia. Basophilic stippling can be seen, but is rare and non-specific. Lead damages the proximal tubule of the kidney, resulting in Fanconi syndrome (a disorder of reabsorption of solutes, resulting in significant metabolic derangements). With prolonged exposure, it can lead to chronic kidney disease. In the reproductive system it can lead to fetal demise, premature rupture of membranes, or to male sterility. Probably the most commonly recognized sign is "lead lines," or increased calcium deposition at growth plates. These will be most readily appreciated on x-ray at growth plates with

the slowest growth rate, such as the proximal fibula or distal ulna.

Lead is perhaps most frequently thought of as affecting the nervous system. Findings in the peripheral nervous system, such as wrist or foot drop, are due to segmental demyelination and axonal degeneration that is most pronounced at the motor neurons. In the central nervous system, lead interferes with calcium homeostasis, resulting in uncontrolled neurotransmitter release. It also alters cAMP and protein phosphorylation, which leads to memory loss and learning deficits. Acutely, lead damages astrocytes, microvasculature, and the blood-brain barrier, leading to cerebral edema with the possibility of cerebral herniation.

Evaluation and management

Blood lead levels (BLL) are important in the management of acute lead toxicity. However, these can frequently be challenging to obtain; if they are sent, it is unlikely to get a result within a reasonable period of time. In acute ingestions, abdominal x-ray may prove helpful to evaluate for radiopaque foreign bodies and to determine the appropriateness of retrieval versus whole bowel irrigation with polyethylene glycol. If the emergency physician's level of suspicion is elevated in this scenario, a great deal of toxicity may be avoided.

The treatment for lead toxicity depends on severity. With encephalopathy or any BLL above 45 mg/dL, chelation is appropriate. Dimercaprol and edetate calcium disodium are the agents of choice. For asymptomatic adults with BLL between 70-100 mg/dL and for children with BLL 45-69 mg/dL, succimer is also appropriate. In all of these cases, it is important to assess for the source of exposure and remove it.

In the end...

While Drs. Norris and Gettler had their suspicions in 1924, it took their team three weeks of incessant work to develop a way of proving elevated lead levels in the various tissues of the five men who had died. **Their investigation prompted the surgeon general to halt all leaded gasoline production in 1925**, and conduct a seven-month investigation into the potential for leaded gasoline toxicity. Unfortunately, this work group was unable to provide enough evidence, and leaded gasoline production resumed.

The lead issue was not revisited until 1948, when a graduate student at the University of Iowa named Pat Patterson attempted to calculate the age of the earth by assessing lead isotopes. Until his research, it wasn't known that lead was so ubiquitous in the environment. Unfortunately, he was taken away from delving further into lead pollution because he and his wife, Lorna McCleary, were sent to work on the Manhattan Project. Patterson later revisited the issue, proving that leaded gasoline caused toxicity. Because of its effects on humans and the environment, he became the champion for banning leaded gasoline. Nearly two decades later in 1965, he began to publish data on the harmful effects of lead. He went before Congress with his results, providing evidence for the Environmental Protection Agency's Clean Air Amendment in 1970, and in 1978 he was instrumental in the banning of lead-based household paint. Thanks to Drs. Norris, Gettler, and Patterson, the CDC now officially recognizes that **there is no *safe* blood lead level.** ✶

Celebrating HEROISM for 40 Years

On EMRA's 40th Anniversary — We Celebrate Your Courage, Your Dedication, Your Heroism

Since EMRA was created in 1974, we have been proud to support you and today, we celebrate all that you do for your patients. In the face of unfortunate events and unfathomable tragedies, you stand strong on the front lines, saving lives while sometimes risking your own.

In honor of EMRA's 40th Anniversary, take a moment to reflect on the impact you have in your community. Others may flee from disaster, but emergency medicine physicians run toward the injured, not away from the crisis.

When life demands heroics, you are there.

We are grateful for your bravery, intelligence and commitment to patient care.

EMRA – created by residents for residents since 1974.
Emergency Medicine Residents' Association
www.emra.org

EMRA

Nine Pediatric Toxic Ingestions that Can be Fatal at Low Doses

SMALL but Deadly

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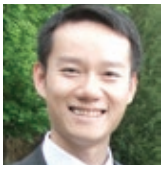


Jason Chu, MD
Assistant Professor
Icahn School of Medicine
Attending Physician
Mt. Sinai St. Luke's–Roosevelt Hospital
New York, NY

Return for Part Two of **Small, but Deadly** in the December/January issue, when we revisit toxic ingestions in the pediatric population.

PART 1
SINGLE-PILL KILLERS

Introduction

In this issue of *EM Resident* we present **Part One in a two-part series** on toxic pediatric ingestions. Nine potentially fatal groups of ingestants will be discussed. In this issue, we will start with the first five. Look for Part Two in the December/January issue, when we will discuss four more potentially fatal ingestions.

You are about to evaluate a 22-month-old female whose chief complaint is listed as "drug ingestion." You see her walking into her room, holding her mother's hand. Despite the anxiety in her mother's face, your patient doesn't seem to have a care in the world. As you start your evaluation, what toxic drug ingestions should you be most worried about?

PHARMACEUTICAL TOXINS

❶ Opioids — methadone, prescription analgesics, fentanyl patches, diphenoxylate-atropine (Lomotil)[1-3]

Through its effect on the mu opioid receptor, virtually any opioid can lead to hypoxia secondary to respiratory depression within a couple hours of ingestion by an infant or toddler. While most opioids will show some signs of toxicity within 1-2 hours of ingestion, their half-lives can be as long as 9-10 hours in extended-release preparations. Lomotil, an anti-diarrheal agent, is an opioid-anticholinergic combination. Thus, be wary of both opioid and anticholinergic (agitation, fever, flushed dry skin, tachycardia) symptoms.

How it's treated

Assess the brain and breathing. Initial management includes assessment of the child's mental status and respiratory drive.

The specific type of opioid ingested, as well as the dose and quantity, will be helpful in further management.

Give naloxone. The mainstays of treatment include closely monitoring the child for CNS and respiratory depression, and administering the opioid receptor antagonist naloxone if such signs present.

2 Central alpha-2 adrenergic receptor agonists – clonidine, guanfacine, eye drops, nasal decongestants[1,4]

These agents will decrease sympathetic tone and respiratory drive, which can manifest as hypotension, bradycardia, miosis, loss of consciousness, and respiratory depression. The effects closely mimic those of opioid agents. Toxic effects can develop within 1-2 hours.

How it's treated

Support the vitals. Hypotension often responds to intravenous (IV) fluids, but may require vasopressors such as dopamine or norepinephrine. Atropine can be given for significant bradycardia. Naloxone may be effective, although the mechanism is not clear and the response is often inconsistent.

3 Sulfonylureas – glipizide, glimepiride, glyburide[1]

These oral hypoglycemic agents stimulate insulin release from the pancreas. Small doses can leave a child at risk for hypoglycemia and all of its life-threatening sequelae, including somnolence, loss of consciousness, seizures, and death.

How it's treated

Prolonged monitoring. The duration of monitoring will usually be at least 24 hours, as there have been several reports of delayed hypoglycemic episodes well beyond the reported half-life of the drug.

Give charcoal. For children presenting within an hour of ingestion, activated charcoal should be administered if the child can safely ingest it.

Give sugar. Asymptomatic children should be encouraged to eat, but those who develop symptomatic hypoglycemia should receive boluses of IV dextrose, as well as infusions of dextrose mixed with normal saline.

Give octreotide. Octreotide inhibits the release of insulin and should be considered in those patients who continue to be hypoglycemic despite oral intake and IV dextrose.

4 Calcium channel blockers (CCBs) – verapamil, diltiazem, amlodipine, nifedipine[1,5,6]

CCBs work by blocking L-type calcium channels in vascular or cardiac tissue, depending on the agent. Hypotension is the most common sign of CCB toxicity. While bradycardia is the typical effect on the heart rate, the more peripherally-acting agents (the dihydropyridines – amlodipine and nifedipine) may actually cause a reflex tachycardia. CCBs also block calcium channels in the pancreas, which inhibits insulin release and leads to hyperglycemia. A less common but equally concerning effect of CCB toxicity is non-cardiogenic pulmonary edema.

How it's treated

Stop absorption. If presenting within an hour of ingestion, activated charcoal should be given. If an extended-release preparation was ingested, consider whole bowel irrigation in conjunction with activated charcoal.

Support vitals. IV fluids and atropine should be used to correct the blood pressure and heart rate, respectively. By competing with the CCB, calcium chloride or calcium gluconate can help mitigate these cardiovascular effects as well. For persistent hypotension, norepinephrine should be administered.

High dose insulin-euglycemia therapy (HIE). In refractory cases of CCB toxicity, consider initiating HIE. HIE increases inotropy, intracellular glucose transport, and vascular dilation, all of which improve microvascular perfusion. A common dosing regimen is a bolus of insulin at 1 unit/kg followed by an infusion of insulin at 0.5-1 unit/kg/hr. Serum glucose and potassium levels should be closely monitored.

5 Tricyclic (and tetracyclic) antidepressants (TCAs) – imipramine, amitryptiline, mirtazapine[1,7]

These medications act on multiple receptors, which accounts for the wide variation in their clinical presentation. TCAs block sodium channels in cardiac myocytes, which prolongs the QRS complex and can lead to ventricular dysrhythmias and hypotension.

Seizures can occur due to GABA inhibition and catecholamine reuptake inhibition. Some formulations have potent anticholinergic properties, causing hyperthermia, tachycardia, and altered mentation. Signs of toxicity should present within 6 hours of ingestion.

How it's treated

Supportive care. Provide IV fluids, and make sure they are protecting their airway. The patient should be closely monitored until they become asymptomatic. Conversely, asymptomatic patients can generally be discharged 6 hours post-ingestion. Charcoal can be considered if presenting within the first hour.

Serial ECGs. Widening of the QRS complex is often the first marker of severe toxicity, followed by ventricular dysrhythmias.

Sodium bicarbonate ($NaHCO_3$). When there are signs of cardiotoxicity, administer IV $NaHCO_3$. The sodium will compete with the TCA for the sodium channels on cardiac myocytes, while bicarbonate's effect on pH will favor the formation of the inactive, nonionized form of the TCA. These effects culminate in narrowing of the QRS complex and preventing dysrhythmias. Keep in mind that multiple doses of $NaHCO_3$ may be needed, and some patients may even require a continuous infusion.

Antiarrhythmics? While it may be tempting to give antiarrhythmic agents in these cases, they are typically not effective, and some are absolutely contraindicated. There is one notable exception: in the setting of TCA-induced arrhythmia refractory to IV $NaHCO_3$, lidocaine may be helpful, although the data supporting its use is limited. Other antiarrhythmics should *not* be used.

Conclusion

Your patient's mother confirms that the only medication in the house is her 50-mg tablets of amitriptyline. The child swallowed about four, and did so around one hour ago. You immediately place her on a cardiac monitor and order a 500 cc bolus of normal saline. You administer activated charcoal, but the child is only able to tolerate half of the dose. About 4 hours into her clinical course, you find her heart rate to be around 190, and an ECG shows a QRS complex of 140. You quickly administer sodium bicarbonate, while continuing to hydrate her with fluids. Her tachycardia resolves and her QRS narrows once again. She is admitted for further monitoring and discharged safely the next day. ✶

Reflecting on the Journey

Ije Akunyili, MD, MPA
Speaker of the Council
Baylor College of Medicine
Memorial Hermann
Hospital System
Houston, TX

Together, we continue to focus on the most important issues to our generation of emergency medicine physicians.

I remember that day in 2012 so well, when at ACEP's *Scientific Assembly* in Denver I took my seat amongst the EMRA board as your new vice speaker. **These past two years have come with profound personal and professional changes**, some of which I have shared with our members.

Professionally, I have completed residency; worked in two emergency medicine groups; was elected to the TCEP board; and, as a part-time attending, watched my first set of third-year residents graduate. It has been thrilling to experience the amazing variety of leadership roles that EMRA has afforded me. I remain amazed at how vibrant an organization EMRA remains. Its vitality is due to its dedicated members.

The EMRA Representative council has made great strides in the past two years. We have continued to push policies that impact the future of emergency medicine and physicians-in-training. Together, we have focused on the issues most important to our generation of emergency medicine physicians. **We also have led the way on policy decisions – from the accreditation of ultrasound training to increasing GME funding.**

As I say goodbye as a leader to this organization that has given me so much, I realize how much my life has changed in the last two years. I vividly recall celebrating my board election victory by immediately calling my mother, who had always been my staunchest ally. Just last month, I said goodbye to my mum after a long battle with cancer. The pain of this year and the loss of my best friend, mentor, and mother has taken me away from being publicly visible, but I am eternally grateful for the outpouring of support from my EMRA family.

Finally, I would like to express my intense gratitude to your current vice speaker, and soon-to-be speaker, **Dr. Anant Patel**. He is a fearless, passionate leader who will take this organization to even greater heights. Anant has held the reigns during my personal leave this year, and I know no better person to continue to lead our representative council. I know the years ahead hold great things for the EMRA and its members. Thank you for your support, and thank you for giving me the opportunity to serve you. ✶

UPCOMING EVENTS

- **Oct 27–30** — ACEP14, Chicago, IL
- **Nov 3–10** — Emergency Medicine Basic Research Skills (EMBRS) Workshop, Dallas, TX
- **Nov 17–22** — ABEM Qualifying Exams, Nationwide
- **Feb 15** — EMRA Spring Awards Deadline
- **Mar 4** — EM Residents' Appreciation Day, Nationwide
- **May 12–15** — SAEM Annual Meeting, San Diego, CA

EMRA THROUGH THE YEARS

Today, as we celebrate EMRA's 40th anniversary, we celebrate your courage, your dedication, and your heroism.

70s

The Emergency Medicine Residents' Association is Born

1974. Dr. Joseph F. Waeckerle had an idea to form an organization for emergency medicine residents. He shared his vision with a "few residents in a Dallas hotel bar, just sitting around talking...and that afternoon, EMRA was born."

1975. Residents joined for $15. By the end of the decade, EMRA had 269 resident and 14 medical student members.

80s

The Organization Expands to Offer Global Relief

1982. EMRA manned a booth at *Scientific Assembly* featuring a bulletin board with job opportunities. Now, EMRA's Job Fair is the largest recruiting event in the specialty of emergency medicine!

1986. EMRA delivered $650,000 worth of medical supplies for disaster relief following the earthquake in Mexico City. EMRA's effort qualified it to fly the "C Flag," President Ronald Reagan's citation demonstrating "We Can and We Care."

1988. Hurricane Gilbert hit Jamaica. EMRA members secured and transported desperately needed medical supplies to Montego Bay. Marc Newquist, MD, 1988-89 EMRA President, remembers this as "one of the biggest and most dramatic projects" undertaken by EMRA to date.

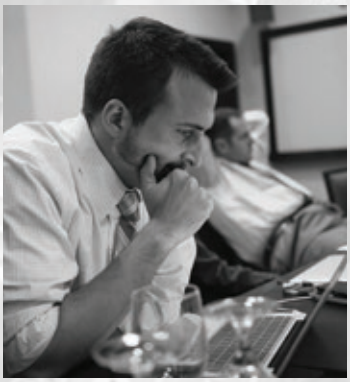
90s

Medical Students and Residents Engage in Policymaking

1992. The Medical Student Affiliate was created to advise the board on issues of interest to medical students. Maryanne Lindsay, MD, 1994-95 EMRA president, noted "Many subsequent EMRA leaders were our medical student leaders..." Today, the Medical Student Council plays a crucial role in educating and mentoring medical students about our specialty.

1994. Dues increased to $40 — membership soared to 2,581. Over 84% of the total number of emergency medicine residents in the country are now EMRA members.

1996. EM residents became involved in critical policy making arenas where they introduced the "prudent layperson" standard for inclusion into the federal Access to Emergency Medical Services Act during an AMA-RPS meeting in Washington, DC.



FOUR DECADES.

That's how long EMRA has supported physicians like you with resources in emergency medicine. You are the doctors on the front lines, holding hands and saving lives. Since 1974, you made it your mission to provide the very best in emergency medical care. To us, your patients, and the world, you are all true heroes.

2000. Membership explodes to 4,320. By the end of the decade, another 2,145 were added.

2005. Hurricane Katrina strikes the U.S. Gulf Coast. EMRA organized a BYOB event — "Bring Your Old Books." Members collected textbooks for residents and medical students to replace those lost at LSU and Tulane University.

Awards are Expanded and Membership Explodes

00s

10s

EMRA Debuts a Landmark Documentary *24/7/365*

2013. EMRA debuted its landmark documentary, *24|7|365– The Evolution of Emergency Medicine,* at ACEP13 in Seattle. The film tells the powerful story of the specialty's maverick founders, whose determination to save lives and improve public health transformed the American medical landscape.

2014. Steven J. Stack, MD, is named president-elect of the American Medical Association (AMA) and is the first emergency medicine physician ever elected to serve on the board in the organization's 170-year history.

Take a moment to reflect on the impact you have on your community.

"Thanks to you, EMRA is now nearly 13,000 members strong."

EMRA Events at ACEP14

FRIDAY, OCTOBER 24

8:00am – 5:00pm **EMRA Board of Directors** *Hilton, Boulevard AB, 2nd floor*

SATURDAY, OCTOBER 25

1:00pm – 5:00pm **EMRA Medical Student Governing Council**, *Hilton, Astoria, 3rd floor*

5:30pm – 7:30pm **EMRA MSCG/EMIG Representative Mixer**, *Ai! Chiwowa 311 W Chicago Ave*

7:30pm – 12:00am **EMRA Board of Directors**, *Hilton, Boulevard B, 2nd floor*

SUNDAY, OCTOBER 26

8:00am – 2:00pm **EMRA Medical Student Forum,** *Hilton, Continental C, lobby level,* ***Refreshment Breaks Sponsored by GL Advisor & EB Medicine***

- **The Value of Physician Engagement**, Steven J. Stack, MD, FACEP, President-Elect, American Medical Association, Lexington, KY
- **A Career in EM: The Good, The Bad, & The Ugly**, David Overton, MD, MBA, FACEP, FACP, Professor and Chairman of Emergency Medicine, Western Michigan University School of Medicine, Kalamazoo, MI
- **Strengthening Your Residency Application/Match Process Overview**, Saadia Aktar, MD, Associate Dean for Graduate Medical Education and Program Director, Mount Sinai Beth Israel, New York, NY
- **MS IV: The Road to Residency: Interview Day Advice**, Janis P. Tupesis, MD, FACEP, FAAEM, Director Academic Affairs, Director, Global Health Programs, Madison, WI
- **Working the Room at the EMRA Residency Fair-How to Make the Best First Impression**, Brian Levine, MD, Program Director, Emergency Medicine Residency Christiana Care, Associate Medical Director, Christiana Care's Lifenet Aeromedical Transport Program, Newark, DE, Associate Professor, Emergency Medicine, Jefferson Medical College, Philadelphia, PA
- **Program Director Panel: Interview Season Horror Stories**
  - Andrew R. Edwards, MD, FACEP, University of Alabama at Birmingham
  - Steven H. Bowman, MD. FACEP, Stoger Cooks County Hospital, Chicago, IL
  - Boyd D. Burns, DO, FACEP, University of Oklahoma, SOM, Tulsa, OK
  - Mark Clark, MD, Mt. Sinai St. Lukes/Roosevelt, New York, NY
  - Merle Carter, MD, FACEP, Einstein Healthcare Network, Philadelphia, PA
  - Ryan Fringer, MD, FACEP, Oakland William Beaumont SOM, Royal Oaks, MI
- **Medical Student Luncheon** *Hilton, Waldorf, 3rd floor*
- **MS III: Away Rotations — The Biggest Little Decision of Your Career**, Robert L. Rogers, MD, FACEP, FAAEM, FACP, Associate Professor, Emergency Medicine, University of Maryland, Baltimore, MD
- **What Osteopathic Students Need to Know**, Nicole Maguire, DO, FACEP, Osteopathic Program Director, Newark Beth Israel Medical Center, Newark, NJ

2:00pm – 3:00pm **EMRA Residency Program Fair Exhibitor Registration**, *McCormick Place West, Skyline Ballroom, W375E Foyer* ***Sponsored by PEPID***

3:00pm – 5:00pm **EMRA Residency Program Fair,** *McCormick Place West, Skyline Ballroom W375E*

MONDAY, OCTOBER 27

8:00am – 9:00am **EMRA Resident Bloody Mary Breakfast,** *Hilton, Williford B, 3rd floor,* ***Sponsored by Covidien***

9:00am – 2:30pm **EMRA Resident Forum,** *Hilton, Continental B, lobby level,* ***Refreshment Breaks Sponsored by CEP America & GL Advisor***

- **Leadership in EM,** Joseph F. Waeckerle, MD, FACEP, Clinical Professor of Emergency Medicine, University of Missouri, Kansas City, School of Medicine, Editor Emeritus, Annals of Emergency Medicine
- **Business of EM: Contracts**, Joseph P. Wood, MD, JD, FACEP, Vice-Chair Emergency Medicine, Mayo Clinic Medical School, Phoenix, AZ
- **Business of EM: Liability Insurance,** Todd B. Taylor, MD, FACEP, FAAEM, Veteran Emergency Physician, Independent Consultant, Entrepreneur, Phoenix, AZ & Nashville, TN
- **Non-Medical Ways to Lose Your License,** Kevin Klauer, DO, EJD, FACEP, Chief Medical Officer, Emergency Physicians Ltd.; Director, Center for Emergency Medicine Education; Assistant Clinical Professor, Michigan State University College of Osteopathic Medicine, East Lansing, MI
- **Financial Planning,** Shayne Ruffing, CLU, ChFC, AEP, Managing Director, Integrated Wealthcare, Durham, NC
- **Resident Lunch and Panel Discussion: Academic vs. Community,** *Hilton, Continental A, lobby level*

  Moderator: Jeromy Brown, MD, Director of the Office of Emergency Care Research at the National Institute of Health

  Community
  - Kevin Reed, MD, FACEP, FAAEM, Vice Chair, Department of Emergency Medicine EMS Medical & Base Station Director Med Star Harbor Hospital Assistant Professor of Emergency Medicine Medicine Star Georgetown University Hospital & MedStar Washington Hospital Center
  - Robert Blankenship, MD, FACEP, Chairman, Department of Medicine, Director Emergency Medicine, St. Vincent Fishers, Fishers, IN

  Academic
  - Angela Siler Fisher, MD, FACEP, Associate Chief for Operations, Baylor College of Medicine, Houston, TX
  - Sarah Stahmer, MD, Associate Professor of Emergency Medicine, University North Carolina, Chapel Hill, NC

  Hybrid (Academics gone Community or vice-versa)
  - Damon Kuehl, MD, FACEP, Program Director, Virginia Tech Carillion Department of Emergency Medicine, Roanoke, VA
  - Chris Ziebell, MD, FACEP, FACF, Medical Director, Emergency Medicine, UTSW, Austin, TX

The EMRA Events are being held at the **Chicago Hilton Hotel** and the **McCormick Place Convention Center**

1:00pm – 2:00pm **EMRA Conference Committee Orientation**
Hilton, Boulevard A, 2nd FL

2:00pm – 3:00pm **EMRA Regional Representative**
Hilton, Boulevard A, 2nd floor

3:00pm – 4:00pm **EMRA Reference Committee Public Hearing**
Hilton, Williford C, 3rd floor

4:00pm – 5:00pm **EMRA Exhibitor Job Fair Registration**
McCormick Place West, Skyline Ballroom W375E Foyer
Sponsored by EMCareerCentral.org powered by HealtheCareers.com

5:00pm – 7:00pm **EMRA Job Fair**
McCormick Place West – W375E, Level 3
Refreshment Breaks Co-Sponsored by Florida Emergency Physicians & Team Health

6:00pm – 8:00pm **EMRA Reference Committee Work Meeting**
Hilton, 4C, 4th floor

TUESDAY, OCTOBER 28

7:30am – 8:00am **EMRA Rep Council Registration**
Hilton, Continental B Foyer, lobby level

7:30am – 8:00am **EMRA Rep Council Welcome Breakfast & Candidate's Forum**
Hilton, Continental B, lobby level

8:00am – 12:30pm **EMRA Rep Council Meeting and Town Hall**
Hilton, Continental B, lobby level

12:30pm – 2:00pm **EMRA Representative Council Lunch & Learn**
Hilton, Continental B, lobby level
Sponsored by Integrated WealthCare & Third Eye Health

1:00pm – 2:30pm **EMRA New BOD Orientation,** *Hilton, Astoria, 3rd floor*

2:30pm – 4:30pm **EMRA Editorial Advisory Committee,** *Hilton, PDR#6, 3rd floor*
EMRA Wilderness Medicine Division, *Hilton, PDR#5, 3rd floor*
EMRA EMS Division, *Hilton, 5J, 5th floor*
EMRA Ultrasound Division, *Hilton, PDR#1, 3rd floor*
EMRA PEDS Division, *Hilton, PDR#3, 3rd floor*
EMRA Simulation Division, *Hilton, 4M, 4th floor*

3:00pm – 4:00pm **EMRA Reps to ACEP Committees,** *Hilton, PDR#7, 3rd floor*

5:00pm – 6:00pm **EMRA 40th Anniversary Celebration**
Hilton, Astoria, 3rd floor

10:00pm – 2:00am **EMRA Party**
Chicago Castle, 632 N Dearborn Street
Sponsored by Emergency Medical Associates

WEDNESDAY, OCTOBER 29

8:00am – 3:00pm **EMRA Resident Sim Wars Competition**
McCormick Place West, Skyline Ballroom W375E

9:00am – 11:00am **EMRA Informatics Committee** *Hilton, PDR#5, 3rd floor*
EMRA Awards Committee *Hilton, 5J, 5th floor*
EMRA Health Policy Committee *Hilton, 4M, 4th floor*
EMRA International Division *Hilton, PDR#1, 3rd floor*
EMRA Critical Care Division *Hilton, PDR#3, 3rd floor*
EMRA Research Committee *Hilton, PDR#6, 3rd floor*
EMRA Education Committee *Hilton, PDR#7, 3rd floor*

11:30am – 2:30pm **EMRA Leaders Luncheon & Committee Updates**
Hilton, Lake Huron, 8th floor

3:30pm – 5:00pm **EMRA Award Reception**
Hilton, Williford C, 3rd floor

Medical Student Luncheon

EMRA gratefully acknowledges the following residency programs and chapters for their time and generous support of this year's Medical Student Luncheon at ACEP14.

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Job and Fellowship Fair

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Scout out residency programs from around the country at the EMRA Residency Fair. Medical students cannot afford to miss this terrific opportunity to network with program directors, coordinators, and chief residents.

Confirmed exhibitors as of 10/3/2014

TALK TO THIS Hand

Perilunate dislocations may not always show up right in your face

Case

A 22-year-old male presents to a rural ED after a dirt bike accident. He flipped over the handlebars travelling at approximately 30-40 mph and sustained a fall onto his outstretched arm. His only complaint is right wrist pain, and his exam reveals edema with tenderness to palpation over the dorsal right wrist, with definite tenderness over the anatomical snuffbox. He is neurovascularly intact. X-rays are obtained, and are shown with annotations in ***Figures 1, 2, and 3****. As demonstrated in the images, there is a fairly easily distinguished scaphoid fracture. However, on further review, there is also noted to be an associated perilunate dislocation. The fracture-dislocation is reduced, and post-reduction x-rays are obtained (****Figures 4 and 5****), showing improved alignment of the lunate and capitate with the distal radius. The scaphoid fracture persists. His arm is splinted, and he is discharged with orthopedic follow up.*

Background: Perilunate dislocation with transcaphoid fracture

Lunate and perilunate dislocations are a relative spectrum of similar high-energy traumatic injuries of the wrist and hand. They are often associated with other injuries or fractures of the carpal bones or the distal radius. As individual entities, lunate and perilunate dislocations can be easily confused with each other. The difference lies in the lunate's position relative to the distal radius. In a true lunate dislocation, the lunate alone is dislodged from its position, while the rest of the carpal bones remain intact and are aligned longitudinally with the diaphysis of the radius. A perilunate dislocation indicates that the lunate bone has retained it positioning and alignment, whereas the other carpal bones have slipped in relation to the radius, typically dorsally.

The incidence of scaphoid fractures is about 1 in 100,000 people per year.[1] Perilunate dislocations, lunate dislocations, and perilunate fracture dislocations have been estimated to comprise less than 10% of all wrist injuries. 61% of these were of the perilunate transcaphoid type (perilunate dislocation with transverse scaphoid fracture). One study suggests 0.5-6.5% of all carpal fractures are of this same type.[2] Perilunate dislocations are relatively rare, but commonly have an associated scaphoid fracture or occasionally an ulnar styloid fracture.[3] However, the true incidence of perilunate and lunate dislocations is unknown. It is believed that **many go undiagnosed because their radiographic findings can be very subtle, and often are not fully appreciated**.[4] It is estimated that up to 25% of these injuries are diagnosed late.[5] It is important for emergency medicine physicians to be able to recognize these injuries, especially when there is a scaphoid fracture present, as this can be a visually distracting injury on radiographs.

Sarah Espinoza, MD
Resident Physician
UC San Diego
San Diego, CA

The transcaphoid perilunate dislocation combination is more unstable than an isolated scaphoid fracture due to the ligamentous damage that occurs with the perilunate dislocation.[6] Anatomically, the mechanism of lunate dislocation involves progressive ligamentous injury, starting with rupture of the radioscaphocapitate and scapholunate ligaments, leading to a capitolunate dislocation. The lunotriquetral ligament is then disrupted; this allows the lunate to dislocate from its carpal space.[4]

The Mayfield classification system recognizes the similar nature of lunate and periluante injuries and attempts to

categorize them into four stages. **Stage 1** is the scapholunate dislocation, **Stage 2** involves disruption of the lunocapitate, **Stage 3** is the typical perilunate dislocation, and **Stage 4** is complete dislocation of the lunate from its fossa.

Diagnosis

History and exam are pertinent to making the diagnosis. Swelling over the dorsum of the hand with tenderness to palpation over the mid-carpus may tip off the clinician. In lunate dislocations there is frequently some degree of median nerve compression injury, so loss of sensation in this nerve's distribution, or loss of thumb abduction or flexion may also be an indicator. However, **x-rays are going to be most important in making the final diagnosis**. Given that these injuries are under-diagnosed, it is important to have a systematic approach for reading radiographs. In perilunate dislocation injuries, as seen in the patient in this scenario, the lunate will often appear triangular instead of cuboid on an AP view. On the lateral view, the lunate rotates forward and all the other carpal bones are dislocated posteriorly with respect to the lunate.[3] Remembering that the carpal bones should align longitudinally with the radius can also help in radiographic diagnosis.

Treatment

Perilunate dislocations require reduction at the time of the initial injury. Further treatment is dictated by the degree of injury, and is often done as an outpatient. The type of immobilization is determined by the presence of a scaphoid fracture. While isolated scaphoid fracures are typically treated with either a short- or long-arm thumb spica splint (depending on if it is a distal or proximal fracture), perilunate fracture dislocations require either a long-arm or a double sugar-tong splint to include spica, if the scaphoid is injured.[5] Immobilization time may be dictated by the location of the scaphoid fracture: **4-6 weeks for distal, 10-12 for mid-body, and 12-20 for proximal**.

Hand surgery follow up is required if surgeons are not immediately involved with this case in the emergency department, as many of these patients will ultimately need surgical treatment. The need for surgery or surgical reduction greatly increases with time from initial injury to first diagnosis. Late reduction is almost impossible. The patient may require multiple surgeries with extensive dissection, and possibly proximal row carpectomy if not promptly diagnosed. Emergent surgical intervention is required in the case of open injuries or in signs of progressive median nerve dysfunction.[5]

Conclusion

As previously mentioned, this fracture pattern is often missed on initial evaluation and can lead to devastating complications. Prognosis is improved with early reduction. Complications include a missed injury, median nerve damage, varied degree of impaired function, lunate osteonecrosis (Kienbock's disease), chondrolysis, complex regional pain syndrome, carpal instability, scaphoid nonunion or malunion, and early arthritis. Avascular necrosis of the scaphoid is relatively common due to its distal to proximal blood flow, but it can also occur in the lunate despite its dual arterial blood supply from the volar and dorsal aspect of the bone. Early proper management is necessary to help prevent this complication. For associated scaphoid fractures, the degree of displacement of this bone increases the incidence of non-union and avascular necrosis. Even with early proper treatment, post-traumatic arthritis occurs in 56% of patients within an average of 6.25 years. Patients may also develop decreased grip strength, decreased range of motion, and persistent pain.[5]

The presented case scenario should stress the importance of not only identifying the scaphoid injury, but also doing a thorough read of the x-ray ensuring there is no associated perilunate dislocation. There is significant morbidity associated with a miss. Most of these cases will come through the emergency department, and it is up to us as physicians to be thorough and correctly manage this injury pattern. ✶

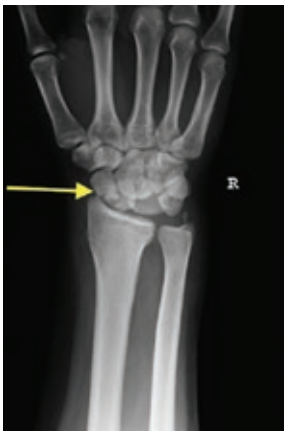

Image 1. Pre-reduction AP view. The arrow points to the impacted scaphoid fracture. The carpal rows are not distinguishable due to the injury.

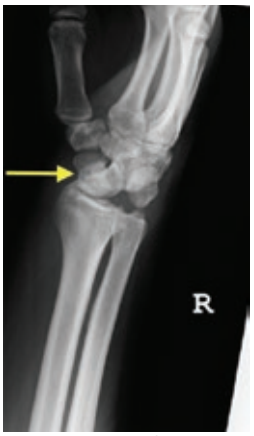

Image 2. Pre-reduction oblique view. The arrow indicates the lunate, which can bee seen as misaligned when compared to the carpus and rest of the hand.

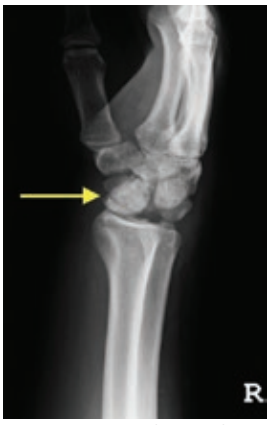

Image 3. Pre-reduction lateral view. The arrow points again to the lunate, which stands out from the rest of the hand. The lunate retains relative alignment with the distal radius; the rest of the hand is dorsally displaced.

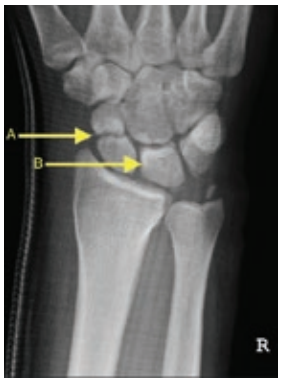

Image 4. Post-reduction AP view. Arrow A indicates the transcaphoid fracture. Arrow B points to the now appropriately aligned carpal bones, with the lunate now showing its cuboid shape.

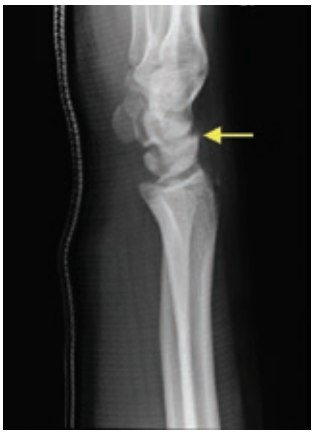

Image 5. Post-reduction lateral view. The arrow shows the regained alignment between the lunate and the capitate distal to it.

Testicular torsion is a fertility-threatening surgical emergency.

IN A TWIST

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Introduction

Acute scrotal pain is a common complaint in the emergency department. Clinical signs and symptoms such as pain, tenderness, edema, and erythema can be present, but these symptoms overlap with a variety of other diagnoses. Therefore, **it is often difficult to differentiate the benign from the emergent etiologies based on history and physical exam alone without the use of color-coded Doppler ultrasonography.** As emergency physicians, we must rapidly and accurately assess patients with acute testicular symptoms, as testicular torsion is a fertility-threatening surgical emergency. There is utility in complementing clinical findings with color-coded Doppler ultrasonography in the assessment of patients with testicular torsion.

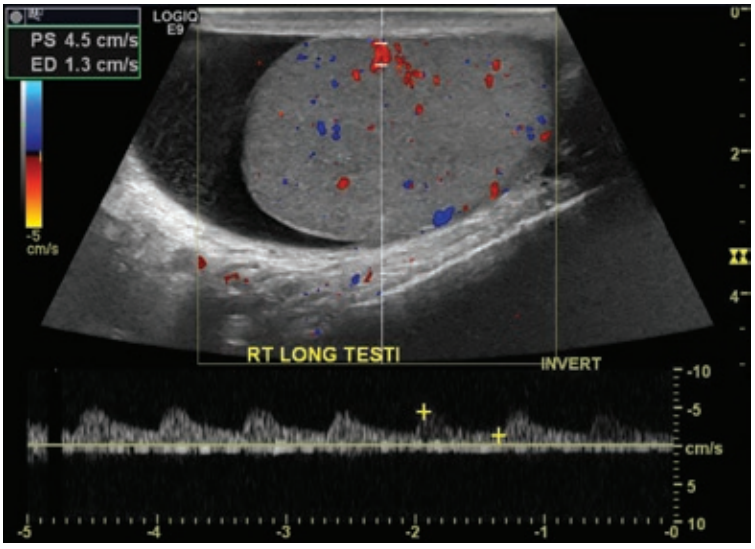

Image 1. Color Doppler sonogram of our patient's right testicle displaying normal arterial vascular flow and presence of a hydrocele. The ultrasound report also mentioned the presence of an epididymal cyst and a cyst within the testicle (not shown).

Case

A 61-year-old male comes to the emergency department complaining of gradual onset of worsening right scrotal swelling. He first noticed the swelling about 1.5 weeks ago. There have been no fevers, chills, discharge, or dysuria. The pain is not exacerbated with coughing or sexual activity. His vital signs are normal. His right testicle is markedly enlarged when compared to the left. The testicle is tender to manipulation, but has no erythema or calor. Neither a Prehn sign nor a cremasteric reflex are present. There are no scrotal or penile skin lesions, no hernia, and a urinalysis is normal. A formal scrotal ultrasound is obtained, which reveals a large cystic lesion within the right scrotum, a moderately sized right hydrocele, and a small epididymal head cyst. There is no evidence of torsion (Image 1). *The patient is safely discharged with instructions to follow up with an urologist as an outpatient in 3-5 days.*

Discussion

Acute testicular pain can have multiple etiologies. Testicular torsion is the most significant and carries the greatest morbidity. It is no surprise that this is usually at the top of the list of conditions to rule out before discharging our patients. However, how effectively can we rule out a testicular torsion in the emergency department? Can it be done clinically, and what is the role of ultrasound?

Although testicular torsion is a clinical diagnosis, the history and physical exam are more effective at ruling in the diagnosis than ruling it out. In a study of 90 patients <18 years old with either epididymitis, testicular torsion, or torsion of the appendix testis, a duration of symptoms <12 hours and nausea/vomiting were the most common historical features associated with testicular torsion, and were present in 69% and 31% of patients, respectively.[1] However, 62% of patients with torsion of the appendix testes also had a symptom duration <12 hours, while 16% of patients with epididymitis had nausea/vomiting.[1] As previously mentioned, this clinical overlap makes it difficult to distinguish testicular torsion from other acute scrotal pathologies.

Similarly, physical exam findings are not much better than historical features at differentiating the etiologies of acute scrotal pain.[2] As seen in *Table 1*, specific findings on physical exam generally have poor negative likelihood ratios for ruling out testicular torsion, with the exclusion of the focal or localized findings.[2] If only the history and physical exam were to be used to rule out the diagnosis, many testicular torsions would go undiagnosed.[3] In a study looking at 209 emergency scrotal explorations, there were 82 cases of surgically-confirmed testicular torsion; in five of those cases (6%), the surgeon had not considered it the most likely diagnosis.[3] Thus, the diagnosis would have been missed in those cases if no surgical scrotal explorations had been performed.

The Testicular Workup of Ischemia and Suspected Torsion (TWIST) study proposed a clinical scoring system that challenges the paradigm that history and physical cannot rule out testicular torsion.[4] In this prospective study of 338 patients with acute scrotal pain, the scoring system was shown to have negative and positive predictive values of 100% for scores below 2, and above 5, respectively. The cited specificity was 97% and the sensitivity was reported at 54%.[4] The scoring system *(Table 2)* may aid clinicians in the disposition of high- and low-risk patients without the need for color-coded Doppler ultrasonography, which is the current gold standard. However, the authors conclude **the scoring system should be validated before we can apply it to our clinical practice**.[4] They also recommended that patients who fall between 2 and 5 on the scoring system should undergo Doppler ultrasound of the scrotum and testes.

While the aforementioned TWIST score has promise, color-coded Doppler ultrasonography is still the gold standard for assessment of testicular torsion. In a study of 236 patients with a clinical suspicion of testicular torsion, color-coded Doppler ultrasound had a sensitivity and specificity of 100% and 75.2%, and positive and negative predictive values of 80.4% and 100%, respectively.[5] This strong negative predicative value makes color-coded Doppler ultrasonography the ideal test to rule out testicular torsion, and evidence supports its use at the bedside in the emergency department.

In a retrospective study of 36 patients with complaints of acute scrotal pain, bedside ultrasonography by the emergency physician coincided with confirmatory studies in 35 of the 36 patients.[6] This agreement resulted in a sensitivity of 95% and a specificity of 94%.[6] Nevertheless, there are rare case reports of testicular torsion with normal color Doppler sonography.[7] Therefore, it is important to remember that **test results should be used in conjunction with clinical gestalt and interpreted in the context of pretest probability**.

Conclusion

Testicular torsion is a critical diagnosis in the emergency department. Although torsion should ideally be diagnosed clinically in order to expedite surgical intervention, history and physical are fallible and further risk stratification often requires the aid of color-coded Doppler ultrasonography. Although the recently derived TWIST score shows early promise for diagnosing or excluding testicular torsion, it requires further validation before it can be recommended for use in clinical practice. ✶

Specific findings on physical exam generally have poor negative likelihood ratios for ruling out testicular torsion.

Table 1. Likelihood ratios for physical exam findings in testicular torsion.[1,2]

Finding	Absent cremasteric reflex	Tender testicle	Abnormal testicular lie	Tender epididymitis	Isolated tenderness at superior pole of testis
Positive likelihood ratio	7.9	1.6	72	0.29	0.21
Negative likelihood ratio	0.04	0.09	0.54	3.95	1.17

Table 2. TWIST score for testicular torsion.[4]

Finding	Testicular Swelling	Hard Testicle	Absent Cremasteric Reflex	Nausea or Vomiting	High-Riding Testes	Total
Points	2	2	1	1	1	__/7

The TWIST score proports negative and positive predictive values of 100% for scores below 2, and above 5, respectively.

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PREMIER
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BOARD REVIEW+ QUESTIONS

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

Provided by PEER VIII. *PEER (Physician's Evaluation and Educational Review in Emergency Medicine)* is ACEP's gold standard in self-assessment and educational review. These questions are from the latest edition of *PEER – PEER VIII, which made its debut at ACEP's 2011 Scientific Assembly.* To learn more about PEER VIII, or to order it, go to www.acep.org/bookstore**.**

1. An obese young woman presents with a 1-month history of vomiting and dull headaches that are typically worse in the morning. Urine pregnancy test result is negative. Which of the following studies is likely to be diagnostic?
   A. Abdominal CT scan
   B. Abdominal series
   C. Lumbar puncture
   D. Pelvic ultrasound examination

2. A 42-year-old woman with a history of a hiatal hernia and chronic gastric reflux symptoms presents with sudden-onset left upper quadrant abdominal pain and retching. Vital signs include blood pressure 86/40, pulse 121, temperature 37°C (98.6°F), and SpO2 98% on room air. The upper abdomen is mildly distended, and breath sounds are decreased in the left lower lobe of the lungs. The nurse is unable to pass a nasogastric tube. Laboratory test results include the following: lactate, 8 mg/dL; pH, 7.13; and hemoglobin, 12 g/dL. Chest radiographs reveal a distended stomach above the diaphragm. After appropriate fluid resuscitation, which of the following should be initiated in the emergency department?
   A. Broad-spectrum antibiotics
   B. Endoscopy
   C. Packed red blood cells
   D. Sodium bicarbonate

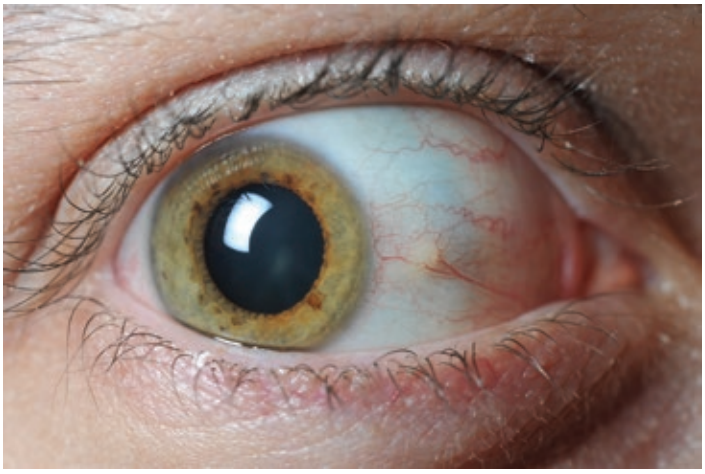
3. A 45-year-old man presents with severe neck pain after falling onto his head from a scaffold. He is breathing spontaneously. He has sensation to the level of the clavicle, including his arms to his thumbs, but not below it. He can shrug his shoulders but cannot flex at the elbows or move his arms or legs. If this is a complete neurologic lesion, at what level is his spinal cord injury?
   A. C3
   B. C5
   C. C6
   D. C8

4. A 68-year-old man presents with acute shortness of breath and lightheadedness. He denies chest pain and other medical problems but has a history of hypertension. Vital signs include blood pressure 85/50, pulse 120, respirations 36, and oxygen saturation 93% on room air. He is able to speak five-word sentences. Examination reveals that his skin is poorly perfused, his lungs are clear, his heart sounds are regular without murmurs, and he has no peripheral edema. An ECG reveals ST-segment depression in the lateral leads. What is the next best treatment step?
   A. Intravenous digitalis
   B. Intravenous dobutamine
   C. Small bolus of normal saline
   D. Sublingual nitroglycerin

5. A patient who recently had an upper respiratory viral syndrome now presents with pneumonia and a cavitary lesion on chest radiograph. Which of the following antibiotic choices provides adequate coverage for the likely organisms?
   A. Ampicillin and gentamicin
   B. Ceftriaxone and azithromycin
   C. Isoniazid, rifampicin, and ethambutol
   D. Vancomycin and levofloxacin

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

Which is Which?



Patient A

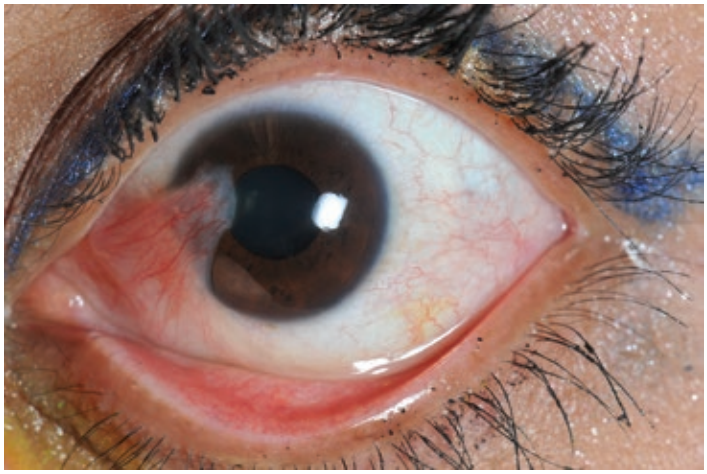
PHOTO COURTESY OF REBECCA KASL, MSIV, VANDERBILT UNIVERSITY SCHOOL OF MEDICINE

R. Jason Thurman, MD, FAAEM
Lawrence B. Stack, MD
Rebecca Kasl, MSIV
Tracey Hong, MSII
Vanderbilt University
Nashville, TN

The Patients

The images provided come from two different patients who presented to the ED with non-ocular complaints, but the ocular findings seen in the clinical photographs were noticed by the treating physician on physical examination. There is no history of direct eye trauma in either patient. Each patient reported an occasional foreign body sensation, which seemed to be more common in the summer months. Physical examination for both patients reveals visual acuity of 20/20 OD, 20/20 OS. Extraocular movements are normal. The ocular findings are chronic. What is your diagnosis for each patient?

What are the diagnoses?



Patient B

PHOTO COURTESY OF TRACEY HONG, MSII, VANDERBILT UNIVERSITY SCHOOL OF MEDICINE

See the DIAGNOSES on page 50

The Diagnoses

Patient A has a pinguecula, and **Patient B has a pterygium.**

A pinguecula is a lesion of the bulbar conjunctiva, and often appears as a partially translucent, colorless to light brown ridge adjacent to the limbus, usually on the nasal aspect. It may gradually enlarge with time, periodically become inflamed, or become a pterygium. A pterygium is a benign proliferation of fibrovascular tissue found in a triangular shape, extending across the limbus with the apex of the triangle pointing toward the center of the cornea.

Pterygia, though often asymptomatic, may also become inflamed, causing a foreign body sensation. A pterygium may cause decreased visual acuity if it encroaches on the visual axis, or if it exerts a mechanical deforming force on the cornea. Both disorders are more common in males and are associated with advanced age, exposure to ultraviolet light, and chronic eye irritation due to wind and dust. ✶

Annals Names New Resident Fellow

Each year, *Annals of Emergency Medicine* selects a resident fellow (formerly the resident editor) to serve on the publication's editorial board. We are pleased to announce that **Sara Crager, MD**, of UCLA-Olive View Medical Center, Los Angeles CA, has been selected to serve as the new **editorial board resident fellow for 2014-2015**. Dr. Crager received her medical degree from Yale University School of Medicine.

Cindy Hsu, MD, PhD, of Hospital of the University of Pennsylvania, Philadelphia, PA, is the *Annals*' immediate past resident fellow. Dr. Hsu's service concluded in October 2014.

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

Submit your abstract to Sara Crager, MD, Resident Fellow, *Annals of Emergency Medicine*, 1125 Executive Circle, Irving, TX 75038-2522; fax 972-580-0051; e-mail annalsfellow@acep.org.

RISK MANAGEMENT PITFALLS
An Evidence-Based Approach to Acute Aortic Syndromes

EB MEDICINE
Improving Patient Care

From the December 2013 issue of *Emergency Medicine Practice*, "An Evidence-Based Approach To Acute Aortic Syndromes." Reprinted with permission. To access your EMRA member benefit of free online access to all *EM Practice*, *Pediatric EM Practice*, and *EM Practice Guidelines Update* issues, go to www.ebmedicine.net/emra, call 1-800-249-5770, or email ebm@ebmedicine.net.

❶ **"The D-dimer was negative, so I assumed the patient did not have an aortic dissection and sent him home."**
While D-dimer has shown promise in the evaluation of possible acute aortic dissection, there have been no large prospective studies to validate this strategy. Unfortunately, no biomarkers currently have been validated to rule out an aortic dissection. Intramural hematoma or aortic dissections with a thrombosed false lumen can have a false negative D-dimer. If there is sufficient clinical suspicion for an acute aortic dissection, advanced imaging is indicated.

❷ **"The patient didn't have tearing chest pain, a pulse or blood pressure differential, or a widened mediastinum on chest x-ray; therefore, he couldn't have an aortic dissection."**
While studies have shown a decreased probability for an aortic dissection when none of these features are present, this strategy has not been validated to safely rule out an aortic dissection. Approximately 5% of acute aortic dissections will not have any associated pain, and 38% will not have a widened mediastinum on chest x-ray.

❸ **"The patient was only 28 years of age and had reproducible chest pain. I thought the patient had costochondritis, so I sent him home with NSAIDs. I didn't know he could have had an aortic dissection!"**
While acute aortic dissections usually occur in those who are older, they can occur at any age. Patients with a history of (or suspected) Marfan syndrome, another connective tissue disorder, or a history of a bicuspid aortic valve should always have aortic dissection in the differential. A thorough history and physical examination should be performed to evaluate for all possible risk factors.

❹ **"She was 56 years of age, with chest pain and a slightly elevated troponin. I thought it was acute coronary syndromes, and I anticoagulated her while waiting for the cardiologist to see her."**
Although acute coronary syndromes are more common than acute aortic dissection, aortic dissection should always be considered in anyone who presents with chest pain, even with elevations in cardiac biomarkers. History of connective tissue disorder, bicuspid valve, or illicit drug use (such as cocaine) should increase suspicion. Studies have shown missed aortic dissections to be more likely diagnosed as acute coronary syndromes. Evaluation of the chest x-ray and a good history and physical examination can help risk stratify patients for possible aortic dissection.

❺ **"She was 65 years old and presented with syncope without chest pain or shortness of breath. I thought it might have been an arrhythmia, so I just admitted her to a telemetry bed."**
Approximately 12% of patients with aortic dissection will have syncope. Elderly patients may not have classic symptoms associated with aortic dissection.

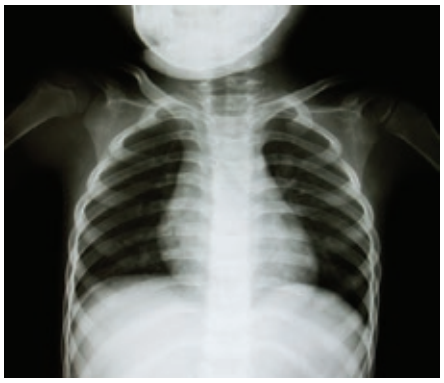
❻ **"The patient had an inferior wall STEMI on ECG and the cardiologist was unavailable to take the patient emergently to the heart catheterization lab. I gave thrombolytics because that is what I was told to do."**
Two percent to 5% of patients with aortic dissections will have concurrent myocardial ischemia. Proximal aortic dissections can dissect into the right coronary artery, causing occlusion, and can present with a STEMI. If clinical suspicion for aortic dissection is present, other diagnostic modalities should be used to evaluate for proximal aortic dissection prior to anticoagulation or thrombolytics.

❼ **"The patient was 28 years old and had Marfan syndrome. I was concerned about an aortic dissection, but he couldn't get a CT scan due to a contrast allergy. I got a TEE and it didn't show an aortic dissection, so I sent him home and told him to follow up with his primary care provider."**
Advanced imaging such as TEE, CT, and MRI are all very sensitive and specific; however, no modality is 100%. If there is a high clinical suspicion for an aortic dissection, a second modality should be obtained to rule out aortic dissection.

❽ **"The patient presented within an hour, had right hemiparesis, and was unable to speak. He was having a stroke and was within the window for thrombolytics."**
Acute neurological deficits can be found in up to 30% of acute type A aortic dissections, as the dissection extends into the internal carotids or to the spinal arteries. Thrombolytics in the setting of an acute aortic dissection can be fatal. Consider aortic dissection in patients who present with stroke symptoms, especially when patients have concurrent chest or back pain. ✶

RISK MANAGEMENT PITFALLS

An Evidence-Based Approach to Blunt Chest Trauma In Children



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❶ **"The infant presented with shortness of breath. There was no fever, the oxygen saturation was normal, and the lungs were clear. I thought it was respiratory syncytial virus. I didn't think it could be from abusive chest trauma."**
Infants with abusive head trauma and/or abusive chest trauma can present with nonspecific signs and symptoms, including respiratory complaints. These patients may present similarly to infants with bronchiolitis. Emergency clinicians should look for the presence of upper respiratory symptoms, runny nose, fevers, etc, that may indicate an upper respiratory infection or bronchiolitis. Absence of these symptoms should generate a high index of suspicion to evaluate for potential nonaccidental trauma.

❷ **"The 7-year-old presented with confusion and a femur fracture. His CT scan showed a splenic laceration. I didn't think his persistent hypotension was caused by a cardiac tamponade."**
Blunt cardiac injury is usually seen in a patient with multisystem injuries. Emergency clinicians may be distracted when seeing additional injuries (such as intra-abdominal pathology or extremity fractures). It is important to consider blunt cardiac injury when assessing the child with multisystem injury.

❸ **"The 4-year-old boy came in after a high-speed car accident. He was not belted and was thrown into the windshield. His chest x-ray revealed multiple rib fractures and a pneumothorax. He was admitted to the pediatric intensive care unit, where they subsequently found a traumatic aortic dissection. I can't believe I forgot to look at his mediastinum on the chest x-ray! It was definitely widened. I didn't think children could have this injury."**
Emergency clinicians should carefully examine the chest x-ray for abnormalities such as widened mediastinum or abnormal apical knob. Although aortic injuries are uncommon in the pediatric patient, they do occur.

❹ **"The 8-year-old was riding her bike when she was struck by a car. Her initial heart rate was 140 beats/min with a blood pressure of 70/30 mm Hg. She presented with a GCS of 10 and was immediately intubated. Chest x-ray revealed rib fractures. Her FAST exam was negative, and CT of chest and abdomen was negative for acute injury. She remained tachycardic and intermittently hypotensive. What injury am I missing with a negative pan scan?"**
This young girl was later diagnosed with a cardiac contusion, the most common form of blunt cardiac injury. Clues to her diagnosis were tachycardia, rhythm abnormalities, and hypotension. An ECG and troponin may have helped with the diagnosis.

❺ **"The 5-year-old girl presented after a large TV fell on her chest. She arrived tachycardic with a blood pressure of 100/65 mm Hg. Her initial oxygen saturation was 99% and her chest x-ray revealed only 2 rib fractures. Three hours later, she developed respiratory distress and became hypoxic, with an oxygen saturation of 82%. I had to intubate her. Repeat chest x-rays revealed a large pulmonary contusion. How did I miss it?"**
Findings of pulmonary contusion may be delayed for several hours in the pediatric patient. Respiratory distress and hypoxia may develop after an initial chest x-ray that is normal. The emergency clinician should be aware of delayed clinical findings from a developing pulmonary contusion. Initial findings to suggest a developing pulmonary contusion includes relative hypoxia, with saturations in the 93% to 95% range.

❻ **"We came to the scene of a 7-year-old with head, chest, and abdominal trauma. She was breathing OK with a saturation of 97%. Looking back at the record, I can't believe we spent 44 minutes on the scene. We should have transported faster."**
Prehospital delay of transport should be avoided as much as possible, especially if the delay is from repeated intravenous or intubation attempts. Emphasis should be placed on oxygenation, ventilation, treatment of tension pneumothorax, and motion restriction. Specific attention to oxygenation/ventilation is the first priority, and this can usually be accomplished with manual airway maneuvers; intubation is rarely required for pediatric patients.

❼ **"The 2-year-old boy presented with a high respiratory rate, hypotension, head injury with altered mental status, and a femur fracture. I was distracted by his other injuries. I can't believe I missed the first-rib fracture, cardiac contusion, and small aortic tear."**
A high index of suspicion is needed to diagnose chest trauma. External injuries may not be immediately evident, and other organ systems may distract the emergency clinician. Holmes, et al., found 6 clinical findings that helped to predict chest injuries. These include: (1) abnormal chest auscultation, (2) low systolic blood pressure, (3) GCS <15, (4) abnormal thoracic examination, (5) elevated respiratory rate, and (6) femur fracture. ✶

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INFECTIOUS DISEASE (P. 9)

Small Bugs with Big Bites

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ORTHOPEDICS (P. 42)

Talk to this Hand

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HEALTH POLICY (P. 18)

From Disaster to Success

1. Federal Poverty Level Guidelines 2014: www.dhs.ri.gov/Portals/0/Uploads/Documents/Public/General%20DHS/FPL.pdf
2. More than 7 Million Health Insurance Sign Ups at www.kaiserhealthnews.org/Daily-Reports/2014/April/02/7-million-signups-and-counting.aspx?p=1
3. Obamacare Adds 400,000 After Deadline Sebelius Reports by Alex Wayne at www.bloomberg.com/news/2014-04-10/obamacare-adds-400-000-after-deadline-sebelius-reports.html
4. http://kff.org/health-reform/state-indicator/marketplace-enrollment-as-a-share-of-the-potential-marketplace-population/#table
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PEDIATRIC TOXICOLOGY (P. 29)

Small, but Deadly

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CLINICAL CASE (P. 16)

Shaking Down Shigella

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CRITICAL CARE (P. 20)

Brain Storm

1. Jauch EC, Saver JL, Adams HP et al. Guidelines for the Early Management of Patients with Acute Ischemic Stroke: A Guideline for Healthcare Professionals from the American Heart Association. *Stroke*. 44:870-947, 2013.
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TOXICOLOGY (P. 25)
Dangerous Element

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UROLOGY (P. 44)
In a Twist

1. Kadish HA, Bolte RG: A Retrospective Review of Pediatric Patients With Epididymitis, Testicular Torsion, and Torsion of Testicular Appendages. *Pediatrics* 102;73-76, 1998.
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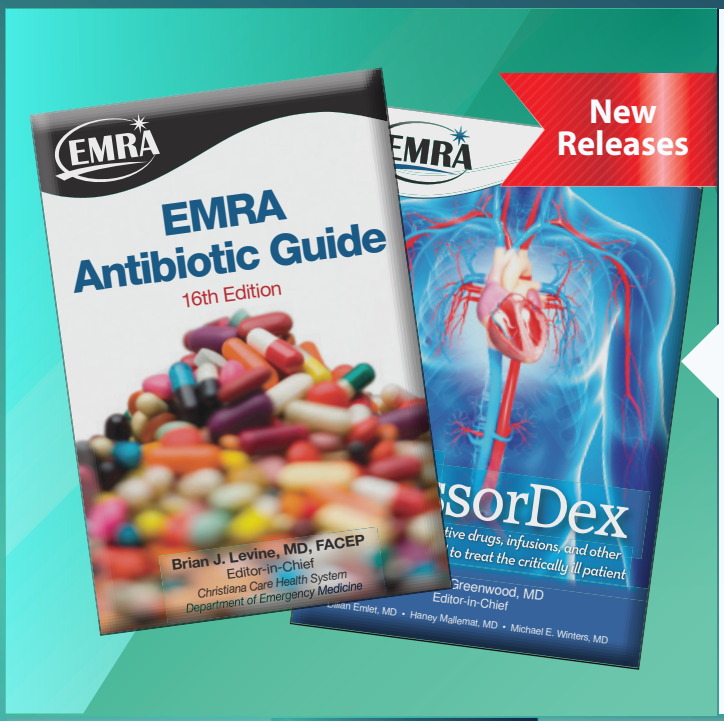

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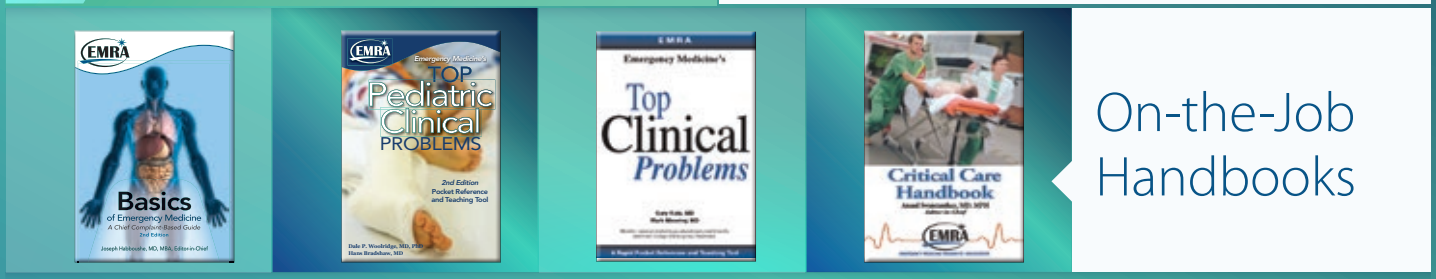

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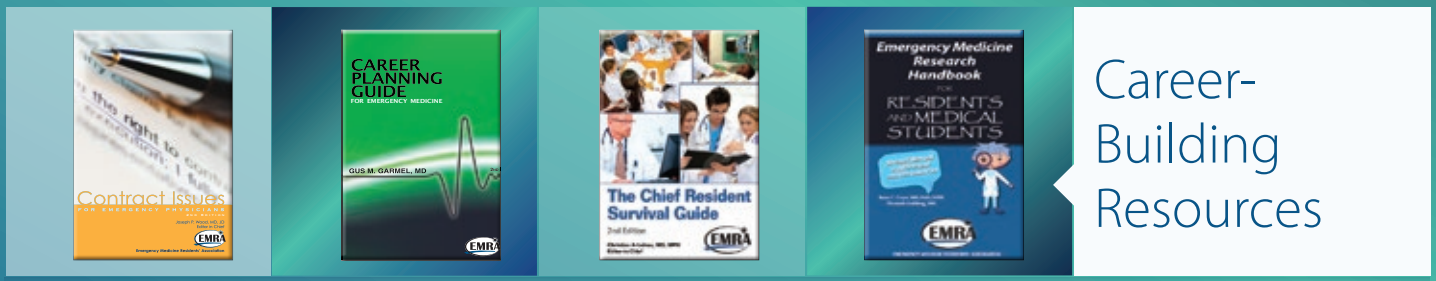

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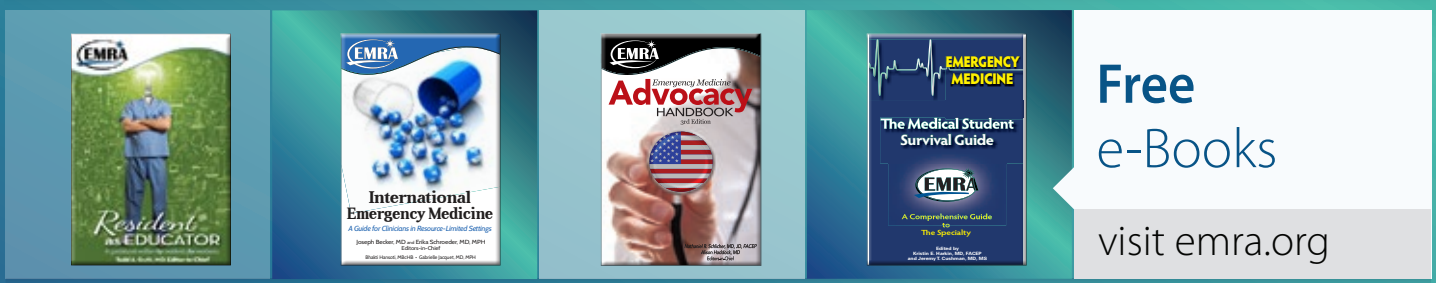

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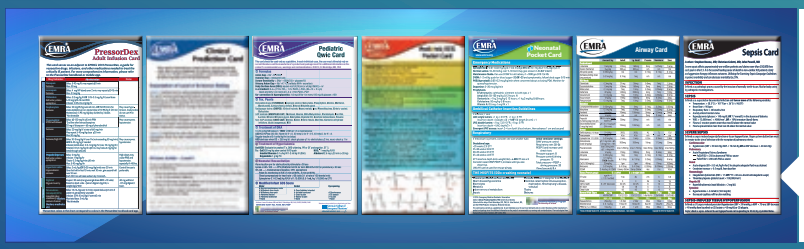

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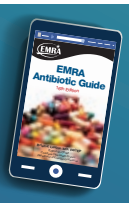

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Official Publication of the Emergency Medicine Residents' Association

GUIDELINES

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

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

DISPLAY ADS

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

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

Classified Ad Rates	
1x	
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Inside back (IBC) 7.5" x 10"	3861	3162	2359
Outside back (OBC) 7.5" x 7.5"	4950	3795	2722
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1/3 vertical 2.25" x 10"	1074	895	762
1/4 page 3.5" x 4.75"	796	597	476
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Add 25% to the black-and-white rates for each additional color.			
Black and White			
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1/2 page horizontal 7.5" x 4.75"	901	796	699
1/3 page vertical 2.25" x 10"	693	597	508
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Notes: Bleeds must be at least 9 points on each bleed side; all sizes are expressed width x length.

PRODUCTION MATERIALS

DIGITAL AD SPECIFICATIONS

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

Other acceptable formats:

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

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

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

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

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

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CLASSIFIED ADVERTISING

ARIZONA

Casa Grande: Banner Casa Grande Medical Center is a full-service community hospital with an annual volume of 38,000 emergency patients. Excellent back up includes 24-hour hospitalists. Casa Grande is located just south of Phoenix and north of Tucson. Beautiful weather year round, unlimited outdoor activities and major metro areas are a short distance away, making this an ideal setting. EMP offers democratic governance, open books and equal equity ownership. Compensation package includes performance bonuses and comprehensive benefits with funded pension (additional 13.27%), CME account ($8,000/yr.), and more. Contact Bernhard Beltran directly at 800-359-9117 or email bbeltran@emp.com.

Cottonwood and Sedona: Verde Valley Medical Center in Cottonwood and Sedona are state-of-the-art facilities seeing approximately 24,000 and 7,000 emergency patients respectively per year. Situated in a beautiful, scenic area in North Central Arizona, Cottonwood combines the charm and friendliness of a small community with easy access to the metropolitan areas of Phoenix and Las Vegas and the charming college town of Flagstaff. Sedona is a beautiful tourist community located in Arizona's "Red Rock Country;" this outdoor paradise is surrounded by mountains, forests, creeks and rivers. Partnership opportunities are available for emergency medicine residency-trained and board-certified physicians. EMP offers democratic governance, open books and equal equity ownership. Compensation package includes performance bonuses and comprehensive benefits with funded pension (additional 13.27%), CME account ($8,000/yr.), and more. Contact Bernhard Beltran directly at 800-359-9117 or email bbeltran@emp.com.

CALIFORNIA

Madera – Pediatric EM: Excellent compensation package ($300k/yr.) at Children's Hospital Central California. Join an outstanding team of fellowship-trained, board-certified pediatric emergency medicine physicians, with 93,000 pediatric emergency pts. treated annually, excellent backup, PICU, and in-house intensivist coverage. The ED physicians also staff the hospital-wide sedation service. The compensation package includes comprehensive benefits with funded pension (additional 13.27% up to $34,500/yr.), CME account ($8,000/yr.), family medical/dental/prescription/vision coverage, short and long term disability, life insurance, malpractice (occurrence) and more. Contact Bernhard Beltran directly at 800-359-9117 or email bbeltran@emp.com.

Rancho Mirage: Partnership opportunity at Eisenhower Medical Center. Modern hospital has state-of-the-art 42-bed Emergency Department and an annual volume of 68,000 patients. The community is nestled at the base of the San Jacinto Mountains in the Palm Springs area and is truly an outdoor paradise with gorgeous weather year-round. Candidates must be emergency medicine residency trained. EMP offers equal voting, partnership and profit sharing, plus democratic governance and open books. Outstanding compensation package includes comprehensive benefits with funded pension (additional 13.27% up to $34,500/yr.), CME account ($8,000/yr.) and more. Contact Bernhard Beltran directly at 800-359-9117 or email bbeltran@emp.com.

Santa Cruz/Monterey Bay/Salinas: Salinas Valley Memorial Healthcare System's (SVMHS) well-established democratic emergency medicine group is seeking part-time/full-time applicants to staff a busy, high acuity emergency department with approximately a 50K annual volume. SVMHS is located in Salinas, California but most of our physicians/PAs live in Santa Cruz area or Monterey/Carmel. We use EMR/CPOE with assistance of medical scribes. Must be BC/BP Emergency Medicine. Competitive salary. Enjoy where you work, enjoy where you play! Interested applicants please send your CV to mnavarromd@gmail.com.

Southern California, Moreno Valley: Excellent Compensation with full-time/partnership opportunities in a growing area and dynamic medical community. Moreno Valley Community Hospital is a modern, 101-bed hospital situated in the developing "Inland Empire" near Riverside. The ED sees 33,000 pts./yr. EMP offers a competitive hourly rate plus, democratic governance, open books, and excellent compensation/bonus plus shareholder status. Compensation package includes comprehensive benefits with funded pension up to $34,500/yr, CME account ($8,000/yr.), and more. Contact Bernhard Beltran direct at 800-359-9117 or email bbeltran@emp.com.

CLASSIFIED ADVERTISING

CONNECTICUT

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

Plainfield: Day Kimball Hospital — Want to have control of your schedule, make 300+K, working only 12 shifts a month? Come join this progressive, democratic group located in the bucolic region of Northeast Connecticut. Brand new, state of the art, 24 bed Emergency Department, facile EMR with EMpowER, bedside ultrasound, fiberoptic laryngoscopy, fiber optic nasopharyngoscope, EZIO, and mobile computers all at your disposal to make your work easier and more enjoyable. Perfect area to raise a family, and an incredible environment for the outdoor enthusiast looking for hiking, biking, fishing and skiing. One hour commute from Boston, Providence and Hartford. Offering a $10,000 signing bonus, or monthly stipends for current Emergency Medicine Residents. Please contact Jennifer Hughes jennifer.hughes@neshealth-care.com or call 800-394-6376 # 209 for more information.

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

FLORIDA

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

GEORGIA

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

ILLINOIS

Chicago: Mercy Hospital & Medical Center sees 59,000 emergency patients per year. This Level II Trauma Center is a primary teaching site for the UIC EM residency program. EMP is an exclusively physician owned/managed group with open books, equal voting, equal profit sharing, equity ownership, funded pension, full benefits and more. Contact Ann Benson (careers@emp.com), Emergency Medicine Physicians, 4535 Dressler Rd. NW, Canton, OH 44718, 800-828-0898 or fax 330-493-8677.

PRESBYTERIAN

Albuquerque, NM

Presbyterian Healthcare Services (PHS) is New Mexico's largest, private, non-profit healthcare system and named one of the "Top Ten Healthcare Systems in America." Over 600 providers are employed by PHS and represent almost every specialty. PHS is seeking BC/BP Emergency Medicine trained physicians to work in our Emergency Medicine department. Our physicians enjoy a flexible work schedule and compensated for working nights. This is an employed opportunity with Presbyterian Medical Group, part of Presbyterian Health Services. The Emergency Medicine group covers three Presbyterian Hospitals in Albuquerque including Presbyterian Hospital, Kaseman Hospital and Rust Medical Center. The hospitals have 65,000, 40,000 and 24,000 ED visits per year, respectively. Our ED group is comprised of 45+ physicians, 12 mid-levels and additional support staff. At Presbyterian Hospital, we have over 50 rooms broken into 4 pods. Navigators triage non emergent patients to our lean track or makes next day appointments for those not needing immediate care. We have 24x7 hospitalists admitting ED patients.

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PAGNY

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Chicago Heights/Olympia Fields and Kankakee: EMP manages EDs at several community teaching hospitals seeing 29,000 – 40,000 pts./yr., with trauma center designations and EM residency teaching options. Positions are currently available at Franciscan St. James Health (2 campuses seeing 34,000 and 40,000 pts./yr.) and Presence St. Mary's Hospital (29,000 pts./yr.). We are an exclusively physician owned/managed group with open books, equal voting, equal profit sharing, equity ownership, funded pension, full benefits and more. Contact Ann Benson (careers@emp.com), Emergency Medicine Physicians, 4535 Dressler Rd. NW, Canton, OH 44718, 800-828-0898 or fax 330-493-8677.

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NEW YORK

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

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Cortland: Cortland Regional Medical Center is a modern, full-service facility situated in the Finger Lakes Region between Syracuse and Ithaca. A broad mix of pathology makes up 33,000 ED pts/yr., and there is strong support from medical staff and administration. Outstanding partnership opportunity includes equal profit sharing, equity ownership, funded pension, open books, full benefits and more. Contact Ann Benson, (careers@emp.com), Emergency Medicine Physicians, 4535 Dressler Rd, NW, Canton, OH 44718, 800-828-0898 or fax 330-493-8677.

Long Island: Brookhaven Memorial Hospital Medical Center is in Patchogue on the southern shore of Long Island and sees 70,000 ED pts/yr. Outstanding partnership opportunity includes equal profit sharing, equity ownership, funded pension, open books, full benefits and more. Contact Ann Benson, (careers@emp.com), Emergency Medicine Physicians, 4535 Dressler Rd, NW, Canton, OH 44718, 800-828-0898 or fax 330-493-8677.

NORTH CAROLINA

Charlotte: EMP is partnered with eight community hospitals and free-standing EDs in Charlotte, Lincolnton, Huntersville and Statesville. A variety of opportunities are available in urban, suburban and smaller town settings with EDs seeing 10,000 – 79,000+ pts./yr. EMP is an exclusively physician owned/managed group with open books, equal voting, equal equity ownership, funded pension, comprehensive benefits and more. Contact Ann Benson (careers@emp.com), Emergency Medicine Physicians, 4535 Dressler Rd. NW, Canton, OH 44718, 800-828-0898 or fax 330-493-8677.

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

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

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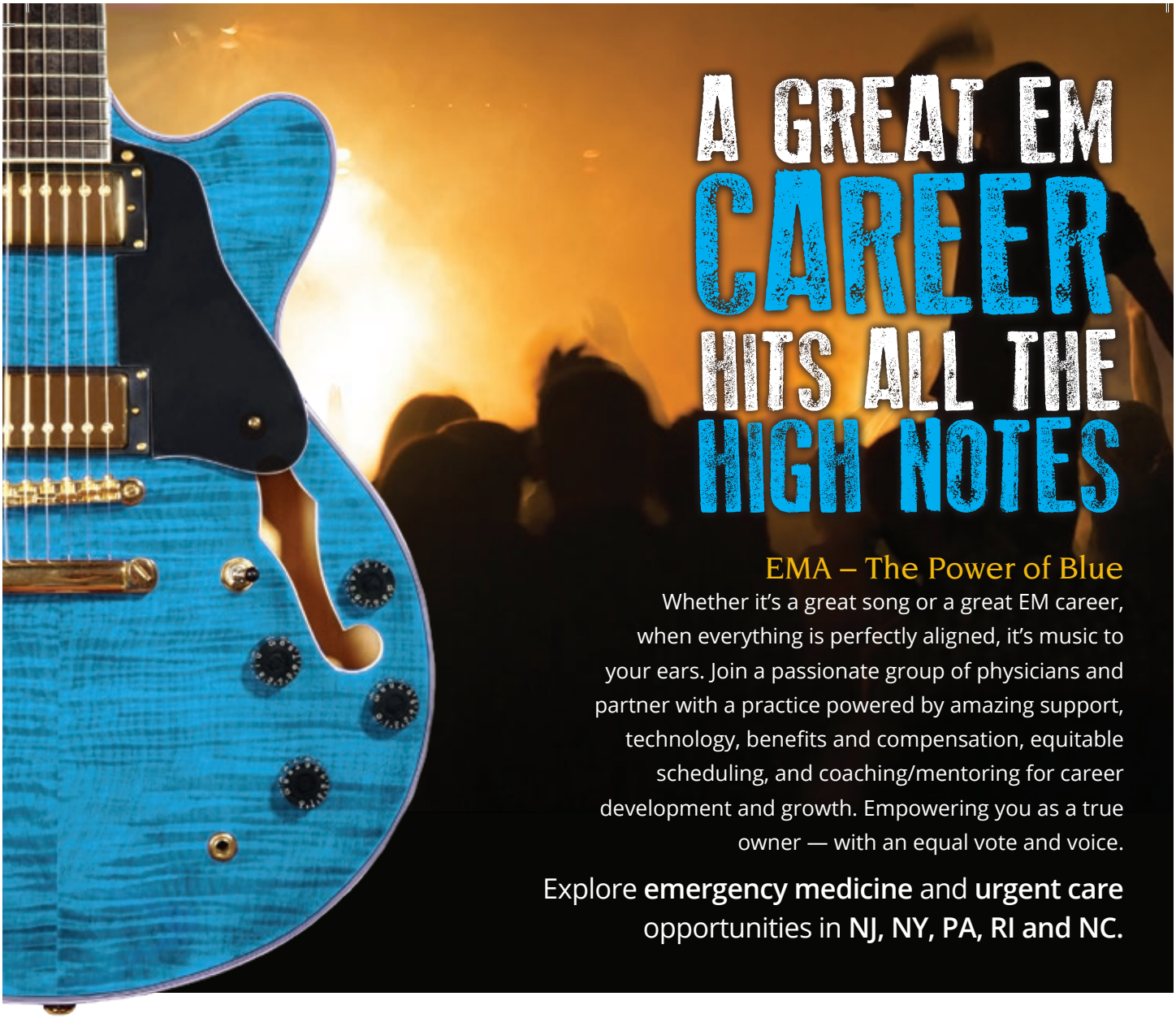

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Urbana: Mercy Memorial Hospital services the SW Ohio region's residents in Champaign County, the facility treats approximately 18,000 emergency pts./yr. EMP is an exclusively physician owned/managed group with open books, equal voting, equal equity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

Parma: INCREASED PAY and LOAN REPAYMENT PROGRAM! University Hospitals Parma Medical Center is situated in the SW Cleveland suburbs. State-of-the-art physical plant and equipment serve 44,000 patients per year. Outstanding partnership opportunity physician owned/managed group with open books, equal voting, equal equity ownership, funded pension (13.27% in addition to pay), CME/expense account ($8,000/yr.) plus comprehensive health benefits and more, including $60,000 loan repayment/bonus. Contact Ann Benson (careers@emp.com), Emergency Medicine Physicians, 4535 Dressler Rd. NW, Canton, OH 44718, 800-828-0898 or fax 330-493-8677.

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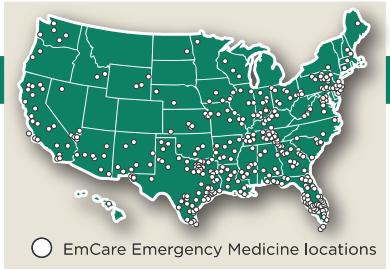


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Cincinnati: Mercy Hospital-Anderson is located in a desirable suburban community and has been named a "100 Top Hospital" ten times. A great place to work with excellent support, the renovated ED sees 43,000 emergency pts./yr. Outstanding partnership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

Columbus: Doctors Hospital is host to an award winning osteopathic emergency medicine residency training program where 79,000 ED patients are treated annually. Outstanding partnership opportunity includes performance pay, equal equity ownership, equal voting, funded pension, open books, comprehensive benefits and more. Contact Ann Benson (careers@emp.com), Emergency Medicine Physicians, 4535 Dressler Rd. NW, Canton, OH 44718, 800-828-0898 or fax 330-493-8677.

Concord, Madison and Willoughby: INCREASED PAY and LOAN REPAYMENT PROGRAM! Lake Health is situated in the eastern Cleveland Suburbs. TriPoint Medical Center was built in 2009 and treats 31,000 emergency pts./yr. The Madison Medical Campus hosts a freestanding ED seeing 12,000 pts./yr. West Medical Center is a state-of-the-art acute care hospital serving 37,000 ED pts./yr. Outstanding partnership opportunity includes $60,000 bonus/loan repayment, performance pay, equal equity ownership, equal voting, funded pension ($34,500/yr.), open books, comprehensive benefits and more. Contact Ann Benson (careers@emp.com), Emergency Medicine Physicians, 4535 Dressler Rd. NW, Canton, OH 44718, 800-828-0898 or fax 330-493-8677.

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New Castle: Jameson Hospital is a respected facility situated between Pittsburgh, PA and Youngstown, OH, with easy access to the amenities and residential options of each. Recent major renovation includes a brand-new ED with 30 private rooms; 36,000 emergency patients are treated per year. EMP offers outstanding partnership opportunity including performance pay, equal equity ownership, funded pension, open books, comprehensive benefits and more. Contact Jim Nicholas (careers@emp.com), Emergency Medicine Physicians, 4535 Dressler Rd. NW, Canton, OH 44718, 800-828-0898 or fax 330-493-8677.

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Central and Northern Wisconsin – Emergency Medicine Opportunities: Ministry Health Care is currently seeking dedicated Emergency Medicine physicians who share our commitment to quality health care and exceptional patient service at multiple facilities throughout Central and Northern Wisconsin. Join an experienced team of physicians who have come to us from some of the best training hospitals and medical schools across the nation. Our physicians enjoy state-of-the art facilities, leading edge technology, a collaborative work environment and a lucrative compensation and benefit package that enables them to live life to its fullest. Beautiful, safe and affordable neighborhoods, friendly communities and year-round recreational opportunities make Wisconsin a GREAT place to live and work. We invite you to explore our Emergency Medicine opportunities today. Contact: Brad Beranek, mmgrecruitment@ministryhealth.org , 800.420.2622 www.ministryhealth.org.

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Southern NJ Democratic group looking for BC/BP EM physician. Physicians interested in stability and lifestyle wanting to join a group dedicated to providing high quality EM services at our Vineland Medical Center, Elmer Medical Center, and Bridgeton SED. This family-oriented community is close to Philadelphia and shore communities with the option of suburban, urban or shore living.

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Our Inspira EM Residency Program provides an opportunity to work with residents.

Contact
Scott Wagner, M.D.
Emergency Medicine
Inspira Health Network
856-641-7733; email wagners@ihn.org.

Emergency Medicine Physicians

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

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

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

North Shore-LIJ is a proud Gold Level Sponsor with EMRA

Visit us at ACEP, Booth #2028 or at the EMRA Job Fair
Monday, October 27, McCormick Place West, W375E
5:00pm to 7:00pm

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

North Shore LIJ Emergency Medicine

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OUTSTANDING EM OPPORTUNITIES

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- ⇒ Career development/advancement opportunities
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For additional information please contact Joe Ferdinando

careers@medexcelusa.com

845-787-0962

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Send CV to: Dr. Joseph Leahy
Medical Director, Emergency Services
8 Prospect Street
Nashua, NH 03062
603-577-2538
E-mail: *Joseph.Leahy@snhhs.org*

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

THE GEORGE WASHINGTON UNIVERSITY
WASHINGTON, DC

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

Basic Qualifications: Physicians should be residency trained in Emergency Medicine.

Application Procedure: Complete the online faculty application at http://www.gwu.jobs/postings/22131 and upload a CV and cover letter. Review of applications will be ongoing, and will continue until positions are filled. Only complete applications will be considered. Contact Robert Shesser MD, Chair, Department of Emergency Medicine, directly with any questions about the position at: rshesser@mfa.gwu.edu.

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

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- Attend conferences for Board Preparation, Research and Literature Review

PEDIATRIC EMERGENCY MEDICINE

Contact: Richard M. Cantor, MD FAAP/FACEP
Professor of Emergency Medicine and Pediatrics
Director, Pediatric Emergency Department
Medical Director, Upstate Poison Control Center
Upstate Medical University, 750 East Adams Street, Syracuse, NY 13210
Office 315-464-4363 / Fax 315-464-6229
email cantorr@upstate.edu

Upstate Emergency Medicine

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