New York American College of Emergency Physicians

ADVANCING EMERGENCY CARE

Empire State EPIC

VOL 33-02:15

EMERGENCY PHYSICIANS' INTERIM COMMUNIQUE

A GREAT EM CAREER HITS ALL THE HIGH NOTES

EMA – The Power of Blue

Whether it's a great song or a great EM career, when everything is perfectly aligned, it's music to your ears. Join a passionate group of physicians and partner with a practice powered by amazing support, technology, benefits and compensation, equitable scheduling, and coaching/mentoring for career development and growth. Empowering you to have a voice in the practice while **making healthcare work better.**

Explore **emergency medicine** and **urgent care** opportunities in **NJ, NY, PA, RI, NC and AZ.**

Learn more about career opportunities: Call 866.630.8125 or view openings at www.ema.net/careers

Emergency Medical Associates®

The Sign of Excellence in Emergency Medicine®

MODERN HEALTHCARE BEST PLACES TO WORK™ 2014

Four Year Winner

PRESIDENT'S MESSAGE

What About You?

Louise A. Prince, MD FACEP
Associate Professor, Emergency Medicine
SUNY Upstate Medical University

Emergency Medicine is an incredibly unique specialty based on the principle of service. 24/7/365 we serve the patients who come to our door despite their socioeconomic, insurance, infectious, behavioral, or mental status. Not only do we serve within our departments, but also outside in our community. We offer community education, service through EMS venues, event medical management, and disaster response and management among many other services. I think of our response to local disasters like hurricanes as well as the many emergency physicians who respond to national and international disasters to provide relief services to the injured and suffering. I am reminded of the ACEP "T" shirts that said "Emergency Physicians, we go where no one else dares to tread."

> ***"Emergency Physicians, we go where no one else dares to tread."***

We can and should go further, all of us. As physicians, we have been given an incredible gift, our vocation of medicine. The gift gives us many benefits but also requires return on investment. We must become servant leaders. There are many additional ways to serve the communities in which we live. Certainly there are many financial needs throughout our community and world. Even more importantly, volunteering our time and talent is an investment in the future. Giving our time to those around us and those less fortunate is part of caring for our community and world. It may be joining a philanthropic group, community leadership, coaching children and youth, volunteering at church or feeding and clothing the homeless. The list is, frankly, endless. Opportunities abound and can be as short as an hour of time or as long as weeks on a mission trip. We can make the time.

The Emergency Medicine Resident Association (EMRA) is to be complimented. In the month of September 2015, they have inaugurated the EM Day of Service to encourage Emergency Medicine providers to become servant leaders in their communities. The day of service has been co-sponsored by many organizations including ACEP, SAEM and ENA, to name a few. Please visit their website to see the many volunteer activities underway *http://www.emra.org/emdayofservice/.* I am personally proud of our faculty, residents, staff, and students who prepared and served a meal for our local homeless shelter as well as conducted a clothing drive. The experience was a gift to them as well as to the homeless they encountered. It has hopefully sparked the fire to do more.

As we look around our communities and our world, it is not hard to see our neighbors in need. Not to mention the consequences of not caring for our neighbors as ourselves. These are consequences that will affect our future as well as our children's. Let's step up our game as community leaders and begin to serve one small step at a time. It will become infectious in us and those around us. Thanks to all of you who have answered the call already. Keep going.

What about you? What will you do?

WHAT'S INSIDE?

. . . features

. . . insights

. . . events

EMRA EM DAY OF SERVICE

The national Emergency Medicine Resident Association (EMRA) inaugurated a National Day of Service in September this year to encourage emergency medicine providers to reach out and serve their communities through volunteer efforts.

SUNY Upstate Emergency Medicine residents chose to organize, prepare, and serve a meal to the homeless. They are also conducting a sock donation drive to provide much needed clean, dry socks to the homeless men and women of Syracuse. This is the first of a yearly effort to not only provide medical care to the community but to also reach out to the less privileged in our community providing comfort and material assistance. They look forward to continued service projects not only in September but throughout the year.

The residents of SUNY Downstate/ Kings County Emergency Medicine and Emergency Medicine/ Internal Medicine Residency Programs held a clothing drive, donating items to CHiPS (Park Slope Christian Help, Inc.) Residents also helped plant vegetables in a sustainable garden affiliated with a local high school in Central Brooklyn and the BK Farmyards city-wide initiative.

Mount Sinai Beth Israel emergency medicine residents and their program director delivered meals to the home bound elderly on two Saturdays in September. As emergency medicine physicians, they have all seen older patients who are lacking in financial and social support systems. Through the Carter Burden Center for the Aging, they were able to bring lunches to senior citizens in New York City who are at risk of struggling with hunger. The daily lunch deliveries also function as a status check and social visit for home bound people who may receive few visitors. They all enjoyed this rewarding opportunity to reach out to their neighbors.

2015 New York ACEP Emergency Medicine Residents Career Day Supporters

ApolloMD
CEP America, Inc.
CompHealth
Ellis Medicine
EmCare, Inc
Emergency Medical Associates (EMA)
Emergency Medicine Associates, P.A., P.C.
Emergency Medicine Physicians, Ltd.
Emergency Service Partners, L.P.
Emergent Medical Associates
Infinity HealthCare
Island Medical Management
Jamaica Hospital Medical Center
MEP Health
North Shore-LIJ Health System
Progressive Emergency Physicians
Rochester Regional Health
SBH Health System
Schumacher Group
Sheridan Healthcare
Tampa Bay Emergency Physicians
TeamHealth
TeedCo Healthcare Recruiting

SOUND ROUNDS

Ultrasound Evaluation for Pyloric Stenosis

Guest Author:
Randi Ozaki, MD
Emergency Ultrasound Fellow,
SUNY Downstate, Department of Emergency Medicine, Brooklyn, NY

Guest Author:
Michael Secko, MD FACEP
Director of Ultrasound, SUNY Downstate, Department of Emergency Medicine, Brooklyn, NY

Penelope C. Lema, MD RDMS FACEP
Director, Emergency Ultrasound Division and Fellowship; Assistant Professor, University of Buffalo, Department of Emergency Medicine

Indications:

- Flank pain
- Hematuria
- Renal failure
- Urinary retention

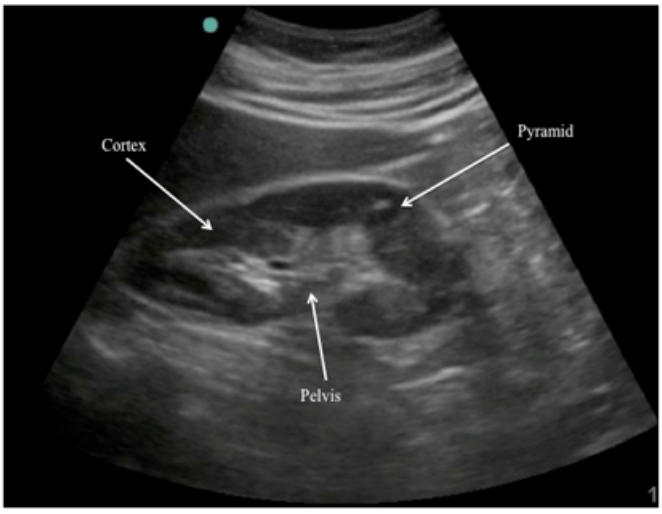


Figure 1. *Ultrasound image of a normal right kidney.*

Technique:

- Use a low-frequency curvilinear or phased-array probe (5-1 MHz).
- Views are similar to the FAST exam: Right upper quadrant (RUQ) and left upper quadrant (LUQ) for the kidneys and suprapubic for the bladder.
- Scan through the unaffected kidney, or painless side, to obtain images of normal anatomy (Figure 1).
- The probe marker should be aimed toward the patient's head for longitudinal views and turned 90 degrees counterclockwise toward the patient's right for transverse views (Figure 2).
- Hydronephrosis is graded as mild, moderate, severe or grades 1-4 (Figure 3).
- Kidney stones can sometimes be visualized within the kidney and will appear as hyperechoic structures with posterior shadowing (Figure 4).
- Absence of ureteral jets using color power doppler over the bladder trigone may indicate a possible ureteral obstruction (Figure 5).
- Normal ureteral jets may take more than two (2) minutes to visualize and are best seen when the bladder is full and not contracted.

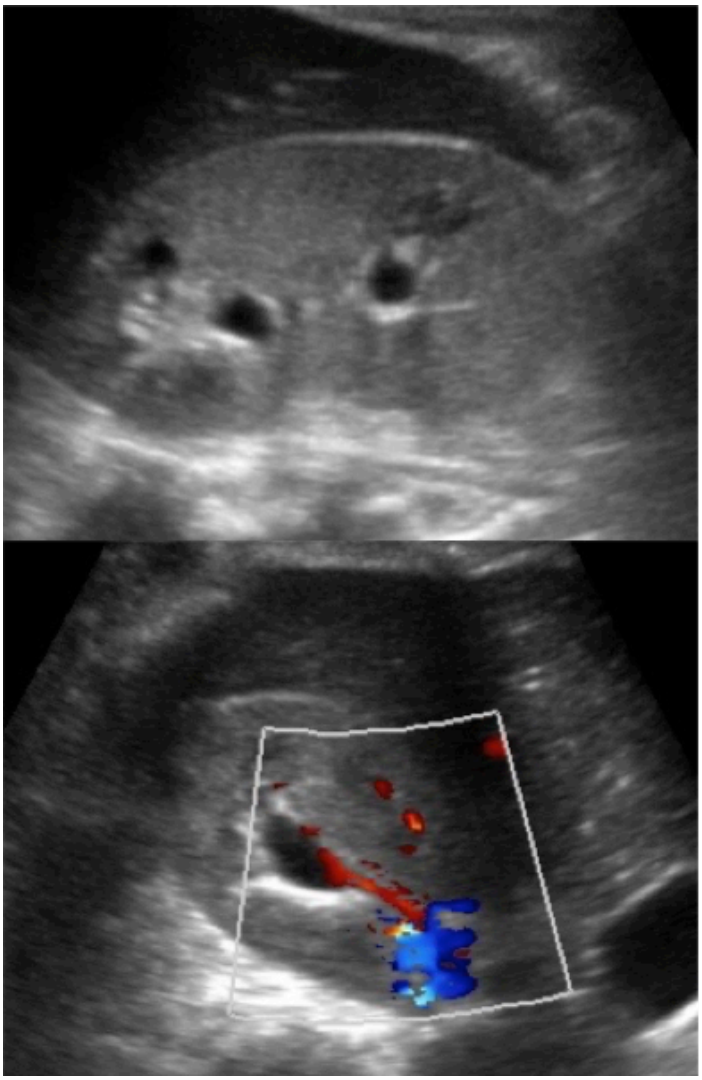


Figure 2. *Longitudinal (top) and transverse (bottom) views of a kidney with mild hydronephrosis.*

SOUND ROUNDS

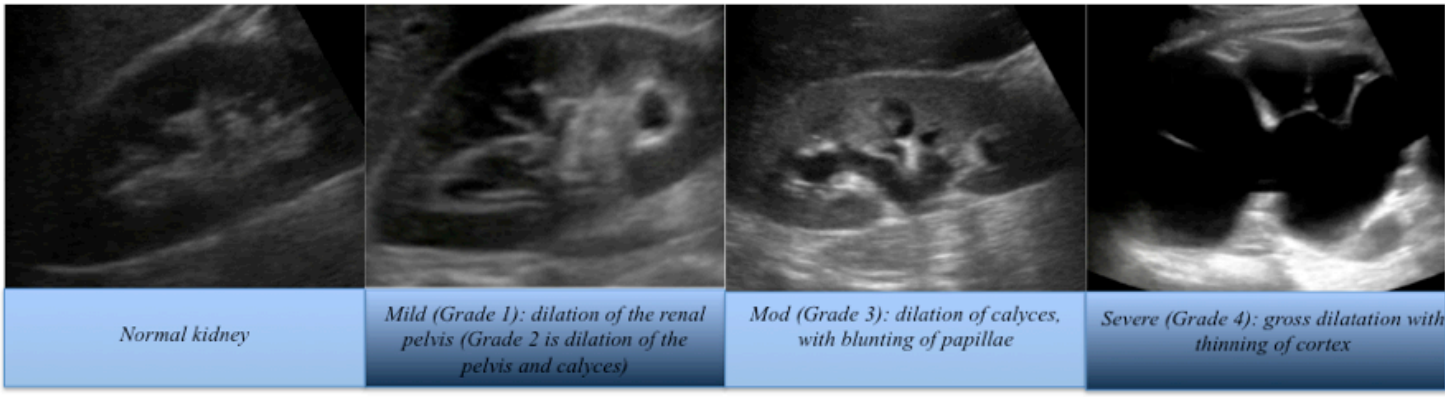


Figure 3. *From left to right: normal kidney, mild (grade 1) hydronephrosis, moderate (grade 3) hydronephrosis, severe (grade 4) hydronephrosis.*

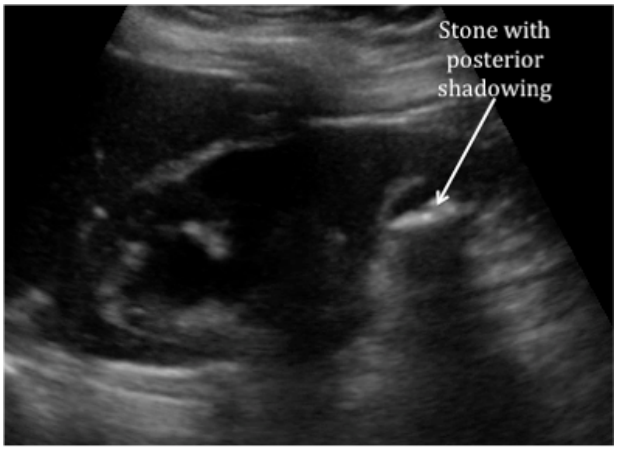


Figure 4. Kidney with moderate hydro and visible stone.

Tips:

- Patients with no hydronephrosis or mild to moderate hydronephrosis with improvement in symptoms may be managed conservatively with urology follow-up.
- Severe hydronephrosis may warrant a CT scan to evaluate for obstructive stone or other serious pathology that may require acute intervention.
- Anything that can cause an obstruction of the collecting system can cause hydronephrosis (not just stones!).
- Studies show that there is no statistically significant difference in rate of complications or missed high- risk diagnoses when using ultrasound as compared to CT scan.[1]
- In a study published in AJEM, patients with suspected colic and absence of hydronephrosis were not found to require admission secondary to a urologic complication within 30 days of initial evaluation hydronephrosis.[2]

Pitfalls and Limitations:

- Renal pyramids and vascular structures may have a hypoechoic appearance on ultrasound that may be misinterpreted as hydronephrosis.
- Applying color flow will help to differentiate: renal pyramids and vascular structures will exhibit color flow, whereas hydronephrosis will not (Figure 2).
- Dehydration (due to vomiting) may decrease your ability to detect hydronephrosis. Administration of a bolus of fluids may help.
- Absence of ureteral jet is not necessarily indicative of obstruction.
- Renal cysts may also be confused as hydronephrosis, however renal cysts are more peripherally located and well-circumscribed.
- Consider alternate diagnoses if there is no hydronephrosis or if the patient's symptoms do not improve with treatment (ie. abdominal aorta scan to evaluate for aneurysm or dissection).

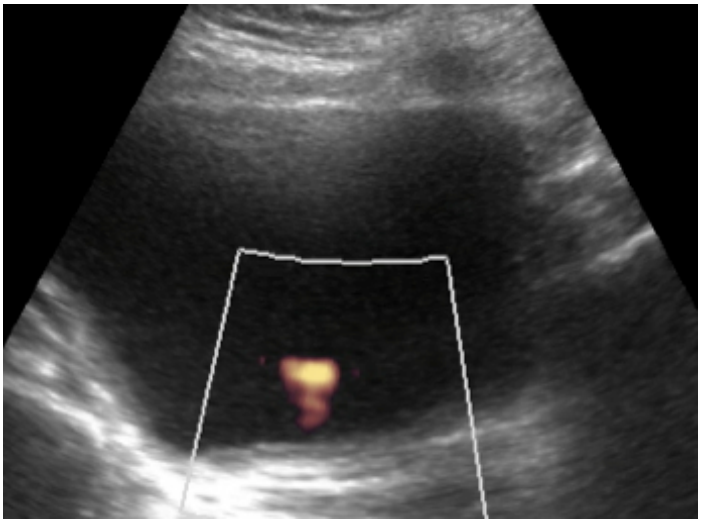


Figure 5. *Bladder with ureteral jet.*

References:

1. Smith-Bindman R, Aubin C, Bailitz J et al. Ultrasonography versus Com puted Tomography for Suspected Nephrolithiasis. N Engl J Med. 2014: 371(12): 1100-1110
2. Fields JM, Fischer JI et al. The ability of renal ultrasound and ureteral jet evaluation to predict 30-day outcomes in patients with suspected nephroli thiasis. AJEM. 2015: 33(1) 1402-1406

Calendar

December 2015

2 Emergency Medicine Resident Committee Conference Call, 2:00 pm
9 Education Committee Conference Call, 2:45 pm
9 Professional Development Conference Call, 3:30 pm
10 Practice Management Conference Call, 1:00
16 Government Affairs Conference Call, 11:00 am
16 Research Committee Conference Call, 3:00 pm
17 EMS Committee Conference Call, 2:30 pm
23-25 New York ACEP Office Closed
31 New York ACEP Office Closed

January 2016

1 New York ACEP Office Closed
6 Emergency Medicine Resident Committee Conference Call, 2:00 pm
13 Education Committee Conference Call, 2:45 pm
13 Professional Development Conference Call, 3:30 pm
14 Practice Management Conference Call, 1:00 pm
20 Government Affairs Conference Call, 11:00 am
20 Research Committee Conference Call, 3:00 pm
21 EMS Committee Conference Call, 2:30 pm

February 2016

3 Emergency Medicine Resident Committee Conference Call, 2:00 pm
10 Education Committee Conference Call, 2:45 pm
10 Professional Development Conference Call, 3:30 pm
11 Practice Management Conference Call, 1:00 pm
17 Government Affairs Conference Call, 11:00 am
17 Research Committee Conference Call, 3:00 pm
18 EMS Committee Conference Call, 2:30 pm

March 2016

1 Lobby Day 9:00 am - 1:00 pm - Albany, New York
1 Board of Directors Meeting - 1:00 pm - 4:30 pm - Albany, New York
2 Emergency Medicine Resident Committee Conference Call, 2:00 pm
9 Education Committee Conference Call, 2:45 pm
9 Professional Development Conference Call, 3:30 pm
10 Practice Management Conference Call, 1:00 pm
16 Government Affairs Conference Call, 11:00 am
16 Research Committee Conference Call, 3:00 pm
17 EMS Committee Conference Call, 2:30 pm

TOXICOLOGY

Why Does EMS Use 2 mg Naloxone? Does it Antagonize 100% of the Mu Receptors at That Dose?

David C. Lee, MD FACEP
Research Director
Associate Professor
Department of Emergency Medicine, Hofstra North Shore LIJ School of Medicine

Guest Author:
David Kanon, MD
Emergency Medicine Resident, Long Island Jewish Hospital

Opiate addiction and overdose are major problems in this country, affecting not only the general public, but putting a strain on emergency resources, both pre-hospital, and in the hospital. According to the American Society for Addiction Medicine, 1.9 million people live with prescription opiate abuse and/or dependence and an additional 517,000 suffer from heroin addiction / abuse. In addition, 17,000 die annually from prescription opiate overdose and 8,200 die annually from heroin overdoses. One of the other problems is that as efforts to combat prescription drug use have been implemented, more people are turning to heroin, which can be obtained, in some cases, cheaper and easier.

A mainstay of treatment of heroin and other opiate overdoses is the use of Naloxone. Naloxone is a widely used drug that is an opioid antagonist. Naloxone competes with the opioid molecule by binding to the receptor sites. It binds to the Mu, Kappa, and Sigma opioid receptor site but has a much higher affinity for the Mu receptor. It's duration of action, however, can be much shorter than the opiates it is competing with, necessitating subsequent dosages. The dosage needed for an opiate overdose is not fixed and is affected by many factors. According to Boyer's, "The effective dose depends on the amount of opioid analgesic the patient has taken or received, the relative affinity of naloxone for the Mu opioid receptor and the opioid to be displaced, the patient's weight, and the degree of penetrance of the opioid analgesic into the central nervous system."

In regards to the dosage of naloxone and its ability to affect 100% of Mu receptors, Melichar et al. showed that "13 µg/kg of naloxone (1 mg in an 80 kg man) was required to produce an estimated 50% receptor occupation." One could extrapolate from this statement that 2 mg of naloxone in an 80 kg man would in fact cause close to 100% binding at the Mu receptor. What I am not able to discern from this abstract is whether the individuals studied were opiate naive or dependent, which can also affect the dosage a patient would take causing overdose. However, the tolerance is not really by increasing the number of Mu receptors but by persistently binding and desensitizing the receptors and blunting receptor recycling.

As per why EMS uses 2 mg Naloxone, there is no clear dosage such as ACLS recommending 1 mg of epinephrine during a cardiac arrest. Paramedic protocols differ state to state, and in New York differ county to county. New York City has its own ALS protocols, different from Nassau County, as well as Suffolk County and Westchester. In New York City, the Altered Mental Status Protocol states: "Administer Naloxone, titrate in increments of 0.5 mg up to response, up to 4 mg, IV/Saline Lock bolus. If IV/Saline Lock access has not been established, administer Naloxone 0.5 mg, up to response, up to 4 mg IM or IN." Medical control options allow for repeat dosing of the naloxone. Nassau County states in their overdose protocol: "Naloxone (Narcan) 0.4 - 2.0 mg (titrated) IV/IO/IM/IN - If respiratory depression. If (opiates suspected) May repeat x 2."

There is certainly no rule in either of these protocols mandating the 2 mg dosage, and in fact they are in line with most medical protocols for overdose management recommending titrating the dose until you have desired response. Therefore the dose that EMS gives is not supposed to be "always 2 mg" and may be different, it is also important to ascertain whether the providers gave 2 mg at once or over time, as the protocols specifically state that they should be titrated. Also, of note, in a review of ME cases where death was found to be caused by opioid overdose, Naloxone was also not given in approximately 1/3 of the cases where resuscitation was attempted. In New York City, there used to be a common practice of giving 2 mg Naloxone to virtually every arrest as part of the "Hs and Ts." This is not routinely done now.

References:

1. http://www.asam.org/docs/default-source/advocacy/opioid-addiction-disease-facts-figures.pdf
2. https://www.drugabuse.gov/about-nida/legislative-activities/testimony-to-congress/2015/americas-addiction-to-opioids-heroin-prescription-drug-abuse
3. http://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=76f7eee1-d524-43a4-a868-ffa9f29638a6
4. Boyer, E. Management of Opioid Analgesic Overdose. N Engl J Med 2012; 367:146-155
5. Clarke, SFJ, Dargan, PI, Jones, AL. Naloxone in Opiate Poisoning: Walking the Tightrope. Emerg Med J 2005;22:612-616.
6. Melichar, J, Nutt, D, Malizia, A. Naloxone displacement at opioid receptor sites measured in vivo in the human brain. European Journal of Pharmacology. Volume 459, Issues 2–3, 17 January 2003, Pages 217–219.
7. Sumner, SA et al. Use of Naloxone by Emergency Medical Services during Opioid Drug Overdose Resuscitation Efforts. Prehospital Emergency Care 2015 September 18:1-6.
8. Whistler, J. Examining the role of mu opioid receptor endocytosis in the beneficial and side-effects of prolonged opioid use: From a symposium on new concepts in mu-opioid pharmacology. Drug and Alcohol Dependence, 2012-03-01, Volume 121, Issue 3, Pages 189-204.
9. Nassau County Paramedic Protocols http://www.nassauems.org/PDF/Protocols%207-1-14/2015_ADULT_Protocols_150701.pdf
10. New York City Paramedic Protocols http://www.nycremsco.org/images/articlesserver/04-ALS_Protocols_August_1_2015_v08012015b.pdf

ASK THE EXPERTS

L. Carlos Zapata, MD
Attending Physician, Department of Emergency Medicine, Nassau University Medicial Center

Nicole Berwald, MD FACEP
Associate Chair
Department of Emergency Medicine
Staten Island University Hospital

I had the opportunity to speak with Dr. L. Carlos Zapata. Dr. Zapata completed his residency in Emergency Medicine in 2014 and practices as an attending physician at Nassau University Medical Center. Dr. Zapata has a staunch interest in organized medicine, and his impressive resume of participation outstrips what one would anticipate for someone with his years in clinical practice. Dr. Zapata is passionate about emergency medicine policy and advocacy. He has held numerous positions for various organizations including the Medial Society of New York, the AMA House of Delegates, and the Medical Society of Queens. His dedication to emergency medicine through these organizations is notable.

Dr. Zapata was kind enough to share his perspectives and opinions:

What is your advice to residents who want to get involved in organized medicine?

"Just show up". Dr. Zapata says the key to getting involved is easier than you might think. He went on to say, "there are so many possibilities and opportunities available to young physicians. They just have to go for it". It has been Dr. Zapata's experience that most, if not all of the organizations are welcoming and extremely happy to see younger physicians get involved. He has never heard of anyone getting turned away. In his words, the most important thing is to SHOW UP.

What was the evolution of your involvement?

His journey started as a first year medical student. He attended clubs and meetings in his areas of interest. He specifically mentioned showing up for his medical school's chapter of the AMA early on in his education. There he was exposed to members of the state medical society, and they invited him to attend their meeting. He took advantage of the invitation and SHOWED UP.

Over time without his knowing it his network began to grow; it was a natural progression. He later developed a relationship with New York ACEP, MSSNY and national ACEP. Dr. Zapata remarks on how these relationships all complement each other. He explained "fundamentally they all try to accomplish the same goals; to create support for patients and physicians".

How can a young physician looking to get involved start?

Dr. Zapata had a couple of striking ideas:

1. He had a positive experience starting his involvement on a local level. He found that at local events he would encounter many of the same people across different organizations. This facilitated the growth of his network, and he developed an understanding of the goals and infrastructure of these groups.

   He also pointed out that there are added benefits related to local chapters/groups; there is often little significant travel. For him this meant the ability to attend meetings more often, and to get to know the group well.
2. He had similar positive experiences with joining sections of larger organizations. "Many organizations have smaller sections and getting involved on this level can be a great way to get your foot in the door."

   One example he shared was with the Young Physicians Section of the AMA. "Within these groups exists support to move up the leadership ladder."

   Dr. Zapata pointed out that it can be easier to navigate small groups. At national meetings there are great opportunities, but sections can allow for more intimate networking and growing of your interests.

Did you have a mentor who helped you through this process? Do you have advice on how to find a mentor?

For Dr. Zapata it was important to find mentors that support his different goals. A particular mentor may not be the best fit in every situation. Dr. Zapata points out that for those interested in advocacy and policy it can be useful to find a mentor with expertise in navigating the political waters.

He finds it valuable to "watch how people lead and follow their example". He remarked that different mentors have different things to offer, and it is not always that one particular mentor who will support all situations. "It is important to learn how different people you meet can support your goals and to be open to the experiences of others as you try to make your path."

How did you develop your leadership skills?

His greatest successes were due to on the job training; "Only so much can be learned from a book or a class."

He does think that formal education on public speaking can be of benefit in both leadership and academic settings.

Connect with an experienced emergency medicine physician. Read more at this link:
http://nyacep.org/mentoring

ASK THE EXPERTS

With a busy EM schedule I was curious about how Dr. Zapata balanced his involvement with his personal obligations and how he stayed motivated:

It is all about the relationships that develop. His involvement has not only led to making several associates, but he has developed true friendships in his colleagues. He points out that there are many aspects of advocacy work that are simply fun. He has made connections that add to his professional and personal satisfaction.

Dr. Zapata notes that watching changes to policy and new proposals in real-time contributes to his passion for the issues and impacts the care he delivers to his patients. In this way, he gets great job satisfaction simply by following his conscious and sensibilities.

Dr. Zapata's advice:

- "It's simply important to be involved." Find a focus. For Dr. Zapata knowing how the politics behind medicine impacts his patients is motivating. "It all comes together in a big picture that can provide a unique experience to your career."
- "Say 'yes' to new opportunities." This helps you grow as a person; leads to other opportunities and new skills; facilitates new friendships and self improvement.

Though Dr. Zapata is unsure where his path will take him, one thing is for sure, he is supporting emergency medicine patients and his physician colleagues, advocating all along the way.

Congratulations to New Fellows of the American College of Emergency Physicians

Heidi A Baer MD FACEP
Vijay Bansal MD FACEP
Joseph Bart DO FACEP
Francesca M Bullaro MD FACEP
Nicholas D Caputo MD MSC FACEP
Tracy Catlin MD FACEP
Elwyn Charles Clark DO FACEP
Cara Conrad MD FACEP
Charles Dalmedo MD FACEP
Brenna M Farmer MD FACEP
Robert L Gekle MD FACEP
Christopher E Graziano MD FACEP
William H Greenhut DO MPH FACEP
'Christine B Haines MD FACEP
William Holubek MD MPH FACEP
Leah Shaen Honigman Warner MD FACEP
Eddie Irizarry MD FACEPKaedrea Jackson-Brown MD MPH FACEP
Jennifer F Kherani MD FACEP
JoAnne McDonough MD FACEP
Robert G McHugh DO FACEP
Mary R Mulcare Paretti MD FACEP
Petru Codrin Nemes MD PHD FACEP
Ka Ming G Ngai MD MPH FACEP
Christopher Niles MD FACEP
Gaurav K Patel MD FACEP
Jennifer L Pugh MD FACEP
Ryan Richman MD FACEP
Emmanuel H Saintjean MD FACEP
Steven R Sattler DO FACEP
Shideh Shafie MD FACEP
Marsia Vermeulen DO FACEP
Anuj Vohra DO FACEP

Young Physician, Resident Leadership & Advocacy Award

This Award was created to promote leadership and to advance political action and advocacy amoung emergency physicians through attendance at the ACEP Legislative Advocacy Conference and Leadership Summit, May 15 - 18, 2016 at the Grand Hyatt in Washington, DC.

New York American College of Emergency Physicians

For more information visit *nyacep.org*

ETHICS

Is Professionalism Relative to Generation?

Jay M. Brenner, MD FACEP
Medical Director, Upstate University Hospital
Community Campus Emergency Department;
Associate Professor, Department of Medicine and the Center for
Bioethics and Humanities, SUNY Upstate Medical University

A few years ago, I was part of an effort to address a widespread professionalism problem when several students allegedly cheated on an exam. We taught a required course on Foundations in Professionalism to the entire class and the next class as a reactive and proactive intervention. It dawned on the faculty involved that professionalism was not solely the duty of bioethicists, but rather a responsibility of all health care professionals within their own disciplines and specialties to uphold. It is one of the roles that New York ACEP embraces through many different modalities including this newsletter. It is therefore with some regret that I dedicate the ethics column in this edition of *EPIC* to professionalism. I could just not let this one go…

LA is a very elderly woman who was admitted to an acute rehabilitation unit at the community campus of a major academic medical center when she developed a nosebleed. The nurse called the hospitalist who ordered oxymetazoline and direct pressure. The hospitalist called for help from the emergency physician, who said that he was busy taking care of patients in the single-coverage Emergency Department (ED), but if she was still having difficultly managing the nosebleed then she could call back. When she called back in 30 minutes, the night shift emergency physician had arrived, and the evening shift emergency physician asked if she would be willing to go up to the floor to assist in treating the patient with epistaxis. The night doctor said no; she was told that she should only treat patients outside of the ED for airway emergencies. The evening doctor said then that he would go upstairs and take care of it, while he would sign over care for the patients in the ED to her, including an unstable patient with a subdural hematoma awaiting transport to another ED for neurosurgical consultation. He placed a balloon tamponade to stabilize the nosebleed, and the hospitalist arranged transport of the patient to another ED for ENT consultation.

The evening doctor complained that the night doctor was "unprofessional" for not taking care of a patient in need. The night doctor complained that the evening doctor was "unprofessional" for "dumping" an unstable patient on her. The evening doctor was a Baby Boomer. The night doctor was a Millennial. Is there a difference in how each doctor interprets the concept of professionalism dependent upon their generational perspective?

Let me preface the following discussion by revealing that I am a Gen-Xer. I am also the director of the department and felt obligated to attempt to resolve the dispute between the two physicians. Before I go any further, I need to clarify that I do not believe in stereotypes. I think that they are harmful. And then I went to Dr. Tracy Sanson's talk on Generational Changes in the Workplace at Phase 2 of the ED Director's Academy, and I became a believer in generational trends.

Those not familiar with the work should refer to the SAEM Aging and Generational Issues in Academic Emergency Medicine Task Force publication in Academic Emergency Medicine in 2011 entitled "Generational Influences in Academic Emergency Medicine: Teaching and Learning, Mentoring, and Technology" by Mohr et al. It is a very-well written article highlighting some of the mutual benefits of having four distinct generations (Traditionalists, Baby Boomers, Gen-Xers, and Millennial) in the workplace. The older generations can mentor the younger generations. The younger generations can help the older generations with technology. It even addresses professionalism, "Pairing faculty members from diverse generations… can help participants acknowledge the shared collective values of the profession and bridge perceived gaps between younger and older physicians."

The gap perceived by me in the case above is between Dr. Baby Boomer and Dr. Millennial. Dr. Baby Boomer was following the credo established by Sarah Loguen Fraser, "I will never see a human being in need of aid again and not be able to help." He felt obligated to help the patient in need in the rehab unit.

Dr. Millennial believed that this obligation compromised her ability to do her job of taking care of the patients in the ED. She thought that Dr. Baby Boomer disrespected her boundaries by signing out an unstable patient.

Ethically, both emergency physicians have valid points. The hospital ought to have a better solution for ENT emergencies that happen outside the ED other than for the emergency physician to respond. But certainly, the sense of professionalism instilled within me is to help anyone if I can and if I am the most appropriate physician to handle the situation. In a community hospital setting, where only an obstetrician, a hospitalist, and an emergency physician are present on location at night, the emergency physician is probably most well equipped to handle an unstable nosebleed. In fact, retrospectively, it turns out that the patient's oxygen saturation had fallen below 80% suggesting that addressing the ENT emergency may have actually prevented an airway emergency.

In the end, I think that both physicians acted professionally in the moment. I think that Dr. Millennial met the expectations issued by her employer, but I think that Dr. Baby Boomer exceeded expectations by recognizing another human being in need. I hope to adopt the latter philosophy as this Gen-Xer finds the right balance between my competing obligations.

References:

1. Mohr, NM et al. "Generational Influences in Academic Emergency Medicine: Teaching and Learning, Mentoring, and Technology." Acad Emerg Med 2011 February; 18(2): 190-199.

Improve your practice

EMERGENCY MEDICINE
NEW YORK
POLITICAL ACTION COMMITTEE

Contribute to NYEMPAC. . . the New York Emergency Medicine Political Action Committee is your voice in Albany. Influence and access in the legislative arena takes cash! Make your contribution by going online to www.nyacep.org

New York Emergency Medicine Political Action Committee contributes to the election campaigns of candidates for state office who support emergency medicine issues. Governed by a Board of Trustees who direct the organization's contributions, NYEMPAC makes contributions to members of both political parties whose candidates are sensitive to the concerns of emergency physicians and patients seeking emergency care. Read more at www.nyacep.org.

Emergency Medicine Physician
NYU Lutheran Medical Center
Brooklyn, NY

NYU School of Medicine
NYU LANGONE MEDICAL CENTER

The Ronald O. Perelman Department of Emergency Medicine at the New York University School of Medicine is pleased to announce an outstanding community practice opportunity in Brooklyn. The merger between NYU and Lutheran hospitals has created a unique community practice opportunity with the ability to also work at our academic sites in Manhattan.

The NYU Lutheran ED opportunity offers the following:

- 70K annual visits with high acuity
- Trauma Center Designation
- Comprehensive Stroke and STEMI Center
- 24/7 Peds Coverage
- Opportunity to work with rotating EM residents
- 10% of shifts at NYU Langone Medical Center in Manhattan
- Ability if desired to also work at our other ED's (Bellevue Hospital, NYU Cobble Hill and our Urgent Care locations)
- Faculty appointment in the Ronald O. Perelman Department of Emergency Medicine at the NYU School of Medicine
- Outstanding financial package worth over 300K
- Full NYU Benefits including Tuition Remission for Dependents
- 10% NYU Retirement Plan Employer Contribution
- Easy Access from Manhattan to Lutheran via NYU sponsored river ferry
- Ability to join many new colleagues and build a premier NYU community practice

The Ronald O. Perelman Department of Emergency Medicine at NYU Langone is a robust and thriving group of physicians, PA's and other health care providers. We are a collegial group committed to providing outstanding patient care and an outstanding work environment.

If you are interested in joining our Emergency Medicine Division, please send your CV to:
Robert Femia, MD, Executive Vice Chair | C/O: **emjobposts@nyumc.org**

EDUCATION

The "Best" Residency Training Program

Kaushal H. Shah, MD FACEP
Residency Director Emergency Medicine,
Icahn School of Medicine at Mt. Sinai

Can we actually rank residency training programs? Doximity and US News & World Report seem to think so. In fact, they launched their "Residency Navigator" tool last year and an estimated one out of three medical students accessed it (this year, I imagine it may approach 100%). These outlets are "ranking" almost 3,700 residency programs in 20 different specialties, including emergency medicine. Some blogs tout these rankings as "injecting transparency" into the match process. CORD (Council of Residency Directors) sees an "egregious sample bias". The question is: How can Doximity possibly create a valid rank order for best training programs? Let's review the methodology. Doximity self-describes their resources in three major parts:

1. Residents' satisfaction survey. Doximity reports having 16,000 unique respondents as of August 2015. That's 4.3 responses per residency program, which can't be representative of anything. So let the gaming begin. If I get all my 60 residents to sign up with Doximity, maybe our rankings will improve. See how this works in Doximity's favor but doesn't really improve the validity? To add to this, virtually every emergency residency director has agreed not to share the contact emails of their residents or their alumni.
2. Reputation data. This is my favorite. If you're enrolled on Doximity (a social media website), you get to nominate the 5 best residency programs. Will everyone really answer fairly? More importantly, can you even accurately answer this? How much do you really know about the training provided at emergency medicine (EM) residency programs other than the one you trained at? It is simply opinion with no scientific validity. Again, every GME office now wants alumni to sign up for Doximity because chances are that you'll vote for your own training program being among the top five (5). Mine really is. Really.
3. Objective data. Doximity states that this includes a "variety of public sources as well as our proprietary Doximity database". From my investigation, it seems a measurement of research output from alumni is the main data point here. This conveniently requires alumni to be members of Doximity, and for the profiles to contain a self-reported list of research activities.

There is clearly no validity to the Doximity rankings. As much as we all love lists (and I'm sure you're curious where your training program lands), it's fairly meaningless in my opinion. The EM community seems to agree as well. In September 2014, a letter signed by every major EM organization (ACEP, SAEM, AAEM, ACEOP, CORD, EMRA, etc.) representing 40,000 emergency physicians was sent to Doximity encouraging it to drop the "rankings" because, based on the methodology, it is just impossible to create a valid ranking of EM programs. Rankings of this kind (or any) are sure to do more harm than good.

During interview season, residency directors like me tell medical student applicants all over the country that clinical training will be excellent regardless of where they match, because the ACGME and RRC forces us all to maintain a high minimum standard. We then proceed to describe what makes us special (e.g. New York City location, PGY1-4, specialty tracks, etc.) in hopes that the courting will result in an ideal "match" for both sides. This process works and probably should continue.

Let's now entertain for a minute that most training programs are very good but some are significantly better. This is not an outlandish thought; in fact, an interesting study in JAMA[1] suggests that obstetrical programs can be stratified by maternal complication rates. It was found that graduates from the same program all aligned themselves into the same quintile; if you graduated from program X, your maternal complication rate was approximately 15% and if you graduated from program Y, it was 10%. Training program matters. At least statistically, one program trained you better than another.

Patient-important outcomes are the holy grail of medical education research. The JAMA study makes me believe that where you do your residency training probably does have an impact on the quality of physician you will become. If enough of these high quality data points can be generated, residency programs may very well be able to be ranked. One thing is for sure: Doximity does not have these data points and does not seem interested in gathering them. The methods used by Doximity are flawed and potentially detrimental to training programs and medical students. "Reputation" is simply a popularity contest. Let's remind our medical students (the future of EM) that until reliable rankings can be developed, they shouldn't put any weight into the "Residency Navigator".

References:

1. Asch D, Nicholson S, Srinivas S, Herrin J, Epstein A. Evaluating Obstetrical Residency Programs Using Patient Outcomes. JAMA. 2009; 302(12):1277-1283

NEW YORK STATE OF MIND

Compiled by:
Theodore J. Gaeta, DO MPH FACEP
Residency Program Director
New York Methodist Hospital

Appendicitis and Analgesia in the Pediatric Emergency Department: Are We Adequately Controlling Pain?

Delaney KM, Pankow A, Avner JR, Rabiner JE.; Division of Pediatric Emergency Medicine, Jacobi Medical Center/Albert Einstein College of Medicine, Bronx; Pediatr Emerg Care. 2015 Oct 13.

OBJECTIVES: The primary objective of the study was to compare analgesia-prescribing practices and timing of analgesia administration between pediatric emergency medicine (PEM) and general emergency medicine (GEM) practitioners for children with appendicitis. The secondary objective was to compare analgesia administration versus triage pain score, pediatric appendicitis score (PAS), and body mass index (BMI).

METHODS: This was a retrospective chart review of patients younger than 21 years who presented to either an urban pediatric emergency department (ED) or 2 general EDs and were diagnosed with appendicitis.

RESULTS: Two hundred eighteen charts were reviewed, 153 (70%) from the pediatric ED and 65 (30%) from the general EDs. The patients seen by PEM physicians were younger than the patients seen by GEM physicians (mean age, 12.8 vs 15.4 years; P = 0.002). The patients evaluated by GEM physicians were more likely to receive analgesia in the ED (82% vs 60%, P = 0.003) and received analgesia sooner (mean, 178 vs 239 minutes; P = 0.026) than the patients evaluated by PEM physicians. The patients with triage pain scores higher than 6 of 10 were more likely to receive analgesia than the patients with pain scores lower than 6 (71% vs 51%, P = 0.015). There was no association between PAS or BMI and analgesia administration or time to analgesia (P = not significant).

CONCLUSIONS: The patients with appendicitis evaluated by GEM physicians were more likely to receive analgesia and receive analgesia quicker than the patients evaluated by PEM physicians. The patients with higher pain scores were more likely to receive analgesia, but PAS and BMI did not affect analgesia administration.

Higher Success Rates and Satisfaction in Difficult Venous Access Patients With a Guide Wire-Associated Peripheral Venous Catheter.

Chiricolo G, Balk A, Raio C, Wen W, Mihailos A, Ayala S.; Department of Emergency Medicine, New York Methodist Hospital, Brooklyn; Am J Emerg Med. 2015 Aug 7.

STUDY OBJECTIVE: This study compares first pass success rates and patient and physician satisfaction scores of using a guide wire-associated peripheral venous catheter (GAPIV) vs a traditional peripheral venous catheter in difficult to obtain venous access patients.

METHODS: A total of 200 patients were enrolled prospectively from a convenience sample in a large urban academic emergency department. Patients were included when they were deemed difficult access per study criteria. Patients were alternated to receiving either a traditional peripheral venous catheter or a GAPIV. The number of attempts, the number of catheters used, and patient and physician satisfaction scores were recorded.

RESULTS: A total of 100 patients were enrolled into each group. First attempt success was 85% with GAPIV vs 22% with the traditional peripheral venous catheter (P < .0001). Sixty-two percent of patients required a second stick with the conventional catheter compared to 15% with the GAPIV. The average number of attempts overall for the GAPIV product was 1.2 with an SD of 0.4 attempts vs 1.9 and an SD of 0.6 attempts with the traditional peripheral venous catheter; P <.0001. Using a 5-point Likert scale, the GAPIV had a median patient satisfaction score of 5 at insertion compared with the traditional peripheral venous catheter score of 2; P < .0001. Median physician satisfaction with the GAPIV study device was 5 at time of insertion, compared to 3 for the traditional peripheral venous catheter.

CONCLUSION: The GAPIV product demonstrated significantly higher first attempt success and patient satisfaction compared to a traditional peripheral venous catheter in difficult to obtain venous access patients. Physician satisfaction was also favorable due to ease of access, time, and efficiencies gained.

Do Hemolyzed Potassium Specimens Need to be Repeated?

Khodorkovsky B, Cambria B, Lesser M, Hahn B.; Department of Emergency Medicine, Staten Island University Hospital, Staten; Island; J Emerg Med. 2014 Sep;47(3):313-7.

BACKGROUND: In the emergency department (ED), hyperkalemia in the presence of hemolysis is common. Elevated hemolyzed potassium levels are often repeated by emergency physicians to confirm pseudohyperkalemia and to exclude a life-threatening true hyperkalemia.

OBJECTIVES: We hypothesize that in patients with a normal renal function, elevated hemolyzed potassium, and normal electrocardiogram (ECG), there may not be a need for further treatment or repeat testing and increased length of stay.

METHODS: Data were prospectively enrolled patients presenting to the ED from July 2011 to February 2012. All adult subjects who had a hemolyzed potassium level ≥ 5.5 mEq/dL underwent a repeat potassium level and ECG. The incidence of true hyperkalemia in this population was measured.

RESULTS: A total of 45 patients were enrolled. The overall median age was 52 years (range 25-83 years); 22 were female (49%). In patients with hyperkalemia on initial blood draw and glomerular filtration rate (GFR) ≥ 60 (n = 45), the negative predictive value was 97.8% (95% confidence interval [CI] 88.2-99.9%). When patients had hyperkalemia on initial blood draw, GFR ≥ 60, and a normal ECG (n = 42), the negative predictive value was 100% (95% CI 93.1-100%).

CONCLUSIONS: In the setting of hemolysis, GFR ≥ 60 mL/min in conjunction with a

NEW YORK STATE OF MIND

normal ECG is a reliable predictor of pseudohyperkalemia and may eliminate the need for repeat testing. In patients with a normal GFR who are otherwise deemed safe for discharge, our results indicate there is no need for repeat testing.

Survey of Patient and Physician Influences and Decision-Making Regarding CT Utilization for Minor Head Injury.

Quaas J, Derrick B, Mitrani L, Baarbe S, Yarusi B, Wiener D, Newman D.; Department of Emergency Medicine, St. Luke's-Roosevelt Hospital, New York; Injury. 2014 Sep;45(9):1503-8.

OBJECTIVE: Assess factors that influence both the patient and the physician in the setting of minor head injury in adults and the decision-making process around CT utilization.
METHODS: This is a convenience sample survey study of adult minor head injury patients (GCS 15) and their physicians regarding factors influencing the decision to use CT to evaluate for intra-cranial haemorrhage. Once a head CT was ordered and before the results were known, both the patient and physician were given a one-page survey asking questions about their concern for injury and rationale for CT use. CT results and surveys were then recorded in a centralized database and analyzed.
RESULTS: 584 subjects were enrolled over the 27-month study period. The rate of any intra-cranial haemorrhage was 3.3%. Both the physicians (6% pre-test estimate) and the patients (22% pre-test estimate) over-estimated risk for haemorrhage. Clinical decision rules were not met in 46% of cases where CT was used. Physicians listed an average of 5 factors from a list of 9 that influenced their decision to order CT. Patients listed an average of 1.7 factors influencing their decision to present to the Emergency Department for evaluation. Many patients felt cost (45%) and low risk stratification (34%) should weigh heavily in the decision to use CT. If asked to limit CT utilization, physicians were able to identify a group with less than 2% risk of injury.
CONCLUSIONS: Patients with low risk of intra-cranial injury continue to be evaluated by CT. Physician decision-making around the use of CT to evaluate minor head injury is multi-factorial. Shared decision-making between the patient and the physician in a low risk minor head injury encounter shows promise as a method to reduce CT utilization in this low risk cohort.

Evaluation of a Liquid Dressing for Minor Nonbleeding Abrasions and Class I And II Skin Tears in the Emergency Department.

Singer AJ, Chale S, Taylor M, Domingo A, Ghazipura S, Khorasonchi A, Bienenfeld A.; Department of Emergency Medicine, Stony Brook University, Stony Brook; J Emerg Med. 2015 Feb;48(2):178-85.

BACKGROUND: Minor abrasions and skin tears are usually treated with gauze dressings and topical antibiotics requiring frequent and messy dressing changes.
OBJECTIVE: We describe our experience with a low-cost, cyanoacrylate-based liquid dressing applied only once for minor abrasions and skin tears.
METHODS: We conducted a single-center, prospective, noncomparative study in adult emergency department (ED) patients with minor nonbleeding skin abrasions and class I and II skin tears. After cleaning the wound and achieving hemostasis, the wounds were covered with a single layer of a cyanoacrylate liquid dressing. Patients were followed every 1-2 days until healing.
RESULTS: We enrolled 40 patients with 50 wounds including 39 abrasions and 11 skin tears. Mean (standard deviation) age was 54.5 (21.9) years and 57.5% were male. Wounds were located on the face (n = 16), hands (n = 14), legs (n = 11), and arms (n = 9). Pain scores (0 to 10 from none to worst) after application of the liquid dressing were 0 in 62% and 1-3 in the remaining patients. Follow-up was available on 36 patients and 46 wounds. No wounds re-bled and there were no wound infections. Only one wound required an additional dressing. Median (interquartile range [IQR]) time to complete sloughing of the adhesive was 7 (5.5-8) days. Median (IQR) time to complete healing and sloughing of the overlying scab was 10 (7.4-14) days.
CONCLUSIONS: Our study suggests that a single application of a low-cost cyanoacrylate-based liquid adhesive is a safe and effective treatment for superficial nonbleeding abrasions and class I and II skin tears that eliminates the need for topical antibiotics and dressings.

Emergency Department-Triggered Palliative Care in Advanced Cancer: Proof of Concept.

Kistler EA, Sean Morrison R, Richardson LD, Ortiz JM, Grudzen CR.; Department of Emergency Medicine, Icahn School of Medicine at Mount Sinai, New York; Acad Emerg Med. 2015 Feb;22(2):237-9.

BACKGROUND: The American College of Emergency Physicians and the American Society of Clinical Oncology recommend early palliative care consultation for patients with advanced, life-limiting illnesses, such as metastatic cancer.
OBJECTIVES: The objectives were to assess the process of early referral from the emergency department (ED) to palliative care for patients with advanced, incurable cancer as part of a randomized controlled trial and to compare the proportion and timing of consultation to a care as usual group.
METHODS: A single-blind randomized controlled trial (ClinicalTrials.gov ID NCT01358110) compared early, ED-based referrals to palliative care for patients admitted with advanced, incurable cancer to physician-driven consultation (i.e., care as usual). Participants had to speak English or Spanish and have no history of palliative care consultation. They were randomized via balanced block randomization to the intervention or control group. Each intervention subject was referred by a research staff member to the palliative care team for consultation. The usual care group received palliative care only if requested by the admitting physician. Analysis was based on intention to treat. A chart review was performed to assess proportion and timing of palliative care consults during the index admission, defined as: (1) completed palliative care consult documented in the chart and (2) days from admission to palliative care consult.
RESULTS: A total of 134 participants were enrolled and randomized. For patients in the intervention group, 88% (60 of 68) had documented palliative care consultations during their index admissions (95% confidence interval [CI] = 80.5 to 95.5), compared to 18% (12 of 66) in the control group (95% CI = 8.8 to 27.5; $p < 0.01$). The 60 intervention patients received palliative care consultations on average 1.48 days from admission (95% CI = 1.19 to 1.76), compared to 2.9 days from admission in the 12 control patients (95% CI = 1.03 to 4.79; $p = 0.15$).
CONCLUSIONS: This study documented a low baseline rate of palliative care involvement as part of usual care in patients with advanced cancer being admitted from the ED. Early referral to palliative care in the context of a research study significantly increased the likelihood that patients received a consult, thus meriting further investigation of how to generalize this approach.

Determining the Utility of Metabolic Acidosis for Trauma Patients in the Emergency Department.

Summersgill A, Kanter M, Fraser RM, Caputo ND, Simon R.; Department of Emergency Medicine,

NEW YORK STATE OF MIND

Lincoln Medical and Mental Health Center, Bronx; J Emerg Med. 2015 Jun;48(6):693-8.

BACKGROUND: Metabolic acidosis has been proposed as the gold standard to define shock in trauma patients. Other studies determine the presence of shock by use of serum lactate. However, not all medical centers have the ability to utilize point-of-care lactate at bedside.

OBJECTIVE: This study seeks to determine the relationship between serum lactate and metabolic acidemia in trauma patients, and if metabolic acidemia can be used to guide therapy. We hypothesized that acidemia would be strongly correlated with lactate levels and would be associated with activation of massive transfusion (MT) in the presence of shock in trauma.

METHODS: This was a prospective observational cohort study, level II evidence; this study aids in decision-making. Setting was a Level I academic, urban trauma center. The study took place from July 1, 2012 to March 1, 2013 and included patients who were ≥18 years old and required trauma team activation. Observations included baseline demographics (age, gender, type of injury), vital signs, point-of-care arterial blood gas, lactate, and need for MT.

RESULTS: One hundred patients were enrolled over the study period. The average age was 34 years, and 82% were male. Forty patients were acidemic (pH < 7.35), and there was a significant difference in lactate levels between the acidemic and non-acidemic groups ($p < 0.002$). We found a strong correlation between pH and lactate: $rs = -0.38$, $t = -4.03$, $p < 0.001$. In addition, using a logistic regression, we show that pH was associated with activation of MT ($p = 0.002$).

CONCLUSION: This is a prospective observational cohort study with level II evidence. This study demonstrates that acidemia was strongly correlated to serum lactate, lactate levels were higher in the acidemic group, and metabolic acidemia was associated with the activation of MT for trauma patients at our institution.

Emergency Department Bouncebacks: Is Lack of Primary Care Access the Primary Cause?

Moskovitz JB, Ginsberg Z.; Department of Emergency Medicine, Hofstra North Shore-LIJ School of Medicine, Hempstead; J Emerg Med. 2015 Jul;49(1):70-77.

BACKGROUND: National emergency department (ED) bounceback rates within 30 days of previous ED discharge have been found to be as high as 26%. We hypothesize that having a primary care physician (PCP) would prevent bouncebacks to the ED because a patient would have a medical resource for follow-up and continued care.

METHODS: We performed a prospective, consecutive, anonymous survey study of adult ED patients at a suburban teaching hospital with 88,000 visits annually, from July 5, 2011 through August 8, 2011. Using chi-squared and Fisher's exact tests, we compared patients with an initial visit to those returning within 30 days of a previous visit to our ED.

RESULTS: We collected 1,084 surveys. Those in the bounceback group were more likely to have no insurance (10.2% vs. 4.4%) or Medicaid (17.7% vs. 10.8%) and less likely to have a PCP (79% vs. 86%). Of those with a PCP, 9% in both groups had seen their PCP that day, 58% (initial visit) and 49% (bouncebacks) could have been seen that day, and 35% & 36%, respectively, within 1 week. Of those with a PCP, 38% of initial visits and 32% of bouncebacks stated they had already seen their physician at least once.

CONCLUSION: Our results suggest that patients who bounce back to the ED might have already contacted their PCP. Although insurance status and the lack thereof predict a higher likelihood to bounce back to the ED, many bouncebacks are insured patients with PCPs able to be seen the same day.

Clinical Risk Factors for In-Hospital Adverse Cardiovascular Events After Acute Drug Overdose.

Manini AF, Hoffman RS, Stimmel B, Vlahov D.; Division of Medical Toxicology, Icahn School of Medicine at Mount Sinai, New York; Acad Emerg Med. 2015 May;22(5):499-507.

OBJECTIVES: It was recently demonstrated that adverse cardiovascular events (ACVE) complicate a high proportion of hospitalizations for patients with acute drug overdoses. The aim of this study was to derive independent clinical risk factors for ACVE in patients with acute drug overdoses.

METHODS: This prospective cohort study was conducted over 3 years at two urban university hospitals. Patients were adults with acute drug overdoses enrolled from the ED. In-hospital ACVE was defined as any of myocardial injury, shock, ventricular dysrhythmia, or cardiac arrest.

RESULTS: There were 1,562 patients meeting inclusion/exclusion criteria (mean age, 41.8 years; female, 46%; suicidal, 38%). ACVE occurred in 82 (5.7%) patients (myocardial injury, 61; shock, 37; dysrhythmia, 23; cardiac arrests, 22) and there were 18 (1.2%) deaths. On univariate analysis, ACVE risk increased with age, lower serum bicarbonate, prolonged QTc interval, prior cardiac disease, and altered mental status. In a multivariable model adjusting for these factors as well as patient sex and hospital site, independent predictors were: QTc > 500 msec (3.8% prevalence, odds ratio [OR] = 27.6), bicarbonate < 20 mEq/L (5.4% prevalence, OR = 4.4), and prior cardiac disease (7.1% prevalence, OR = 9.5). The derived prediction rule had 51.6% sensitivity, 93.7% specificity, and 97.1% negative predictive value, while presence of two or more risk factors had 90.9% positive predictive value.

CONCLUSIONS: The authors derived independent clinical risk factors for ACVE in patients with acute drug overdose, which should be validated in future studies as a prediction rule in distinct patient populations and clinical settings.

Ultrasound Findings of the Elbow Posterior Fat Pad in Children With Radial Head Subluxation.

Rabiner JE, Khine H, Avner JR, Tsung JW.; Division of Pediatric Emergency Medicine, Children's Hospital at Montefiore, Albert Einstein College of Medicine, Bronx; Pediatr Emerg Care. 2015 May;31(5):327-30.

OBJECTIVE: The aim of this study was to determine whether elbow ultrasound findings of the posterior fat pad (PFP) are present in patients with diagnosis of radial head subluxation (RHS).

METHODS: This was a prospective study of children presenting to an urban pediatric emergency department diagnosed clinically with RHS. Physicians received a 1-hour training session on musculoskeletal ultrasound including the elbow.

Before performing reduction for RHS, the physicians performed a brief, point-of-care elbow ultrasound using a high-frequency linear transducer probe in both longitudinal and transverse views to evaluate for PFP elevation and lipohemarthrosis (LH). Successful clinical reduction with spontaneous movement of injured extremity served as the criterion standard for RHS. Clinical telephone follow-up was performed to ascertain outcomes.

RESULTS: Forty-two patients were enrolled with a mean age of 22.3 (11.8) months. The mean time to presentation was 7 (9.2) hours, and 9/42 (21%) children had previous history of RHS. The majority of patients (35/42, 83%; 95% confidence interval (CI), 69%-92%) had

ROCHESTER
REGIONAL HEALTH

PASSIONATE WORK. GREAT REWARDS.

Opportunities for Board-Certified Emergency Medicine Physicians

- Generous sign-on bonus
- Competitive base salary
- Performance-based pay incentives
- Full-time scribe support
- Generous retirement benefits
- Leadership/advancement opportunities
- Credentialed at five system-wide EDs
- Relocation package
- Affordable living throughout the Western New York region

Care for a diverse, mixed-patient population at our five fast-paced, state-of-the-art Emergency Department locations in greater Rochester, Genesee County and the Finger Lakes region.

Apply Today

rochesterregionalhealth.org/careers

Forbes | 2015 AMERICA'S BEST EMPLOYERS POWERED BY STATISTA

Connect with us

Rochester Regional Health is an Equal Opportunity/ Affirmative Action Employer. Minority/Female/Disability/Veteran

NEW YORK STATE OF MIND

a normal elbow ultrasound. Of 42 patients, 6 (14%;95% CI 6%-28%) had an elevated PFP and 2 (5%; 95% CI, 0.5%-17%) had LH. Clinical reduction was successful in 100% of patients, and there were no complications reported on follow-up.

CONCLUSIONS: The majority of children with RHS have a normal PFP on elbow ultrasound, but elevated PFP and LH are possible findings. Reduction maneuvers for RHS may be attempted in patients with a normal elbow ultrasound when the diagnosis of RHS or elbow fracture is uncertain.

National Trends in Resource Utilization Associated With ED Visits for Syncope.

Probst MA, Kanzaria HK, Gbedemah M, Richardson LD, Sun BC.; Department of Emergency Medicine, Icahn School of Medicine at Mount Sinai; Am J Emerg Med. 2015 Aug;33(8):998-1001.

BACKGROUND: Over the last 20 years, numerous research articles and clinical guidelines aimed at optimizing resource utilization for emergency department (ED) patients presenting with syncope have been published.

HYPOTHESIS: We hypothesized that there would be temporal trends in syncope-related ED visits and associated trends in imaging, hospital admissions, and diagnostic frequencies.

METHODS: The ED component of National Hospital Ambulatory Medical Care Survey was analyzed from 2001 through 2010, comprising more than 358000 visits (representing an estimated 1.18 billion visits nationally). We selected ED visits with a reason for visit of syncope or fainting and calculated nationally representative weighted estimates for prevalence of such visits and associated rates of advanced imaging utilization and admission. For admitted patients from 2005 to 2010, the most frequent hospital discharge diagnoses were tabulated.

RESULTS: During the study period, there were more than 3,500 actual ED visits (representing 11.9 million visits nationally) related to syncope, representing roughly 1% of all ED visits. Admission rates for syncope patients ranged from 27% to 35% and showed no significant downward trend (P = .1). Advanced imaging rates increased from about 21% to 45% and showed a significant upward trend (P < .001). For admitted patients, the most common hospital discharge diagnosis was the symptomatic diagnosis of "syncope and collapse" (36.4%).

CONCLUSIONS: Despite substantial efforts by medical researchers and professional societies, resource utilization associated with ED visits for syncope appears to have actually increased. There have been no apparent improvements in diagnostic yield for admissions. Novel strategies may be needed to change practice patterns for such patients.

Diltiazem vs. Metoprolol in the Management of Atrial Fibrillation or Flutter with Rapid Ventricular Rate in the Emergency Department.

Fromm C, Suau SJ, Cohen V, Likourezos A, Jellinek-Cohen S, Rose J, Marshall J. Department of Emergency Medicine, Maimonides Medical Center, Brooklyn; J Emerg Med. 2015 Aug;49(2):175-82.

BACKGROUND: Diltiazem (calcium channel blocker) and metoprolol (beta-blocker) are both commonly used to treat atrial fibrillation/flutter (AFF) in the emergency department (ED). However, there is considerable regional variability in emergency physician practice patterns and debate among physicians as to which agent is more effective. To date, only one small prospective, randomized trial has compared the effectiveness of diltiazem and metoprolol for rate control of AFF in the ED and concluded no difference in effectiveness between the two agents.

OBJECTIVE: Our aim was to compare the effectiveness of diltiazem with metoprolol for rate control of AFF in the ED.

METHODS: A convenience sample of adult patients presenting with rapid atrial fibrillation or flutter was randomly assigned to receive either diltiazem or metoprolol. The study team monitored each subject's systolic and diastolic blood pressures and heart rates for 30 min.

RESULTS: In the first 5 min, 50.0% of the diltiazem group and 10.7% of the metoprolol group reached the target heart rate (HR) of <100 beats per minute (bpm) ($p < 0.005$). By 30 min, 95.8% of the diltiazem group and 46.4% of the metoprolol group reached the target HR < 100 bpm ($p < 0.0001$). Mean decrease in HR for the diltiazem group was more rapid and substantial than that of the metoprolol group. From a safety perspective, there was no difference between the groups with respect to hypotension (systolic blood pressure < 90 mm Hg) and bradycardia (HR < 60 bpm).

CONCLUSIONS: Diltiazem was more effective in achieving rate control in ED patients with AFF and did so with no increased incidence of adverse effects.

The Baseline Diameter of the Inferior Vena Cava Measured by Sonography Increases With Age in Normovolemic Children.

Kathuria N, Ng L, Saul T, Lewiss RE.; Department of Emergency Medicine, Mount Sinai St Luke's-Roosevelt Hospital Center, New York; J Ultrasound Med. 2015 Jun;34(6):1091-6.

OBJECTIVES: To evaluate normative sonographic measurements of the inferior vena cava (IVC) diameter in healthy pediatric patients.

METHODS: We performed a prospective observational study of a convenience sample of healthy patients between the ages of 0 and 22 years presenting to a pediatric emergency department. Exclusion criteria included abnormal vital signs, pregnancy, or illnesses thought to influence volume status. During quiet respiration, the maximum and minimum IVC diameters were measured in the sagittal plane distal to the hepatic vein-IVC junction. As second measurements, the maximum diameters of the IVC and aorta were measured in the transverse plane distal to the insertion of the left renal vein into the IVC.

RESULTS: From February 2013 through April 2014, 63 children (51% female; mean age, 11 years) were enrolled. There were 20 children in each age group of 2 to 7, 7 to 12, and 12 to 22 years. The correlations between IVC and aortic diameters as a function of age were calculated using the Spearman rank correlation coefficient. The correlation coefficients were all statistically significant (P <.001): sagittal maximum IVC diameter (0.81), sagittal minimum IVC diameter (0.79), transverse maximum IVC diameter (0.79), and transverse maximum aortic diameter (0.81).

CONCLUSIONS: This pilot study of sonographic measurements of the IVC diameter in normovolemic children suggests a statistically significant positive correlation between age and IVC diameter. Future studies should focus on multicenter enrollment, children in the youngest age group, and the development of normative growth curves for the IVC by age, sex, and body mass index.

Rapid Diagnosis of Nonconvulsive Status Epilepticus Using Reduced-Lead Electroencephalography.

Brenner JM, Kent P, Wojcik SM, Grant W.; State University of New York Upstate Medical University, Departments of Emergency Medicine and Neurology, Syracuse; West J Emerg Med. 2015 May;16(3):442-6.

INTRODUCTION: Electroencephalography (EEG) is indicated for diagnosing nonconvulsive status epilepticus (NCSE) in a patient who has altered level of consciousness after a motor seizure. A study in a neonatal population found 94% sensitivity and 78% specificity for detec-

NEW YORK STATE OF MIND

tion of seizure using a single-lead device. This study aims to show that a reduced montage EEG would detect 90% of seizures detected on standard EEG.

METHODS: A portable Brainmaster EEG device was available in the emergency department (ED) at all times. Patients presenting to the ED with altered mental status and known history of seizure or a witnessed seizure having a standard EEG were eligible for this study. The emergency physician obtained informed consent from the legally authorized representative (LAR), while an ED technician attached the electrodes to the patient, and a research associate attached the electrodes to the wiring routing to the portable EEG module. A board-certified epileptologist interpreted the tracings via the Internet. Simultaneously, the emergency physician ordered a standard 23-lead EEG, which would be interpreted by the neurologist on call to read EEGs. We compared the epileptologist's interpretation of the reduced montage EEG to the results of the 23-lead EEG, which was considered the gold standard for detecting seizures.

RESULTS: Twelve of 12 patients or 100% had the same findings on reduced-montage EEG as standard EEG. One of 12 patients or 8% had nonconvulsive seizure activity.

CONCLUSION: The results are consistent with prior studies which have shown that 8-48% of patients who have had a motor seizure continue to have nonconvulsive seizure activity on EEG. This study suggests that a bedside reduced-montage EEG can be used to make the diagnosis of NCSE in the ED. Further study will be conducted to see if this technology can be applied to the inpatient neurological intensive care unit setting.

Saline Flush Test: Can Bedside Sonography Replace Conventional Radiography for Confirmation of Above-the-Diaphragm Central Venous Catheter Placement.

Gekle R, Dubensky L, Haddad S, Bramante R, Cirilli A, Catlin T, Patel G, D'Amore J, Slesinger TL, Raio C, Modayil V, Nelson M.; Department of Emergency Medicine, North Shore University Hospital, Manhasset; ? J Ultrasound Med. 2015 Jul;34(7):1295-9.

OBJECTIVES: Resuscitation often requires rapid vascular access via central venous catheters. Chest radiography is the reference standard to confirm central venous catheter placement and exclude complications. However, radiographs are often untimely. The purpose of this study was to determine whether dynamic sonographic visualization of a saline flush in the right side of the heart after central venous catheter placement could serve as a more rapid confirmatory study for above-the-diaphragm catheter placement.

METHODS: A consecutive prospective enrollment study was conducted in the emergency departments of 2 major tertiary care centers. Adult patients of the study investigators who required an above-the-diaphragm central venous catheter were enrolled during the study period. Patients had a catheter placed with sonographic guidance. After placement of the catheter, thoracic sonography was performed. The times for visualization of the saline flush in the right ventricle and sonographic exclusion of ipsilateral pneumothorax were recorded. Chest radiography was performed per standard practice.

RESULTS: Eighty-one patients were enrolled; 13 were excluded. The mean catheter confirmation time by sonography was 8.80 minutes (95% confidence interval, 7.46-10.14 minutes). The mean catheter confirmation time by chest radiograph availability for viewing was 45.78 minutes (95% confidence interval, 37.03-54.54 minutes). Mean sonographic confirmation occurred 36.98 minutes sooner than radiography (P< .001). No discrepancy existed between sonographic and radiographic confirmation.

CONCLUSIONS: Confirmation of central venous catheter placement by dynamic sonographic visualization of a saline flush with exclusion of pneumothorax is an accurate, safe, and more efficient method than confirmation by chest radiography. It allows the central line to be used immediately, expediting patient care.

Comparative Analgesic Efficacy of Oxycodone/Acetaminophen vs Codeine/Acetaminophen for Short-Term Pain Management Following ED Discharge.

Chang AK, Bijur PE, Lupow JB, Gallagher EJ.; Department of Emergency Medicine, Albert Einstein College of Medicine, Montefiore Medical Center, Bronx. Pain Med. 2015 Jul 14.

OBJECTIVE: To test the hypothesis that oxycodone/acetaminophen provides analgesia superior to codeine/acetaminophen following emergency department (ED) discharge.

DESIGN: Prospective, randomized, double-blind, trial.

SETTING: Adult inner city ED.

SUBJECTS: ED patients with acute extremity pain who were discharged home.

METHODS: Patients randomized to oxycodone/acetaminophen (5 mg/325 mg) or codeine/acetaminophen (30 mg/300 mg). The primary outcome, obtained via telephone one day after ED discharge, was the between-group difference in improvement in numerical rating scale (NRS) pain scores over a 2-hour period following the most recent ingestion of study drug. Secondary outcomes included proportion of patients with >50% pain reduction, side-effect profile, and patient satisfaction.

RESULTS: Two hundred and forty patients were enrolled. Mean baseline NRS scores were 7.9 in both groups. Mean decrease over 2 hours was 4.5 NRS units in the oxycodone/acetaminophen group vs 4.2 NRS units in the codeine/acetaminophen group, for a clinically and statistically nonsignificant difference of 0.2 NRS units (95% CI -0.4-0.9 NRS units). Similarly, 66% vs 61% achieved >50% pain relief for a nonsignificant difference of 5% (95% CI -8% to 17%). Side-effect profile and patient satisfaction were similar.

CONCLUSION: Our hypothesis that oxycodone/acetaminophen provides analgesia superior to codeine/acetaminophen was rejected. Although pain within each group was reduced by more than half, the between-group difference was not significant. Pending independent validation, these unexpected findings suggest that codeine/acetaminophen, a Schedule III agent, may be a clinically reasonable outpatient opioid alternative to oxycodone/acetaminophen, a more tightly restricted Schedule II agent thought to be more prone to misuse.

Predictors of Clinically Significant Radiographic Shoulder Pathology in the Emergency Department.

Hahn B, Youssef E, Shah S, Scibilia M, Lesser M.; Department of Emergency Medicine, Staten Island University Hospital, Staten Island; J Emerg Med. 2015 Oct;49(4):424-8.

BACKGROUND: Although there are no clinical decision rules for radiograph use among persons with shoulder pain, they are ordered for most patients. Previously published reviews have demonstrated that radiography is overutilized in evaluating emergency department (ED) patients with shoulder pain, and clinical factors might define patients in whom plain film radiography need not be performed.

OBJECTIVES: The objectives of this study were to identify predictors of clinically significant shoulder pain and develop a clinical decision radiograph-ordering rule for adult ED patients with shoulder pain.

METHODS: Records from adult ED visits resulting in shoulder radiographs were reviewed. Potential predictors of clinically significant shoulder pain were then identified. Univariate screening was performed to find variables

NEW YORK STATE OF MIND

associated with injury and were subsequently included in a multivariable prediction model.

RESULTS: Five of the predetermined factors were found to be associated with the likelihood of injury: history of trauma, range of motion, deformity, age, and duration of pain. Receiver operating characteristics revealed an area under the curve of 80%.

CONCLUSIONS: Despite accounting for multiple variables, the area under the curve was 80%. Based on these results it is not practical to develop clinical decision radiograph ordering rules for ED patients with shoulder pain.

Impact of In-Hospital Timing to Appendectomy on Perforation Rates in Children with Appendicitis.

Bonadio W, Brazg J, Telt N, Pe M, Doss F, Dancy L, Alvarado M.; Department of Emergency Medicine, Maimonides Medical Center, Brooklyn; J Emerg Med. 2015 Jul 10.

BACKGROUND: There is controversy regarding whether in-hospital time delay to appendectomy in children with appendicitis affects risk for perforation.

OBJECTIVE: Our aim was to evaluate the impact of time delay from emergency department (ED) presentation to operating room (OR) appendectomy on rates of developing appendiceal perforation in children who present with computed tomography (CT)-confirmed, uncomplicated (no radiographic evidence of perforation) appendicitis.

METHODS: We conducted a retrospective case review of 248 consecutive children aged ≤18 years with CT-confirmed uncomplicated appendicitis during a 4-year period.

RESULTS: There were 149 males and 99 females, all received subsequent appendectomy. Despite all receiving ED parenteral antibiotic therapy, 54 (22%) developed in-hospital appendiceal perforation (surgeon operative observation or pathologist histologic analysis). No patient developed perforation when appendectomy was performed within 9 h after ED presentation; the rate of perforation was approximately sixfold greater in those with in-hospital delay >9 h (25%) vs. ≤9 h (4.6%). The rate of developing perforation increased to 21% during hours 9-24, and 41% after 24 h. Regression analysis showed three factors were significantly associated with developing perforation: longer mean time delay from ED presentation to OR appendectomy, presence of fever, and presence of an appendicolith. The risk for developing perforation increased by 1.10 for each hour of time delay from ED presentation to OR appendectomy; the estimated odds ratios for developing perforation per interval of in-hospital delay were 2.05 at 8 h, 4.22 at 16 h, and 8.67 at 24 h.

CONCLUSIONS: Increasing in-hospital time delay from ED presentation to OR appendectomy is associated with increased risk for developing appendiceal perforation in children who present with CT-documented uncomplicated appendicitis. Risk is approximately sixfold greater in those who experience delay >9 h vs. those whose delay is ≤9 h. Antibiotic therapy does not reliably prevent progression of the disease. Appendectomy should be considered an urgent procedure to maximize outcomes and prevent complications associated with appendix perforation.

Prehospital Stroke Identification: Factors Associated with Diagnostic Accuracy.

Brandler ES, Sharma M, McCullough F, Ben-Eli D, Kaufman B, Khandelwal P, Helzner E, Sinert RH, Levine SR.; Department of Emergency Medicine, State University of New York at Stony Brook, Stony Brook; J Stroke Cerebrovasc Dis. 2015 Sep;24(9):2161-6.

BACKGROUND: Stroke patients misdiagnosed by emergency medical services (EMS) providers have been shown to receive delayed in-hospital care. We aim at determining the diagnostic accuracy of Fire Department of New York (FDNY) EMS providers for stroke and identifying potential reasons for misdiagnosis.

METHODS: Prehospital care reports of all patients transported by FDNY EMS to 3 hospitals from January 1, 2010, to December 31, 2011, were compared against the American Heart Association Get With The Guidelines (GWTG) database (reference standard) for the diagnosis of stroke. Age-adjusted logistic regression models were generated to explore prehospital patient characteristics which are associated with stroke misdiagnosis.

RESULTS: Of 72,984 patient transports during the study period, 750 had a GWTG diagnosis of stroke, 468 (62%) of which were identified correctly in the field and 282 (38%) were missed. An additional 268 patients were misdiagnosed as stroke when in fact they had an alternative diagnosis. Overall sensitivity was 62.4% (95% confidence interval [CI], 58.9-65.8) and specificity was 99.6% (95% CI, 99.6-99.7). No patients who presented with unilateral weakness, facial weakness, or speech problems were missed, whereas patients with atypical complaints like general malaise, dizziness, and headache were more likely to be missed. Seizures led the EMS providers to both overcall a stroke and miss the diagnosis.

CONCLUSIONS: FDNY EMS care providers missed more than a third of stroke cases. Seizures and other atypical presentations contribute significantly to stroke misdiagnosis in the field. Our findings highlight the need for better prehospital stroke identification methods.

Hazards with Ordering Troponin in Patients With Low Pretest Probability of Acute Coronary Syndrome.

Talebi S, Ferra RM, Tedla S, DeRobertis A, Garofoli AC, Visco F, Pekler G, Hassen GW.; Emergency Department, New York Medical College, Metropolitan Hospital, New York; Am J Emerg Med. 2015 Sep;33(9):1258-60.

BACKGROUND: In clinical practice, we progressively rely on biomarkers, without estimating the pretest probability. There is not enough support for the use of cardiac troponin (cTn) I in the management of noncardiac patients. We studied the rate at which this test was ordered, the prevalence of detection of a positive result in noncardiac patients, and the impact of this incidental finding on clinical management.

METHODOLOGY: Patients admitted from December 2011 to 2013 to our community hospital with diagnosis of noncardiac disease who had positive cTn were included. Data collected included final diagnosis, patient disposition, cardiac monitoring, cardiology consult, and cardiac biomarker testing.

RESULTS: Cardiac troponin I was ordered for 1700 patients in our emergency department. Seven hundred fifty patients had a positive cTn. Of the 750 patients, 412 had a positive cTn without any clinical suspicion of an acute coronary syndrome. An incidental finding of a positive cTn leads to ordering of cTn on average 4 times during admission, cardiac monitoring of 379 (91.99%) patients for at least 1 day, and a cardiac consultation for 268 (63.65%) of these patients. None of these patients was candidates for an invasive cardiac intervention. Seventy-eight (19.17%) patients were admitted to the cardiac care unit and subsequently transferred to the medical intensive care unit.

CONCLUSIONS: A positive cTn in patients diagnosed with a nonacute coronary syndrome was associated with increased cardiac biomarker testing, telemetry monitoring, and cardiology consults. This study supports adherence to national guidelines for the use of cTn, to reduce hospital cost and resource utilization.

DO YOU KNOW A WORTHY CANDIDATE?

Who will you Nominate?

Every year New York ACEP honors individuals for their contributions to the advancement of emergency care in New York State.

Nominees are reviewed and screened by the Awards Committee and recipients selected by the Board of Directors by majority vote.

As Chair of the New York ACEP Awards Committee, I am seeking nominations for the following awards by January 4, 2016:

- **Advancing Emergency Care**
- **Edward W. Filmore Lifetime Achievement**
- **Leadership in Government**
- **National Leadership**
- **Physician of the Year**

Award recipients will be announced at the New York ACEP annual meeting help in conjunction with the Scientific Assembly at the Sagamore Resort on Lake George Thursday, July 7, 2016.

Brahim Ardolic, MD FACEP
Chair, New York ACEP Awards Committee

Call for Board and Councilor Nominations

Deadline: April 2, 2016

Active members of New York ACEP interested in serving on the Board of Directors or as a New York ACEP Councilor are encouraged to submit their nominations to the 2016 Nominating Committee for consideration as the Committee develops the slate of candidates.

Young Physician and Resident Leadership and Advocacy Award

This Award was created to promote leadership and to advance political action and advocacy among emergency physicians through attendance at the ACEP Legislative Advocacy Conference and Leadership Summit, ***May 15 - 18, 2016*** at the Grand Hyatt in Washington, DC.

For more information visit:
nyacep.org

New York
American College of Emergency Physicians

PEDIATRICS

Blunt Chest Trauma in the Pediatric Patient: When to CT?

Denis R. Pauzé
MD FACEP FAAP
Vice Chair for Operations
Associate Professor of Emergency Medicine and Pediatrics, Department of Emergency Medicine, Albany Medical Center

Case 1: A 9 year old boy is the rear seat unrestrained passenger in a car that swerved off the road and hit a telephone pole. EMS reported the approximate speed of the car at 30 mph. The boy has no complaints. He has normal vital signs. There is no evidence of chest bruising. Lung sounds are clear. He has normal radial pulses. His GCS is 15. Chest x-ray reveals a first rib fracture. The mediastinum and aortic knob are normal. The rest of the x-ray is negative.

Case 2: A 5 year old girl arrives in your trauma bay after being kicked in the chest by a horse. Initial O2 sats are 82%. She is normotensive but tachycardic. She has altered mental status. There is a large bruise on the anterior chest wall. Chest x-ray reveals significant bilateral pulmonary contusions with pneumomediastinum and a moderate size left hemopneumothorax. Shortly after arrival, she needs to be intubated.

Case 3: A 15 month old toddler falls two stories. He arrives unconscious. He is tachycardic and hypotensive. He has an obvious left femur deformity. He has bilateral pulmonary contusions and multiple rib fractures on chest xray.

Case 4: A 7 month infant presents with respiratory complaints. You notice bruising on the back of the neck and around the scapula. Chest x-ray is negative. You are concerned for abuse.

Trauma is a leading cause of death in the pediatric patient. Injuries to the head, chest, and abdomen represent common areas of injury which may result in significant morbidity and mortality. Rapid diagnosis of significant and life threatening injuries remains a priority in the trauma bay. CT scans, because of their availability and ease of use, represent the gold standard in trauma radiography. Unfortunately, exposure to high dose radiation in the young patient represents a potential concern for future malignancy. How does one balance the need for clinical efficiency, complete diagnosis and "not missing any injuries" with the risk of radiation exposure in the pediatric patient? We look at blunt injuries to the pediatric chest and discuss indications for chest CT.

Pediatric chest trauma is associated with significant morbidity and mortality. When combined with injuries to the head and/or abdomen, mortality rates increase. Pulmonary contusion, rib fractures, pneumothorax, and hemothorax represent common injuries to the pediatric chest. Holmes and colleagues looked at the prevalence of thoracic injuries in 986 pediatric patients after blunt trauma (see Figure 1). Of the 986 patients enrolled, 80 patients (8%) had thoracic injuries. The most common injuries were pulmonary contusion and rib fractures. Less common injuries included; cardiac injury (5/986), aortic injury (2/986) and diaphragmatic injury (1/986).

Rapid and accurate diagnosis in the trauma bay is important for the care of our pediatric patients. CT scan is a commonly used tool for these patients---it is fast, efficient, and represents the gold standard in trauma radiography. However, exposure to high dose CT radiation in the young patient represents a concern for future malignancy. There has been a national movement to minimize radiation exposure in our pediatric patients. How does one balance the need for complete and accurate diagnosis (i.e. not missing an injury) with the risks of significant radiation exposure?

First, let's take a look at some interesting articles. (For more detail and analysis, please take a closer look at these articles. Due to space considerations, for some articles I have only listed the author's conclusion).

Chest CT=CCT; Chest x-ray= CXR

Chest computed tomography imaging for blunt pediatric trauma: not worth the radiation risk.

Holscher CM, Faulk LW, Moore EE et.al. J Surg Res 2013 Sep;184(1):352-7

These authors hypothesized that CCT in the pediatric trauma patient rarely adds useful information when compared to a chest x-ray. Over a five year period, they retrospectively reviewed 174 children that had a CT scan performed, 57 of which had a CCT completed. 55/57 patients had a CXR in addition to the CCT. As expected, CCT found abnormalities in 83% of scans, whereas CXR only found 51% abnormalities. No patients had aortic injuries. Four children had thoracic vertebral injuries, none diagnosed on chest x-ray. The authors did find a significant difference with CT scan when diagnosing pulmonary contusions, pneumothoraces, rib fractures, and clavicle fractures. But, did it make a difference in outcome or intervention? For the children that needed a chest tube, all pneumothoraces were identified on CXR. The authors concluded *"We recommend selective use of CCT, particularly in the presence of an abnormal mediastinal silhouette on CXR after a significant deceleration injury."*

Chest x-ray as a screening tool for blunt thoracic trauma in children.

Yanchar NL, Woo K, Brennan M et. al. J Trauma Acute Care Surg 2013; Vol 75 No 4. Pages 613-619

This was a retrospective multicenter cohort study of pediatric patients with blunt chest trauma. The authors wanted to determine if CXR could screen for significant thoracic injuries. They looked at 425 pediatric patients, and 174 had a CCT. 170 patients had a thoracic injury. Nine patients with thoracic injury had a normal chest x-ray. Eight of the injuries missed by CXR were occult pneumothoraces or hemathoraces and none required a chest tube. The one major miss by a normal CXR was a patient that was struck by an object and had an atrial disruption. A FAST study suggested hemopericardium and was confirmed on CT scan.

What is the clinical significance of chest CT when the chest x-ray result is normal in patients with blunt trauma?

Kea B, Gamarallage R et. al; Am J of EM 31 (2013) 1268-1273.

PEDIATRICS

This article looked at patients with a normal CXR and abnormality seen on CCT. The authors concluded "Chest CT after a normal CXR result in patients with blunt trauma detects injuries; but most do not lead to changes in patient management."

Derivation of a Decision Instrument for Selective Chest Radiography in Blunt Trauma.

Rodriguez, Robert M. MD; Hendey, Gregory W. MD; Mower, William MD, PhD; Kea, Bory MD; Fortman, Jonathan BS; Merchant, Guy BA; Hoffman, Jerome R. MD, MA.

These authors came up with a decision instrument of 7 criteria that can help identify major thoracic injury in patients greater than 14 years of age. They are chest pain, distracting injury, chest tenderness, age > 60, rapid deceleration, intoxication, and AMS.

Whole body computed tomographic scanning leads to better survival as opposed to selective scanning in trauma patients: a systemic review and meta analysis.

Cauputo ND, Stahmer C, Lim G and Shah K. J Trauma Acute Care Surg 2014 Oct 77(4) 534-539.

These authors looked at whether whole body CT scan (WBCT) detects more significant injuries then selective scanning. This was a meta-analysis that looked at over 25,000 patients. The authors concluded "Despite the WBCT group having significantly higher ISS at baseline compared with the group who received selective scanning, the WBCT group had a lower overall mortality rate and a more favorable pooled odds ratio for trauma patients. This suggests that in terms of overall mortality, WBCT scan is preferable to selective scanning in trauma patients."

So, when do we CT?

Many clinicians would agree that there is no easy answer to this question. One must take into account risk of (significant) missed injuries with radiation exposure. No one wants to miss an aortic injury in a young child (or anyone for that matter). Chest CT is more sensitive than CXR for picking up injuries--- and has the advantage of diagnosing an aortic injury, a tracheobronchial disruption, a ruptured diaphragm, or an actively bleeding vessel. Clinicians should take into account mechanism of injury, physical exam evaluation, and chest x-ray findings. A potential algorithm for need for CCT in the pediatric patient is seen in Figure 2.

Mechanism of injury: Patients with a significant mechanism of injury are at risk for severe chest trauma. Examples include a crushed torso (run over by a car), motor vehicle vs pedestrian, a significant blow to chest (ex: kick from horse), or a fall from significant height. Patients in moderate to high speed motor vehicle collisions with sudden deceleration injuries are at risk for aortic injuries.

Physical Exam: Plays an important role in determining which child is sick or not sick. Holmes and colleagues came up with a clinical decision rule to identify children with thoracic injuries;

1. Abnormal blood pressure
2. Abnormal respiratory rate
3. Abnormal thoracic exam
4. Abnormal chest auscultation
5. Femur fracture
6. GCS < 15

A clinical decision rule for identifying children with thoracic injuries after blunt torso trauma.

Holmes JF, Sokolove PE, Brant WE, Kupperman N. Ann Emerg Med. 2002 May;39(5):492-9

Chest x-ray: See algorithm, figure 2. Patients with a vascular mediastinal abnormality (aortic knob abnormality or wide mediastinum) should either undergo CT scan or immediate transfer to a Trauma Center. Patients with a first rib fracture, multiple rib fractures, pneumomediastinum or other injuries should be correlated for mechanism of injury and physical exam findings. Was there a significant deceleration injury or crushed torso? Does the patient have unequal radial pulses or are they exhibiting signs of respiratory distress? If so, consider CCT or transfer to a Trauma Center.

The Future: Within the next 25 years, newer CT machines could deliver radiation exposure equal to that of a few conventional chest x-rays. There is currently tremendous research in this area. Clinically, this will have a big impact on care given to our patients. As an example, Sanchez and colleagues authored "CT of the chest in suspected child abuse using submillisievert radiation dose". These authors used low dose CT scan to diagnose rib fractures in 4 abused children who had a normal chest x-ray.

In Summary: Pediatric chest injuries may result in significant morbidity and mortality. Mechanism of injury, physical exam findings, and chest x-ray results all determine need for a Chest CT. For the above cases, the 9 year old in a low speed MVC with a normal exam probably does not need a CT scan. The 5 year old girl kicked in the chest by a horse would get a CT scan, based upon positive findings for mechanism, physical exam, and CXR. The 15 month old toddler is a multisystem trauma with significant mechanism and CT scan would be indicated. And the infant with high suspicion of abuse, could get repeat radiographs in two weeks or --- potentially --- a low dose CT scan. And of course, we haven't even mentioned ultrasound…..

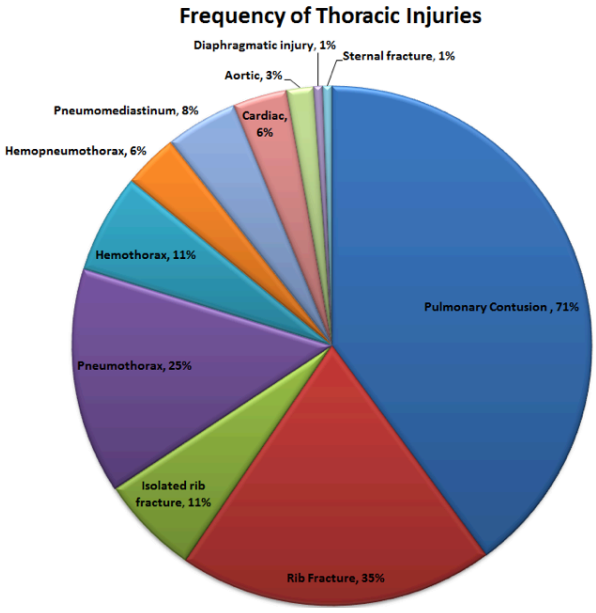
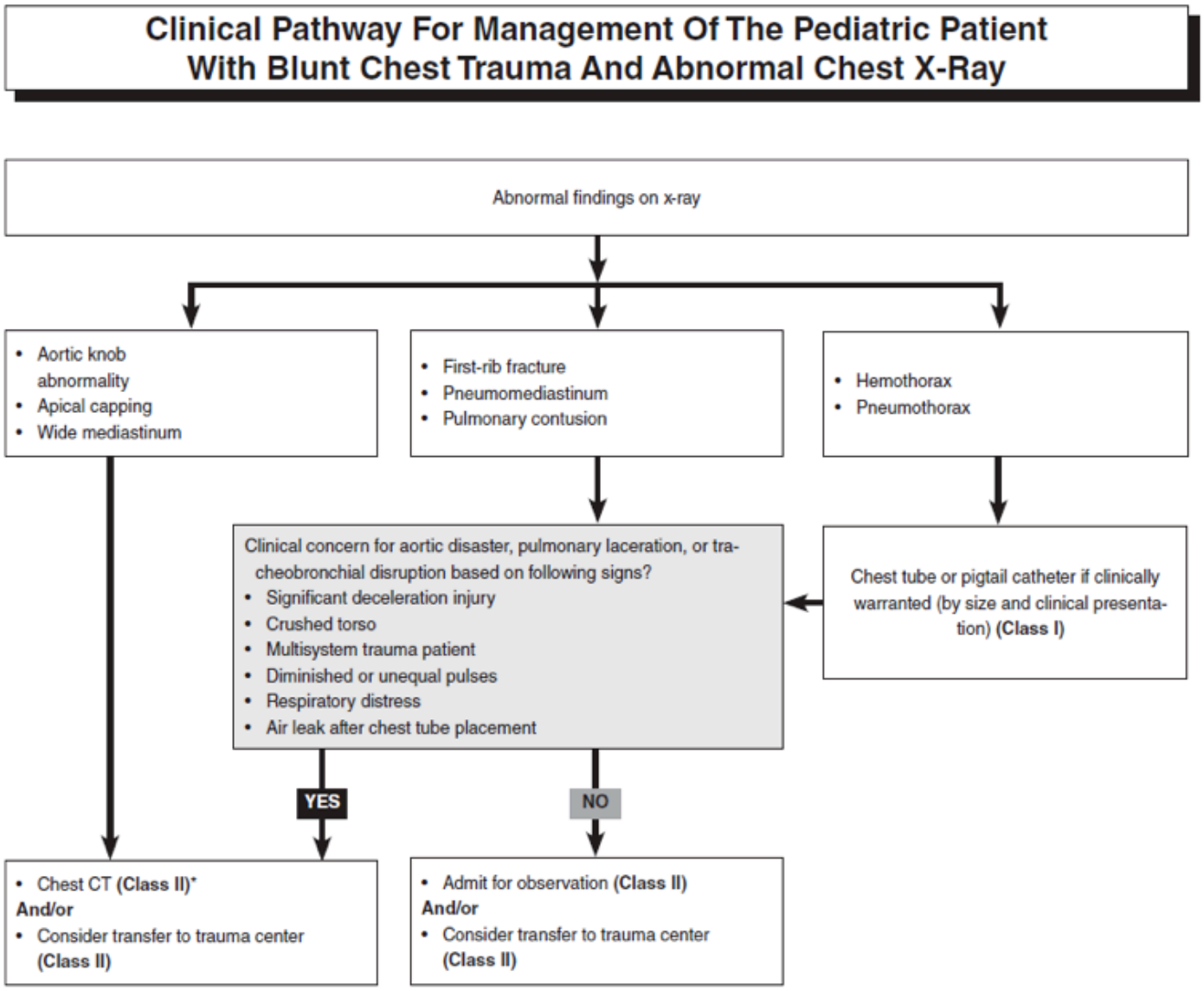


Figure 1: *Prevalence of Thoracic Injuries*

Total is > 100%, as many patients had multiple thoracic injuries.

Reprinted with permission from Annals of Emergency Medicine. Volume 39, Issue 5. Holmes JF, Sokolove PE, Brant WE, Kuppermann N. A Clinical Decision Rule for Identifying Children with Thoracic Injuries after Blunt Torso Trauma. Pages 492-499. Copyright 2002 with permission from Elsevier.

PEDIATRICS



*CT scans should be performed at regional trauma center except in situations where transfer will not be delayed by compatible-quality imaging and direct link to radiography images exists.
Abbreviation: CT, computed tomography.
See Class of Evidence definitions on page 12.

Figure 2: *Used with permission from EB Medicine, publisher of Emergency Medicine Practice and Pediatric Emergency Medicine Practice. From: Denis R. Pauzé, Daniel K. Pauzé. Emergency management of blunt chest trauma in children: an evidence-based approach. Pediatric Emergency Medicine Practice. 2013;10(11):1-24. www.ebmedicine.net*

Prehospital Epinephrine for Anaphylaxis Epi-Pen or Check and Inject?

Check & Inject NY
Syringe Epinephrine Kit for BLS Providers

Michael Dailey, MD FACEP
Associate Professor of Emergency Medicine, Albany Medical College

Ian Brasted, MS2
Albany Medical College

Jeremy T. Cushman, MD MS EMT–P FACEP
Associate Professor and Chief, Division of Prehospital Medicine, University of Rochester

Anaphylactic shock is a severe, life-threatening condition caused by an exaggerated immune response. It can result from exposure to an allergen to a person with a known or potential allergy and can present in any number of ways (Figure 1). Numerous studies have tried to determine the annual incidence of anaphylactic shock in the United States but have failed, citing variable data and reporting throughout the country. However, it is known that the incidence is increasing, especially in recent years.[1]

Rapid administration of intramuscular epinephrine is the most effective method for the treatment of anaphylaxis. The administration of intramuscular epinephrine is included in Emergency Medical Services (EMS) protocols that direct the care and interventions expected for a patient in anaphylaxis and is approved for administration by both Emergency Medical Technicians (EMTs) and Paramedics in New York. Given the potentially fatal nature of anaphylaxis, there is no debate about the absolute necessity for epinephrine onboard every ambulance. The predominant form of administration is the use of epinephrine auto injectors (EAIs), which are widely prescribed for both children and adults who are diagnosed with severe allergies.

Many sources argue that epinephrine is under-utilized in the treatment of anaphylaxis, both in the emergency department (ED) and by EMS. It is not clear if the under-treatment is related to the recognition of anaphylaxis, fear of administration of epinephrine, concern over use of EAI, or the lack of epinephrine in the prehospital environment. In New York the latter is not a factor, however the other concerns may be real. In over 150,000 patient contacts in the Hudson-Mohawk Region, there were two (2) EAI deployments in 2014, as most of the anaphylaxis cases treated had primary paramedic response and had access to intramuscular epinephrine. Monroe-Livingston, with 130,000 patient contacts has had an increase in administrations over the last few years (three (3) administrations in 2011, seven (7) in 2012, 21 in 2013 and 12 in 2014), however the frequency of administration is disparate to the amount of drug deployed and the suspected incidence of anaphylaxis in EMS patients.

The New York State Department of Health (NYS DOH) after the recommendation of the State Emergency Medical Advisory Committee (SEMAC) issued Advisory 10-01 mandating that NYS DOH Bureau of Emergency Medical Services (BEMS) certified ambulances carry epinephrine to treat both adults and pediatric patients aboard every in-service ambulance in an attempt to reduce the number of deaths from anaphylaxis. Bureau of EMS Policy 11-08 only allows for ambulances with an Advanced Life Support provider onboard who is trained in either subcutaneous or intramuscular epinephrine injection to bypass the carrying of epinephrine auto injectors (EAI). Auto injectors were initially chosen for this requirement because the use of a standard syringe and vial of epinephrine is currently outside the scope of practice for EMTs who are currently trained in only auto-injector use. As a result, Basic Life Support (BLS) ambulances require a minimum of one adult and one pediatric EAI, and Advanced Life Support (ALS) ambulances may carry 1:1,000 epinephrine in an ampule or a vial for intramuscular administration. The cost of EAI's on ambulances to meet the Bureau of EMS policy is not inconsequential. In the last ten years, the price of an EAI has increased from under $50 per unit to over $400 per unit, and ambulances generally carry at least two (2) EAIs (one pediatric, one adult) at a cost of $500-$1000 per ambulance. Since there is rapid degradation of epinephrine in auto injectors, there is a 12-18 month expiration on these devices meaning this policy of good medicine translates into countless unused EAIs and a substantial financial burden for EMS ambulance providers – estimated by some to be upwards of $5 million of expired EAI replaced annually.

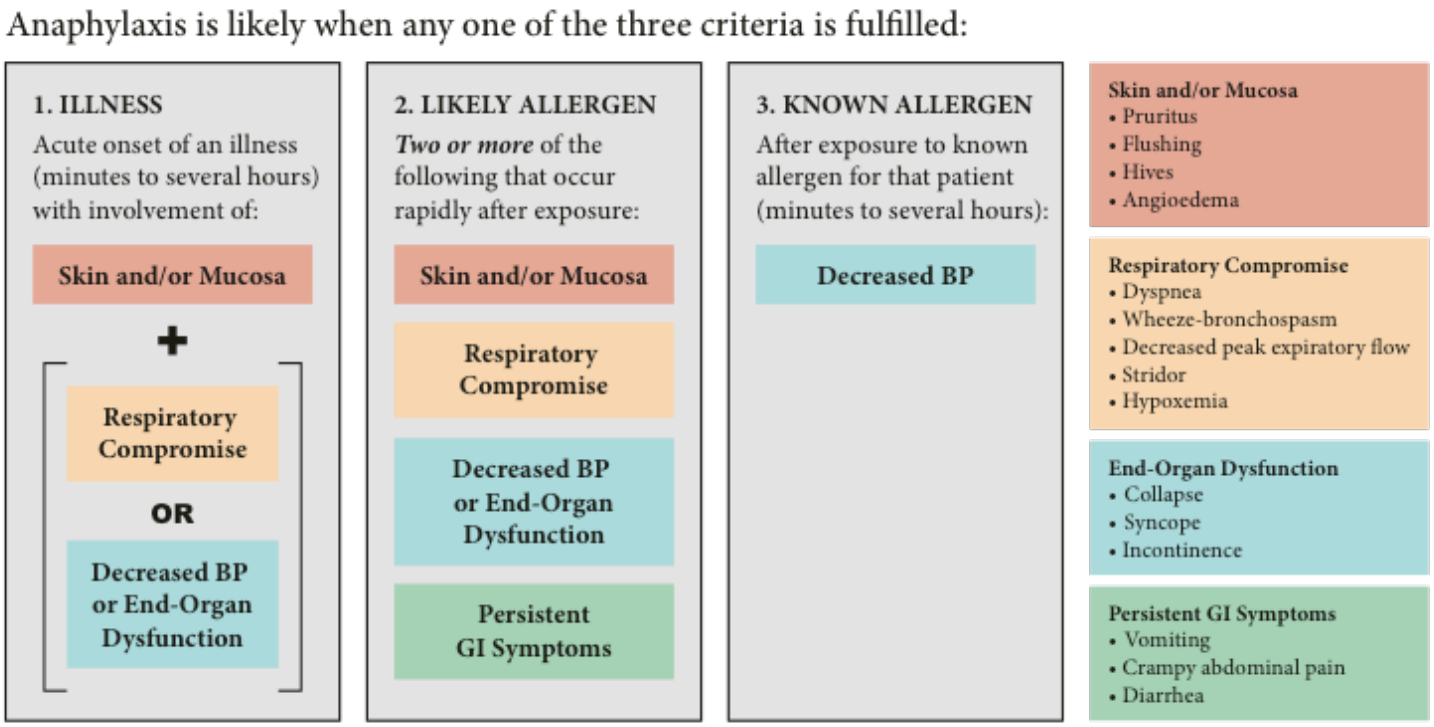
It is also important to note that EAI are not without their risks. An alarming increase in the number of injuries due to accidental injection with an EAI has been reported, often a result of misuse of the injector causing injury to the person deploying the EAI. Previous studies have also attempted to quantify the number of cases of accidental injury, but have only been able to determine that the number of occurrences has been increasing. If there is a misdeployment of a device, not only is there an unintentional injury, but there is a loss of the medication and potential inability to treat the patient.

Across the country, at least 27 states require EAI devices in their BLS ambulances. However, multiple programs across the country have demonstrated that EMTs are capable of safe and judicious use of a Syringe Epinephrine Kit (SEK). These SEKs are estimated to cost less than $20 per kit, a fraction of the cost of EAIs and may result in increased appropriate use by EMS providers. In fact, King County,

Washington found an increase in the administration of epinephrine in anaphylaxis after the distribution of the SEK with no incidence of harm to patients or incorrect use. In addition to the increase in treatment of anaphylaxis, there are several reasons cited by the adopters of the SEK including the risk of EAI related injury, the cost of EAIs, and ease of educating providers on the use of the SEK. Thirteen (13) states have instituted programs similar to King County, Washington, including Washington itself. When asked, EMS officials of an additional seven (7) additional states reported their states were also considering such programs.

New York is poised to start a pilot entitled "Check and Inject NY." Our team of physicians, providers, and agencies across New York will be launching a program to evaluate the addition of intramuscular medication administration to the scope of practice of EMTs. Such change of practice would provide an alternative, cost-effective means of meeting the intent of Bureau of EMS Policy 11-08 to save more lives by having epinephrine available for cases of life threatening anaphylaxis. A comprehensive training program for all EMTs employed by participating commercial, volunteer, municipal, state and Federal EMS agencies will include the recognition of anaphylaxis and how to safely draw up and administer intramuscular epinephrine to both adult and pediatric patients. Participating agencies will use a standard Syringe Epinephrine Kit and data will be prospectively collected to evaluate the training program, along with the use of SEK's by participating agencies.

As an emergency physician, you may begin seeing the use of Check and Inject NY kits in the treatment of anaphylaxis this fall. Participation in this program is voluntary, and subject to the approval of the New York State Department of Health. There is a rigorous quality improvement and safety program in place to monitor this project, including real-time physician debriefing of any administration of the kit; so it's important that you as the treating physician relate any positive or untoward effects of administration to the crews so this information can be reported back to the program team. We are hopeful that this program will provide quality patient care at a cost that can be sustained by the EMS community.



References:

1. Epidemiology of anaphylaxis: findings of the American College of Allergy, Asthma and Immunology Epidemiology of Anaphylaxis Working Group, Annals of Allergy, Asthma and Immunology November 2006, Volume 97, Issue 5, Pages 596–602, Phil Lieberman, Carlos A. Camargo Jr, Kari Bohlke, Hershel Jick, Rachel L. Miller, Aziz Sheikh, F Estelle R. Simons

Process Change: Improving ED Throughput By Combining Literature Review And Inter-Departmental Collaboration

Boris Khodorkovsky, MD FACEP
Associate Chair, Emergency Department, Staten Island University Hospital, Staten Island, NY

Joseph Basile, MD
Attending Physician, Administrative Fellow, Emergency Department, Staten Island University Hospital, Staten Island, NY

The moment our administrative fellow walked in through the doors of my office, I knew he was up to something. Besides getting an MBA and being exposed to the administration of the department and of the hospital, the job of the fellow is to challenge the status quo; finding ways to improve processes, see bottle necks, and participate in six-sigma projects. This day in early October was no different. The bright eyes, broad smile, and furrow on his forehead were clearly the signs of a new idea. "Hey, I think we should stop giving people P0 contrast", he said. "This is ridiculous. It slows us down. Why do we do it? There are places that stopped doing it already. Can we just stop it?" The bombardment of questions was going to continue. "There is literature to support this. Why do we still practice in the dark ages?" It was intriguing and finding no major objections, we set out to change our practice and improve our throughput.

Intuitively, we knew that the status quo was not beneficial for our emergency department (ED) throughput. Previously, the P0 contrast administration would take place over approximately two (2) hours, prior to CT imaging. This was essentially a guarantee that a patient who required abdominal CT imaging would be in the ED for three (3) hours or more prior to disposition. Changing this sounded like a good idea. We were sure that the ED providers would be on board and changing the status quo would be easy, since this was already present in the literature. We just didn't know how the radiologists would react. Intuitively, we know that radiologists typically prefer contrast enhanced images from previous criticism on patients where a non-enhanced study was done.

> *"...Why do we still practice in the dark ages?"*

To test the waters regarding radiologist circumstances, we decided to stop by and see our chief of emergency radiology to ask for her opinion on this matter. We asked about her preference for IV vs P0 contrast. The answer did not surprise us. If she had to make a choice, IV contrast always wins. Of course, her preference would be to have both if given a choice. She stated that, P0 contrast highlights certain pathologies that might otherwise be missed. The worry of a radiologist is to miss a diagnosis. It is very understandable. However the statement was made -- "Without P0 contrast, it is challenging, but doable."

After speaking to our friendly radiologists, we realized that our job was to present evidence in a way that would address the benefits of changing the status quo and allay any fears that they might have. We performed a literature search. The literature on this topic was studied almost exclusively in the radiology journals. This was our first win. However, literature is not everything, not many people want to be the pioneers. Is anyone else doing this? After communicating with other EDs, we found that there are more than a handful of hospitals that have "no P0" protocols.

Armed with research performed by radiologists, we crafted a proposal to our radiology department. We outlined the benefits of change; specifically improving throughput, while showing that the change would not be detrimental to the radiologists' ability to diagnose pathology. We included other stakeholders at this point. This helped create support around the process. Our stakeholders included general leadership in radiology, ED, and hospital administration. Not including them in this conversation would have been a sure way to have the whole initiative fail. We knew that if stakeholders accepted the benefits of a process change, then they would be our champions as well.

Not surprisingly, the stakeholders responded first -- they were excited about this change in process. However, we still had to get a buy in from the radiologists, who would have to read these unenhanced CTs. Being closer to the cutting edge of medicine is not always easy. Emergency medicine physicians understand this very well. So do radiologists. The benefit to the ED by changing the process should outweigh the risks. The risks are many; inability to correctly interpret CT, missing diagnosis, and medical legal concerns. There was also another question. Namely, would the number of studies needed to be repeated increase? These concerns were all addressed in the literature, but when you are changing a process in your institution, local concerns can still be a stumbling block.

Collaboration was starting to form. After two weeks, our radiology colleagues gave us a response after reviewing all the literature. They understood the importance of throughput, but wanted to create a reasonable selection of patients for unenhanced CT without jeopardizing the sensitivity of the test. They requested that we continue to give P0 contrast in certain situations. We had created a joint guideline within the departments. It stated that P0 contrast is not required for CT imaging of the abdomen and pelvis. The following patients were excluded from this guideline:

- Age < 30
- History of inflammatory bowel disease
- BMI<25
- Previous intestinal surgeries
- Known/suspected malignancy

The dissemination of the information took some time. We decided that two weeks would be a sufficient time for the new process to be reviewed by the staff, both in the radiology and emergency departments. Besides

addressing the new guideline with clinicians, intense dissemination occurred with CT technicians and ED nurses. The guideline was posted on the Intranet site at our institutions as well as in the clinical area.

Around the same time, we presented our proposed guideline/process to the hospital wide Performance Improvement Coordination Group (PICG). Since this group is composed of hospital leadership, the process was well received. This fact added additional support to the success of our project. Hospital leadership at our institution acknowledges that ED throughput is a hospital wide issue.

Any time that you try to implement a change, there will always be varying degrees of acceptance to the change. Our experience with this process was no different. Of course, there were staff members who loved the idea and were eager to support this new idea. These people were the early adaptors - the members of the team who were willing to stick to the protocol and change their practice right away. There were early adapters among the ED practitioners, radiology technicians, and radiologists. As expected, there were the late adapters who needed some convincing and reminders after the protocol was changed in order for them to change their practice. There were also staff members who were not convinced by the change in protocol and believed that oral contrast was necessary. These people were the non-believers. The non-believers have the "this is how we have always done it" attitude and believed that oral contrast was required. The only way to convince this group is with data evidence and persistence.

Initially, multiple reminders of the protocol were sent by email to all team members. Multiple copies of the new protocol were posted in the ED. Continuous verbal reminders to radiology technicians were taking place during the first 3-4 weeks. Any conflicts or resistance were dealt with almost instantaneously or within 24 hours. In the clinical area, providers' questions about the protocol were answered in real time.

The new protocol was a joint effort between the department of radiology and emergency medicine; therefore, it was very important that we had an open line of communication with radiology leadership. This communication was necessary to ensure that the protocol was being followed by the ED providers and vice versa. Radiology leadership was asked to inform us anytime that a study deviated from the protocol; namely that Pa contrast was omitted where it should have been given, as per the protocol. If these issues would not have been addressed, the collaborative nature of our initiative would have been in jeopardy.

Initially, we had received frequent communication from the radiologists about deviations from the protocol. We would address these cases with the individual providers on a case by case basis to stress the importance of compliance. Contemporaneous feedback was of utmost importance. Subsequently, the outliers became less common.

After three (3) months, it was time to do some data analysis. We looked at the average ED length of stay for all patients over the age of 30 who had a CT scan of the Abdomen and Pelvis in the three months before and after the change in protocol. The overall average ED length of stay for all patients who received a CT scan of the abdomen and pelvis decreased by 18 minutes ($p<0.001$) in the three months after the protocol change.

The average decrease in length of stay of 18 minutes is markedly less than the 90-120 minutes that is required for oral contrast. There are many explanations as to why the average decrease does not equal the time delay for oral contrast. One explanation is that compliance with the change in protocol was clearly not 100% based on speaking with providers during this time interval. There were many patients, after the protocol change, who continued to receive oral contrast prior to their scans even though the oral contrast was not required based on the protocol. This noncompliance did affect the amount that the average length of stay would be decreased. There is also practice variability among providers and some providers may not agree with the new protocol and continue to give oral contrast. Additionally, there is a chance that it took the CT technicians time to adjust to the new protocol and change their process. Before the change in protocol, the technicians would wait at least 90-120 minutes for the patient to drink the oral contrast. If a certain technician did not alter his or her practice, the effect of "no P0 contrast" would not be seen. Also, many patients continued to receive oral contrast after the change in protocol and this data analysis only looked at the overall average length of stay in all patients who received CT scans of the Abdomen and Pelvis regardless of whether a patient received oral contrast or not.

Our initial results were presented back to our stakeholders who received it very well. At the time of this article, the protocol has been in effect for six months. Overall, the response has been overwhelmingly positive. We have gotten to the point where the protocol has become part of the usual practice. A follow up data analysis to include 6 months before and after is being conducted.

Most importantly, this initiative became a great example of a successful collaboration between two departments that came together to improve the overall quality of care by utilizing evidence based literature.

Empire State EPIC
EMERGENCY PHYSICIANS' INTERIM COMMUNIQUE
of the New York American College of Emergency Physicians

EMPIRE STATE EPIC is the newsletter of the New York American College of Emergency Physicians (New York ACEP). The opinions expressed in this newsletter are not necessarily those of New York ACEP. New York ACEP makes a good faith effort to ascertain that contributors are experts in their field. Readers are advised that the statements and opinions expressed by the author are those of the author and New York ACEP is not responsible for, and expressly disclaims all liability for, damages of any kind arising out of use of, reference to, reliance on, or performance based on information or statements contained in this newsletter.

NEWS STAFF
JoAnne Tarantelli, Executive Director
New York American College of Emergency Physicians
1130 Crosspointe Lane, Suite 10B
Webster, NY 14580-2986
p (585) 872-2417, f (585) 872-2419, www.nyacep.org

Preventing HIV: What Every Clinician Needs to Know about Post-Exposure Prophylaxis

Daniel J. Egan, MD FACEP
Mt. Sinai St. Luke's Roosevelt, Department of Emergency Medicine

Varsha Koripella, MS2
Wayne State Medical School

Terri L. Wilder, MSW
Mt. Sinai Institute for Advanced Medicine

Antonio E. Urbina, MD
Mt. Sinai Institute for Advanced Medicine

Introduction

Exposure to HIV is a medical emergency in line with many other time sensitive conditions emergency physicians deal with on a daily basis. In the first hours after either a percutaneous or mucosal exposure, the administration of antiretroviral medications as post-exposure prophylaxis (PEP) is effective at preventing seroconversion as demonstrated in both human and animal data.[1,2] Patients are presenting to the emergency department (ED) with increasing frequency for evaluation after possible HIV exposures, and therefore it is critical for the emergency physician to be aware of both indications for treatment and treatment protocols.[3-5] This article addresses both occupational post-exposure prophylaxis (oPEP) and non-occupational post-exposure prophylaxis (nPEP).

Risk Assessment

The first step in the evaluation of a patient with a possible exposure to HIV is an assessment of risk. In both the occupational and non-occupational settings, the degree of risk for seroconversion is multifactorial. In the occupational setting, percutaneous exposures carry approximately a 0.3% risk as compared with 0.1% after a mucocutaneous exposure. However, these percentages are average and greater risk is associated with hollow bore needles previously used in an artery or vein. One of the most influential factors in all settings is the status of disease in the source patient. Patients with high viral loads are more likely to transmit infection and those with undetectable viral loads have a very low chance of transmission.[6] In sexual encounters, physicians will encounter patients who experience condom slippage or breakage, sexual assault or lapse in protective barrier use because of errors in judgment or substance use. Exposure to an infectious bodily fluid (vaginal secretions, semen, blood) must occur. Receptive anal and vaginal intercourse carry the highest risks for transmission. New York State (NYS) considers a high-risk exposure eligible for PEP if it occurred within 36 hours prior to evaluation. The Centers for Disease Control and Prevention has extended this window to 72 hours. The actual risk in certain situations is not always clear, and a provider inexperienced with cases of occupational or non-occupational exposures may not know whether PEP is indicated. In these cases, providers can call a clinician experienced in managing PEP using the Clinical Education Initiative (CEI) Line toll-free 24/7 at 1-866-637-2342. This resource accesses a medical provider with expertise in PEP who will guide clinicians through the case.

Baseline Evaluation

Patients requesting PEP should receive the first dose of medication in the ED in parallel to acquisition of baseline information. This information includes a complete blood count, basic metabolic panel, hepatic panel, pregnancy test, hepatitis serologies and a baseline HIV test. NYS recommends administering PEP from the ED regardless of the result of a rapid HIV test given the possibility (albeit low) of a false positive rapid test. The continuation of medication is determined after confirmatory testing in conjunction with a medical provider experienced in the treatment of HIV.

Administration of PEP

If PEP is indicated, it must be administered as soon as possible. The NYS Department of Health recommends the first dose within two hours of exposure necessitating expedited evaluation in the ED. Regardless of the etiology of exposure (occupational, non-occupational or sexual assault), the recommended drug regimen is tenofovir and emtricitabine PLUS either raltegravir or dolutegravir (Table 1). The ED should prepare starter packets of medications for patients allowing the patient to leave the ED with a three to five day supply of medication. In cases of sexual assault, this starter kit supply is extended to seven days. The complete course of PEP is 28 days administered by a provider knowledgeable on state protocols for PEP. Follow-up includes monitoring for symptoms of acute seroconversion as well as repeat evaluation of the complete blood count, basic metabolic panel and liver function tests at weeks two and four. PEP is covered by Medicaid and most commercial insurance plans. Those without insurance may seek help from patient assistance programs. For a list of nPEP payment options please go to: *http://www.hivguidelines.org/wp-content/uploads/2013/06/npep-payment-options-05-22-2013.pdf.* A full explanation of NYS guidelines is available online through *www.hivguidelines.org.*

Source Patient Evaluation

If the source patient is anonymous, unavailable, or unwilling to undergo HIV testing, PEP should still be initiated and the 28-day course completed. If the source person is known to be HIV-infected, information about his/her viral load and antiretroviral medication history or reistance should be obtained to assist in the selection of a PEP regimen. However, administration of the first dose of PEP should not be delayed while awaiting this information. In this scenario, the ED provider can contact the CEI Line for guidance of additional dosing. In the case of an occupational exposure, the source patient must still consent for HIV testing. However, NYS law allows limited testing of the source patient of a healthcare worker exposure without consent. Anonymous testing is allowed when the source patient is unconscious, dead or unable to provide consent within a reasonable time period for the initiation of PEP. If the test is performed, it must not be documented in the medical record of the source patient and only the treating physician of the exposed patient may receive the results.

Follow-Up and Monitoring

All patients who receive PEP in the ED need linkage to care with a provider knowledgeable in the administration of the 28-day PEP regimen. A standard protocol is helpful as data demonstrates significant loss to follow-up in this population.[7] Linkage to care is critical for monitoring for side effects, treatment adherence, medication toxicity and signs of acute seroconversion. HIV testing is repeated at weeks four and 12 to ensure the absence of seroconversion. A negative HIV test at 12 weeks post-exposure excludes HIV infection related to this exposure.

Behavioral Intervention and Risk-Reduction Counseling for nPEP

The clinician (or member of an HIV care team if involved in the ED) should provide risk-reduction counseling whenever someone is assessed for nPEP, regardless of whether nPEP is initiated. Clinicians should also assess for emotional, psychological, and social factors that can contribute to risk behavior. Persons who present with repeated high-risk behavior or for repeat courses of nPEP in the ED may be candidates for the initiation of pre-exposure prophylaxis (PrEP). ED providers should identify referral networks for these patients. It is also important to provide risk-reduction counseling to exposed persons to prevent secondary transmission during the 12-week follow-up period until the absence of HIV infection is confirmed.

Conclusion

Decreasing the number of new HIV infections is key to addressing the HIV epidemic, and PEP is a necessary resource in achieving this goal. Governor Cuomo has committed to ending the AIDS epidemic by 2020 and prevention of new infections is a key component of this campaign. Emergency providers play a key role in HIV prevention through the administration of PEP to high-risk exposures. Newer medications cause minimal side effects and are clearly effective in reducing the risk of HIV transmission. It is essential that ED providers are aware of and understand the importance of both oPEP and nPEP.

Are you up-to-date on PEP?

The NYS Department of Health Clinical Education Initiative (CEI) provides free CME/CNE trainings on PEP for medical providers in NYS. To request a training or to view on-line PEP courses, please visit *www.ceitraining.org.* The complete NYS DOH PEP guidelines and PrEP guidance can be found at *http://www.hivguidelines.org.*

References:

1. Cardo DM, Culver DH, Ciesielski CA, et al. A Case-Control Study of HIV Seroconversion in Health Care Workers After Percutaneous Exposure. NEJM. 1997; 337:1485-90.
2. Tsai CC, Emau P, Follis KE, et al. Effectiveness of postinoculation (R)-9-(2-phosphonylmethoxypropyl) adenine treatment for prevention of persistent simian immunodeficiency virus SIVmne infection depends critically on timing of initiation and duration of treatment. J Virol. 1998; 72: 4265-73.
3. Merchant RC, Becker BM, Mayer KH, Fuerch J, Schreck B. Emergency Department Blood or Body Fluid Exposure Evaluations and HIV Postexposure Prophylaxis Usage. Acad Emerg Med. 2003; 10:1345-53.
4. Sonder GJ, VanDenHoek A, Regez RM, et al. Trends in HIV Postexposure Prophylaxis Prescription and Compliance After Sexual Exposure in Amsterdam 2000-2004. Sex Trans Dis. 2007; 34:288-293.
5. Giele CM, Maw R, Carne CA, et al. Post-exposure prophylaxis for non-occupational exposure to HIV: current clinical practice and opinions in the UK. Sex Transm Infect. 2002;78:130-132.
6. Rodger A, Bruun T, Cambiano V, Vernazza P, Strada V, Van Lunzen J. 153LB: HIV transmission risk through condomless sex if HIV+ partner on suppressive ART: PARTNER Study. Paper presented at: 21st Conference on Retroviruses and Oppotunistic Infections2014.
7. Bogoch II, Scully EP, Zachary KC, et al. Patient Attrition Between the Emergency Department and Clinic Among Individuals Presenting for HIV Nonoccupational Postexposure Prophylaxis. 2014; 58: 1618-24.

Table 1

Recommended Regimen for PEP
Tenofovir 300mg PO Daily + Emtricitabine 200mg PO Daily
PLUS
Raltegravir 400mg PO twice daily OR Dolutegravir 50mg PO Daily

ALBANY UPDATE

Reid McNally & Savage
New York ACEP Legislative
& Regulatory Representatives

2016 Legislative and Political Overview

The State Legislature has been in Recess since June 26. There is a possibility that Senators and Assembly members could return to Albany before the end of the year for a brief Special Session to consider a limited agenda. The 2016 Legislative Session will convene the first week of January.

The 2015 Legislative Session was tumultuous with changes in leadership in the Senate and Assembly and the passage of a Trial Bar backed "Date of Discovery (DOD)" bill by a wide margin of 120 to 25 in the Assembly. While New York ACEP was part of a successful effort this year to defeat the bill in the Senate, pressure will continue to mount in 2016.

The new leaders in the Senate and Assembly, Senator Majority Leader John Flanagan, Senate Deputy Majority Leader John DeFrancisco, and Assembly Speaker Carl Heastie have announced their intention to pass a DOD bill in 2016. Governor Cuomo has publically stated that he will sign the legislation if passed by both houses.

Another significant challenge for New York ACEP members in 2016 will be the ongoing push for passage of a bill to require a three hour Continuing Medical Education (CME) mandate every two years in pain management, palliative care, addiction prevention and end of life care.

New York ACEP is working on a comprehensive Albany-based and grassroots plan to oppose these legislative proposals.

Next year is an election year for all 213 State legislators. A special election November 3, 2015 for a seat vacated by Senator Tom Libous will determine whether the Republicans will go into 2016 with a majority. As of this writing, the Republican candidate, Fred Akshar, a Broome County undersheriff, is favored to beat Democrat and former Broome County DMV Commissioner Barbara Fiala. The Democrats will retain their significant majority in the Assembly in 2016.

Out-of-Network Law Effective March 31, 2015

State regulations and a Guidance Document implementing the Out-of-Network (OON) law went into effect **March 31, 2015.** The regulations are the result of the passage of a law last year (Chapter 60 of the Laws of 2014). The law regulates OON health care services including billing, reimbursement and consumer disclosure for services provided to patients by health care providers who do not participate in a patient's health insurance plan.

The law provides for an Independent Dispute Resolution (IDR) process for non-emergency surprise bills and emergency bills when there is a dispute between a physician or uninsured patient and a health plan.

New York ACEP was successful last year in getting an exemption in the law from the IDR process for emergency services when the amount billed is under $600 after any applicable patient cost sharing and it does not exceed 120% of the UCR for specific CPT codes. There is an annual inflation adjustment. Based on our analysis, this exemption will include claims for evaluation, management, and most observation care provided by emergency physicians. This is the only exemption granted to physicians in the law.

Most recently, we worked with the Department of Financial Services to provide answers to questions from members and provide additional information about the implementation of the law. This document can be found at *www.nyacep.org.*

For more detailed information please go to the following documents on the New York State Department of Financial Services' website:

OON Law Guidance *http://www.dfs.ny.gov/insurance/ihealth.htm*

Summary of Process *http://dfs.ny.gov/consumer/hprotection.htm.*

Description of IDR Process *http://dfs.ny.gov/legal/regulations/emergency/np400t.pdf*

Electronic Prescribing Mandate Delayed for One Year

New York ACEP successfully advocated for passage of a law to delay for one year until March 27, 2016 implementation of the e-prescribing mandate that was enacted in 2012 as part of the Internet System for Tracking Over-Prescribing/ Prescription Monitoring Program (I-Stop) law. We do not expect further delays of the e-prescribing mandate so physicians should be prepared to fully implement it on March 27, 2016.

Legislation That Passed Both Houses Hospital Sepsis Data Collection S4874 (Hannon)/A7456 (Gottfried)

In 2013 the New York State Department of Health (DOH) issued regulations for data collection and reporting by hospitals to measure mortality rates attributable to sepsis and adherence to protocols for the prevention and treatment of sepsis. This bill would allow for a pilot phase of no more than two (2) years to keep hospital data relating to sepsis confidential. The purpose of the bill is to allow time for the development of appropriate analytics to ensure that the data that is collected is complete and accurate and the calculations used to develop risk adjusted mortality rates have been evaluated and tested. At the conclusion of the pilot period, all data will be posted on DOH's website.

Bill signed into law by the Governor.

Penal Law Protections for Assaulting Emergency Medical Service Paramedics and Technicians S4839 (Golden)/A7345 (Lentol)

This bill would include emergency medical service paramedics and technicians among those professionals against whom an assault with the intent to cause physical injury resulting in on-duty physical injury is a Class D violent felony offense. Currently a person is guilty of a Class D felony for the assault of an emergency medical service paramedic or technician where there is intent to obstruct the paramedic or technician from performing an official duty. This bill will apply both standards for emergency medical service paramedics and technicians and bring the law into conformance with standards applied to other health care professionals.

This bill has not yet been transmitted to the Governor. It must be sent to the Governor by the Legislature prior to the end of the 2015 calendar year.

Update Your Physician Profile

Since 2000, Public Health Law 2995-a has provided for the collection of certain information on licensed physicians to create individual physician profiles which are available to members of the public. The New York State Physician Profile website can be found at *http://www.nydoctorprofile.com/.*

Recent revisions to PHL 2995-a(4) now require that in addition to reporting verdicts, settlements or other specified occurrences, each physician must update his/her profile information within six months prior to the expiration date of the physician's registration period.

Updating one's profile is required as a condition of registration renewal. As part of its professional misconduct investigations, the New York State Department of Health Office of Professional Misconduct (OPMC) is asking whether physicians have updated their profiles on the Physician Profile website. Failure to do so can result in a separate charge of professional misconduct pursuant to Education Law 6530.

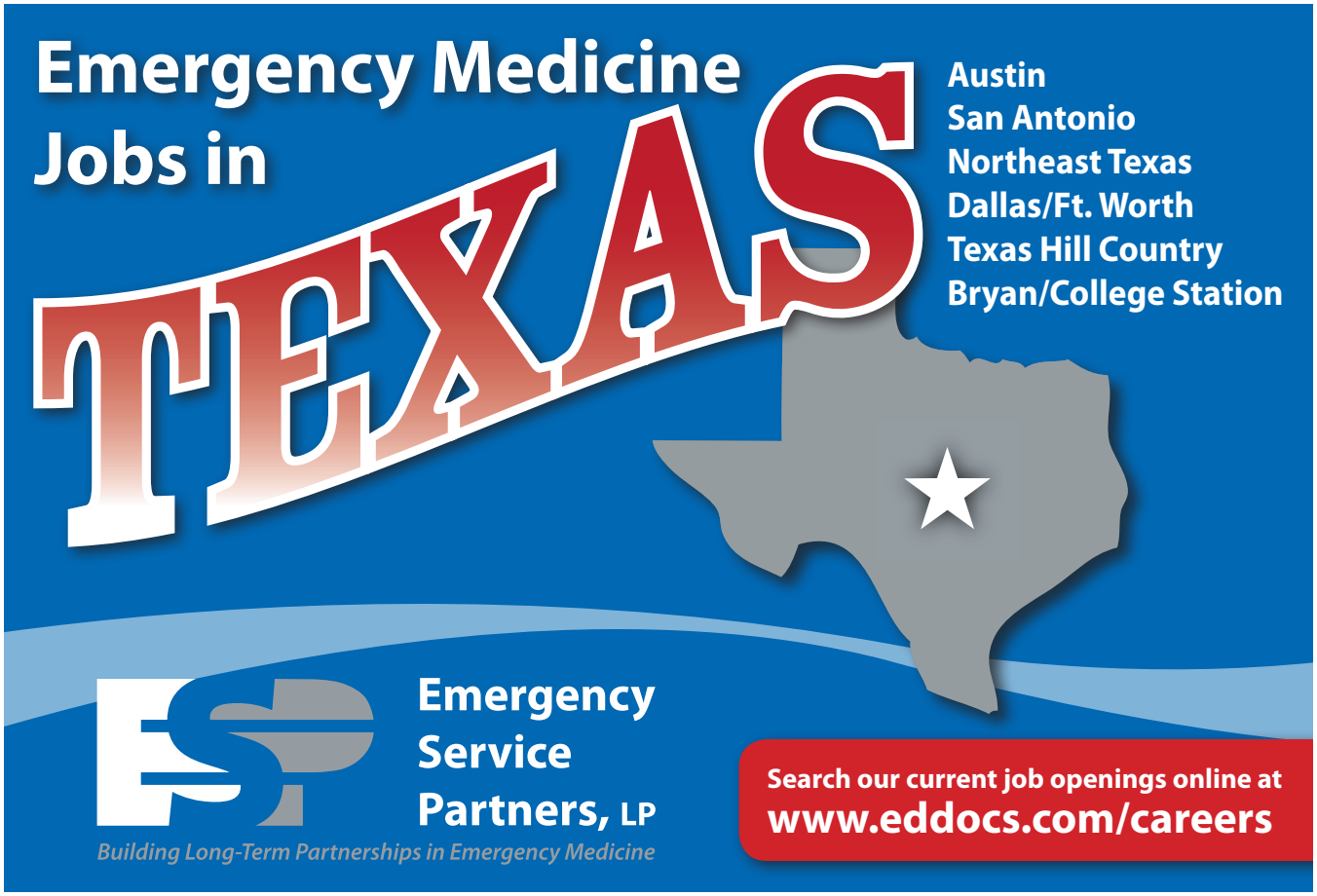
First Enforcement Action of "Surprise Bill Law"

In agreements reached with New York State Attorney General Eric Schneiderman, four Urgent Care Centers in New York City and Long Island have agreed to provide more detailed information to consumers about their participation with health plans, as required by New York's recently enacted "Surprise Bill Law". The law protects consumers from unexpected medical bills and helps patients make informed choices when selecting providers.

In July, the Attorney General issued nearly two dozen letters to urgent care centers requesting information about their representation on websites on how they participated in certain health plan networks. The Attorney General raised concern that these centers' website disclosures might have inaccurately disclosed their health plan network participation status, confusing consumers into believing these centers were "in-network".


Warm Holiday Wishes
The New York ACEP office will be closed
December 23-25, 31 and January 1


New York
Careers
in emergency medicine
Online Career Catalog
online at www.nyacep.org


Emergency Medicine
Jobs in
TEXAS
Austin
San Antonio
Northeast Texas
Dallas/Ft. Worth
Texas Hill Country
Bryan/College Station
Emergency
Service
Partners, LP
Building Long-Term Partnerships in Emergency Medicine
Search our current job openings online at
www.eddocs.com/careers

UR MEDICINE

EMERGENCY MEDICINE

The Department of Emergency Medicine at the University of Rochester, is seeking a Clinical Operations Director for its main academic site: Strong Memorial Hospital. The ideal candidate will be board certified in Emergency Medicine and have significant clinical, leadership and administrative experience in large high volume emergency settings, as well as a proven track record at collaborative work with multiple disciplines including nursing, advance practice providers and faculty. The Clinical Operations Director will report directly to the Chair of Emergency Medicine and have direct reports from Observation Medicine, Quality Assurance and Policy, and Documentation, Coding and Billing directors.

Strong Memorial Hospital (SMH) is the regional academic medical center, referral center and Level 1 Trauma Center. It is the base of operations for the Department of Emergency Medicine that includes out emergency medicine residency with 14 residents per year. The ED has many ancillary services, including social work and emergency medicine pharmacists. The ED at SMH treats over 100,000 patients annually, which includes 28,000 pediatric visits seen in dedicated ED with a pediatric emergency medicine fellowship. SMH has many clinical and consulting services and a newly opened children's hospital. Our multiple ED sites, institutional support, and existing research infrastructure offers a robust network for success.

Rochester, New York, located in Upstate New York, offers excellent schools, a low cost of living, and many opportunities both professionally and personally. We have easy access to Canada, including metropolitan Toronto, the Great Lakes, the Finger Lakes and the northeastern United States.

Interested applicants please contact:
Michael Kamali, MD, FACEP
Chair, Department of Emergency Medicine
Michael_Kamali@URMC.Rochester.edu
585-273-4060

UR MEDICINE

EMERGENCY MEDICINE

University of Rochester, Rochester, New York
Department of Emergency medicine
Division of Research

The Department of Emergency Medicine at the University of Rochester, is seeking academic faculty with a focus on research. The ideal candidates will be board certified in Emergency Medicine or hold a PhD, have experience with research and grant pursuit, as well as academic interests that can contribute to the overall mission of the department.

The Department of Emergency Medicine has an active research program with multiple funded government and industry studies, a well-developed patient enroller program and established support structure. Additionally, the University of Rochester has a highly regarded emergency medicine residency and multiple fellowship programs. Strong Memorial Hospital (SMH) is the area academic medical center and is the regional referral and Level 1 trauma center. It has a full complement of specialist consultant services, as well as ED-based social workers, pharmacists, and child-life specialists. SMH sees over 100,000 patients per year, including 28,000 pediatric patients, The new Golisano Children's Hospital at Strong is set to open in the summer of 2015. Our multiple ED sites, institutional support, and existing research infrastructure offers a robust network for success.

Rochester, New York, located in Upstate New York, offers excellent schools, a low cost of living, and many opportunities both professionally and personally. We have easy access to Canada, including metropolitan Toronto, the Great Lakes, the Finger Lakes and the northeastern United States.

Interested applicants please contact:
Michael Kamali, MD, FACEP
Chair, Department of Emergency Medicine
Michael_Kamali@URMC. Rochester.edu
585-273-4060

New York
AMERICAN COLLEGE OF
EMERGENCY PHYSICIANS

1130 Crosspointe Lane, Suite 10B
Webster, NY 14580-2986

PRSRT STD
U.S. Postage
PAID
Rochester, New York
Permit No. 161