New York American College of Emergency Physicians

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PRESIDENT'S MESSAGE

A Prescription for Wellness

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

ACEP declared the week of January 25, 2016 to be Wellness Week. At first I thought I would research the best ways to maintain wellness as an emergency physician and lay out your exercise, diet, sleep, and psychological counseling plan for the New Year. After all, we have requirements to educate our residents on wellness in hopes of keeping them healthy throughout their career. Much has been written and will be written on the topic of physician wellness. Could I sum it up in a brief presidential message? I have decided to leave that to the experts like our ACEP President, Dr. Kaplan, to continue to educate you and instead offer a word of advice from this Dr. Mom's experience.

If there was one prescription that could be given to make us well and heal our tired bodies and minds, what would it be? A philosopher once offered that the prescription would be for SILENCE. Yes, silence. Not silence in the face of oppression, danger or opposition, but times of silence in our lives. I believe they were right and this applies to our world today more than ever.

Consider what our shifts are like. They overwhelm us with multitasking, task interruption, emotion, stress, documentation, and life and death decisions. We leave the emergency department exhausted, drive home through heavy traffic and then enter our lives filled with the over abundance of chaos, chores, sporting events, and care of our family. If your family is like mine, we have a constantly changing master calendar and need extra drivers just to accomplish the tasks of our days. Add into the din are our cell phones with unending calls, texts, emails, etc.. We can be found anytime and anywhere by our friends, family, and work place. When we finally sit down a moment we turn on our electronic entertainment and proceed to listen to music, watch movies and shows, or play video games. The input is non-stop and our brains never have a chance to rest and heal.

> ***"I challenge you to insert 20 minutes of silence a day into your schedule."***

We all want career and personal health and longevity. Which means life is a marathon, not a sprint. Just like training for a marathon, you need daily dedication to preparation. It is a discipline. You need time to let your brain heal from its overuse or it will not complete the marathon called life.

I challenge you to insert 20 minutes of silence a day into your schedule. Turn off those cell phones, iPads, lap tops, etc. You can be silent while exercising, walking, or simply find a silent place to sit. This can even be your car. Put it on your schedule. It is that important. Do not violate it.

I know, I know, you are too busy. I would argue that we make ourselves too busy. Life is full of choices. Choose wisely. Choose silence over one less important activity.

I challenge you to try this for one week. My experience is that you will make it a plan for a lifetime. Before you know it, you will want more than 20 minutes. You will long for the silence.

Make the time to train for life's marathon. Let's be healthy so we can enjoy life for the duration.

WHAT'S INSIDE?

Features

Insights

Events

SOUND ROUNDS

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

Ultrasound Evaluation of the Lung: B-lines

Guest Author:
Nicole Rall, DO MS
Emergency Medicine Resident
Department of Emergency Medicine
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Guest Author:
Erika St. James, MD
Emergency Ultrasound Fellow
Department of Emergency Medicine
University at Buffalo

Indications:

- Acute dyspnea
- Respiratory distress
- Hypoxia
- Abnormal breath sounds

Technique:

- A curvilinear transducer is preferred. Phased or linear array transducers are acceptable alternatives.
- Place transducer along the anterior chest wall with the indicator pointed towards the patient's head (sagittal).
- The anterior lung fields are divided into 4 zones, bordered by the clavicle, sternum, anterior axillary line and posterior axillary line (Figure 1).
- Scan sequentially through the intercostal spaces in all 8 zones of the right and left lungs.

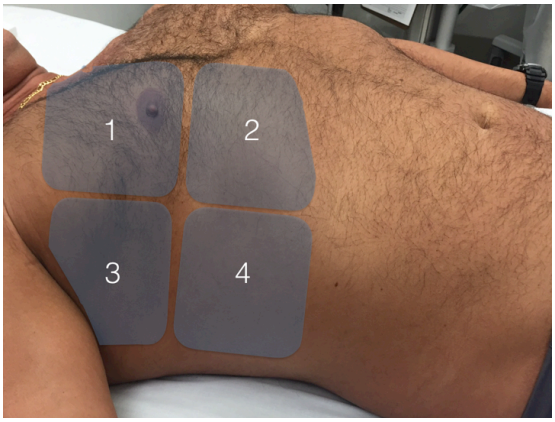

Figure 1. *Ultrasound zones of the right lung.*

A-lines:

- Identify the pleural line below the ribs.
- Identify the reverberation artifacts produced by normal lung.
- A-lines are horizontal, hyperechoic lines that start below the level of the pleura and occur at regular intervals (Figure 2).

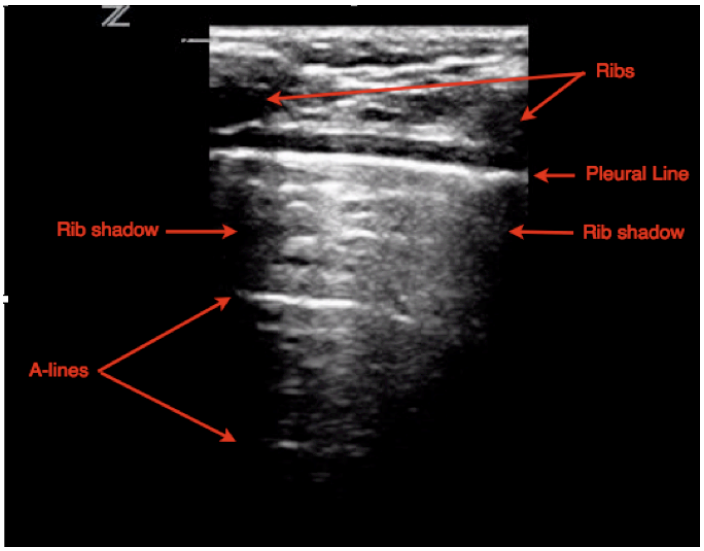

Figure 2. *Ultrasound image of a normal lung with A-lines obtained with the linear transducer.*

B-lines:

- Note the presence or absence of B-lines in the 8 anterior lung zones.
- B- lines are defined as discrete, laser-like, vertical, hyperechoic reverberation artifacts that arise from the pleural line, extend to the bottom of the screen, move synchronously with respirations and obliterate A-lines (Figure 3).
- Three B-lines must be present in a single view to be significant or suggestive of an underlying process.
- Pulmonary edema or "interstitial syndrome" exists when ≥3 B-lines are present in a lung field.
- The presence of B-lines in both lungs is indicative of a diffuse interstitial process, such as pulmonary edema or acute respiratory distress syndrome (ARDS).
- B-lines in one lung field are more often seen with infectious processes (i.e. pneumonia) or lung infarction with pulmonary embolus (Figure 4).

SOUND ROUNDS

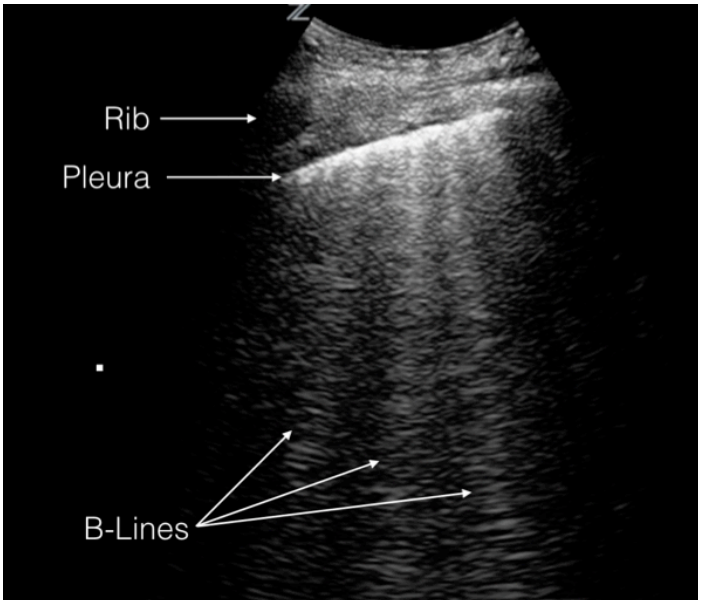

Figure 3. *Lung ultrasound. B-lines in a patient with CHF exacerbation and pulmonary vascular congestion.*

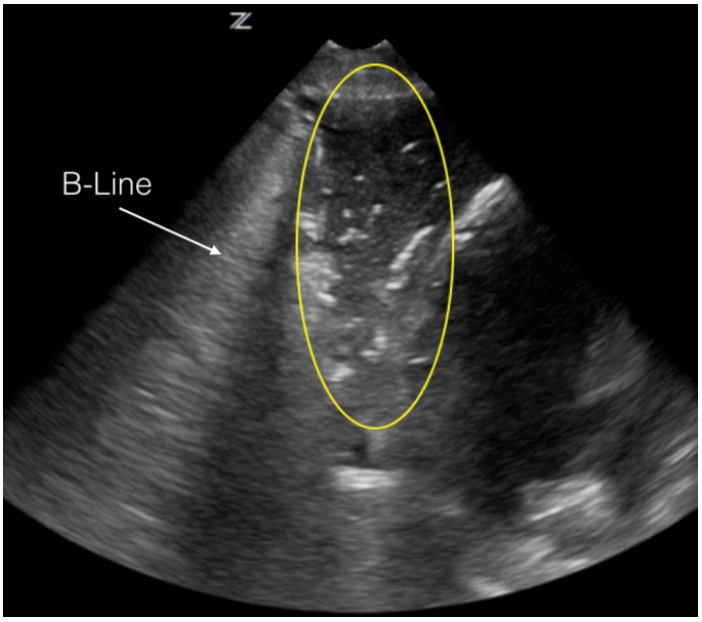

Figure 4. *Lung ultrasound of left lower lobe pneumonia in zone 4 with hepatization of the lung (yellow circle) and B-line.*

Tips:

- Integrate lung ultrasound early in your assessment of acutely dyspneic patients. It may help differentiate COPD from CHF exacerbations.
- Turn off machine features which may reduce artifact, such as tissue harmonic imaging (THI). Lung ultrasound relies on the visualization of artifacts.
- Evaluate each zone of the lung dynamically with each respiration. B-lines may only be visible as the affected segment of lung moves in and out of view.
- Scan thoroughly in areas where B-lines may be present. Slowly fan the transducer side-to-side to evaluate the artifacts.
- Scan zone 4 to the diaphragm. Pleural effusions are frequently found with many processes associated with B-lines (Figure 5).

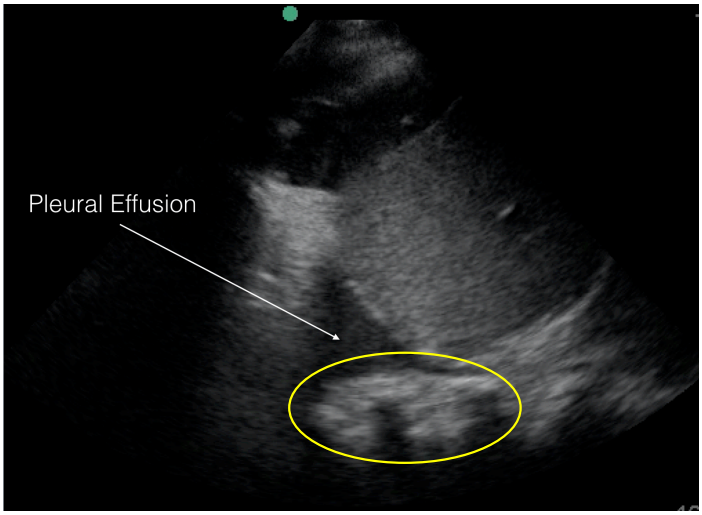

Figure 5. *Lung ultrasound of pleural effusion with lung consolidation. Note the presence of the thoracic spine sign (yellow circle). The thoracic spine is visualized above the diaphragm with the presence of a pleural effusion.*

Pitfalls and Limitations:

- A large collection of B-lines, also known as a lung rockets, should not be confused for a single B-line.
- B-lines are not synonymous with Kerley B-lines.
- Other underlying lung diseases may cause B-lines or abnormal pleural architecture. These include pneumonitis, lung surgery with scar tissue and diffuse parenchymal lung disease (i.e. pulmonary fibrosis).
- Subcutaneous air will obscure the ability to ultrasound the lung.
- Non pathologic B-lines can be present in zone 4, at the bases, in healthy individuals.

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Special thanks to Carlos Ziminsky, RN for his assistance with image acquisition.

TOXICOLOGY

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

Guest Author:
Tim Palmieri, MD
Resident, Emergency Medicine
North Shore University Hospital

Is Octreotide Beneficial in Persistently Hypoglycemic Patients Without Sulfonylurea Toxicity?

Octreotide is commonly used for the treatment of refractory hypoglycemia due to sulfonylurea overdose, however its application to refractory hypoglycemia outside of sulfonylurea overdose has not been well reported. Despite a lack of data, the drug's mechanism of action suggests its use in refractory hypoglycemia may not be limited to sulfonylurea toxicity.

Octreotide is a cyclic peptide of eight amino acids, similar in structure to the C-terminal ring of both endogenous forms of somatostatin, SST-14 and SST-18. It has a half-life of 1-2.5 hours, which is significantly longer than the half-life of somatostatin (less than three minutes). There are five different types of somatostatin receptors, SSTR-1 through SSTR-5. Octreotide has increased affinity for SSTR-2, SSTR-3, and SSTR-5 relative to endogenous somatostatin. Octreotide's efficacy as a treatment for hypoglycemia is explained by its affinity for SSTR-5, which inhibits insulin production. The mechanism of insulin inhibition involves inhibition of the formation of cAMP, which prevents influx of Ca++ into the cytoplasm and its subsequent stimulation of insulin release, along with phosphorylation of proteins required for production of insulin-containing vesicles.

Octreotide is helpful in managing patients with hypoglycemia due to sulfonylurea toxicity and refractory to treatment with dextrose containing fluids. Sulfonylureas increase insulin production by binding to pancreatic B-cells and stimulating insulin release. Octreotide counteracts this action. Treatment with octreotide is preferred to glucagon and diazoxide, as it has fewer side effects. Recommended dosing is 50 micrograms, subcutaneous, every six hours. A retrospective chart review of nine cases of sulfonylurea toxicity found a statistically significant reduction in repeat episodes of hypoglycemia (3.2 vs 0.2) (McLaughlin). There has been only one case report of a significant consequence (hyperkalemia in a hemodialysis patient) of the use of octreotide for treatment of sulfonylurea-induced hypoglycemia.

Octreotide has demonstrated benefit in quinine-induced hypoglycemia. In a study of nine healthy volunteers, octreotide abolished quinine-induced insulin release (Philips et al, Lancet 1986). Furthermore, in a case series of five infected Thai patients treated with quinine for falciparum malarium infection, Philips et al demonstrated the effectiveness of an octreotide infusion in suppressing quinine-induced hyperinsulinemia.

A case report by Groth reported the use of octreotide in a patient with persistent hypoglycemia due to an overdose of long-acting insulin. A 56 year-old obese male with a complicated past medical history including insulin dependent type II diabetes mellitus presented after a multi-drug ingestion including the presumed sub-cutaneous administration of 3,300 units of glargine, along with ingestion of diphenhydramine, metoprolol, lisinopril, isosorbide dinitrite, and furosemide. The patient was initially treated with dextrose 50%, and a continuous dextrose infusion was begun. He remained on the infusion due to persistent hypoglycemia. On the fourth day of his hospital stay, sub-cutaneous octreotide was begun at a dose of 100 micrograms every six hours. Approximately six hours after his second dose, blood glucose increased, and his dextrose infusion was weaned. Of note, the effectiveness of octreotide may have been augmented by the complete metabolism of glargine.

Refractory hypoglycemia is a condition requiring prolonged administration of dextrose-containing fluids and close monitoring in the intensive care unit. This management strategy has its limitations, as it requires the administration of large amounts of crystalloid, which may be detrimental to patients, including those with chronic kidney disease and heart failure. Furthermore, dextrose infusions have been shown to lead to ketoacidosis and hepatic steatosis. Octreotide is commonly used for the treatment of refractory hypoglycemia due to sulfonylurea toxicity. There has been only one case report of a significant consequence of the use of octreatide in sulfonylurea-induced hypoglycemia.

Furthermore, the common side-effects of octreotide administration including abdominal discomfort, nausea, and vomiting can easily be managed. There is little published data on the use of octreotide for refractory hypoglycemia not due to sulfonylurea overdose. Despite this, the suppression of pancreatic insulin production by octreotide suggests its effectiveness as a treatment for other causes of refractory hypoglycemia. In individuals with intact endogenous insulin production, it is reasonable to assume that octreotide is a viable adjunct to the currently established therapy of continuous dextrose administration for the treatment of refractory hypoglycemia.

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Calendar

March 2016

1 Lobby Day - 9:00 am - 1:30 pm - Albany, New York
1 Board of Directors Meeting - 1:30 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
18 2015 LLSA Course, SUNY Upstate Medical University, 8:30 am - 1:00 pm

April 2016

6 Emergency Medicine Resident Committee Conference Call, 2:00 pm
7 Medical Student Symposium and Residency Fair, Mount Sinai Beth Israel Medical Center, 6 pm -9:30 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

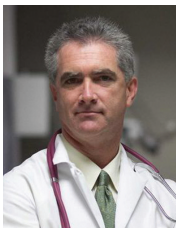
May 2016

4 Emergency Medicine Resident Committee Conference Call, 2:00 pm
5 Board of Directors Meeting - 1:30 pm - 5:30 pm - New York, New York
6 ED Director Forum, New York Academy of Medicine, 8:00 am - 4:00 pm - New York, New York
11 Education Committee Conference Call, 2:45 pm
11 Professional Development Conference Call, 3:30 pm
12 Practice Management Conference Call, 1:00 pm
15-18 ACEP Legislative Advocacy Conference and Leadership Summit, Washington DC
18 Government Affairs Conference Call, 11:00 am
18 Research Committee Conference Call, 3:00 pm
19 EMS Committee Conference Call, 2:30 pm

June 2016

1 Emergency Medicine Resident Committee Conference Call, 2:00 pm
8 Education Committee Conference Call, 2:45 pm
8 Professional Development Conference Call, 3:30 pm
9 Practice Management Conference Call, 1:00 pm
15 Government Affairs Conference Call, 11:00 am
15 Research Committee Conference Call, 3:00 pm
16 EMS Committee Conference Call, 2:30 pm

New York ACEP and My Career



Daniel G. Murphy, MD MBA FACEP
Chairman, Department of Emergency Medicine, St. Barnabas Hospital
New York ACEP, Immediate Past President

I offer this brief history to young emergency physicians who are wondering where their career will take them – and how New York ACEP might help.

In 1996, after spending more than a decade in Chicago learning to be an emergency physician, my wife Marie and I decided to relocate back to New York where we both grew up and where most of our extended family still lived.

The catalyst for the move was an ED Medical Director position at Maimonides Medical Center, where an exciting and academically structured emergency department was just taking root under the leadership of the chairman, Dr. Steven Davidson.

I spent eight years there as we organized, re-organized, and created an emergency medicine residency program, all as I earned my MBA. I evolved from an emergency physician into an emergency physician leader.

Simultaneous and crucial to that leadership evolution was participation in New York ACEP.

Soon after arriving in New York, I met JoAnne Tarantelli, the Executive Director of New York ACEP. Chapter committee work led to a seat on the New York ACEP Board of Directors. I did some task force and committee work for national ACEP and have been active on the ACEP Council throughout, but my interests have always been more local and regional, so New York ACEP suited me perfectly. The work was stimulating and gratifying.

As important, as an actively participating New York ACEP member, I was consistently and constantly meeting dozens and dozens of other emergency physicians. My "network" was becoming quite large. I didn't realize it at the time, but these new friends and colleagues would come in quite handy.

As my New York ACEP years were moving along, I decided in my early 40's that I was inclined and ready to be in charge, so I took a job as Director of the Emergency Department at Mercy Medical Center in Rockville Centre, Long Island, quite close to my home in Garden City. I worked closely with the emergency physicians, nurses, administration and medical staff at Mercy. We got a lot done and successfully overcame obstacles and adversity to achieve very objective improvements over eight years.

In fact, the successes at Mercy resulted in a promotion. The Catholic Health System of Long Island (CHSLI) offered me the position as Chairman of Emergency Medicine at the much larger Good Samaritan Hospital, in West Islip, New York, with its emergency medicine residency program. I was also offered the position of Service Line Chief of Emergency Medicine for the six-hospital system. Furthermore, I was now President of New York ACEP.

Boy was I in good shape! I was given direction from leadership and dove in head first. I was now 52 years old and well situated with a great job and tremendous responsibility. But alas, the new role was not a good fit for Good Samaritan (Good Sam), CHSLI or Dan Murphy. Soon after I got there both the leadership and strategy changed and I was unable or unwilling to adapt. My style and methods clashed with several stakeholders at Good Sam. As they say in the business, it was mutually agreed to end the relationship.

Uh oh! What now? 54 years old and adrift! This is not an easy thing for anyone to go through. I learned many lessons from the Good Sam experience, but in truth, I was not unhappy with the outcome. It was just not a good fit.

The first New York ACEP member in my network to help was Dr. Mark Hoornstra, the Director at St. Francis Hospital (also in CHSLI) who was gracious enough to take me on as a full time clinical emergency attending. To be a full time clinical staff member after being a Director or Chair for 18 years was at first difficult, but I soon started to enjoy it very much. I adapted! In fact, working a full clinical workload reminded me of why I had chosen emergency medicine in the first place.

I also began the rather daunting pursuit of another leadership role and my New York ACEP network made it easy for me.

My wife and I were driving to our son's soccer game on a Sunday morning when I took an unexpected call from Dr. Jerry Balentine, an emergency physician who I had gotten to know quite well over the years on the Board of New York ACEP. He had heard that I was available and he knew I had spent a decade out in the suburbs of Long Island, but he wondered if I would be interested in leading the Emergency Department at St. Barnabas Hospital, smack dab in the middle of the Bronx.

I had my doubts and paused and looked at my wife and said something like, "Well, I'm not sure Jerry but I'm very grateful that you are calling and would be happy to stop by."

Perhaps Jerry remembered that I was a Cook County graduate, I don't know. I visited St. Barnabas and I fell in love. After two visits, I realized that it was indeed a very excellent fit! It had a large residency program, an inner city patient population in need and operations that could benefit from my experience and MBA. I've been at St. Barnabas (SBH Health) for 18 months now and I have never been happier. We are getting things done! It is a very rewarding position as I navigate the last few furlongs of my career.

The moral of this story: Join and participate in the committees and board of New York ACEP. The emergency physicians that you get to know and keep in touch with along the way will be your most valuable career asset.

"The Standard of Care?"

William F. Paolo, Jr., MD FACEP
Residency Program Director and Associate Professor, Emergency Medicine
SUNY Upstate Medical University

"Standard of care" is a legal term whose colloquial medical usage, outside of tort law, has been unfortunately adopted by the medical infrastructure into its cultural lexicon. The implications of its usage, when related amongst physicians, is the suggestion that there is an accepted, established, and parsimonious rendering of medical care that all reasonable providers would, under similar circumstances, judiciously employ. It serves as an idealistic touchstone resting upon the foundations of summated evidence via which clinicians measure their individual and collective performances. Actions that deviate from the collective wisdom are deemed inappropriate, negligent, and worthy of derision for failing to practice within the established evidentiary parameters of the authoritative collective guild. Undermining this concept are the radical disparities of an agreed upon standard among clinical specialists and varying geographical norms that disrupt the foundations of a standardized standard of care. The very term itself is normative, proposing what ought to be rather than what currently is, based upon a leap of logic that has never been fully supported by medical empiricism as expressed within the evidentiary literature. The standard therefore may be determined by the collective, but more often it is determined by a scant few individuals utilizing the argument from authority to prescribe practice patterns. The difficulty lies in prospectively determining what current "standard of care" actually results in patient harm, as the medical story is replete with examples of injury obvious only in retrospect.

As an illustrative example, The PROWESS study[1], was released in 2001 in which activated protein C as manufactured and distributed by Eli-Lilly under the name Xigris was evaluated for the treatment of severe sepsis. 1,690 people with septic shock requiring vasopressors were randomized to receive either activated protein-C or placebo. The primary end point was death from any cause 28 days after infusion. Because of the results, the phase three trial was stopped early having demonstrated an absolute mortality reduction of 6% yielding a number needed to treat of 17. As is now widely known there were multiple issues with the original study and the subsequent 2012 PROWESS-Shock study[2] demonstrated no benefit and potential harms of Xigris. In 2014 it is easy to appreciate the issues of harm and need for reproduction and verification of PROWESS to overcome equipoise however physicians in 2001 had an apparently well done study that was stopped early due to patient benefit. One could not fault a 2001 physician for referring to activated protein C as the new standard of care for sepsis --- or can we?

Standard of care forces physicians to adopt an intellectually closed approach to evidence presuming that science has settled particular questions regarding clinical conundrums. Retrospectively the foolishness of this position is obvious as the inexorable progress of empiricism wrought through experimentation recurrently dismantles accepted evidentiary norms. The "standard" of current epochal standard care has no more underlying claim to absolute truth-value than previous erroneous medical misadventures exemplified by the various theories of humorism. The problem, as it were, is one of perspective as it is difficult to discern objective truths when temporally related to the perpetuation of often faulty ideas and attitudes. Only the march forward of time and accumulated wisdom is able to dismantle that which seemed once intuitively and evidentially obvious in a given medical period. The reasonable intellectual position to therefore adopt, as a profession, is one of radical agnosticism toward absolute truth claims and delineations of care as defined by standards. This is not to say that we should fall into nihilism and presume that all of our current care will one day be proven mistaken and therefore be paralyzed by the knowledge of transformation. The story of medical science, as all of science, is replete with advancements and misadventures with the system working to accumulate knowledge while dismissing failed intellectual ventures. "Standard of care" adopts a position of unsupported truth-value without the reason necessary for its nuanced interpretation. Though we may continue to utilize it as a profession it would be preferable to hand it, in its entirety, back to the lawyers who endowed us with it at the beginning.

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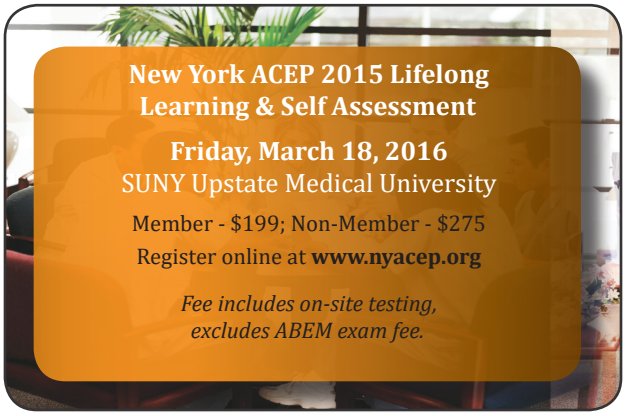

ETHICS

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

lgbT: How to Accommodate for Transgendered Individuals in the ED

A recent debate has evolved with the implementation of a hospital-wide EMR of how to accommodate for transgendered individuals with respect to their wrist band. Should the wrist band include their preferred name in addition to their legal name? People who have gone by their middle name say yes. Health care professionals who have concerns about multiple names leading to mistakes say no. I say that the benefits definitely outweigh the risks!

The issues surrounding caring for transgendered individuals particularly affects us in the ED setting, because they are more likely to access the ED for care. This is thought to be at least in part because they delay care until they are having an emergency, because they feel discriminated against in other health care environments. In 2009, 33% of 408 transgendered individuals responding to a survey accessed the ED over a 12-month period in Ontario, Canada. The survey suggested that they are also likely to be dissatisfied with their care in the ED. 52% reported trans-specific negative ED experiences, which included in order of occurrence: hurtful or insulting language (32%), told physician does not know enough to provide care (31%), thought gender marker on ID was a mistake (27%), belittled or ridiculed for being trans (24%), physician refused to discuss trans-related care (18%), discouraged from exploring gender (14%), told that they were not really trans (13%), physician refused to examine body parts (12%), and most concerning, physician refused to take care of the patient (10%) (Bauer et al., 2014).

> ***"It is incumbent upon us to truly take care of anyone for anything at anytime and to respect the identities of the patients for whom we care."***

In response to this sentinel article, Brown and Fu said that we should do the following: 1) train our medical students and residents; 2) provide safe environments; and 3) monitor our provision of care (Brown and Fu, 2014). These are all easy general directives to rally around.

It is also important to recognize that transgender is an umbrella term that also refers to genderqueer, genderfluid, transsexual, gender non-conforming, and two-spirit people (Cicero et al., 2015). The latter refers to a Native American concept of an individual not just simply being androgynous, but actually embodying the souls of both male and female spirits. This sort of detail should be included in our education of other health care professionals in order to be culturally sensitive.

The Institute of Medicine has recommended that we need to not only educate health care professionals on the needs of transgendered individuals, but also research best practices, including their designation in the EMR (IOM, 2011). The more detail that is included in the medical record, the more likely we will learn about trends of needs in this population.

A simple solution to the problem of transgendered individuals feeling threatened by the health care system is for health care professionals to use the preferred pronoun to show compassion to the patient (Lutwak, 2014). I encourage each of you to do so the next shift that you work and to engage on the topic at your next staff meeting. It is incumbent upon us to truly take care of anyone for anything at anytime and to respect the identities of the patients for whom we care.

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Call for Board and Councillor Nominations

Board Nominations

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

Four directors will be elected by the membership through a proxy ballot distributed at least 30 days prior to the annual membership meeting. The annual membership meeting will be held Thursday, July 7, 2016 at the Sagamore Resort on Lake George.

Board Members With Terms Ending in 2016

Nicole Berwald, MD FACEP*
David C. Lee, MD FACEP
Gary S. Rudolph, MD FACEP
Kaushal Shah, MD FACEP

**These board members are eligible for reelection to a second, three-year term.*

Interested candidates should review the Criteria for New York ACEP Board Nomination, Board Member Duties & Responsibilities, and send a completed nomination form along with a copy of their CV to New York ACEP by **April 1, 2016**. Self nomination and nominations of colleagues are accepted. To request the policies and nomination form, contact New York ACEP at (585) 872-2417 or by email at nyacep@nyacep.org.

Successful nominees will be notified after May 5, 2016. Board candidates are required to submit background information on their professional career, a photograph and answer questions posed to all board candidates. Candidates will have approximately two weeks to submit material.

Councillor Nominations

Active members of New York ACEP interested in serving as a New York ACEP Councillor are encouraged to submit their nomination(s) to the 2016 Nominating Committee for consideration as the committee develops the slate of candidates.

Councillors With Terms Ending in 2017

Brahim Ardolic, MD FACEP
Jay M. Brenner, MD FACEP
Theodore J. Gaeta, DO MPH FACEP
Sanjey Gupta, MD FACEP
David C. Lee, MD FACEP
Penelope C. Lema, MD FACEP
Daniel G. Murphy, MD MBA FACEP
William F. Paolo, Jr., MD FACEP
Gary S. Rudolph, MD FACEP
resident representative

Councillors With Terms Ending in 2016

Samuel F. Bosco, MD FACEP
Michael Cassara, DO FACEP
Michael G. Guttenberg, DO FACEP
Raymond Iannaccone, MD FACEP
Stuart G. Kessler, MD FACEP
Nestor B. Nestor, MD FACEP
David H. Newman, MD FACEP
Salvatore R. Pardo, MD FACEP
Louise A. Prince, MD FACEP
Christopher C. Raio, MD MBA FACEP
Frederick M. Schiavone, MD FACEP
Todd Slesinger, MD FACEP
Virgil W. Smaltz, MD MPA FACEP
Peter Viccellio, MD FACEP

The Board of Directors will elect 15 councillors at the Friday, July 8, 2016 Board meeting at the Sagamore Resort. Members interested in representing New York ACEP at the ACEP Annual Council Meeting, (October 16-19, 2016 in Las Vegas, NV), should submit a nomination form and their CV to New York ACEP. New York ACEP will be represented by 25 councillors at the 2016 ACEP Council meeting.

Deadline for nominations: April 1, 2016

EDUCATION

Guest Author:
Arlene S. Chung, MD
Medical Education Fellow and Attending Physician
Department of Emergency Medicine
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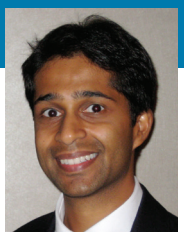

Kaushal H. Shah, MD FACEP
Residency Director Emergency Medicine
Icahn School of Medicine at Mt. Sinai

Stories To Live By

We tell stories all the time. Whether we are working clinically in the department or unwinding over dinner at home, we are continuously reframing and recounting our daily experiences—everything from mundane commutes to crashing patients. Each history of present illness is a story. Every shift change inspires dozens of impromptu stories. Our stories range from funny to heartbreaking; short quips to epic tales; heroic to shameful; and more often than not are punctuated by bodily fluids of some sort or another. As emergency physicians, we become experts at telling stories to consultants, to students, to our friends and family, and most of all to each other.

Throughout history, storytelling has served as a primal means of organizing and communicating the human experience.[1] Stories reveal the fundamental attitudes, values, and beliefs of a culture. When a resident impresses a medical student by remembering the time that he successfully resuscitated a patient without calling his attending, the student learns that the best residents do not reach for backup. When an attending wistfully reminisces about her days as an intern working overnight call in the hospital every other day for months on end, her residents learn that they must be weak-spirited to feel fatigued after working just 80 hours in one week. This is the culture we create for ourselves.

Even more revealing are the stories we do not tell. Stories of personal hardship, battles with depression and suicidal thoughts, or an ongoing struggle with alcohol. Occasionally we hear of a terrible event in the news, but these stories often do not filter down into our day-to-day work in the trenches. We tend to avoid our everyday stories of insecurity, frustration, and minor irritations. We keep quiet about the shameful bits—forgotten dosages, missed intubations, lost arguments against consultants. We do not talk about second-guessing our career path, missing important deadlines, our rising cholesterol, or an impending divorce.

Perhaps not surprisingly then, emergency physicians suffer from some of the highest rates of burnout compared to other physicians. A 2012 survey across multiple medical specialties in the U.S. found that up to 60% of practicing emergency medicine physicians admit to feelings of burnout.[2] Furthermore, as many as 75% of residents meet criteria for burnout in some studies.[3] Most of us intuitively understand burnout as a state of mental, emotional, and sometimes physical, exhaustion. Burnout may be transient for a day or omnipresent for years. It can range from mild feelings of dissatisfaction to full-blown major depressive symptoms and the consequences can be tragic. Physicians commit suicide at twice the average national rate[4] and younger physicians may also be at higher risk compared to older physicians. One study reported that up to 9.4% of fourth-year medical students and interns admitted to having suicidal thoughts during the previous two weeks.[5]

Telling stories has the therapeutic potential to combat burnout. We currently exist in a culture of medicine that holds up an unrealistic ideal—a physician who works all hours, never falls ill, and never makes mistakes—and simultaneously creates an environment of shame that prevents us from sharing our true experiences and thereby isolates us from each other. By sharing our stories, we can directly address certain factors leading to burnout and also perhaps change the culture of medicine into one that is more forgiving. Hearing our common experiences reflected in other people's stories can ease our isolation when faced with a crisis, whether professional or personal. Lack of personal efficacy, or the sense that we have no impact on the world, is a well-known contributor to burnout. But if we are given the opportunity to hear the endings of our stories—that our patient in cardiac arrest walked out of the hospital neurologically intact two months later or that our pregnant pre-eclamptic patient eventually went home with her healthy newborn—we can finally feel that we made a difference.

Little has been published on the value of stories and storytelling in medical education. However, given what we understand about the culture of medicine and burnout, storytelling about our clinical experiences may be an effective method to cultivate resilience and promote wellness among medical students, residents, and practicing physicians. Stories can be incorporated into written reflections, small group case-based scenarios, and larger lecture settings. Stories can be told by students, residents, attendings, patients, families, or guest lecturers. Stories can appear in formal didactic settings or informal mentor sessions. Simply put, storytelling can come from numerous sources in a variety of settings. With the specter of burnout and physician suicide growing darker each year, educators must face the challenge of addressing wellness from the undergraduate level all the way to continuing medical education. By incorporating stories and storytelling as an innovative educational tool early in the career of our physicians, we can hopefully continue to effect cultural change, fight burnout, and make a difference in the lives of not just our patients, but for ourselves as well.

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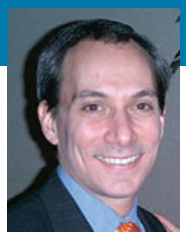

Compiled By:
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Diagnostic Emergency Ultrasound: Assessment Techniques in the Pediatric Patient.

Guttman J, Nelson BP; Department of Emergency Medicine, Division of Emergency Ultrasound, Long Island Jewish Medical Center, New Hyde Park; Pediatr Emerg Med Pract. 2016 Jan; (12):1-28.

Emergency ultrasound is performed at the point of care to answer focused clinical questions in a rapid manner. Over the last 20 years, the use of this technique has grown rapidly, and it has become a core requirement in many emergency medicine residencies and in some pediatric emergency medicine fellowships. The use of emergency ultrasound in the pediatric setting is increasing due to the lack of ionizing radiation with these studies, as compared to computed tomography. Utilizing diagnostic ultrasound in the emergency department can allow clinicians to arrive at a diagnosis at the bedside rather than sending the patient out of the department for another study. This issue focuses on common indications for diagnostic ultrasound, as found in the pediatric literature or extrapolated from adult literature where pediatric evidence is scarce. Limitations, current trends, controversies, and future directions of diagnostic ultrasound in the emergency department are also discussed.

Minor Head Injury: Limiting Patient Exposure to Ionizing Radiation, Risk Stratification, and Concussion Management.

Bharadwaj S, Rocker J.; Division of Pediatric Emergency Medicine, Cohen Children's Medical Center, New Hyde Park; Curr Opin Pediatr. 2015 Nov 30.

PURPOSE OF REVIEW: We review recommendations from recent publications on the evaluation of minor head trauma. We focus on the risks of radiation from computed tomographies (CTs), the establishment of patient risk stratifications to help guide the necessity of emergent neuroimaging, and current thoughts regarding concussions.

RECENT FINDINGS: Pediatric minor head injury is a common complaint in ambulatory settings. There is a significant amount of parental and practitioner anxiety regarding prognosis and whether or not to obtain CT imaging. New evidence has demonstrated the significant harmful effects of ionizing radiation. Recent studies have risk-stratified patients to identify those at risk of clinically important traumatic brain injury, to minimize the exposure to ionizing radiation for those who are at a low risk of any significant disorder.

SUMMARY: Pediatric minor head injury is a common complaint, but the vast majority of those injured will suffer no significant consequences. The Pediatric Emergency Care Applied Research Network has created an algorithm to identify minor head trauma patients who require emergent head CTs versus those at low risk who do not require neuroimaging. Additionally, in recent years there has been an increase in the occurrence of concussions. We describe the characteristics of concussions, appropriate management, and the return-to-play guidelines.

Lesson from the New York City Out-of-Hospital Uncontrolled Donation After Circulatory Determination of Death Program.

Wall SP, Kaufman BJ, Williams N, Norman EM, Gilbert AJ, Munjal KG, Maikhor S, Goldstein MJ, Rivera JE, Lerner H, Meyers C, Machado M, Montella S, Pressman M, Teperman LW, Dubler NN, Goldfrank LR; NYC uDCDD Study Group; Bellevue Hospital Center, New York, NY; Department of Emergency Medicine, NYU School of Medicine, New York; Ann Emerg Med. 2015 Nov 25.

STUDY OBJECTIVE: In 2006, the Institute of Medicine emphasized substantial potential to expand organ donation opportunities through uncontrolled donation after circulatory determination of death (uDCDD). We pilot an out-of-hospital uDCDD kidney program for New York City in partnership with communities that it was intended to benefit. We evaluate protocol process and outcomes while identifying barriers to success and means for improvement.

METHODS: We conducted a prospective, participatory action research study in Manhattan from December 2010 to May 2011. Daily from 4 to 12 pm, our organ preservation unit monitored emergency medical services (EMS) frequencies for cardiac arrests occurring in private locations. After EMS providers independently ordered termination of resuscitation, organ preservation unit staff determined clinical eligibility and donor status. Authorized parties, persons authorized to make organ donation decisions, were approached about in vivo preservation. The study population included organ preservation unit staff, authorized parties, passersby, and other New York City agency personnel. Organ preservation unit staff independently documented shift activities with daily operations notes and teleconference summaries that we analyzed with mixed qualitative and quantitative methods.

RESULTS: The organ preservation unit entered 9 private locations; all the deceased lacked previous registration, although 4 met clinical screening eligibility. No kidneys were recovered. We collected 837 notes from 35 organ preservation unit staff. Despite frequently recounting protocol breaches, most responses from passersby including New York City agencies were favorable. No authorized parties were offended by preservation requests, yielding a Bayesian posterior median 98% (95% credible interval 76% to 100%).

CONCLUSION: In summary, the New York City out-of-hospital uDCDD program was not feasible. There were frequent protocol breaches and confusion in determining clinical eligibility. In the small sample of authorized persons we encountered during the immediate grieving period, negative reactions were infrequent.

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Observation Units as Substitutes for Hospitalization or Home Discharge.

Blecker S, Gavin NP, Park H, Ladapo JA, Katz SD; Department of Emergency Medicine, NYU School of Medicine, New York; Ann Emerg Med. 2015 Nov 24.

STUDY OBJECTIVE: Observation unit admissions have been increasing, a trend that will likely continue because of recent changes in reimbursement policies. The purpose of this study is to determine the effect of the availability of observation units on hospitalizations and discharges to home for emergency department (ED) patients.

METHODS: We studied ED visits with a final diagnosis of chest pain in the National Hospital Ambulatory Medical Care Survey from 2007 to 2010. ED visits that resulted in an observation unit admission were propensity-score matched to visits at hospitals without an observation unit. We used logistic regression to develop a prediction model for hospitalization versus discharge home for matched patients treated at nonobservation hospitals. The model was applied to matched observation unit patients to determine the likely alternative disposition had the observation unit not been available.

RESULTS: There were 1,325 eligible visits that represented 5,079,154 visits in the United States. Two hundred twenty-seven visits resulted in an observation unit admission. The predictive model for hospitalization had a c statistic of 0.91; variables significantly associated with subsequent hospitalization included age, history of coronary atherosclerosis, systolic blood pressure less than 115 beats/min, and administration of antianginal medications. When the model was applied to matched observation unit patients, 49.9% of them were categorized as discharge home likely.

CONCLUSION: In this study, we estimated that half of ED visits for chest pain that resulted in an observation unit admission were made by patients who may have been discharged home had the observation unit not been available. Increased availability of observation units may result in both decreased hospitalizations and decreased discharges to home.

Integrating Health Equity into Practice and Policy.

Richardson LD; Departments of Emergency Medicine and Population Health Science and Policy, Icahn School of Medicine at Mount Sinai, New York; J Public Health Manag Pract. 2016 Jan-Feb;22 Suppl 1:S107-9.

Achieving health equity across all population groups is a goal that will require vision and commitment from all sectors. The Centers for Disease Control and Prevention (CDC) has a central role to play in this undertaking. In 2014, the Health Disparities Subcommittee of the Advisory Committee to the Director of the CDC made a series of recommendations to achieve health equity: (1) develop a CDC framework for action to achieve health equity; (2) identify and monitor indicators of health equity; (3) align universal interventions that promote better public health with more targeted, culturally tailored interventions in communities at highest risk; (4) support rigorous evaluation of all programs and interventions; (5) build community capacity to implement and sustain programs; and (6) support training and professional development of the workforce. These recommendations may serve as a useful blueprint for achieving health equity by state and local health agencies or other organizations.

What is the Prevalence and Success of Remediation of Emergency Medicine Residents?

Silverberg M, Weizberg M, Murano T, Smith JL, Burkhardt JC, Santen SA; SUNY Downstate/Kings County Hospital, Department of Emergency Medicine, New York; West J Emerg Med. 2015 Nov;16(6):839-44.

INTRODUCTION: The primary objective of this study was to determine the prevalence of remediation, competency domains for remediation, the length, and success rates of remediation in emergency medicine (EM).

METHODS: We developed the survey in Surveymonkey™ with attention to content and response process validity. EM program directors responded how many residents had been placed on remediation in the last three years. Details regarding the remediation were collected including indication, length and success. We reported descriptive data and estimated a multinomial logistic regression model.

RESULTS: We obtained 126/158 responses (79.7%). Ninety percent of programs had at least one resident on remediation in the last three years. The prevalence of remediation was 4.4%. Indications for remediation ranged from difficulties with one core competency to all six competencies (mean 1.9). The most common were medical knowledge (MK) (63.1% of residents), patient care (46.6%) and professionalism (31.5%). Mean length of remediation was eight months (range 1-36 months). Successful remediation was 59.9% of remediated residents; 31.3% reported ongoing remediation. In 8.7%, remediation was deemed "unsuccessful." Training year at time of identification for remediation (post-graduate year [PGY] 1), longer time spent in remediation, and concerns with practice-based learning and improvement (PBLI) and professionalism were found to have statistically significant association with unsuccessful remediation.

CONCLUSION: Remediation in EM residencies is common, with the most common areas being MK and patient care. The majority of residents are successfully remediated. PGY level, length of time spent in remediation, and the remediation of the competencies of PBLI and professionalism were associated with unsuccessful remediation.

Are Live Ultrasound Models Replaceable? Traditional Versus Simulated Education Module for FAST Exam.

Bentley S, Mudan G, Strother C, Wong N; Icahn School of Medicine at Mount Sinai, Department of Emergency Medicine, New York City; West J Emerg Med. 2015 Nov;16(6):818-22.

INTRODUCTION: The focused assessment with sonography for trauma (FAST) is a commonly used and life-saving tool in the initial assessment of trauma patients. The recommended emergency medicine (EM) curriculum includes ultrasound and studies show the additional utility of ultrasound training for medical students. EM clerkships vary and often do not contain formal ultrasound instruction. Time constraints for facilitating lectures and hands-on learning of ultrasound are challenging. Limitations on didactics call for development and inclusion of novel educational strategies, such as simulation. The objective of this study was to compare the test, survey, and performance of ultrasound between medical students trained on an ultrasound simulator versus those trained via traditional, hands-on patient format.

METHODS: This was a prospective, blinded, controlled educational study focused on EM clerkship medical students. After all received a standardized lecture with pictorial demonstration of image acquisition, students were randomized into two groups: control group receiving traditional training method via practice on a human model and intervention group training via practice on an ultrasound simulator. Participants were tested and surveyed on indications and interpretation of FAST and training and confidence with image interpretation and acquisition before and after this educational activity. Evaluation of FAST skills was performed on a human model to emulate patient care and practical skills were scored via objective structured clinical examination

(OSCE) with critical action checklist.

RESULTS: There was no significant difference between control group (N=54) and intervention group (N=39) on pretest scores, prior ultrasound training/education, or ultrasound comfort level in general or on FAST. All students (N=93) showed significant improvement from pre- to post-test scores and significant improvement in comfort level using ultrasound in general and on FAST ($p<0.001$). There was no significant difference between groups on OSCE scores of FAST on a live model. Overall, no differences were demonstrated between groups trained on human models versus simulator.

DISCUSSION: There was no difference between groups in knowledge based ultrasound test scores, survey of comfort levels with ultrasound, and students' abilities to perform and interpret FAST on human models.

CONCLUSION: These findings suggest that an ultrasound simulator is a suitable alternative method for ultrasound education. Additional uses of ultrasound simulation should be explored in the future.

Comparing an Unstructured Risk Stratification to Published Guidelines in Acute Coronary Syndromes.

Beck AJ, Hagemeijer A, Tortolani B, Byrd BA, Parekh A, Datillo P, Birkhahn R; New York Methodist Hospital, Department of Emergency Medicine, Brooklyn, New York; West J Emerg Med. 2015 Sep;16(5):683-9.

INTRODUCTION: Guidelines are designed to encompass the needs of the majority of patients with a particular condition. The American Heart Association (AHA) in conjunction with the American College of Cardiology (ACC) and the American College of Emergency Physicians (ACEP) developed risk stratification guidelines to aid physicians with accurate and efficient diagnosis and management of patients with acute coronary syndrome (ACS). While useful in a primary care setting, in the unique environment of an emergency department (ED), the feasibility of incorporating guidelines into clinical workflow remains in question. We aim to compare emergency physicians' (EP) clinical risk stratification ability to AHA/ACC/ACEP guidelines for ACS, and assessed each for accuracy in predicting ACS.

METHODS: We conducted a prospective observational cohort study in an urban teaching hospital ED. All patients presenting to the ED with chest pain who were evaluated for ACS had two risk stratification scores assigned: one by the treating physician based on clinical evaluation and the other by the AHA/ACC/ACEP guideline aforementioned. The patient's ACS risk stratification classified by the EP was compared to AHA/ACC/ACEP guidelines. Patients were contacted at 30 days following the index ED visit to determine all cause mortality, unscheduled hospital/ED revisits, and objective cardiac testing performed.

RESULTS: We enrolled 641 patients presenting for evaluation by 21 different EPs. There was a difference between the physician's clinical assessment used in the ED, and the AHA/ACC/ACEP task force guidelines. EPs were more likely to assess patients as low risk (40%), while AHA/ACC/ACEP guidelines were more likely to classify patients as intermediate (45%) or high (45%) risk. Of the 119 (19%) patients deemed high risk by EP evaluation, 38 (32%) were diagnosed with ACS. AHA/ACC/ACEP guidelines classified only 57 (9%) patients low risk with 56 (98%) of those patients diagnosed with no ACS.

CONCLUSION: In the ED, physicians are more efficient at correctly placing patients with underlying ACS into a high-risk category. A small percentage of patients were considered low risk when applying AHA/ACC/ACEP guidelines, which demonstrates how clinical insight is often required to make an efficient assessment of cardiac risk and established criteria may be overly conservative when applied to an acute care population.

Knowledge Translation and Barriers to Imaging Optimization in the Emergency Department: A Research Agenda.

Probst MA, Dayan PS, Raja AS, Slovis BH, Yadav K, Lam SH, Shapiro JS, Farris C(6,), Babcock CI, Griffey RT, Robey TE, Fortin EM, Johnson JO, Chong ST, Davenport M(13), Grigat DW(14), Lang EL(15); Department of Emergency Medicine, Icahn School of Medicine at Mount Sinai, New York; Acad Emerg Med. 2015 Nov 14.

Researchers have attempted to optimize imaging utilization by describing which clinical variables are more predictive of acute disease and, conversely, what combination of variables can obviate the need for imaging. These results are then used to develop evidence-based clinical pathways, clinical decision instruments, and clinical practice guidelines. Despite the validation of these results in subsequent studies, with some demonstrating improved outcomes, their actual use is often limited. This article outlines a research agenda to promote the dissemination and implementation (also known as knowledge translation) of evidence-based interventions for emergency department (ED) imaging, i.e., clinical pathways, clinical decision instruments, and clinical practice guidelines. We convened a multidisciplinary group of stakeholders and held online and telephone discussions over a 6-month period culminating in an in-person meeting at the 2015 Academic Emergency Medicine consensus conference. We identified the following four overarching research questions: 1) what determinants (barriers and facilitators) influence emergency physicians' use of evidence-based interventions when ordering imaging in the ED; 2) what implementation strategies at the institutional level can improve the use of evidence-based interventions for ED imaging; 3) what interventions at the health care policy level can facilitate the adoption of evidence-based interventions for ED imaging; and 4) how can health information technology, including electronic health records, clinical decision support, and health information exchanges, be used to increase awareness, use, and adherence to evidence-based interventions for ED imaging? Advancing research that addresses these questions will provide valuable information as to how we can use evidence-based interventions to optimize imaging utilization and ultimately improve patient care.

Diagnosis of Abdominal Mural Aortic Thrombus Following Discovery of Common Femoral Artery and Vein Thrombosis by Point-Of-Care Ultrasound.

Shaukat NM, Taha F, Vortsman E, Desai P, Kindschuh M; Department of Emergency Medicine, New York Presbyterian Queens, Flushing; J Ultrasound. 2015 Oct 6;18(4):415-20.

Acute limb ischemia (ALI) is a limb-threatening and life-threatening disease process. Mural aortic thrombosis (MAT) is a rare cause of ALI. While there is limited evidence on the use of bedside ultrasound for the detection of ALI or MAT, duplex ultrasound remains the standard in the diagnosis and ultimate medical decision-making in patients with acute and chronic limb ischemia. Point-of-care ultrasound may be used in the evaluation of patients with signs and symptoms of this disease entity. This is a case of a 79-year-old female with a complicated medical history, who presented with a pulseless right leg and abdominal tenderness. The patient quickly decompensated requiring intubation for airway protection. A post-intubation arterial blood gas (ABG) was unsuccessfully attempted in the right femoral artery, prompting an ultrasound-guided ABG. On B-mode ultrasound evaluation, echogenic material was visualized in the right common femoral artery without evidence of Doppler

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flow signal. Additionally, a partially obstructing echogenic material was also noted at the femoro-saphenous vein junction with only partial compressibility by compression sonography. A computed tomography angiography of the aorta was performed indicating extensive infrarenal aortic thrombosis. The patient expired despite the relatively prompt diagnosis, highlighting the importance of early identification of acute arterial occlusion.

Utility of Cardiac Troponin to Predict Drug Overdose Mortality.

Manini AF(1,), Stimmel B, Hoffman RS(4,), Vlahov D; Division of Medical Toxicology, Department of Emergency Medicine, Icahn School of Medicine at Mount Sinai, New York; Cardiovasc Toxicol. 2015 Nov 5.

Drug overdose is now the leading cause of injury-related mortality in the USA, but the prognostic utility of cardiac biomarkers is unknown. We investigated whether serum cardiac troponin I (cTnI) was associated with overdose mortality. This prospective observational cohort studied adults with suspected acute drug overdose at two university hospital emergency departments (ED) over 3 years. The endpoint was in-hospital mortality, which was used to determine test characteristics of initial/peak cTnI. There were 437 overdoses analyzed, of whom there were 20 (4.6 %) deaths. Mean initial cTnI was significantly associated with mortality (1.2 vs. 0.06 ng/mL, $p < 0.001$), and the ROC curve revealed excellent cTnI prediction of mortality (AUC 0.87, CI 0.76-0.98). Test characteristics for initial cTnI (90% specificity, 99% negative predictive value) were better than peak cTnI (88.2% specificity, 99.2% negative predictive value), and initial cTnI was normal in only one death out of the entire cohort (1/437, CI 0.1-1.4%). Initial cTnI results were highly associated with drug overdose mortality. Future research should focus on high-risk overdose features to optimize strategies for utilization of cTnI as part of the routine ED evaluation for acute drug overdose.

Cooling Methods in Heat Stroke.

Gaudio FG, Grissom CK; Division of Emergency Medicine, New York Presbyterian Hospital - Weill Cornell Medical Center, New York; J Emerg Med. 2015 Oct 31.

BACKGROUND: Heat stroke is an illness with a high risk of mortality or morbidity, which can occur in the young and fit (exertional heat stroke) as well as the elderly and infirm (nonexertional heat stroke). In the United States, from 2006 to 2010, there were at least 3,332 deaths attributed to heat stroke.

OBJECTIVE: To summarize the available evidence on the principal cooling methods used in the treatment of heat stroke.

DISCUSSION: Although it is generally agreed that rapid, effective cooling increases survival in heat stroke, there continues to be debate on the optimal cooling method. Large, controlled clinical trials on heat stroke are lacking. Cooling techniques applied to healthy volunteers in experimental models of heat stroke have not worked as rapidly in actual patients with heat stroke. The best available evidence has come from large case series using ice-water immersion or evaporation plus convection to cool heat-stroke patients.

CONCLUSIONS: Ice-water immersion has been shown to be highly effective in exertional heat stroke, with a zero fatality rate in large case series of younger, fit patients. In older patients with nonexertional heat stroke, studies have more often promoted evaporative plus convective cooling. Evaporative plus convective cooling may be augmented by crushed ice or ice packs applied diffusely to the body. Chilled intravenous fluids may also supplement primary cooling. Based on current evidence, ice packs applied strategically to the neck, axilla, and groin; cooling blankets; and intravascular or external cooling devices are not recommended as primary cooling methods in heat stroke.

Synthetic Cannabinoids and Their Effects on the Cardiovascular System.

Von Der Haar J, Talebi S, Ghobadi F, Singh S, Chirurgi R, Rajeswari P, Kalantari H, Hassen GW; Department of Emergency Medicine, New York Medical College at Metropolitan Hospital Center, New York; J Emerg Med. 2015 Oct 26.

BACKGROUND: In the past couple of years, there has been an outbreak of synthetic cannabinoid (SC) use in major cities in the United States. Patients can present with various symptoms affecting the central nervous and cardiovascular systems. The effects of endocannabinoid on contractility and Ca(2+) signaling

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have been shown through both cannabinoid receptors and a direct effect on ion channels. These effects result in abnormalities in ionotropy, chronotropy, and conduction.

CASE REPORT: Here we report on two cases of SC abuse and abnormalities in the cardiovascular system. These cases raise concerns about the adverse effects of SCs and the possibility of QTc prolongation and subsequent complications when using antipsychotic medication in the presence of SC abuse. WHY SHOULD AN EMERGENCY PHYSICIAN BE AWARE OF THIS? Given the rise in SC use and the potential effect on the cardiovascular system, physicians need to be mindful of potential cardiac complications, such as QTc prolongation and torsade de pointe, especially when administering medications that have the potential to cause QTc prolongation.

Naproxen with Cyclobenzaprine, Oxycodone/Acetaminophen, or Placebo for Treating Acute Low Back Pain: A Randomized Clinical Trial.

Friedman BW, Dym AA, Davitt M, Holden L, Solorzano C, Esses D, Bijur PE, Gallagher EJ; Department of Emergency Medicine, Montefiore Medical Center, Albert Einstein College of Medicine, Bronx, New York; JAMA. 2015 Oct 20;314(15):1572-80.

IMPORTANCE: Low back pain (LBP) is responsible for more than 2.5 million visits to US emergency departments (EDs) annually. These patients are usually treated with nonsteroidal anti-inflammatory drugs, acetaminophen, opioids, or skeletal muscle relaxants, often in combination.

OBJECTIVE: To compare functional outcomes and pain at 1 week and 3 months after an ED visit for acute LBP among patients randomized to a 10-day course of (1) naproxen+placebo; (2) naproxen+cyclobenzaprine; or (3) naproxen+oxycodone/acetaminophen.

DESIGN, SETTING, AND PARTICIPANTS: This randomized, double-blind, 3-group study was conducted at one urban ED in the Bronx, New York City. Patients who presented with nontraumatic, nonradicular LBP of 2 weeks' duration or less were eligible for enrollment upon ED discharge if they had a score greater than 5 on the Roland-Morris Disability Questionnaire (RMDQ). The RMDQ is a 24-item questionnaire commonly used to measure LBP and related functional impairment on which 0 indicates no functional impairment and 24 indicates maximum impairment. Beginning in April 2012, a total of 2,588 patients were approached for enrollment. Of the 323 deemed eligible for participation, 107 were randomized to receive placebo and 108 each to cyclobenzaprine and to oxycodone/acetaminophen. Follow-up was completed in December 2014.

INTERVENTIONS: All participants were given 20 tablets of naproxen, 500 mg, to be taken twice a day. They were randomized to receive either 60 tablets of placebo; cyclobenzaprine, 5 mg; or oxycodone, 5 mg/acetaminophen, 325 mg. Participants were instructed to take 1 or 2 of these tablets every 8 hours, as needed for LBP. They also received a standardized 10-minute LBP educational session prior to discharge.

MAIN OUTCOMES AND MEASURES: The primary outcome was improvement in RMDQ between ED discharge and 1 week later.

RESULTS: Demographic characteristics were comparable among the 3 groups. At baseline, median RMDQ score in the placebo group was 20 (interquartile range [IQR],17-21), in the cyclobenzaprine group 19 (IQR,17-21), and in the oxycodone/acetaminophen group 20 (IQR,17-22). At 1-week follow-up, the mean RMDQ improvement was 9.8 in the placebo group, 10.1 in the cyclobenzaprine group, and 11.1 in the oxycodone/acetaminophen group. Between-group difference in mean RMDQ improvement for cyclobenzaprine vs placebo was 0.3 (98.3% CI, -2.6 to 3.2; P=.77), for oxycodone/acetaminophen vs placebo, 1.3 (98.3% CI, -1.5 to 4.1; P=.28), and for oxycodone/acetaminophen vs cyclobenzaprine, 0.9 (98.3% CI, -2.1 to 3.9; P=.45).

CONCLUSIONS AND RELEVANCE: Among patients with acute, nontraumatic, nonradicular LBP presenting to the ED, adding cyclobenzaprine or oxycodone/acetaminophen to naproxen alone did not improve functional outcomes or pain at 1-week follow-up. These findings do not support use of these additional medications in this setting.

The Pharmacokinetics and Extracorporeal Removal of N-Acetylcysteine During Renal Replacement Therapies.

Hernandez SH, Howland M, Schiano TD, Hoffman RS; Division of Medical Toxicology, Department of Emergency Medicine , Icahn School of Medicine at Mount Sinai, New York; Clin Toxicol (Phila). 2015 Dec;53(10):941-9.

OBJECTIVE: Acetaminophen-induced fulminant hepatic failure is associated with acute kidney injury, metabolic acidosis, and fluid and electrolyte imbalances, requiring treatment with renal replacement therapies. Although antidote, acetylcysteine, is potentially extracted by renal replacement therapies, pharmacokinetic data are lacking to guide potential dosing alterations. We aimed to determine the extracorporeal removal of acetylcysteine by various renal replacement therapies.

METHODS: Simultaneous urine, plasma and effluent specimens were serially collected to measure acetylcysteine concentrations in up to three stages: before, during and upon termination of renal replacement therapy. Alterations in pharmacokinetics were determined by applying standard pharmacokinetic equations.

RESULTS: Over 2 years, 10 critically ill patients in fulminant hepatic failure requiring renal replacement therapy coincident with acetylcysteine were consecutively enrolled. All 10 patients required continuous venovenous hemofiltration (n=10) and 2 of the 10 also required hemodialysis (n=2). There was a significant alteration in the pharmacokinetics of acetylcysteine during hemodialysis; the area under the curve (AUC) decreased 41%, the mean extraction ratio was 51%, the mean hemodialytic clearance was 114.01 ml/kg/h, and a mean 166.75 mg/h was recovered in the effluent or 41% of the hourly dose. Alteration in the pharmacokinetics of acetylcysteine during continuous venovenous hemofiltration did not appear to be significant: the AUC decreased 13%, the mean clearance was 31.77 ml/kg/h and a mean 62.12 mg/h was recovered in the effluent or 14% of the hourly dose.

CONCLUSIONS: There was no significant extraction of acetylcysteine from continuous venovenous hemofiltration. In contrast, there was significant extracorporeal removal of acetylcysteine during hemodialysis. A reasonable dose adjustment may be to double the IV infusion rate or possibly supplement with oral acetylcysteine during hemodialysis.

Derivation and Preliminary Validation of a Risk Score to Predict 30-Day ED Revisits for Sickle Cell Pain.

Glassberg J, Simon J, Patel N, Jeong JM, McNamee JJ, Yu G; Department of Emergency Medicine, Icahn School of Medicine at Mount Sinai, New York; Am J Emerg Med. 2015 Oct;33(10):1396-401.

BACKGROUND: Emergency department (ED) revisits and 30-day readmissions have been proposed as markers for quality of ED care for sickle cell disease (SCD).

OBJECTIVE: To create a scoring system that quantifies the risk of 30-day revisit after ED discharge for SCD vaso-occlusive pain.

METHODS: This was a dual-center retrospective derivation and validation cohort study. The

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derivation was performed at an academic, tertiary care center and the validation at an urban community hospital. The primary outcome was revisit to the ED within 30 days after an ED discharge for SCD pain. Recursive partitioning was used to derive a scoring system to predict 30-day revisits.

RESULTS: Of a total of 1,456 ED visits for SCD pain, there were 680 ED discharges (admission rate of 53%) in 193 unique individuals included in the derivation cohort. There were 240 (35.3%) 30-day revisits. Of a total of 126 ED visits for SCD, there were 79 ED discharges in 41 unique individuals in the validation cohort. The final risk score included 4 variables: (1) age, (2) insurance status, (3) triage pain score, and (4) amount of opioids administered during the ED visit. Possible scores range from 0 to 6. The areas under the receiver operating characteristic curves were 0.746 (95% confidence interval, 0.71-0.78-derivation cohort) and 0.753 (95% confidence interval, 0.65-0.86-validation cohort). A cutoff of 4 or greater identified 60% of 30-day ED revisits in the derivation cohort and 80% of revisits in the validation cohort.

CONCLUSIONS: A risk score can identify ED visits for SCD pain with high risk of 30-day revisit.

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, NY; 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 1,700 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.

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, NY; 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.

Descriptive Study of Prescriptions for Opioids from a Suburban Academic Emergency Department Before New York's I-STOP Act.

Ung L, Dvorkin R, Sattler S, Yens D; Good Samaritan Hospital Medical Center, Department of Emergency Medicine, West Islip; West J Emerg Med. 2015 Jan;16(1):62-6.

INTRODUCTION: Controlled prescription opioid use is perceived as a national problem attributed to all specialties. Our objective was to provide a descriptive analysis of prescriptions written for controlled opioids from a database of emergency department (ED) visits prior to the enactment of the I-STOP law, which requires New York prescribers to consult the Prescription Monitoring Program (PMP) prior to prescribing Schedule II, III, and IV controlled substances for prescriptions of greater than five days duration.

METHODS: We conducted a retrospective medical record review of patients 21 years of age and older, who presented to the ED between July 1, 2011 - June 30, 2012 and were given a prescription for a controlled opioid. Our primary purpose was to characterize each prescription as to the type of controlled substance, the quantity dispensed, and the duration of the prescription. We also looked at outliers, those patients who received prescriptions for longer than five days.

RESULTS: A total of 9,502 prescriptions were written for opioids out of a total 63,143 prescriptions for 69,500 adult patients. Twenty-six (0.27%) of the prescriptions for controlled opioids were written for greater than five days. Most prescriptions were for five days or less (99.7%, 95% CI [99.6 to 99.8%]).

CONCLUSION: The vast majority of opioid prescriptions in our ED prior to the I-STOP legislature were limited to a five-day or less supply. These new regulations were meant to reduce the ED's contribution to the rise of opioid related morbidity. This study suggests that the emergency physicians' usual prescribing practices were negligibly limited by the new restrictive regulations. The ED may not be primarily contributing to the increase in opioid-related overdoses and death. The effect of the I-STOP regulation on future prescribing patterns in the ED remains to be determined.

PEDIATRICS

Denis R. Pauzé, MD FACEP
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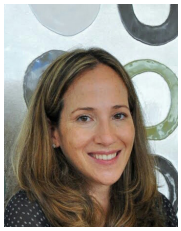
Pediatric Case Files: Poor Feeding and Lethargy in Infants

Guest Author:
Nicholas Otts, MD
Pediatic Emergency Medicine Attending
Staten Island University Hospital



Guest Author:
Gal Altberg, MD
Resident, Emergency Medicine
Staten Island University Hospital

Case Presentation

A 6 week old male was brought to the ED by his mom for refusing feeds for two days. The patient was evaluated a day earlier in the pediatrician's office for similar complaints but did feed two ounces in the office. He was sent home with instructions to monitor feeds and go to the ED if symptoms worsened. The patient was born at 39.6 weeks via Csection for failure to progress and had a prenatal diagnosis of hydronephrosis. The mother was GBS negative with an uncomplicated pregnancy and labor. The patient after birth went to the regular nursery. According to the parents, the patient has had decreased oral intake for the past 48 hours, the patient typically feeds four ounces of breastmilk and formula every three to four hours and has not started solids. The patient had only one wet diaper for the past 12 hours. The last BM was two days ago. The patient was afebrile at home, with no emesis or diarrhea. An extensive review of symptoms was otherwise unremarkable and there was no travel history. There are no genetic or metabolic disorders in the family and the parents aren't related. The family seemed very reliable and caring with no concerns for physical abuse.

On examination, the patient was alert, had flushed cheeks, and did not appear toxic. His temperature was 98.4°F, blood pressure was 105/69, pulse 140 beats per minute, respiratory rate 38 breaths per minute, and his oxygen saturation was 100%. Fontanelle was slightly depressed. There was no scalp hematoma or bruising. Pupils were equal and reactive and extra ocular movement intact. The patient was moving all extremities, had normal suck and palmar grasp reflexes, and normal tone. No bruises or rash were noted in the remainder of the skin exam. The remainder of the physical exam was unremarkable.

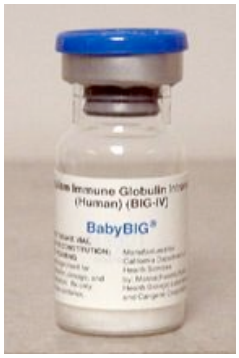
ED Course

The patient was afebrile and nontoxic in appearance, but was refusing to take oral feeds. A blood glucose, venous blood gas, complete blood count and complete metabolic panel was ordered. Since there was a prenatal diagnosis of possible hydronephrosis, the emergency physician ordered a urinalysis/urine culture as well as a kidney ultrasound. The patient had a blood glucose of 59 mg/dL and received a D10W bolus of 5ml/kg. The remainder of the laboratory testing was unremarkable. Kidney US didn't demonstrate any abnormalities. After a D10W and NS bolus the patient continued to refuse PO and therefore was admitted to the pediatric floor for IV hydration and observation. Infectious disease was consulted and recommended that no additional intervention was needed at this time.

Inpatient Course

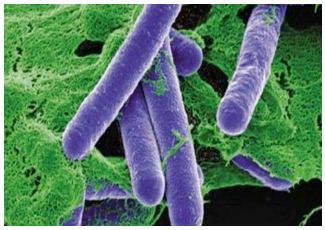
The patient was admitted to the pediatric floor, and overnight, developed weak suck, weak cry and progressively poorer muscle tone. The patient was transferred to the ICU, where he eventually developed sluggishly reactive pupils as well as bradycardia associated with oxygen desaturations. The patient was intubated and kept on a ventilator. The patient was given one dose of botulism immunoglobulin ("Baby BIG") prior to intubation. The patient's stool culture was later found to be positive for botulism toxin and made a full recovery with treatment.

Discussion



The differential diagnosis of an infant with poor feeding is sepsis, toxic ingestion, metabolic or genetic disorders, endocrine disorders (congenital adrenal hyperplasia), trauma and neurologic disorders. Our patient was non toxic appearing, afebrile, and had normal laboratory values except for hypoglycemia. Our patient began having respiratory failure along with poor feeding, constipation and weakness which was suggestive of a diagnosis of Infant Botulism.

C. Botulinum is a gram positive spore forming anaerobe that can present in food and soil. C. Botulinum has been known to produce seven distinct subtypes of toxins. Almost all cases of infant botulism in the US are caused by sub typed A and B. Spores colonize theinfant's intestinal tract and produce toxins that prevent cholinergic synapses in neuromuscular junctions. This causes flaccid paralysis.[1] Though Botulism is rare, it is estimated that 80-110 children are hospitalized each year in the United States.[2] Infant botulism tends to strike infants between the ages of two to six months.[3] Though classically obtained in infants via exposure to botulism spores in honey, spores can be transferred via dirt and soil exposure. Thus, parents who work with dirt and soil or live near construction sites could place their children at risk; therefore, a negative history of exposure to honey cannot be used to rule out the diagnosis.[4] The initial presenta-



PEDIATRICS

tion of botulism can be subtle especially in infants. Children may present initially with constipation and poor feeding only. A symmetric bulbar palsy (fatigable pupils, poor suck, decreased gag, ptosis, etc.) can be the distinguishing factor that highlights this diagnosis among a broad differential for decreased feeding and lethargy, but is not always present on initial presentation.[5,6] Diagnosis is confirmed by detection of botulinum toxin in stool samples, however, since patients often present with constipation it is often hard to collect stool for samples. Additionally, once stool is collected it can take up to a week for spores to be detected. Intravenous botulism Immunoglobulin (Baby BIG) is the standard treatment and should be initiated right away when there is a strong suspicion of botulism. Baby BIG functions by neutralizing all circulating botulinum toxins.[5] Baby BIG has been shown to decreases length of hospital stay and risk of comorbidities that arise from treatment, such as infections post intubation and mechanical ventilation.[7] Patients properly treated are expected to make a full recovery.

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Observational Units

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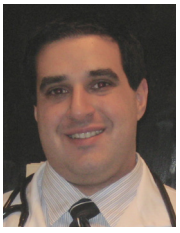

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Observation Units (OUs) are designated areas for emergency department (ED) patients who require further treatment and evaluation to determine their need for hospital admission. Observation, in general, is an outpatient status which may be carried out within the ED itself, in an adjacent dedicated area (OU), or in a "virtual" location where the patient actually occupies a standard inpatient bed. It is generally agreed upon that distinct, designated units optimize returns through the use of protocolized services with focused patient care goals. Emergency physicians are uniquely positioned and skilled to operate these units. Observation services will be a great asset to your department, but there will be hurdles and bumps along the way. So you are set to run your own OU-here are a few pearls and pitfalls to keep in mind…

Send Your "A" Team

There is no question that clinical work in an OU tends to be less intense than the daily grind of a chaotic ED. However, do not make the mistake of staffing your unit with physicians who are unable to function with pace. A well run OU has a high bed turnover. The department's most astute clinicians should staff the unit as it can serve as an optimal vehicle to provide quality oversight for your entire department. The OU team will review the care of prospective patients providing real time oversight of ED decision-making. The OU physician can provide guidance to the ED team on cases where disposition is not straightforward. The observation physicians should be knowledgable in admission criteria, as well, to help direct these dispositions and suggest alternatives when applicable. The OU team also serves as a useful source of follow-up for their ED brethren. This feedback is often lacking as EM physicians often are unable to find the time to track patient outcomes after the ED encounter. Expert clinicians operating the OU are able to manage patients expeditiously and uncover unexpected diagnoses, such as cholecystitis or pulmonary emboli in cases transferred to the OU to exclude or treat other diagnoses.

Finally, cases will arise where difficult decisions need to be made. Patients may be placed in observation when no clear plan can be agreed upon between the ED team and an admitting service. It is here that having a strong, clinically experienced, utilization knowleagable OU team will help direct patient care and improve efficiency in both the ED and the OU, while getting patients the care they need and deserve.

Smooth the Transfer

Having a closed, dedicated unit is ideal. A common operational bottleneck for observation patients being sent to a dedicated unit is delay in the physical patient transfer. This delay can erode one of the primary benefits of the unit - to help improve flow and decant a busy ED. It is imperative to formally address the patient transfer process in writing to facilitate movement of patients from the busy ED to the OU. Nursing sign-out from ED to OU is helpful, but should be completed verbally in an abbreviated format. Accountable personnel should be designated to transport patients from unit to unit. Bed availability information should be dynamic and real-time. A reasonable goal for time from OU acceptance to OU bed placement is less than 30 minutes.

Documentation Training

There are intricacies in medical record documentation for observation patients that must be understood by nursing, physician and advanced practice professional staff prior to implementing an OU. It is critical to develop a training program to review these documentation requirements. H&P's have specific billing criteria beyond those of the ED record. Progress notes and re-evaluations must be documented on a regular basis. Of particular importance is the completion of an accurate medication reconciliation and discharge summary for all cases. These are instrumental for continuity of care and adequate discharge planning. They are also tasks that ED physicians are not accustomed to diligently performing.

Patient Ownership

The benefits of an ED run OU are numerous, but it should be stressed that the unit is still a part of the ED. The team approach should not be abandoned. The ED and OU teams must work together in identifying appropriate patients and developing care plans and goals. The unit is not a "dumping ground" for difficult/social issue cases. The unit should be viewed as a functioning cog in the Emergency Medicine wheel. Most OU are not staffed with attending physician coverage 24/7. Therefore it is critical to have a formal written process to address responsibility for any urgent or emergent patient care needs. Who responds to critical patient care issues should they arise at all hours of the day must be clearly delineated. These patients are ED patients so ownership should never come into question.

Interdepartmental Collaboration

Observation will necessitate partnerships with other departments to assist in patient care, efficiency and disposition. Target Cardiology to develop acute coronary syndrome algorithms and follow-up resources, Neurology for transient ischemic attack patients, and Radiology to assure diagnostic imaging is completed and reported in a timely manner. The OU team will engage with primary care physicians and hospitalists often to discuss cases and assign appropriate dispositions. Hospital leadership must be supportive in allocating resources to achieve length of stay goals and benchmarks. Working with case management, social work, and physical therapy in your institution will be necessary to assist with appropriate dispositions. These latter are resources and relationships EM physicians are often not routinely accessing. It is imperative that these teams be integrated into the observation medicine paradigm. These types of collaborative efforts should be initiated prior to the opening of the unit. "Surprise, we just ordered four nuclear stress tests, three MRI's, and placed five physical therapy consults in the OU this morning", is not the way to go!

Protocols

Most OUs have clinical protocols established prior to launch, but these should be dynamic in nature. As operations unfold, it is not uncommon to discover tweaks that will smooth patient care and flow. The protocols should be easily accessible for both OU and ED providers, and a feedback mechanism regarding the protocols from providers to leadership should be available for performance improvement purposes. Consultations should be limited and focused, to align with the protocols. They should be monitored to avoid unnecessary testing that potentially could be performed on an outpatient basis. "Protocol creep" is not uncommon where ED clinicians or admitting services will attempt to overstep the inclusion/exclusion criteria, or provide interesting arguments where exceptions should be made to enable them to transfer a patient into the OU. Again, this is when an OU clinician with knowledge of admission criteria is useful. While every patient is unique, it cannot be overlooked that OUs work best when providing protocolized care. It is important to remember OU patients should be expected to have a limited duration and intensity of service.

Always remember the four red flags that frequently lead down the path to inpatient admission for patients in your OU:

1. More than 1 active problem.
2. Poly-pharmacy.
3. Multiple co-morbidities.
4. "Difficult" Patients: substance abuse, psychiatric history, potential for sundowning, transferred for pain control with no identifiable cause.

Conclusion

When developing an OU it is vital to plan ahead, align the proper resources and select the appropriate team. After opening it is important to stay diligent; regularly engage in feedback, review cases, evaluate flow, and update protocols and policies. The OU will be a valuable resource for streamlining patient care, decreasing unnecessary hospital admissions, promoting patient safety, and increasing patient satisfaction.

Interfacility Transport of Blood Products

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An elderly man on warfarin crashes his car into a tree. He's brought by EMS to a small hospital in rural New York. When he arrives, his mental status is altered and a CT scan demonstrates a very small subdural hematoma. There is one doctor and one nurse working in this emergency department. They initiate a transfusion of fresh frozen plasma, call the trauma center for acceptance of transfer, and request an ambulance for transport. When the ambulance arrives they advise the physician that they cannot transport the patient because of the fresh frozen plasma unless they take the nurse with them. The nurse cannot leave the emergency department, so the transfer must wait until the transfusion is complete or a nurse arrives from home to assist with the transfer. During this delay, the patient's mental status deteriorates and by the time he arrives at the trauma center he is obtunded and the prognosis is poor. While this case seems dramatic and unrealistic given modern-day medicine, it is an everyday occurrence for the physicians and nurses working in our critical access and community hospitals.

Until just a few months ago, EMS providers in New York were not allowed to transport patients with blood or blood products transfusing. This has been a recognized problem for some time. In 2005, New York ACEP member, Dr. Deborah Funk, chaired a technical advisory group specifically tasked to look at interfacility critical care transport. Her group collected documentation supporting the need for prehospital providers to enhance their capabilities in managing the acutely ill interfacility transport patient.

The technical advisory group identified two major barriers. The first was the need for additional training by those who are taking care of our sickest patients traveling between hospitals in New York. The second and more formidable barrier was the finding that patients frequently could not be transported between hospitals in New York because regulations prohibit carrying blood or blood products without the presence of a nurse. This lead to nearly a decade of meetings between the Department of Health Bureau of Emergency Medical Services and the Blood and Tissue Resources Program.

We are happy to share that the New York State Department of Health has issued guidelines for transporting patients with blood transfusions and blood products in ambulances. Bureau policy statement 15 – 06 "Transporting patients with blood/blood products" offers a template for EMS Medical Directors to follow to allow their agencies to transport patients with blood products hanging. Importantly, this enabling legislation and policy allows for an EMS service to continue blood products that are begun in a hospital, not to begin the administration of blood products, de novo, in the field. Indeed, for patients requiring urgent transfusion, or for patients who have a coagulopathy requiring fresh frozen plasma or other blood products, this is a life-saving addition to the EMS scope of practice.

There are very specific policies and procedures EMS providers and their agencies must develop with the blood banks of sending facilities in order to do this safely and within these regulations. Most specifically, written agreements must be approved and signed by the hospital's transfusion service director, the Medical Director of the ambulance agency, and the ambulance agency's Chief Executive Officer. There must be patient care thermometers and the ambulance providers must be able to monitor and document the condition of the patient receiving the transport. EMS providers must also be taught to recognize and treat adverse transfusion reactions. While this may sound complex, there are templates and resource documents being developed by EMS physicians around the state, and members of the New York ACEP EMS Committee may be able to assist you. Each Emergency Department director should consider working with the ambulance agency most likely to do outgoing transfers and assist in developing a relationship between the transfusion service director and the ambulance agency.

While the process of engaging in an ambulance transfusion program seems difficult, for our critical access and community hospitals and their patients, this change in regulation is life-saving. No longer will we need to send one of our most valuable resources, a nurse, just because the patient is receiving blood. However, it is our responsibility as emergency physicians and leaders in our institutions, to assure that the regulations are followed. For some ambulance agencies this will be relatively simple - one ambulance agency and one hospital. For others, such as some of the flight programs, this is much more complex, as they must have a relationship and an agreement with every hospital they may fly patients from. Please work to assist these programs with this regulatory hurdle so that they may best care for your patients.

New York's emergency physicians want to thank Dr. Funk for her tireless work on this project, as well as the leadership of Director Lee Burns from the Bureau of EMS and Dr. Jeanne Linden, Director of the Blood and Tissue Resources program of the Department of Health for all of their work on behalf of the patients of New York. This hard work will save the lives of our patients.

The Sepsis Journey and an Update on Sepsis Measures

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Sepsis is one of the oldest syndromes in medicine but the last 2-3 decades has witnessed significant improvements in the care of these acutely ill patients. In the United States, approximately 2% of patients are admitted to the hospital for severe sepsis or septic shock. Of these patients, half are treated in the intensive care unit (ICU). Before the establishment of modern day intensive care, severe sepsis and septic shock were often lethal. With better identification and monitoring, improvement in education, early initiation of treatment, source control and the ability to provide vital-organ support, mortality rates in these patients are now closer to 20-30%. Continued improvements in morbidity, mortality, and length of stay are achieved through quality initiatives that integrate the sepsis guidelines. Sepsis measures have the potential to advance the science and practice of quality improvement and ensure that every patient receives the currently recognized best practice. When this best practice changes, quality measurements should change in tandem. Below is a look at the sepsis journey and the latest on the sepsis measures.

The Sepsis Journey

1992: The first international consensus panel defined sepsis as a systemic inflammatory response to infection and sepsis could arise in response to multiple infectious causes. The term "severe sepsis" was used to describe instances in which sepsis was complicated by acute organ dysfunction. The term "septic shock" was used to describe sepsis complicated by either hypotension that was refractory to fluid resuscitation or by hyperlactatemia.

2001: Rivers E, et al. published "Early Goal Directed Therapy (EGDT) in the Treatment of Severe Sepsis and Septic Shock" in the New England Journal of Medicine. Besides establishing benefits of aggressive early goal directed therapy for this entity, this paper supported the "golden hour" of Emergency Medicine.

2002: The Surviving Sepsis Campaign (SSC) set a goal to reduce mortality from sepsis by 25% in 5 years (which translated to the year 2009, five years after the publication of the first set of guidelines in 2004). The seven point agenda included: building awareness of sepsis, improving diagnosis, increasing the use of appropriate treatment, educating healthcare professionals, improving post-Intensive Care Unit (ICU) care, developing guidelines of care and implementing a performance improvement program.

2003-2004: The SSC partnered with the Institute for Healthcare Improvement (IHI) to apply their quality improvement strategies to the treatment of sepsis. The SSC Bundles emerged from this collaboration and the first set of international guidelines for management of severe sepsis and septic shock were issued. ACEP joined SSC.

2005: Implementing the Surviving Sepsis Campaign manual was published.

2008: The second edition of SSC Guidelines was published. National Quality Forum (NQF) #0500 measure was first released.

2012: Rory Staunton, a 12-year-old Queen's boy died of severe sepsis after he became infected, reportedly from a cut he suffered while playing basketball. The severity of his illness was not recognized timely during his emergency room visit. Prompted by his death and the advocacy of his parents, New York Health officials assured to make New York the first state in the nation to require that hospitals aggressively look for sepsis in patients in order to expedite treatment. The third edition of the SSC Guidelines was published.

2013: Regulatory bodies in the United States adopted the Surviving Sepsis Campaign Bundles as mandated measures. In April 2013, New York State's Public Health and Health Planning Council approved regulations outlining Hospital Sepsis Protocols.

The regulations included:

- Require hospitals to use evidence-based protocols for the early recognition and treatment of patients with severe sepsis and septic shock.
- Specify six specific components that must be included in hospital sepsis protocols for adults and children; and
- Outline framework for data collection for the purposes of internal quality improvement and hospital reporting to the Department of Health (DOH). This information will be made public.

2014: The ProCESS Investigators published *A Randomized Trial of Protocol-Based Care for Early Septic Shock*. The ARISE Investigators and the ANZICS Clinical Trial Group published *Goal-Directed Resuscitation for Patients with Early Septic Shock.*

2015: The ProMISe Trial Investigators published "Trial of Early, Goal-Directed resuscitation for Septic Shock". CMS Early Management Bundle, Severe Sepsis/Septic Shock (SEP-1) measure went into effect.

Sepsis Measures

National Quality Forum (NQF) #0500

The NQF's #0500 Measure was first released in 2008 but was modified throughout the years to ensure it reflects the latest guideline recommendations, addresses areas most in need of performance improvement, and incorporates results of worldwide data collection and quality improvement initiatives. The purpose of Henry Ford Hospital´s severe sepsis and septic shock early management bundle was to support the efficient, effective, and timely delivery of high quality sepsis care in support of the Institute of Medicine's (IOM) aims for improvement. This initiative was consistent with the HHS National Quality Strategy´s priorities directed at one of the leading causes of mortality. Depending on the patient's presentation or hospital course, these patients are eligible for the three hour (severe sepsis) and/or six hour (septic shock) early management bundle.

NQF's Definition of Severe Sepsis and Septic Shock

Severe Sepsis

- Severe sepsis is defined as a suspected source of clinical infection, two or more manifestations of systemic infection (SIRS criteria) and the presence of sepsis-induced organ dysfunction.
- SIRS criteria include: Temperature >38.3 C or <36.0 C, Heart rate >90 beats per minute, Respiration > 20 breaths/min, White blood cell count >12,000 or <4000/mm3, or >10% bandemia.
- Organ dysfunction variables include:
    - SBP<90 mm Hg or **MAP <70 mm Hg** or a SBP decrease >40 mm Hg or <2 SD below normal for age or known baseline
    - Creatinine > 2.0 mg/dl or Urine Output < 0.5 ml/kg/ hour for > 2 hours
    - Bilirubin > 2 mg/dl
    - Platelet count < 100,000
    - Coagulopathy (INR >1.5 or aPTT >60 secs)
    - **Lactate > 2 mmol/L**

Septic Shock

- Septic shock requires the presence of severe sepsis as above AND sepsis-induced hypoperfusion persisting despite adequate fluid resuscitation OR **lactate > 4 mmol/L**.
- Sepsis induced tissue hypoperfusion is present with SBP<90 mm Hg or **MAP <70 mm Hg** or a SBP decrease >40 mm Hg or <2 SD below normal for age or known baseline.

Comments on NQF #0500 Definition

With the NQF #0500 measure, septic shock may now be defined as severe sepsis plus lactate > 4 mmol/L. The lactate > 4 was supposed to be the "severe sepsis" that went into the phrase that EGDT built: Severe Sepsis and Septic Shock. The definitions are now more challenging to understand. The initial septic shock definition used in the EGDT Trial, the ProCESS Trial, the ARISE Trial, and the ProMISE Trial was a suspected infection with > 2 of the SIRS criteria along with a Lactate > 4 mmol/L or hypotension (SBP<90, MAP <65) after initial fluid resuscitation. This definition changed slightly with the revision of the Surviving Sepsis Campaign Guidelines in 2012. This NQF septic shock definition also mentions a MAP<70, while every sepsis research publication uses a MAP<65.

Comments on NQF #0500 Measure

A. Measure lactate level: good idea.

B. Obtain blood cultures prior to antibiotics: When possible, yes you should get the cultures first. However, SSC actually addressed this issue in the wording of their recommendation: "We recommend obtaining appropriate cultures before anti-microbial therapy is initiated if such cultures do not cause significant delay (>45 minutes) in the start of the antimicrobial administration".

C. Administer broad spectrum antibiotics: We all like antibiotics for bacterial infections and the quicker the better, so this seems like a good idea. However, putting a time course of three hours for the administration of antibiotics is similar to past days of demanding early antibiotics for pneumonia with negative outcomes all around for patients, providers, and hospitals. Supporting this three-hour number would be easier if NQF applied it to septic shock cases, as in lactate >=4 or persistent hypotension, since there is evidence to support this time frame in these cases.

D. Administer 30 ml/kg crystalloid for hypotension or lactate = 4 mmol/L: good idea unless clinicians document why they feel the patient should not get this volume.

E. Apply vasopressors for hypotension which does not respond to initial fluid resuscitation to maintain a mean arterial pressure > 65: good idea unless you have a patient whose baseline BP is a MAP of 60.

F. In the event of persistent hypotension after initial fluid administration (MAP < 65 mm Hg) or if initial lactate was = 4 mmol/L, reassess volume status and tissue perfusion and document findings. To meet the requirements, a focused exam by a licensed independent practitioner (LIP) or any two other items are required:

- Measure CVP
- Measure ScvO2
- Bedside cardiovascular ultrasound
- Dynamic assessment of fluid responsiveness with passive leg raise or fluid challenge
- Focused exam including vital signs, cardiopulmonary, capillary refill, pulse and skin findings

Well, we are moving in the right direction…away from invasive procedures and toward clinical re-assessments. However, this requirement is still cumbersome and lacks the evidence based support justifying that only a LIP must be the one to perform and document these requirements. Why not an ED/critical care RN? In addition, there is still not enough data to support which of the above clinical re-assessments is best practice.

G. Re-measure lactate if initial lactate is elevated: good idea.

CMS

The Centers for Medicare and Medicaid Services introduced a new chart based measure known as Early Management Bundle, Severe Sepsis/ Septic Shock (SEP-1) measure to evaluate the processes associated with quality care for patients with severe sepsis or septic shock. It will be a core measure for the fiscal year 2017 for organizations participating in the Hospital Inpatient Quality Reporting (IQR) Program. The baseline data collection for this measure will be for patients discharged between October 1, 2015 and June 30, 2016.

In Order to Establish the Presence of Severe Sepsis, There are Three Criteria, All Three of Which Must be Met Within Six Hours of Each Other.

- Documentation of a suspected source of clinical infection. There may be reference to possible or suspect infection, or similar reference in progress notes, consult notes, or similar physician/APN/PA documentation.
- Two or more manifestations of systemic infection according to the Systemic Inflammatory Response Syndrome (SIRS) criteria.
- Organ dysfunction, evidenced by any one of the following:
    - Systolic blood pressure (SBP) < 90, or mean arterial pressure < 65, or a systolic blood pressure decrease of more than 40 mmHg from the last previously recorded SBP considered normal for that specific patient
    - Creatinine > 2.0, or urine output < 0.5 mL/kg/hour for 2 hours
    - Bilirubin > 2 mg/dL (34.2 mmol/L)
    - Platelet count < 100,000
    - INR > 1.5 or aPTT > 60 sec
    - Lactate > 2 mmol/L (18.0 mg/dL)

When determining organ dysfunction, any single blood pressure or mean arterial pressure reading in the first hour after presentation that is abnormal, as described above, may satisfy the criteria for organ dysfunction. So if a patient at any point has a single drop in BP, a lactate of 2.4 or an INR of 1.7 they may now be considered severe sepsis, as long as the

dysfunction is acute.

Requirements for patients that meet this severe sepsis definition:

Receive within three hours of presentation:

- Initial lactate level measurement
- Broad spectrum or other antibiotics administered
- Blood cultures drawn prior to antibiotics AND received within six hours of presentation:
- Repeat lactate level measurement only if initial lactate level is elevated

In Order to Establish the Presence of Septic Shock, the Below Criteria Must be Met

a. There must be documentation of severe sepsis present. AND

b. Tissue hypoperfusion persists in the hour after crystalloid fluid administration, evidenced by either systolic blood pressure (SBP) < 90, or mean arterial pressure < 65 or a decrease in systolic blood pressure by > 40 mmHg from the last previously recorded SBP considered normal for that specific patient OR Lactate level is > 4 mmol/L.

Requirements for patients that meet septic shock definition: Receive within three hours of presentation:

- Resuscitation with 30 ml/kg crystalloid fluids AND ONLY IF hypotension persists after fluid administration, receive within six hours of presentation:
- Vasopressors
- AND ONLY if hypotension persists after fluid administration or initial lactate > 4 mmol/L, receive within six hours of presentation of septic shock:
- Repeat volume status and tissue perfusion assessment consisting of either: a focused exam which includes: Vital signs, Cardiopulmonary exam, Capillary refill evaluation, Peripheral pulse evaluation, and skin examination OR any two of the following four: Central venous pressure measurement, Central venous oxygen measurement, Bedside Cardiovascular Ultrasound, Passive Leg Raise or Fluid Challenge.

How is This Measure Different Than Other Core Measures and Why Should We Care?

Compared to previous ED core measures, SEP-1 is more complicated, requires collaboration with multiple team members and has the potential to make a real impact on mortality, morbidity, and hospital length-of-stay. This measure is unlike the ED core measures of the past, such as the percentage of patients that receive ASA in MI, or receive blood cultures prior to pneumonia treatment. Those measures were simpler, easier to abstract and easier to meet compliance. The SEP-1 measure requires a lot of manpower and time to abstract the data for each case. The CMS manual instructing on abstraction is large and cumbersome with many caveats and exceptions. Meeting compliance with this measure requires cooperation between emergency departments, in-patient teams, nurses, laboratory, and even information technology (IT). Given the six hour requirements, there needs to be effective handoffs between teams regarding what has already been completed and what still needs to be completed. There is no partial credit for completing some of the measure. It is an all or none measure. All elements of the bundle must be met in order to be compliant with the measure. Exclusion criteria for this measure, like NQF #0500 measure, are described in fine detail. However, all of these potential exclusions need to be appropriately documented in order to receive credit.

Unlike some other core measures, SEP-1 measure has been in creation for several years. Since the Rivers article was published in 2001, controversy over the sepsis bundle and in particular the central venous line (CVL) intervention lingered resulting in postponement of CMS' decision to go live with the measure. Recently, with the evidence presented in the ProCESS trial, the ARISE trial and the ProMISe trial, changes were made to the requirement to reassess volume and perfusion. Based on these studies, the National Quality Forum recommended the draft CMS measure be revised. CMS accepted this recommendation and the core measure went into effect without the central line requirement.

Another key concept introduced by this measure is that of "time of presentation" or "time zero". Unlike most other timed ED core measures in which the clock starts upon patient arrival to the ED, for this measure, "time zero" starts when the patient meets criteria for either severe sepsis or septic shock or the time the physician documents severe sepsis or septic shock, whichever comes first. Because the patient might meet both of these criteria during their ED visit, there are potentially "two clocks" running for this measure. This "time zero" has often been an area of contention and chagrin among emergency medicine providers. As a physician, we are often caring for many patients that meet severe sepsis criteria but who may not be perceived as being "severe sepsis". For example, a patient with a history of COPD who is short of breath and wheezing, does not often enter the "severe sepsis" algorithm despite presence of SIRS. Since all of the data will be collected retrospectively, there will be hundreds of patients defined as severe sepsis and septic shock that you never even thought were sick.

Conclusions

Sepsis is a major public health problem and is a leading cause of mortality in US hospitals. With the increased awareness of this disease, advances in intensive care, and dissemination of evidence-based guidelines, clinicians have taken large strides in early identification and reducing mortality rates associated with sepsis. This sepsis journey is not over and will continue to gain momentum. Implementation of national programs to measure outcomes of sepsis and improvements in care could improve the prognosis for these patients. The current quality measures are here to stay and will continue to evolve as new evidence improves our understanding of how best to care for these patients with severe sepsis and septic shock.

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of Medicine

1216 Fifth Avenue
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ED Director Forum

Friday, May 6, 2016 | 8:00 am-4:00 pm

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
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ALBANY UPDATE

Reid, McNally & Savage

New York ACEP Legislative & Regulatory Representatives

Governor Cuomo's 2016-17 Proposed State Budget

On Wednesday, January 13, 2016, Governor Andrew Cuomo gave his annual State of the State Address, titled, "Build to Lead," which was followed by the release of his SFY 2016-2017 Executive Budget. The $145 billion State Budget is a $3.6 billion increase from SFY 2015-16.

The proposed State Budget includes a number of provisions of interest to New York ACEP as summarized below.

Excess Medical Malpractice Program

The proposal reduces program funding for the Excess Medical Malpractice program by $25 million to $102,400,000. A new distribution formula is established for the program which will exclude "low risk" physicians. The Department of Financial Services (DFS) is authorized to rank the specialty and geographic location of physicians by risk level to determine the allocation of funds from the excess liability pool.

Minimum Wage

The Governor's budget proposal would increase the minimum wage in New York City from $9 per hour to:

- $10.50 on July 31, 2016;
- $12.00 on December 31, 2016;
- $13.50 on December 31, 2017; and
- $15.00 on December 31, 2018.

In the Rest of the State, the minimum wage would increase from $9 per hour to:

- $9.75 on July 31, 2016;
- $10.75 on December 31, 2016;
- $11.75 on December 31, 2017;
- $12.75 on December 31, 2018;
- $13.75 on December 31, 2019;
- $14.50 on December 31, 2020; and
- $15.00 on July 1, 2021.

Capital Funds

The proposal redirects last year's $300 million appropriation for Oneida County to provide:

- $195 million to be used statewide for replacement of inefficient and outdated facilities as part of a merger, acquisition, consolidation or other restructuring that is part of a transformation plan to create a financially sustainable system; eligible facilities include hospitals, residential health care facilities, D&TCs, mental health clinics, primary care providers and home care providers;
- $100 million for economic development at Nano Utica; and
- $5 million for the purchase of mammography equipped vehicles.

Vital Access Provider (VAP)

The proposal Includes $212 million in Vital Access Provider (VAP) funding.

New York ACEP Lobby Day March 1, 2016

On Tuesday, March 1 members of the New York ACEP Board and Government Affairs Committee along with some of their colleagues will travel to Albany for the annual lobby day to meet with key legislators and staff on the College's 2016 legislative priorities including: fair payment to emergency physicians, EMTALA protections and opposition to regressive liability reform. Liability reform is a serious topic of discussion in Albany this year. Last year a "Date of Discovery (DOD)" bill passed in the Assembly by a wide margin of 120 to 25. The new leaders in the Senate and Assembly, Senator Majority Leader John Flanagan, Senate Deputy Majority Leader John DeFransico, 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.

We will keep members apprised of activities in Albany and will be sending out Action Alerts and other calls for grassroots activities to advance New York ACEP's priorities. We appreciate all of your local efforts which are critical to New York ACEP's success.

We're Number 37!!!

Mathew Foley, MD FACEP
Director of Emergency Services
SUNY Downstate Medical Center
University Hospital of Brookyln

37? Yes, as inferred or directly reported almost daily by our nation's newspapers and newscasts over the past 15 years, the World Health Organization concluded that the United States health care system ranked number 37 in the world. That's right, just ahead of Slovenia and Cuba and just behind Costa Rica. This document has received a lot of press in the last 10 years for a document that was released in 2000 as the WHO's World Health Report 2000. So what does 37 mean? Should we be ashamed to be 37, proud to be 37, or indifferent? Well, in actuality we are not number 37 at all.

While comparing health care systems and collecting equivalent data across nations is practically impossible, the WHO gave it their best shot. Before researching the topic my initial thought was that the data received from governments would be biased depending on the amount of government control over their respective heath care systems – a reporting bias. I also had the initial reaction that each nation's comfort for risk and expenditure would vary and could not be controlled for in their calculations. For example, the United States accepts the risk and expense of delivering babies at 23 weeks of gestation causing an increased infant mortality rate rather than an increase in "stillborn" infants. I presumed that this increase in infant mortality rate and cost for the health care provided would probably drop the United States 37 rungs on the ladder by itself. I was wrong. Many manuscripts, including a manuscript by the CATO Institute authored by Glen Whitman prove that the WHO rankings were sophisticatedly less objective on relative performance of national health care systems than I could have imagined.

First of all, there are actually two main index rankings by the WHO: overall attainment (OA), and overall performance (OP). The two indices are measured from the same data; however the OP is adjusted to reflect a country's performance relative to how well it theoretically could have performed. The United States ranks 37th in the OP and 15th in the OA. So, we're number 15! No, not exactly.

The WHO's index is based on five factors that are all weighted: Health Level (25 percent), Health Distribution (25 percent), Responsiveness (12.5 percent), Responsiveness Distribution (12.5 percent), and Financial Fairness (25 percent).

Health level and Responsiveness seem to have reasonable justifications for inclusion in the index, however, Financial Fairness (FF), Health Distribution, and Responsiveness Distribution factors are deceiving.

Financial Fairness

The FF is more of a value judgment than an objective measure of health attainment. By using the FF in the manner that the WHO did, the WHO believes that rich people should pay more for health care regardless of the amount of health care consumed. If this judgment is applied to other necessity goods, then rich people should pay more for the same house, or the same food as those who earn less.

Also, considering the manner in which the FF is calculated, the score is improved when the government is responsible for more of the health spending. Therefore, countries that rely on market incentives have a lesser score in this category. This is because the WHO does not reward nations according to actual compensation or willingness to pay, but their ability to pay. Ability to pay is most evenly distributed if taken from an individual's taxes and distributed by the government. If the government were to pay for all of the health care, then the distribution of health care spending would be exactly the same and this theoretical nation would receive the highest possible score in this category. The rankings are designed to favor greater government involvement. This does not measure whether greater government involvement provides better health outcomes.

Health Distribution and Responsiveness Distribution

The Health Distribution factor measures inequality in health level within a country while Responsiveness Distribution measures inequality in health responsiveness. Inequality of health level and health responsiveness does not measure actual quality of care. It is very possible to have inequality along with providing a good quality of care. For example, Peru may give excellent care to some individuals, but just above average health care to most, while Argentina may give poor care to everybody. In this hypothetical example Argentina would score better in these categories because their provided care has a more equal distribution. Also, the WHO measures inequality of infant mortality rather than measuring inequality in disability-adjusted life expectancy (DALE) because of availability of data. This reminded me of my initial reaction to these rankings because the United States may provide an inequality of care between an infant born after 23 weeks of gestation and an infant born after 40 weeks of gestation. In any case, these two factors accounting for 37.5 percent of the ranking failed to measure quality of care while they measure relative differences in quality.

Standard Deviation

Shockingly, there are extremely wide margins of error in the WHO rankings because the statistics are compiled from random sampling. The WHO states an 80 percent uncertainty level in their 2000 report. Considering this 80 percent uncertainty level the United States could rank as high as 7 or as low as 24 in the OA ranking.

While this uncertainty level results from errors associated with random sampling it does not take into account possible differences from an alternate weighting of the five component factors. Some nations are more sensitive than others to the choice of weighting that the WHO used for the five component factors. The United States is more sensitive to these weightings than most other countries because the United States scores very high on some factors (Responsiveness) and very poor on some others (Financial Fairness). For example the United States rank could range from 8 to 22, while Canada could range from 7 to 8 depending on the weights of the five factors. The sensitivity to the weighting of the five component factors is irrespective of the uncertainty of ranking due to random sampling. If the sensitivity to the weighting of factors and uncertainty of ranking were considered concurrently than even wider margins of error could be expected.

What Does Literacy Have To Do With It?

The implication that seems to be made by most media reports that the United States performs badly despite its high expenditures is also incorrect. This implication error occurs because the process used to convert the OA rankings to the OP rankings is not considered. The conversion of OA into OP depends on two constructed variables: the maximum level of performance a country could potentially achieve; and the minimum level of performance the country could achieve without a modern health care system. Both of these constructed variables are based in part on a nation's literacy. Literacy is used as a function to substitute for all other aspects of a country that might affect health other than the health care system. Other variables that could have been included but are not are suggested by Glen Whitman and include: average income, crime rate, geography, and nutrition. As Whitman cited, inclusion of just one additional variable (geography) could drastically affect the rankings. Therefore, the WHO ranking takes all differences in health outcomes not explained by spending or literacy and attributes them to health care system performance. Thus, tobacco use, nutrition, automotive use or safety, gun violence etc. are not taken into account. Therefore, the WHO is holding health systems responsible for public health, health care, public safety, and a nation's culture. So the rankings are not just a measure of how the United States treats coronary artery disease, but how the country prevents coronary artery disease. For example, a nation's preoccupation with fatty foods is reflected in their health system ranking. Therefore it can be inaccurately implied that the treatment of coronary artery disease is poor considering the amount spent on medicine, vascular stents, and cardiac surgery when actually it could be that a nation just has a poor diet.

The value judgment that governments should have more control of a health system is implicit in the Financial Fairness factor while a nation's lifestyle preferences are not controlled for in this ranking. The Health Distribution and Responsiveness Distribution factors incorrectly measure inequality of care rather than quality of care provided. Furthermore, the actual ranking for each nation has a significant wide margin of error and each country is affected differently depending on the weighting of each component factor. Apparently, not only is the collection of the appropriate data to compare health systems impossible but creating a ranking of health systems that does not impose value judgments, control for lifestyle preferences, or have narrow margins of error is also impossible. The WHO rankings incited implications of health care systems across the world that are grossly inaccurate. While the WHO provided a noble attempt to rank health systems, these rankings are severely misleading.

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Announcing

New York ACEP 2016 Research Forum

Call for Abstracts

deadline
April 1, 2016
Midnight Eastern

The New York American College of Emergency Physicians is now accepting abstracts for review for oral and poster presentation at the 2016 Scientific Assembly, July 6-8, at the Sagamore Resort on Lake George in Bolton Landing, New York.

The **Research Forum**, including both oral and poster presentations, will be held Wednesday, July 6 at 12:30 pm. This forum is designed to feature and foster resident and faculty research. Topics may address the broad range of emergency medicine practice and educational development. Preference will be given to work completed at the time of submission. **Authors and institutions should not be identified in any way on the page containing the abstract.**

Abstract submissions must be in electronic format (Microsoft Word) and must include the following subsections, Title, Objectives, Methods (include design, setting, type of participants), Results and Conclusion. The abstract should be written in complete sentences using grammatically correct English. Spell out all abbreviations on first usage. Abstracts are limited to 3,000 characters (excluding spaces). Accepted abstracts will be published as received; no copy editing will be done. Send abstracts by e-mail to nyacep@nyacep.org. Use abstract title in subject line.

Illustrations are discouraged; however, if critical, one (1) small table may be included. Figures, tables and photos must be black and white with a resolution of at least 300 dpi. Note: tables, figures and illustrations will be considerably reduced when published causing loss of detail. Please consider this when determining whether to include these.

Including the following information on the submission form for each abstract:

1. title of the abstract;
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6. potential conflicts by author;
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Although we are interested in original work, consideration will be given to abstracts presented at other conferences (SAEM, ACEP).

Oral presentations will be allocated 10 minutes followed by 5 minutes of Q&A. Twenty-four poster presentations will be allocated 5 minutes followed by 3 minutes of Q&A. Other poster submissions will be selected for display. All presenters (oral or poster) are expected to have had a significant role in the execution and report preparation of the project being presented.

About the Process: There will be a blind review of all abstracts. Notification letters will be sent April 25, 2016. We regret we cannot give notification information by telephone.

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