

DPM NEWS

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Bougie

Do you use a bougie? Dislike the bougie? Think a bougie is a dance move? Read Dr. Farney's take on a recent study about the efficacy of bougies on page 3.

NEMSIS 3

Think NEMSIS 3 should be renamed NEMESIS 3? See page 7. Know what a Pediatric Emergency Care Coordinator (PECC) does? See page 8.

Cyanokit

Need a refresher on when to use and how to assemble a Cyanokit? See page 8 for an article by Dr. Cushman and page 10 for a pictorial on Cyanokit assembly.

The Skeletons in our Closets

Christopher Galton MD, NRP, FP-C

In 1998 a former NYC paramedic named Joe Connelly published a book entitled *Bringing Out the Dead*. It was turned into an eponymous film by Martin Scorsese starring Nicholas Cage as Frank Pierce, a burned out NYC paramedic who is being pushed to the limit by the daily work load. The film did not generate much revenue, but it received reasonable critical acclaim, probably due to Martin Scorsese's vision and a script laced with brutal humor and a great supporting cast.

Although I found the book and movie a little more dramatic than my career, most of us have calls similar to those that made up the substance of the film. If you have been on the job long enough, you have calls that haunt you. For me, it's the street locations that stand out, and driving past those locations always grabs my attention for the wrong reasons. In some cases, I would even recognize passing those locations as I was caring for a patient in the back of the ambulance.

Many of you know the majority of my EMS work was in the suburbs of Denver before I became a physician. There is a piece of highway there that I will forever remember, 76th and Wadsworth. I was working a double paramedic ambulance and was training a new paramedic. We responded to the scene of a MVC and pulled up to find a terrible head on collision. There were three patients, two DOA, and another got a fast ride to the trauma center in another ambulance only to die later that day.

I'm pretty certain I can tell you every one of my actions on that call from when I picked up the radio to check out on scene, to when I put the ambulance in drive and left after providing our trip reports to the deputy medical examiner.

When I reflect on my career, I have been at scenes with more death, more youth, and more tragedy than that single MVC. I have ripped those START tags down to black on many more than two patients, but this scene sticks with me more than any other. I spent many hours trying to answer why I couldn't get



Upcoming Events

Melinda Johnston

For more information about any event listed below, please visit the training calendar at MLREMS.org

April

- 12 - CLI Original (1 of 3)
- 13 - CLI Original (2 of 3)
- 14 - CLI Original (3 of 3)
- 15 - REMAC Meeting
- 15 - PHTLS (1 of 2)
- 16 - PHTLS (2 of 2)
- 25 - EPC (1 of 2)
- 26 - EPC (1 of 2)
- 28 - BLS Module 1

May

- 2 - PHTSL (2 of 2)
- 4 - BLS Module 2
- 8 - AMLS (1 of 2)
- 9 - AMLS (2 of 2)
- 20 - MLREMS Council
- 20 - Albany Med EMS Education Day
- 22 - HH EMS Dinner & Seminar

this one out of my head and it finally came to me months later. This accident was almost directly in front of the entrance to one of my favorite golf courses. After that accident, I tried to go back to that golf course and play, but the memories of that scene stuck with me and I could not enjoy chasing a little ball around some well-manicured grass.

The job had taken something in my personal life that was fun and sucked the joy out of it. After trying to play one round of golf at this course after the accident, I just stopped going never went back. For a while, I even struggled golfing at other courses because I would think back to the course at 76th and Wadsworth, which led back to that accident. This job has the ability take normal aspects of our lives and twist them in ways you won't understand until it happens.

Recognition is the tool we all need to utilize to combat these feelings and scenarios. When you are in emergency services long enough, there are going to be scenes, places, and people that will burn into your memory. How we deal with those memories and emotions is important to maintaining a healthy career. We have all spent hours if not days of our lives sitting around the ambulance base or fire house talking with our colleagues about a terrible call. When done in a professional manner, these informal sessions hold just as much, if not more value than any formal debriefing session I have ever been a part of. It is these types of tools that we should be seeking out to maintain our mental health and teach the more junior members of our profession.

Unfortunately, I have also seen and participated in describing scenes, injuries, and patients in an unprofessional manner. Inappropriate use of humor is frequently something I turn to to hide how I really feel about some of the terrible things that haunt me. I have put EKG stickers on patient's foreheads and have held a "prayer session" for an opioid overdose patient while my partner administers naloxone. When I reflect back on some of the unhealthy coping mechanisms that I have utilized, I am horrified and embarrassed that I stooped to those levels. How could I have let things get that bad? Why didn't I see that

emotional trajectory and stop it before it occurred?

Often, the EMTs, paramedics, fire fighters, police officers, and hospital staff found my antics very funny. I look back and identify that these were some of the lowest moments of my paramedic career and am anything but proud. I thought these actions helped me deal with all the tragedy that was surrounding me, but they only compounded my feelings and made my burnout worse.

I can look back and identify that speaking with some of my mentors and friends that were true professionals is what really helped me work through the emotions that were floating around in my head. These impromptu therapy sessions helped me succeed in this career as opposed to crashing and burning within a few years. I remember many of these sessions occurred between a great friend of mine who was externally one of the toughest, cold hearted paramedics you could ever meet. When you got to know him though, he was riding the same emotional roller coaster that the rest of us were, minus the EKG stickers and prayer sessions. By the end of the decade that I worked closely with him, he quit smoking and drinking too heavily, we both controlled our demons, and his worst vice now is three AM 7-Eleven coffee and a bottle of TUMS.

The emotions that we deal with should not be hidden or buried. We do a poor job at identifying our colleagues in need and responding to them. Instead of saying, “you look like you had a bad day, do you want to talk about it,” we tell them to go drink too much and then show up tomorrow for overtime because we need their warm body in a seat. Many people start this job thinking it’s a lot of fun. Many people crash out of this business in a few years because the emotional load becomes too much, even though they would never admit that to the rest of us.

Frank Pierce needed his colleagues to help him deal with what was going on in his head. That is true for many of us that deal with critically ill patients in terrible situations. Although his story is the polar end of what burn out in EMS can become, many of us have lived on the edge of that story and survived by embracing healthy, sustaining behaviors. It is our responsibility to teach those healthy coping mechanisms, whatever they may be, to the newer members of our profession. They should look at us as people who are willing to sit with them and listen. It is also our responsibility to stop the unhealthy coping mechanisms that are all too easy to fall into and only do us and our profession a disservice. Do not let Tom Sizemore, Ving Rhames, and John Goodman lure you into thinking that bad behaviors and inappropriate coping mechanisms are OK in EMS.

I hope Dispatcher Love treats you right tonight. If you have any questions about this column, feel free to contact me at christopher_galton@urmc.rochester.edu.

To Bougie, or Not to Bougie?

Aaron Farney MD

If airway equipment resembled fashion, it seems the bougie would be considered “en vogue,” and not just because it sounds French. These days, it sure does seem like all the cool kids use the bougie. Which leaves me wondering...am I merely missing out on the latest fashion trend, or is there something more to this? Well, Dr. Driver and his colleagues in Minneapolis had the same question. Last year in JAMA they published the results of their randomized clinical trial examining whether use of the bougie adds any advantage to standard intubation techniques (ETT and stylet only). The results are interesting.



Study Background & Methods

The study was conducted from 2016-2017 in the Hennepin County Medical Center Emergency Department (urban, academic level I trauma center, census 109,000 annual visits). During the study period, they examined intubations done by well-trained emergency medicine physicians (either senior residents or attendings) on adult patients only. They excluded anyone with known upper airway

obstruction – angioedema, epiglottitis, mass/malignancy – stating that bougie use is already believed to be advantageous in this population. Additionally, they excluded intubations done with straight or hyperangulated blades, as they felt bougie use is more difficult with these blades. Prior to intubation, patients were randomized to either bougie or no bougie (ETT and stylet only).

The intubating physicians first obtained the best possible view of the larynx using either direct or video laryngoscopy. Then, either the ETT + stylet or the bougie (according to pre-determined randomization) were passed into the trachea. In the bougie arm, if bougie passage was successful, the ETT was then loaded onto the opposite end of the bougie and the operator guided the ETT through the cords and into the trachea. The bougie was not preloaded with the ETT.

First-pass intubation success was evaluated for both arms among patients with markers of difficult airways, and among all patients. The following patient characteristics were considered markers of a difficult airway: fluids obscuring the laryngeal view, airway obstruction or edema, obesity, short neck, small mandible, large tongue, facial trauma, or cervical spine immobilization. The investigators hypothesized that “the bougie would facilitate higher first-attempt intubation success than the endotracheal tube + stylet among Emergency Department (ED) patients with a difficult airway (primary outcome) and among all ED patients undergoing orotracheal intubation (secondary outcome).”

Results

First Pass Success Rate With 1 or More Difficult Airway Characteristic

ETT + stylet	Bougie	Difference (95% CI)
82%	96%	14% (8-20%)

First Pass Success Rate Among All Patients

ETT + stylet	Bougie	Difference (95% CI)
87%	98%	11% (7-14%)

Discussion

Wow! This study showed that when Emergency Physicians used the bougie, they were more likely to be successful on the first attempt. This difference was more pronounced in patients with predictors of a difficult airway. These are certainly respectable numbers, and they have my attention; jumping from 82% to 96% or 87% to 98% is a big deal.

As always, there are a few limitations that warrant discussion. First, this study was looking at physicians in the ED, not paramedics in the field. We do not know if these results can be extrapolated beyond the ED. Secondly, look at the baseline non-bougie first past intubation success rates – they are in the 80s! This is higher than the prehospital field intubation success rates in our region, and may speak to differences in pre-existing skills and intubating conditions. Next, please re-read the bougie technique described above. The bougie was inserted *without* the ETT hanging off the other end. Only after the bougie was in did the ETT get introduced over the bougie. This is much different than the practice I often see – where medics are using the bougie as a stylet. We shouldn't assume that using the bougie while the ETT is preloaded will produce the same results this study demonstrated. Lastly, the study

outcomes were not patient centered – they were not morbidity or mortality focused. First pass intubation success rate was merely used as a surrogate for the more important (but difficult to study) outcomes that matter most. Recognizing this, the authors did look at a couple potential confounders, and found no significant difference in median duration of the first intubation attempt (38 vs 36 seconds) and the incident of hypoxemia (13% vs 14%).

Those limitations aside, this is good stuff. My advice – get to know the bougie well, practice with it between calls, and get comfortable with its use. It is absolutely an essential tool in emergency airway management. Safe to say it's not just a fashion trend after all!

Take-home points:

- ED physicians are more likely to successfully intubate on first attempt with a bougie
- The difference is slightly more pronounced among patients with difficult airways
- While it's unclear if these results apply to EMS, they probably should not be ignored
- This study did not examine or validate the technique of preloading the bougie
- Utilizing the bougie as a first line intubation technique appears to be quite reasonable

Have questions? Want to discuss more? Shoot me an e-mail: Aaron_Farney@urmc.rochester.edu

References

Driver BE et al. "Effect of Use of a Bougie vs Endotracheal Tube and Stylet on First-Attempt Intubation Success Among Patients with Difficult Airways Undergoing Emergency Intubation: A Randomized Clinical Trial." JAMA 2018;319(21):2179-2189.

Traumatic Hypothermia

Jeremy Cushman MD, MS, EMT-P, FACEP, FAEMS



It was cold....really cold. Hovering around zero, wind chills to -20ish. The Incident Commander was kind enough to wake me up from my nice warm slumber to come out to a crash on the Thruway. Did I tell you it was cold? Really damn cold. And here was this box truck that smacked the back end of a tractor trailer. Heavy entrapment but a conscious (shivering) driver. 87 minutes from the time of the 911 call to the time he was in the ambulance due to the extensive extrication required. Twenty-one minutes on crappy road conditions to the hospital, during which his clothes were removed, warming blankets were placed, IV access was established, and warmed fluids started but not infused as his blood pressure was stable. On arrival to the hospital his core temperature was 37.3°C (99.2°F). Nearly 90 minutes of exposure to sub-zero temperatures yet his temperature was normal. It sure wasn't 20 minutes in the ambulance that got his body temperature up. So what did the crews do on scene and why does it matter?



The crews working that very cold morning were doing everything right: the EMS Officer was rotating personnel every few minutes from the very warm waiting ambulance, keeping one paramedic in the ambulance so they maintained a warm enough finger temperature to be able to get the IV or

do the procedures that those of us outside would not be able to do; the EMS crew had already given up all their instant-heat packs to the patient to stash under his jacket; fire crews were being rotated due to the extreme temperatures; and the Fire Chief had deployed their confined space heater. In the pictures provided by Assistant Chief Mark Cholach of the Henrietta Fire District, you can see the confined space heater on the ground, with flexible duct reaching over the driver door, blowing 80 degree warm air on our victim.

This was a great case because not only did everyone work as a team, but in some of the most ridiculously cold conditions I have ever worked in, we were able to maintain this patient's body temperature near normal. So why did keeping this patient warm matter? It's far more than just the "nice thing to do."

Hypothermia is common in injured patients. Let's face it, we often get 'em naked to assess for injuries, pump them full of saline that is at room temperature (or worse) that is certainly colder than their body temperature, and we make sure the ambulance compartment is comfortable for us – but not for our disrobed patient. The reality is that even a small decrease in body temperature can have significant impact on our injured patient's mortality.

You are already familiar with environmental hypothermia - Mild (32-35°C), Moderate (28-32°C), or Severe (<28°C), whereby our mental status becomes increasingly depressed and our heart muscle more irritable as we get colder. But did you know that mild traumatic hypothermia starts at a temperature of less than 36°C (96.8°F)?! In fact one study found a 100% mortality independent of the presence of shock, injury severity, or volume resuscitation for trauma patients with a core temperature of <32°C. That's nuts!

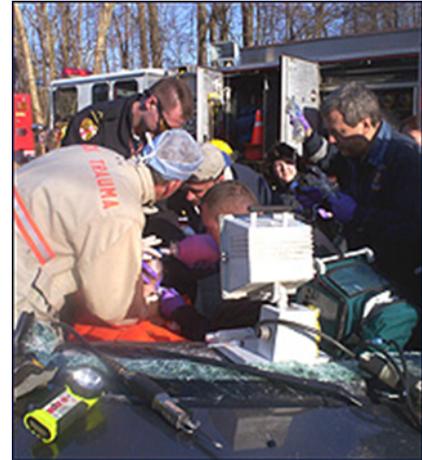
So why are cold trauma patients more likely to die? Quite simple – we're talking trauma here, so the big issue is bleeding. Well, as we get colder, our platelets lose their ability to stick to each other, and our coagulation proteins that make our blood clot – well, they don't work so well either. Very simply, the colder we get, the less we clot; the less we clot, the more we bleed; the more we bleed, well, you guessed it, the more likely we are to die.

But we CAN make a difference – and as you can see every degree helps. Here are some key things that you can do:

- Minimize exposure time (duh!) – get them out of the environment as quickly as possible. You must weigh the benefit of interventions in a really cold environment with the “cost” of losing more body heat.
- Keep the ambulance really warm, and remember that the temperature of the ambulance is for the patient's (not your) comfort and wellbeing.
- Consider placing heat packs in the groin, armpits, or even on their chest/abdomen to assist with heat transfer – but ALWAYS with a towel or something between the heat pack and their skin to prevent burns (yes, burns have happened even from those little heat packs).
- Consider a Ready Heat™ or similar self-warming blanket, particularly for your very cold/exposed patients. I like to put a sheet or similar on the patient, then the Ready Heat™ on top of that, with another blanket on that, and if I am out in the elements – a tarp or mylar blanket on top



- of that to make a toasty little burrito to keep my patient in!
- Whenever possible use warm saline for fluid resuscitation – whether that is a fluid warmer that you maintain in the ambulance, or even the windshield defroster trick – warm fluids are a huge help.
 - For the rescue folks reading this – don't throw away that quartz scene light! Keep one or two around – they throw a TON of heat (which those fancy LED lights don't) and can provide a radiant heat source during vehicle extrications like the one pictured.
 - Last, and particularly for prolonged extrications, consider the use of a confined space heater. There are a handful of them in the fire services in the area and they can throw a ton of heat and can make a difference. All you have to do is ask your friendly fire officer if it seems that this will be a long extrication.



There are some simple things that we can do to help our trauma patients – and keeping them warm is one of them (stopping the bleeding and minimizing scene time are the others!). Let's face it, we live in Rochester – so there is NEVER a day that is 98.6°F! So every day we should make efforts to keep our trauma patients warm - whether it is through simple blankets and heat packs, to a warm ambulance and fluids, or to quartz lights and heated blowers, think about the resources we have and put them to use for our patients. As the above case points out – it can make an amazing difference.

MLREMS Program Agency Updates

Ben Sensenbach EMT-P, FP-C, TP-C & Mindy Johnston EMT-B

Agency information update

The NYS DOH requires regional program agencies to maintain files on individual EMS agencies and prescribes the information that must be collected. In order to meet this contractual deliverable, we will be sending email correspondence to all EMS agencies (transport and first response) requesting the information that we need to collect such as operations staff, ePCR coordinator, and level of care information. To make this process easier for your agency, we will accept scanned copies of your most recent DOH (CON) renewal and we will extract the information on your behalf. Although this process may seem redundant as you already provide the information to the DOH directly, the Program Agency is not copied on your renewal status. Recent efforts with the emsCharts upgrade have shown the importance of accurate records.

emsCharts info

The New York State Bureau of EMS and Trauma Systems will be transitioning their data repository to the NEMSIS V3 validation rules for all EMS Agencies. Just like with NEMSIS V2, charts will be prevented



from advancing if validation errors are encountered. EMS Services will be required to correct errors before charts can be locked. Below are some of the changes and how a provider can ensure to lessen error warnings.

To lock your chart, you must clear all RED warnings. If you are unable to clear the warning, click the need help with NEMESIS Fields in the center of your tool bar.

If you have questions, please contact your agencies emsCharts administrator or log a service ticket.

PECC coordinator

The NYS BEMSAT, EMS for Children and Southern Tier Healthcare have partnered to enhance pediatric EMS care in NYS by starting the Pediatric Emergency Care Coordinator (PECC) Program. A PECC is an individual or individuals who are responsible for coordinating pediatric-specific activities. A designated individual who coordinates pediatric emergency care need not be dedicated solely to this role; it can be an individual already in place who assumes this role as part of their existing duties. The individual may be a member of your agency, or work at a county or region level and serve more than one agency.

A Prehospital Pediatric Emergency Care Coordinator (PECC) in New York State is responsible for:

1. Being a resource for education on pediatric medications, equipment, and supplies
2. Promoting and sharing pediatric continuing-education opportunities
3. Encouraging pediatric simulations/hands on pediatric skills assessments
4. Encouraging that fellow providers follow pediatric clinical-practice guidelines

A Prehospital Pediatric Emergency Care Coordinator (PECC) in New York State can be:

An individual within the agency dedicated solely to the PECC role; multiple individuals within the agency sharing the PECC role; individual within the agency with the PECC role as an additional duty; Program Agency serving a region as the PECC; or other individual serving multiple agencies or for a region as the PECC.

For more information, visit <http://www.nyspecc.org/>.



The Cyanokit

Jeremy Cushman MD, MS, EMT-P, FACEP, FAEMS

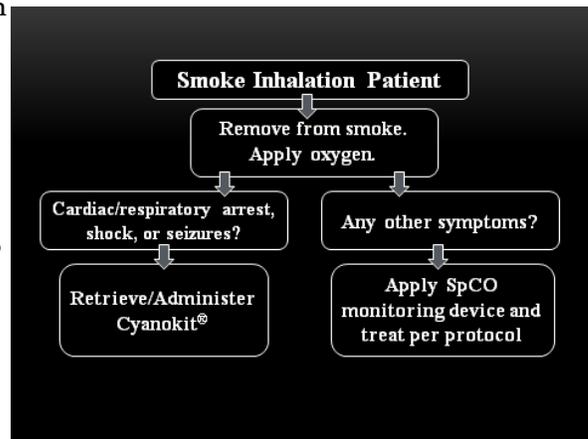
Smoke inhalation is the leading cause of fire-related death, not burns. The two more toxic byproducts of combustion include carbon monoxide and cyanide. Cyanide is produced during combustion of plastics, cotton, wool, silk, and various polymers – all materials that are ubiquitous in our home and workplace. Although many of us have become attune to CO poisoning through the use of CO meters and pulse co-oximeters, cyanide remains a hidden killer. If you were to look at fire related deaths, there is no relationship between those caused by CO and those caused by cyanide. As there is no way to screen for

the presence of cyanide in the field, we are left with recognizing that a victim of a fire could be poisoned by either, and we must take steps to treat.

As you know, carbon monoxide displaces oxygen from hemoglobin, making our red blood cells incapable of transporting oxygen to our tissues, and we essentially asphyxiate. Cyanide is a little sneakier, in that it binds to something known as cytochrome a₃, which is a protein in the mitochondria (the power plant of the cell) and prevents the cell from using oxygen – also asphyxiating the cell. So CO prevents oxygen from getting to the cell, cyanide prevents the cell from using oxygen. Either way, bad news.

A few years ago a product known as Hydroxocobalamin (Cyanokit®) entered the market. As a biochemistry nerd, it’s a pretty cool antidote in that hydroxocobalamin binds with cyanide to form cyanocobalamin, and thus reverses the effects of cyanide. I’m sure a few of you take cyanocobalamin every day, because it’s otherwise known as Vitamin B₁₂.

Cyanide toxicity is dramatic and immediate. Your protocol allows any paramedic in the system to administer the Cyanokit® to a patient with an inhalational smoke exposure in a confined space such as a building or room – the chances of cyanide toxicity from an open air burn are extraordinarily small and you should be directed to other causes for their acuity. The patient also MUST have signs of cardiac/respiratory arrest, profound shock, or seizures. In this case, the potential for cyanide toxicity is high, and in addition to traditional BLS and ALS measures, consider administering the Cyanokit®. So for example, if you have victim dragged out of a house fire with a few burns, but is pulseless and apneic, consider the Cyanokit® (and oxygen of course). If you have a victim coughing and telling you their throat hurts, even if they are a little altered, they do need oxygen, but don’t need the Cyanokit®. As coined by the developer of this newsletter, the reminder is: “Sick as s**t - Cyanokit®.” A simplified algorithm is shown to the right side of this article.



Given that Cyanokits® are expensive (about \$800 a dose currently), we have to be wise in how we deploy them. In Monroe County, most kits have been placed on fire apparatus, with the belief that the fire apparatus is simply the delivery device (and will be on the scene of a fire). Livingston County has also expanded their kits amongst agencies to enhance coverage throughout the areas served. If you need a



Cyanokit®, simply request one through your dispatch center who can dispatch the nearest, or remind you that it may already be on scene. Both county dispatch centers maintain lists of what apparatus has kits – as the number of kits out there continues to increase.

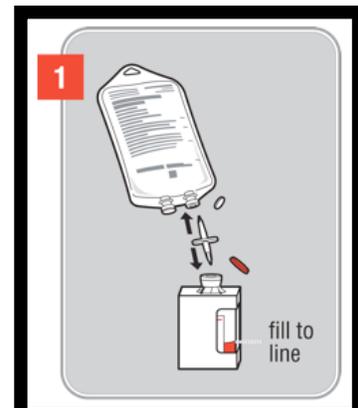
Please become familiar with the indications and administration of these kits, as this knowledge may very well save a colleague’s life.

Cyanokit Assembly Refresher

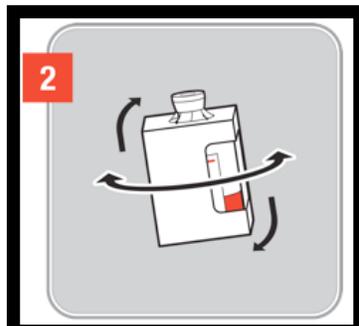
Eric Rathfelder MS, EMT-P



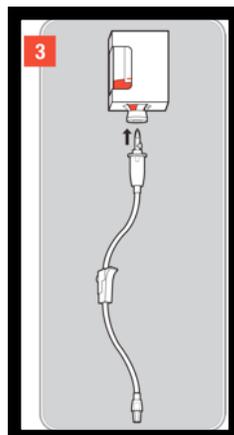
5 mg vial



Keeping vial in upright position, use sterile transfer spike to add normal saline to fill line.



Mix by rocking for 30 seconds (do not shake). Discard if solution develops particulate matter.



Use included vented tubing to infuse through **dedicated IV line** over 15 minutes.