

DPM NEWS

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Dual Sequential Defibrillation

Dr. Farney provides up-to-date information and guidelines on the use of two defibrillators to treat refractory ventricular fibrillation on *page 8*.

2016 Collaborative Stroke Training

On *Page 3*, Mike Meyer debriefs the second annual regional stroke training. In case you missed this great educational event, catch up on the contents here.

Mass Trauma Kits

Eric Rathfelder explains a regional initiative to preposition bleeding control supplies on police, fire and EMS apparatus in Mass Trauma Kits (MTKs) on *page 7*.

worthy of educational reinforcement as nearly 50% of prehospital needle decompression thoracostomies have not been indicated. There is pneumothorax and tension pneumothorax and the treatments are polar opposites.

A simple pneumothorax is typically treated with time and perhaps pain medication. Performing decompression because of decreased breath sounds on one side without evidence of tension physiology is

From the Editor

The Division of Prehospital Medicine (DPM) is concluding a busy 2016 with continued work on many important projects around our region and throughout the state including Check & Inject NY, Community Paramedicine, and promoting regional education initiatives. Updates on each of these items are included within this newsletter.

At the suggestion of Dr. Farney, I've included photos of each DPM member next to the byline of the articles they authored. This should help providers in the region recognize the faculty and staff who work for DPM and, perhaps, encourage followup conversation about the topics presented in the newsletter. As always, if you have any feedback or suggestions about this publication, please contact me at e.rathfelder@gmail.com.

Best wishes for a safe and healthy start to the new year!

Eric Rathfelder

To Needle or Not to Needle, It Isn't Really a Question

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



Tension pneumothorax is classified as a preventable cause of trauma related death. Although needle thoracostomy has been a mainstay of paramedic practice, recent regional patient safety initiatives have identified some areas

Upcoming Events

Melinda Johnston

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

January

- 7 - AMLS Day 1 of 2
- 7 - BLS Core Content #1
- 8 - AMLS Day 2 of 2
- 10 - Intermediate ICS Day 1 of 3
- 11 - BLS Core Content Mod #1
- 11 - Intermediate ICS Day 2 of 3
- 12 - Intermediate ICS Day 3 of 3
- 14 - BLS Core Content #2
- 18 - GEMS
- 21 - BLS Core Content #3
- 25 - BLS Core Content Mod #2
- 31 - BLS Core Content Mod #1

February

- 1 - BLS Core Content Mod #1
- 7 - BLS Core Content Mod #2
- 8 - BLS Core Content Mod #2
- 11 - EPC Day 1 of 2
- 12 - EPC Day 2 of 2
- 20 - AMLS Day 1 of 2
- 21 - AMLS Day 2 of 2
- 22 - PHTLS Day 1 of 2
- 23 - PHTLS Day 2 of 2

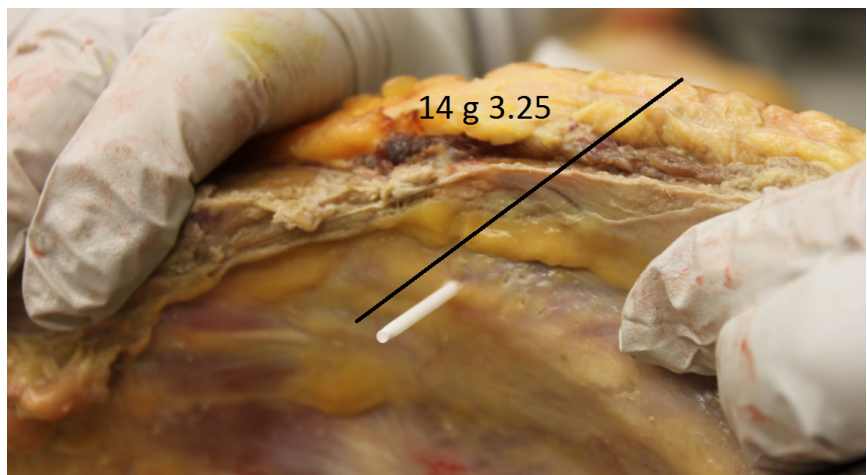
March

- 7 - Preceptor Class
- 8 - Preceptor Class
- 15 - GEMS

not necessary, not indicated, and can cause patient harm. The receiving hospital will observe this patient and if necessary, place a chest tube to treat the patient long term as needle decompression thoracostomy is only a temporizing measure.

Needle decompression thoracostomy should only be performed if the patient exhibits evidence of a tension pneumothorax. This is indicated by decreased breath sounds on one side **AND** tension physiology such as hypotension, with tachycardia, and jugular venous distention. Although certainly a patient with a concern for pneumothorax should be closely monitored for developing a tension pneumothorax, they should not be “prophylactically” decompressed. The exception is for patients with blunt torso trauma who are in cardiopulmonary arrest, where the potential for tension pneumothorax exists and is unable to be reliably assessed during the initial resuscitative efforts. Patients with a tension pneumothorax will have a chest tube placed emergently in the trauma bay upon arrival.

Needle decompression thoracostomy should be performed with a 3.25 or 3.5 inch (8.9 cm) 14 ga or larger catheter. Commonly used vascular access catheters that are optimal for large volume fluid resuscitation (1.7 inch or 4.4 cm) are not appropriate for needle decompression. One United States study found the mean chest wall thickness was 4.5 cm and concluded that the standard 4.4 cm catheter would not be successful in 50% (95% confidence interval 40.1-59.3%) of those patients requiring emergent decompression. Other studies, and our local trauma center experience, reinforce these findings. As you can see in the image below, if a 2 inch catheter was used the end of the catheter would be buried in the chest wall.



Patients with tension physiology get a needle decompression and immediate transport to the regional trauma center. Patients with a simple pneumothorax should simply be observed with continuous assessment to detect when tension physiology arises and transport to the appropriate destination per CDC Trauma Triage Criteria. Do not hesitate to contact your Agency Medical Director or the Regional Program Agency with any questions.

1 Stevens RL, Rochester AA, Busko J, et al. Needle thoracostomy for tension pneumothorax: Failure predicted by chest computed tomography. *Prehospital Emergency Care* 2009;13(1):14-17

Research Update

Heather Lenhardt MBA, EMT-P



Here's a quick look at how the research studies involving EMS are doing...

Peds Trauma Triage:

Enrollment as of October 7, 2016: 7,897

- University of Rochester: 2105
- Medical College of Wisconsin: 2503
- University of Texas Southwestern: 3289

EMS – if you are transporting a pediatric patient (15 years old or younger) with a mechanism of injury to Strong PLEASE help us and look for the EDRA (staff in short, brown lab coat) who has a short survey for you. You must pick the patient up from the scene where they were injured. The patient does not necessarily have to have an injury; they just need to have experienced a mechanism of injury.

It is important to keep our enrollment numbers up so we will have to opportunity to participate in future research. Participation in research like this enables us to be a contributing factor in changing the future of EMS.

Livingston County Community Paramedicine:

Enrollment as of November 4, 2016: 127

- Strong: 51
- Highland: 31
- Noyes: 45

Monroe County Community Paramedicine:

Enrollment as of November 4, 2016: 324

- Strong: 228
- Highland: 96

2016 Collaborative Stroke Training for EMS

Michael Meyer EMT-P



The second annual Collaborative Stroke Training for EMS was held at the Public Safety Training Facility early last month. For those that were unable to attend, a wide variety of

cases were presented by neurologists representing the primary stroke centers throughout the MLREMS region. The cases presented all originated with EMS, and provided a unique learning opportunity. Highlighted below are some of the teaching points that came out of the conference.

The term Comprehensive Stroke Center was discussed among those providers that attended the training session. These advanced centers are becoming accredited across the US and here in New York. Stroke Centers are also beginning to perform endovascular procedures (Rochester General and Strong locally) which physically remove a clot, rather than dissolving the clot with more conventional tPA. Although these advances provide additional options for patients, NYS does not yet recognize these different levels of care for prehospital providers. Transport of our stroke patients to the closest primary stroke center is still the standard of prehospital care. Doing so in a timely manner, typically less the 3-4.5 hours, is the best practice for stroke patients in our region, and will provide them with the best possible outcome.

Utilize some sort of guide or reference aid when asking and recording important history, especially a “last known well” time. The MLREMS region has produced a stroke sticker to help with this process, and they are available to print on the website (www.mlremes.org) or copies can be picked up in the Division of Prehospital Medicine at your convenience. Regardless if you use the sticker, a form your agency created or just your trusty note pad, use something to ensure the details are as accurate as possible.

Cincinnati Stroke Scale vs NIH Stroke Scale – which scales or evaluations should EMS be performing in the prehospital setting, and which are the most useful to prehospital providers? Dr. Adam Kelly, the Director of Highland Hospital Stroke Center, discussed some of the advantages and disadvantages of both the Cincinnati Stroke Scale and the NIH Stroke Scale as they related to his case. The conclusion to this discussion was that although the Cincinnati Stroke Scale is useful in the rapid recognition of acute stroke, it is much less useful in determining the severity of stroke. The NIH Stroke Scale was also discussed. This scale is

Cincinnati Stroke Scale
Arm Drift Speech Facial Droop

NIH Stroke Scale
Level of Consciousness (LOC)
LOC Questions
LOC Commands
Best Gaze
Visual Fields
Facial Paresis
Motor Arm L/R
Motor Leg L/R
Limb Ataxia
Sensory
Best Language
Dysarthria
Extinction/Inattention

much more useful when neurologists are assessing severity, making treatment decisions and attempting to predict early prognosis of patients, but much more time consuming and in order to perform it correctly and takes a fair amount of training (and use to remain proficient). So which scale is better for pre-hospital providers to use? I think that is yet to be determined, and may actually be a scale yet to be developed. Until that time, we as pre-hospital providers will continue to use the Cincinnati Stroke Scale to evaluate ALL of our potential stroke patients.

I hope that those of you who were able to attend found the conference useful. I expect there will be more changes with respect to pre-hospital stroke care over this next year. Keep an eye out and please consider joining us for next year’s conference.

Defibrillating the Paradigm - Improving Prehospital Cardiac Arrest Care



Erik Rueckmann MD

Over the next several months, I'm going to focus on cardiac arrest care in our region. Cardiac arrest is one of prehospital medicine's biggest impact moments...truly life or death! It seems the problem is that this issue isn't getting the primetime billing it deserves. Think about it...we all have cards that say we are ACLS/BLS certified but <10% of victims of cardiac arrest in our region will make it...Why? Let's break it down and start working on making this better.

Cardiac arrest is complicated and has many moving parts. As providers, our attention is pulled to gory accidents, getting the next set of credentials, the newest gizmo, but we really need to shift the focus back to cardiac arrest. Cardiac arrest happens every day and in most cases ends poorly. Is this because the patient has already died before we can intervene? Is it because we aren't managing cardiac arrest correctly? Is it because our patient's are too sick? Is it that we don't have good research telling us what to do? Well the truth is probably somewhere in there and in the meantime it's going to take some elbow grease to fix it. So what's the plan?

The evidence surrounding resuscitation of prehospital atraumatic cardiac arrest has grown exponentially over the past decade and is changing the way we do business in ways that Resus-Annie never saw coming. Cardiac arrest care is being modeled as a "bundle of care". What does that mean? Well to put it simply is that in order to be successful we have to look at all of the things that go into resuscitating a cardiac arrest patient to achieve a successful outcome. Over the next few months we will concentrate on many of the things that have been proven to help change the outcome of prehospital atraumatic cardiac arrest that make up this "bundle of care". The goal here is not merely the return of spontaneous circulation (ROSC) but getting the patient to walk out of the hospital. So lets start breaking down this bundle of care model and see how we can integrate this bundle of care into our daily practice.

CPR

Let's start with the most basic skill of any prehospital provider. Cardiopulmonary resuscitation... it's taught everywhere, but maybe not with the emphasis it needs. CPR needs to be done correctly and CONTINUOUSLY for it to make a difference. That means you should be sweating if you're doing it right...100 beats a minute pushing down at least 2 inches (compressing the ventricle and in more rotund patients it may be deeper). CPR is often done incorrectly or interrupted multiple times during an arrest. Each time you stop...it's much harder to get back to the same level you started at. Just like if you were to stop running a 5-minute mile (or 20 minute mile in my case); each time you stop it's that much harder to get your qualifying time. CPR is your bridge to keep the body's cells alive while you're trying to get the heart started again. CPR is the only thing preventing IRREVERSABLE cell death and each time you stop countless cells die. We'll take an in depth look at this in the future.

Airway

Intubation is great but let's look at what we learned above. If intubation takes away from CPR, then we've got a problem. If all else fails, there is still bag valve mask ventilation. BVM and CPR seem to be long forgotten arts that need to be dusted off and perfected. The goal in cardiac arrest isn't getting a perfect intubation, a 14 gauge IV in the thumb, or making it to the hospital in 1 minute...it's return of spontaneous circulation and preventing cell death. Therefore, taking 2 minutes to get an airway while nothing else is happening, technically is a fail...more to follow on this.

Scene Time

If you can't get someone back in the field, we don't have magical powers in the ED to do it. Therefore, you should be concentrating on ROSC in the field. Again, the biggest priority is CPR. Each time you move the patient, you stop EFFECTIVE CPR. The game is either going to be **won or lost with you**. This is a heavy statement. You are bringing the ED to the patient, and therefore **EMS** has to fight to get this patient back. Ideally, patients should be transported with ROSC or terminated in the field...I know this is going to be a tough paradigm shift but we said the same thing about backboards not too long ago.

Capnography

Capnography is the barometer of resuscitation. Capnography measures carbon dioxide, which if you remember is a product of aerobic metabolism (normal in the 35-45 mmHG range). If capnography in a correctly placed airway device is low it means that cells are not working the way they were designed to and therefore the organism won't work either. Capnography will help guide your resuscitation and can also predict success. Finding a pulseless patient with capno readings in the 20's means that some cells are still working...now it's up to you to get the rest back in working order. We need to start using this on a regular basis as an adjunct to our other monitors BUT it can't replace CPR. See the recurring theme here.

ACLS

ACLS is clearly important but it's a protocol based on a rhythm and does not ask you to think very much. Am I saying it's not important...No, but what is more important is that you are applying your critical thinking to the patient in front of you. Why did this cardiac arrest occur? Think about the causes and that will help guide treatment. You have many weapons in your arsenal but they have to be targeted the correct way to work. Narcan in a cardiac arrest patient given before CPR won't work well. PEA in hyperkalemia is going nowhere without bicarbonate and calcium.

Community Involvement

Depending on where you live, this is a tough nut to crack. If no one does bystander CPR and there is a 10 minute response time, it may be tough to achieve ROSC...it's like trying to run a 5 minute mile in 1 minute. How do we solve the lack of bystander CPR? I don't know but we will all have to put our heads together to get the rate better than 40-50% where it currently stands. While we are on challenging topics, wouldn't it be nice if there were AED's on every street corner.

As I said, a tough nut to crack but we can't write it off. Part of community paramedicine involves looking at how we can work with the community to solve some of these issues.

As we explore this issue in further detail in further publications, I hope that we start re evaluating cardiac arrest in our region. We'll further break down the components of this "bundle of care" and go over some of the science. The end goal is to start changing the paradigm by increasing the emphasis on this neglected subject and flip the <10% to >10%!

Mass Trauma Kits

Eric Rathfelder MS, EMT-P



Optimizing the emergency response to mass trauma incidents such as active killers/violent extremists, explosions, and large motor vehicle crashes is a continuously evolving process. The delay to medical treatment in these situations is a problem that has arisen time after time in both drills and actual active killer/violent extremist events that is directly responsible for lost lives that might have been saved with simple, quick interventions. Over the past several years EMS agencies, fire departments, and law enforcement agencies have increased their training and added equipment to address these immediate life threats. Prepositioning of medical supplies capable of life saving intervention is critical.

In order to assist and standardize our operational efforts, we have developed a "Mass Trauma Kit" (MTK) which provides for a recommended standard equipment cache of hemorrhage control equipment that may be prepositioned on ambulances, fire apparatus, or law enforcement vehicles. Utilizing a community-wide standard approach is intended to allow any first responder to be familiar with the bag and its contents to expedite treatment of patients. These MTKs are becoming more ubiquitous throughout the region, and in Monroe County, grant funds have been used to help build out and distribute kits to both fire and EMS agencies. Additionally, many agencies have purchased their own MTKs containing the same, standardized supplies.

The majority of the MTKs currently deployed are in red bags with a universal tag. If your agency does create MTKs

and you would like universal labels, please contact the Division of Prehospital Medicine (DPM) and we can provide them free of charge. Additionally, DPM has developed an optional training course designed to increase operational effectiveness when responding to mass trauma events. "First Responder Lifesaver" is designed for firefighters, law enforcement officers, and EMT/Paramedics and provides education on

Recommended Minimum Contents
(8) commercial tourniquets, CAT preferred
(8) commercial compression dressings
(12) rolls of 3" gauze
(10) pair of nitrile gloves
(2) pair trauma shears
(2) rolls 2" cloth tape
(1) Dyna Med First Response Bag (Item BA-221)
Optional Additional Contents
(4) nasopharyngeal airways with lubricant
(4) commercial occlusive dressings
(1) SMART triage kit affixed (but detachable) to the MTK



basic triage principles, hemorrhage control, remote assessment, and patient movement combining both didactic education and hands on exercises. This modular training program can be used in part or in whole to provide a foundation upon which low- or high-fidelity mass trauma incidents can then be designed to incorporate the

fundamentals taught through this program.



Doubling Down on Cardiac Arrest

Aaron Farney MD



A 50 year-old on-duty male firefighter with no known medical conditions suddenly complains of chest pain, becomes unresponsive, and collapses during physical training. His fellow firefighters immediately come to his aid, and note that he is not breathing and has no detectable pulse. They begin CPR and activate EMS. A nearby AED is located and applied to the firefighter with pads in the anterolateral (AL) configuration. A shock is advised and delivered. CPR is resumed. Two minutes later, the firefighter remains pulseless; another shock is delivered by the AED.

Advanced Life Support arrives six minutes into the arrest. They confirm the firefighter remains pulseless and apneic. A manual defibrillator is applied and you see the following rhythm:

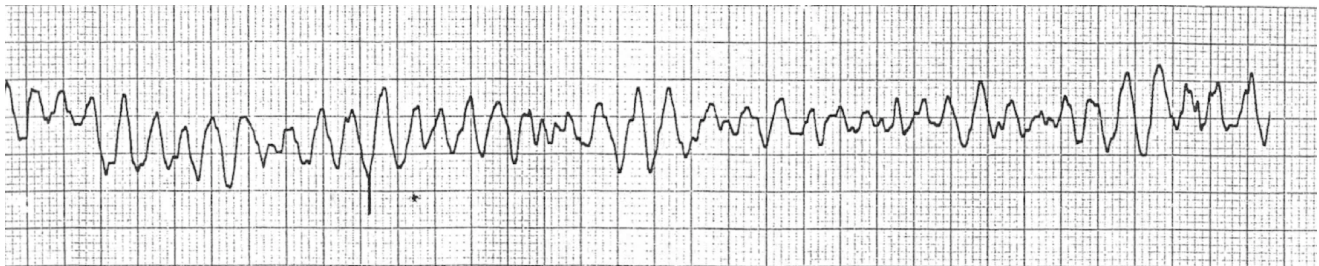


Image courtesy of Lifeinthefastlane.com

A manual defibrillation is delivered at 200 J and CPR is resumed. Intravenous access is obtained, 1 mg epinephrine is administered every five minutes, 300 mg amiodarone is bolused and one liter normal saline bolus is initiated. The patient is intubated and endotracheal tube placement is confirmed with positive waveform end-tidal CO₂, which persistently reads in the 30's. A second dose of amiodarone (150 mg) is administered. Several minutes later, despite the interventions above, including now five unsuccessful defibrillation attempts at 200 J, the patient remains in refractory VF.

What is the next step in the management of this patient?

- A. Transport. Always transport.
- B. Keep doing the same things...eventually they will work!
- C. Call for termination orders (because you've reached the end of the protocol)
- D. Consider dual sequential defibrillation

Discussion

This is a case of witnessed refractory ventricular fibrillation (VF) arrest in a relatively young, previously healthy patient, who received immediate bystander CPR and early defibrillation attempts, suggesting good potential for ROSC and neurologically intact survival. However, despite aggressive care, he remains in *refractory VF arrest* – a rhythm that can be incredibly frustrating to the EMS provider, and, if not rectified imminently, fatal. Refractory VF is most commonly defined as VF that has failed to respond to five standard defibrillation attempts and an antiarrhythmic, although some may label VF as refractory after only 3-4 failed shocks.

The (fictional) case of refractory VF described above presents an opportunity to deploy **Dual Simultaneous Defibrillation (DSD)**. Sometimes described as “double” instead of “dual,” and/or “sequential” instead of “simultaneous,” DSD is the deliverance of two simultaneous shocks. This is achieved by applying two sets of defibrillation pads to the patient, each connected to a separate defibrillator. Both machines are charged to maximum energy and two shocks (one from each machine) are delivered simultaneously. *This is best accomplished by a single operator controlling both machines*, rather than two providers trying to time it right. Examples of DSD pad placement can be seen below.

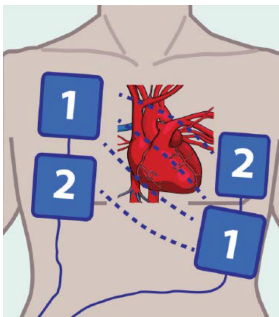


Figure 1

Anterolateral-anterolateral

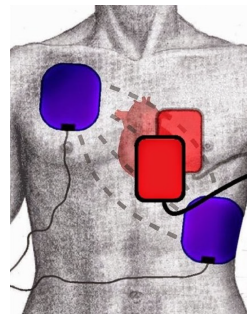


Figure 2

Anterolateral-anteroposterior

Very cool. But does it work?

The literature in support of DSD for refractory VF is limited, but rapidly expanding, with several new papers published in 2016. DSD was first described by Wiggers in 1940, but little more was done with it until 1994, when a cardiologist named Hoch described a series of five patients in refractory VF in the electrophysiology lab who were converted to sinus rhythm with DSD¹. Interestingly, Hoch predicted that his findings would likely be applicable to the “Emergency Room.”

Hoch's paper finally made it's way to the "Emergency Room" in 2013, with the first reported case of DSD deployment for refractory VF in the Emergency Department setting resulting in a full neurological recovery for the patient². This success inspired others; several more case reports and series have emerged in the past couple of years³⁻⁶, most recently expanding into the prehospital arena. A case series of 10 patients in cardiopulmonary arrest in Wake County, NC described DSD terminating 7/10 cases of refractory VF⁷. ROSC occurred in 3/10 patients, but none survived to hospital discharge. In 2016, Johnston, in Toronto, described the first case of prehospital DSD deployment resulting in neurologically favorable survival to hospital discharge⁸.

No harm secondary to DSD has been identified in the literature. There are no clinical trials examining DSD to date. While overall quality of evidence remains low, the body of literature in support of DSD is growing.

OK...when should I deploy DSD?

DSD has been successfully deployed on several occasions to date in this region. The forthcoming 2016 NY Collaborative Protocols will specify DSD as an option for refractory VF. *It is imperative that when available, DSD be deployed as soon as possible once refractory VF is identified.* The longer the intervention is delayed, the less likely a favorable neurological outcome will be achieved. This may mean requesting a second defibrillator to the scene early on and applying it at the time of the 5th shock, so that it is set to go for the 6th round. As DSD is not standing order by protocol, this also means being proactive and calling Online Medical Control for authorization *before* you get to DSD if not previously authorized by your agency medical director.

It can be hard to predict which patients will require DSD. However, obesity, cardiomyopathy or other structural heart disease, chronic lung disease, prolonged duration of VF prior to first defibrillation attempt, failure to respond to initial defibrillation, and sub-optimal pad positioning are all thought to be risk factors for standard defibrillation failure, and should prompt you to start thinking about DSD early on.

The role of Automated External Defibrillators (AED's) in DSD is essentially non-existent. AED's, compared to manual defibrillators, result in longer compression interruptions for rhythm analysis and for that reason, generally have no role in ALS management of cardiac arrest. It is difficult to coordinate AED therapy with a manual defibrillator. There is no evidence to support AED use in DSD.

Limitations

There are some limitations to DSD. The largest barrier to use is having a second manual defibrillator on scene in a timely manner. While many agencies send a second ALS unit to cardiac arrests, not all agencies are able to do so. If refractory VF is suspected and no additional ALS is enroute, one could consider requesting a second ALS unit for the defibrillator resource. Refractory VF is analogous to a four-alarm fire – additional resources may be required to achieve control of the situation.

Another limitation to DSD is that not all Emergency Physicians (EP's) may be familiar with the concept. DSD is relatively "cutting edge," and not all EP's may be comfortable with the procedure.

Case Conclusion

A second paramedic arrives on scene, contacts Online Medical Control, and receives an order to perform DSD. A second manual defibrillator is applied to the patient with the pads in the AP configuration. At the next pause, the rhythm is identified as refractory VF. Using both defibrillators, ALS delivers two simultaneous shocks at maximum energy and CPR is resumed. Two minutes later, the patient is noted to have achieved Return-of-Spontaneous Circulation (ROSC). The post-ROSC EKG is seen below:

The patient is packaged and transported to the closest STEMI receiving center, where he undergoes primary PCI and makes a full recovery. One month later, he is successfully completing cardiac rehabilitation and getting back to work.

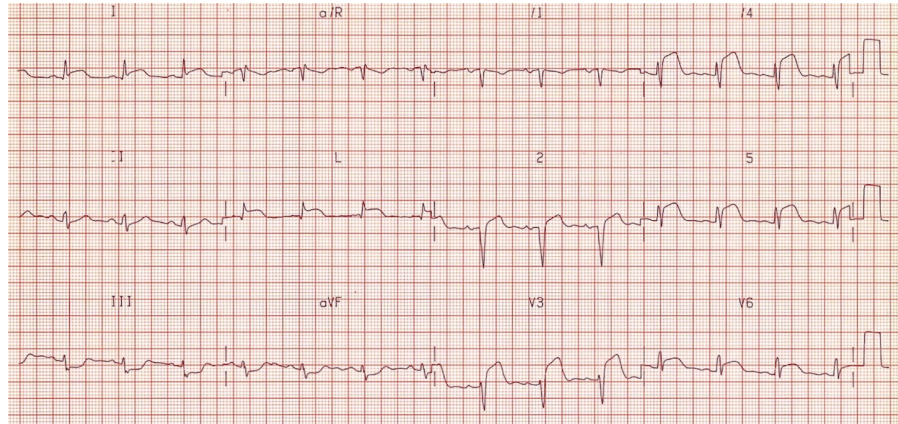


Image courtesy lifeinthefastlane.com

Questions? Comments? Suggestions?

You can reach me by e-mail at Aaron_Farney@urmc.rochester.edu

References/Further Reading

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Pain

Jeremy Cushman MD, MS, EMT-P, FACEP

Heather Lenhardt MBA, EMT-P

So lately you may have been noticing a focus on how we manage pain. After all, let's face it, more than 80% of our patients are calling because of something that hurts. We recently looked at how we are managing patient's pain and here's what we found:

We looked at 221 calls with patients having 10/10 pain on the initial assessment. We removed the "frequent fliers," so this was truly the worst of the worst with pain. We then looked at what their last prehospital pain score was, usually on arrival to the ED: 92% still had a pain score of 10/10 on arrival. Normally 92% is a good score, and I would like that on my recertification exam every three years, but what this really means is that only 8% of our patients with 10/10 pain had any improvement in their pain score. We must do better.

There are two ways to think about improvement in pain – the first is a "clinically significant improvement in pain." That can be defined as a change in pain score by 3 or more. So moving someone's pain from 10 to 7 is a clinically significant improvement in pain, but moving from 7 to 5 is not. The second is achieving "adequate analgesia" – which is defined as a final pain score of 4 or less. In the prehospital environment, I recognize that some patients may not achieve adequate analgesia, but it should not prevent us from making a clinically significant improvement in their pain – the differentiation of these two considerations are important and represent clinical improvement targets that are reasonable and attainable.

I appreciate that some may say "why do I care – pain means they are alive!" The reality is that the practice of prehospital medicine is well beyond that, and other aspects of medicine not only track and analyze provider's management of pain as a performance indicator, but in some cases even tie compensation to it. EMS has not yet been connected to payment for performance, but it will be something we are all likely to see in the next decade. What's even more powerful, is that early, aggressive pain control (regardless of how that is achieved) dramatically reduces the long term pain sequelae and need for narcotic analgesia. Another example of what we may do in the field has tremendous long-term benefits to the patient.

To be clear, I am not saying every patient needs ALS for fentanyl, and that we should snow them all with drugs to get a number to change. What I am saying is that we should consider the management of pain just like the management of any other medical or trauma condition – we apply treatments to help control/reduce the complications. Our goal should be either a clinically significant improvement in pain OR achieving adequate prehospital analgesia.

So, how can you execute this? There are important BLS interventions that we must concentrate on. The first and by far most critical is something as simple as therapeutic communication – simply asking the patient "what can I do to help your pain," "I'm here to work with you to control your pain," or "is there a position that you will be most comfortable in" can provide tremendous insight in how to help the patient control their own pain. Doing what the patient finds to be most comfortable is ideal in many traumatic, and even some medical presentations of pain. What else can we do? Pillows (not smothering them, positioning them!), positioning, splinting, ice packs, hot packs, bandaging, and even a pleasant smile and conversation. I have performed some pretty painful procedures just talking with patients and in doing so,

distracting them away from the painful condition. Often, patient’s pain is amplified by the anxiety and unknown that surround their acute injury or illness and the unfamiliar place an ambulance is (to them!). Anticipating the patients concerns, fears, and anxiety’s, and addressing them and letting the patient know what is happening and why can be not only powerful in controlling their pain and anxiety, but is compassionate prehospital care. No doubt, these techniques are less glamorous than splints and needles, but I have reduced plenty of dislocations with nothing more than conversation and patience.

Managing pain in the prehospital environment is a challenge not just unique to us but throughout the industry. Sure, you are not going to get every patient to achieve adequate analgesia just by a pillow and talking to them, but you would be surprised how many you can positively impact. Give it a try every time: at the worst your patients will appreciate your compassion, at the best they’ll have a reduction in their pain.

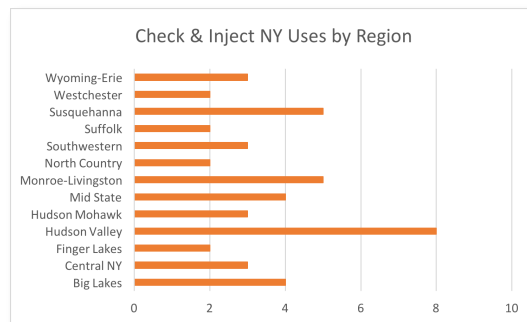
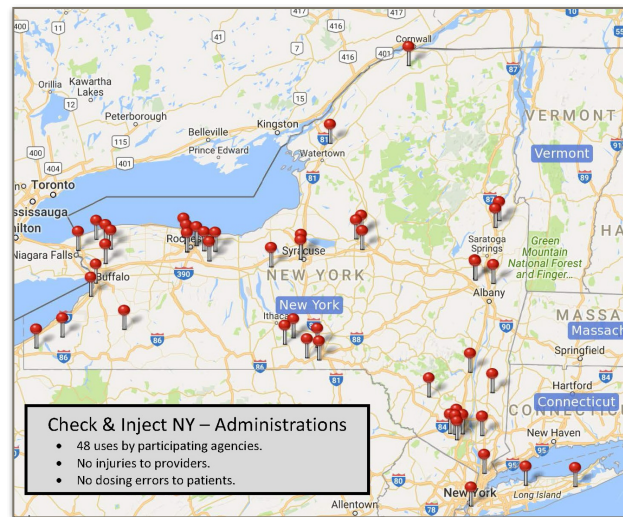
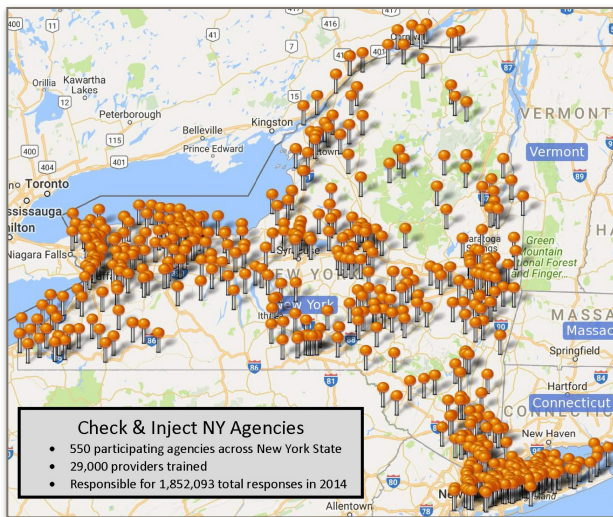
Don’t forget to document the BLS interventions you performed. It’s important for us to understand what you are doing to help these patients and how it affects their pain scores. Even therapeutic communication is really useful and should be documented.

Check & Inject NY Update

Melinda Johnston



Check & Inject NY Syringe Epinephrine Kit for BLS Providers



The Art of the Medical Control Phone Call

Christopher Galton MD, EMT-P



For those of us whose EMS careers started many years ago, having to speak with a medical control physician by radio or phone comes relatively easily. Within the last 10 or 15 years, many EMS systems have moved to a “standing” order model of providing guidelines to EMS providers. The result of this move is our EMS personnel being able to provide immediate therapies to critically ill patients without being burdened by contacting a physician prior to initiating the right treatments. Without a doubt, the patients are better served by a standing order model and the EMS staff are generally much happier knowing that medical control physicians have empowered them to apply their skill set and make good decisions.

One causality of this change has been the medical control phone call. The ability to succinctly present a patient over the phone or radio is a very important skill to have. When you call a medical control physician for a notification, they are depending on your presentation to insure the adequate resources are ready for your arrival. Some of the details you include might mean a triggered response for the cardiac catheterization team to come from home, a trauma surgeon breaking out of an OR during a case, or the neurologists leaving their clinic to evaluate an acute stroke patient.

The collaborative protocols are written to allow the EMS providers more flexibility with how they treat various conditions. To properly take advantage of many of these new treatment options, a medical control consult is required. We anticipate that as the new protocols come out, the volume of medical control interactions will increase. With the increase in consults, we would like to improve the quality of those consults, which should lead to improved success with order requests and ED preparation for your arrival.

Physicians are used to presenting patients to other physicians. We do this in a relatively regimented format so that the information being presented is being delivered in a logical order that we are accustomed to hearing. The acronym we are taught is SBAR, which stands for Situation, Background, Assessment, and Recommendations is used through the hospital on a routine basis.

The EMS region worked with a team of physicians, nurses and paramedics to streamline and add uniformity to the process by which EMS providers conduct patient handoff. This team agreed on the MIST format which is a combination of SBAR and other common resources. You may have watched the “Effective Patient Handoffs” training already (<https://www.mlrems.org/patient-handoff/training-videos/>) but the MIST format will work for medical control phone calls as well. MIST stands for Mechanisms/ Medical Complaint, Injury/Illness Identified, Signs/Symptoms and Treatments. I think we as prehospital providers should try to adopt this delivery method, which will improve your efficiency and success.

The following is a rough draft of what I use when I am calling in on the medical control line:

Hi, this is (name), with (agency and ALS or BLS), can you hear me OK?

I’m calling for (order or to notify).

I have an ETA of (minutes) with a/an (age) (male/female), with a chief complaint of (chief complaint), and Brief description of the HPI that includes highly pertinent stuff for the orders or notification.

Pertinent physical exam findings include: (anything pertinent).

The current vital signs are: heart rate of (HR), (BP), (SpO₂) on (O₂ or room air), with a respiratory rate of (RR).

Up to this point I have: (treatments already performed and results).

I think this is (your assessment of the situation with related pathophysiology).

Based on my assessment, I would recommend the following: (order request or notification).

Ok, to confirm, I will (read back orders or confirm notifications). Thanks. See you in (ETA) minutes.

To make this a little realistic, here is an example assuming I am riding with the SEQ and I'm calling into URM Strong.

Strong: Hi, this is communication nurse Jane. Medical or trauma?

Galton: Medical and I need a physician for orders please.

Strong: Standby.

Cushman: Medical command, this is Cushman.

Galton: Hi Dr. Cushman, this is Chris Galton with the SEQ transporting ALS with Penfield, can you hear me OK?

Cushman: Yes, go ahead.

Galton: I have an ETA of approximately 15 minutes and am requesting RSI orders for an 80 year old female, who has a chief complaint of dyspnea. The family contacted EMS when they found the patient in her nursing home room with difficulty breathing. She has a long history of COPD on home O₂ and has recently been complaining of chills and thick, green sputum. The facility staff stated that she has been getting worse for three days now. Pertinent physical exam findings include profoundly decreased breath sounds bilaterally, circumoral cyanosis, one word dyspnea, and very limited tidal volumes. The current vital signs include a heart rate of 124, 104/52, 78% on 15 lpm by NRB, and a respiratory rate of 40 breaths per minute. Up to this point I have attempted albuterol and ipratropium without much success and she is not able to tolerate track breathing. I think this is a moderate COPD exacerbation in combination with an upper respiratory infection which is severely compromising her ability to ventilate. Based on my assessment, unless you have any objections, I am planning on performing a RSI with ketamine and rocuronium, followed by in-line continuous albuterol and possibly IM epinephrine if she does not improve rapidly.

Cushman: Ok Galton. I agree with your assessment. Proceed with the RSI, albuterol, and administer 0.3 mg of IM epinephrine if she does not demonstrate rapid improvement in oxygenation.

Galton: Ok, to confirm, I will proceed with the RSI, albuterol, and give 0.3 mg of IM epinephrine if she does not improve. Thanks. See you in 15 minutes.

Cushman: See you then. Strong clear.

In this example, the MIST format is easy to see. I start in the with the situation to give Dr. Cushman some awareness of the circumstances. Next comes the background that I am using to sell my presentation of the patient. This is followed by my assessment, in this case a COPD exacerbation and URI combo.

Finally, I end with my recommendations and use closed loop communication to confirm the medical control physician’s orders. I timed myself giving this report and it took approximately 60 seconds. Even if you are not as practiced using this format, there is no reason that you can’t get that much information across in an organized fashion in < 90 seconds. I guarantee that the physician on the other end of the phone is tuning out if you go any longer than that, so keep it brief and pertinent.

The collaborative protocols are going to expand our options to treat the acutely ill patients that we see daily. Part of that expansion will include contacting medical control for permission to pursue some of those treatment options. Refining and adding some structure to our medical control physician consults will promote greater success with order requests, more efficient use of our time while treating the acutely ill patients in the ambulance, and promoting better preparedness at the destination facilities. I have presented one option of a formatted medical control consult. Although this is not the only option, sticking to the MIST format will provide an easier and more satisfying interaction.

Pre-arrival Notification or Report	Pre-arrival notification is expected of the following:
1. ALS / BLS and Agency	All Major Trauma
2. Time of Request / ETA	STEMI Alert
3. Reason for Notify / Transport	Stroke Alert
4. Age	Sepsis Alert
5. Male / Female	All VAD or TAH Patients
6. M – Mechanism / Medical Complaint	Unstable Patients
7. I - Injury / Illness Identified	Intubated Patients
8. S - Signs / Symptoms / Vitals	GCS ≤ 8
9. T - Treatments	CPR or ROSC
	Hypotension
	Adult: SBP < 90
	Peds: SBP < 70+2 (x) age in years

MIST Report

If you have any questions with this article or any other EMS related questions, send me an email at christopher_galton@urmc.rochester.edu.

Patient handoff tools and training videos are available at: <https://www.mlrems.org/patient-handoff/training-videos/>.

Advanced Active Shooter Training Scenarios (A2S2)

Eric Rathfelder, Police Officer, EMT-P

From 11/14 – 11/16, I had the opportunity to attend a training at the New York State Preparedness Training Center called Advanced Active Shooter Scenarios (A2S2): Tactics & Operations. Attendees at this particular session consisted of local law enforcement officers from the Rochester Police Department and Greece Police Department and firefighters from the Rochester Fire Department, Ridge Road Fire Department, Barnard Fire Department, and North Greece Fire Department.

The training center is a top notch facility with excellent instructors and the cost of training and lodging is paid for by the federal government! If you have not had the opportunity to attend any training there (it’s located about 20 minutes from Utica in Oriskany), I encourage you to take a look at their website (<http://www.dhSES.ny.gov/sptc/>) and see if there are any courses of interest to you or others at your agency. Did I mention, training is free to you and your agency?

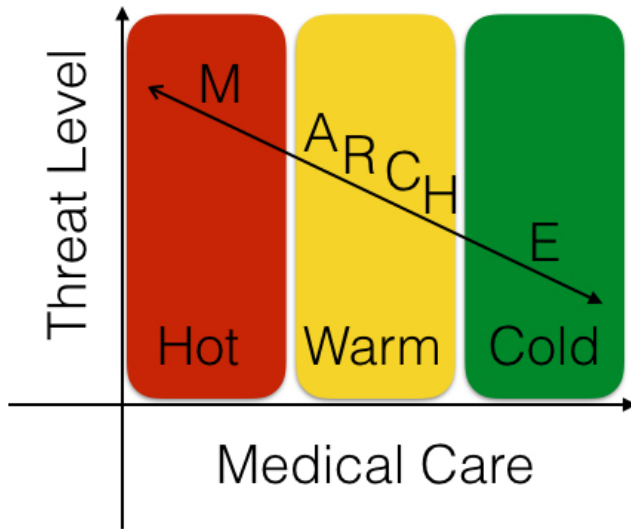
I attended this training as a law enforcement officer but everyone I spoke with from either law enforcement and the fire departments thought the course was fun, informative, and immediately useful to their current practice. I’ve outlined below some thoughts and themes from the training itself.

Stop the Killing; Stop the Dying

- Law enforcement effectively stops active killing through currently trained strategies but dying continues from preventable causes such as massive hemorrhaging, airway occlusion, hypothermia, and tension pneumothorax. There are many recent examples such as the Orlando night club shooting, where the shooter was contained but victims continued to die.
- Dying can be prevented when police officers render initial aid and when EMS/FD is brought into the scene as quickly as possible in order to provide care, extricate victims, and facilitate their transport to a medical facility.
- During an active killer event, the priority of life is: Victims, Innocents, First Responders, Suspect which requires a change in mindset for first responders (especially EMS providers).

M-A-R-C-H-E: An acronym outlining the things that kill people from trauma, in order of priority.

	Threat to life	How an EMS provider can treat in a warm zone
M	Massive Bleeding	Tourniquet, hemostatic gauze, pressure dressing, wound packing
A	Airway	Reposition head, turn victim on side, wound packing
R	Respirations	Chest seal or occlusive dressing on sucking chest wound
C	Circulation	
H	Head Injury/Hypothermia	Keep warm
E	Everything Else	Transport and worry about it later!



When considering how much medical care to provide, take into consideration the threat level that exists.

the warm zone to treat/stabilize victims in the warm zone. Victims are then evacuated from the warm zone back to the cold zone by the EMS providers with security from law enforcement. This all happens before law enforcement has rendered the entire building/scene safe or done secondary searches.

Schedule

Day 1 – Joint training between LE and EMS on Tactical Emergency Casualty Care (TECC)

Day 2 – Separate training for LE and EMS in the morning involving skill and concept practice in the individual discipline. In the evening we started scenarios/simulations.

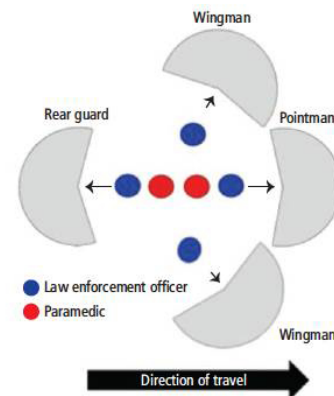
Day 3 – All scenarios/simulations.

Rescue Task Force (RTF) concept

• Law enforcement creates a warm zone which is an area where there is no longer a direct, immediate threat but the potential still exists for danger. This might be a hallway, room, or section of the building or area where the immediate threat has been neutralized and which is being held with appropriate security before law enforcement moves further.

• A Casualty Collection Point (CCP) should be established where victims can be consolidated.

• An RTF is established whereby a team of EMS providers is escorted by a team of law enforcement officers into



Awards Nominations

Submitted on behalf of the MLREMS PIER Committee

It’s that time of year again, and no, we aren’t talking about the holidays, we are talking about starting to think about nominees for the MLREMS Awards! Working as EMS and hospital providers, we encounter plenty of challenges on a daily basis. For us, it’s just “part of the job”. What we need to realize, is we really make a difference in people’s lives and the communities that we live and work in. Have you ever watched a colleague, an EMT/firefighter, a nurse or a doctor, and were in awe of what they did or said to someone? Or how many years someone in your organization has been volunteering and giving of themselves? Or listened to a dispatcher, wondering how difficult it must be for them to take the

information to dispatch difficult calls and reassure people in their time of need? We should be recognizing these providers in order to encourage and bring attention to all the great work they are doing so we can continue to serve our communities to the best of our ability.

When you look at your own agency/hospital or our region, I'm sure there is at least one person you can think of who deserves to AT LEAST be nominated for the great work they do for your agency/hospital and/or community/region. Even when you identify someone, you then have to find the time to sit down and put into words, all those great things they do. That, in itself, is probably the one thing that prevents nominations from being done. Time. The precious thing we have so little of, but the one thing potential nominees deserve from us. What if potential nominees didn't take the TIME to do what they do? Great things would not be done. Please consider nominating these GREAT people who do GREAT things for your agency/hospital and/or your communities/region. They deserve it!

The application for award submission is available at <https://www.mlrems.org/mlrems/public-information-education-and-recruitment-pier/> All award nominations need to be typed and returned to mlrems@mlrems.org no later than February 1, 2017. Late submissions will not be considered.

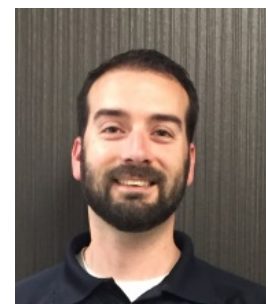
The following award categories are available for nomination submissions. The criteria for each award is listed in the award application.

- BLS Provider of the Year
- ALS Provider of the Year
- EMS Leadership Award
- EMS Educator of Excellence
- EMS Communication Specialist of the Year
- Registered Professional Nurse of Excellence
- Physician of Excellence Award
- EMS Agency of the Year
- Excellence in EMS Quality and Safety
- Youth Provider of the Year

Introducing . . . Benjamin Sensenbach

What is your role within the Division of Prehospital Medicine? Can you describe what you do there?

I am the Administrator for the Division of Prehospital Medicine and provide contracted support to the Monroe-Livingston Regional EMS Council (MLREMS)



to provide a wide range of administrative services support. These services range from credentialing of paramedic providers to processing changes in operating authority (CON). Much of my time is invested in ongoing quality assurance and process improvement as the region's Patient Safety Coordinator.

What is your background in medicine and how did you end up where you are today?

I started as a volunteer EMS provider when I was sixteen and entered the Navy just after my high school graduation to serve as a Hospital Corpsman. Although the recruiter painted that job as a shipboard EMT hitting the world's party cities on port call, that isn't quite the experience I got. In eight years, I did a total of thirteen days on ships. Some of my career was spent at various naval hospitals and clinics but the majority of my time was spent as a Fleet Marine Force Corpsman (the Navy provides all of the medicine for the USMC, who knew) where I fought in Afghanistan and Iraq. When faced with the option of returning to Afghanistan or Iraq, I promptly selected door number three which was to return to NY, although some days I admittedly second guess that decision.

Moving back to NY just before Christmas with a National Registry EMT card and a California nursing license didn't get me as far as one would like, I decided to take classes at MCC and thanks to Peter Bonadonna ended up starting my paramedic course in January. I was short one requirement to start class... a NY EMT card. After obtaining my paramedic certification, I went to practice at SEQ MCCU and was the first paid manager at Perinton Ambulance. All of that led me here.

Is there anything you are particularly passionate about related to EMS?

Excellence begins with the basics. It doesn't matter how good we are at advanced procedures or how many drugs we carry. If we aren't experts with our basic EMT skills, then we will always fall short. In EMS, EMTs save lives with high quality CPR, early defibrillation, IM epinephrine and hemorrhage control.

Is there something providers or agencies in the region can do to help you do your job at DPM?

Document what you do! We routinely are asked to look into EMS management of patients and the better you chart, the easier it is.
