

DPM



NEWS

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Outside the Box Education

Brian Bartolick, a new contributor to this newsletter, writes about some great resources to stay current on the ever-changing field of medicine on *page 4*.

Don't Fear the Epi

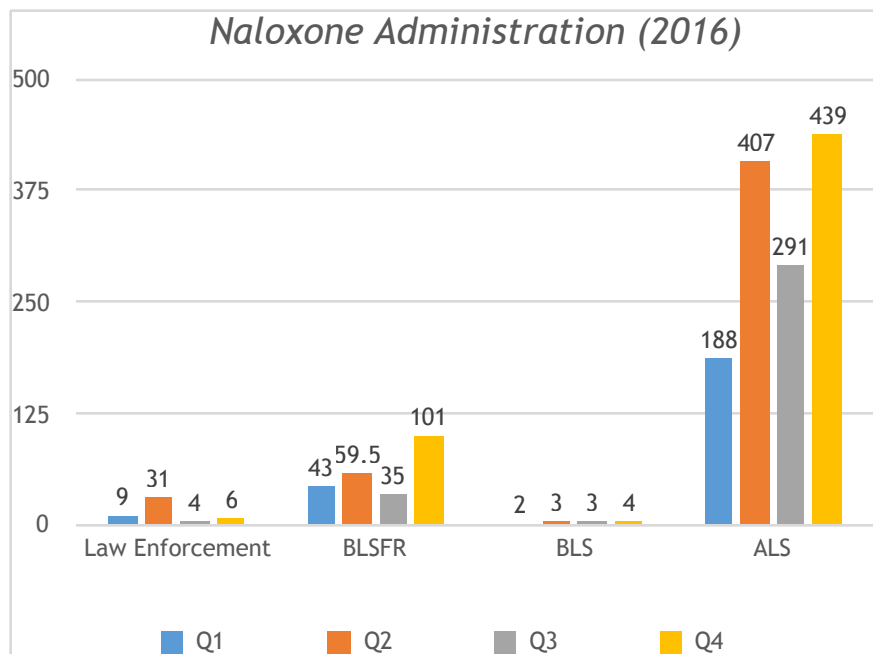
On *Page 7*, Dr. Elizabeth Murray discusses the appropriate use of prehospital epinephrine in children.

Emergency Medicine Residents

Dr. Aaron Farney clarifies the role of emergency medicine medical students and residents in part 1 of this 2 part series on *page 13*.

From the Editor

You, the EMS providers in our region, continue to represent one of the primary points of contact with opioid-addicted patients and their family members. The chart below (courtesy of Melinda Johnston) breaks down prehospital naloxone administrations for 2016.



DPM continues to manage a state grant for training and providing naloxone to first responders and the office trained hundreds of law enforcement officers, firefighters, and EMTs in 2016. In order to assist our office and the state with maintaining accurate statistics on naloxone administrations and to encourage the

state to continue funding these grants, please remember to complete the NYS Naloxone Usage Form after each law enforcement or BLSFR administration for those agencies that do not use EMS Charts.

Additionally, many first responders have asked about the increased number of community members, patients, and families who have been trained and issued naloxone kits. While DPM does not provide

Upcoming Events

Melinda Johnston

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

April

1 - STEP (begins 3/31)

1 - TECC

2 - TECC

5 - Preceptor Class

5 - EPC

6 - EPC

May

1 - GEMS

3 - BLS Core Content (Mod 1)

4 - 7: FDNY Medical Special Ops Conference

6 - PHTLS

7 - PHTLS

10 - BLS Core Content (Mod 2)

12 - AMLS

13 - AMLS

21 - EMS Week Kickoff Event

As always, if you are interested in available training, please visit the training calendar which can be found at mlrems.org which has many more training opportunities listed than those found above. If your agency is hosting training available to non-members, please contact Mindy Johnston via the contact information in the header of this newsletter on page 1 and she would be happy to add it to the calendar.

training or naloxone kits to the community in general, at the end of this newsletter I have attached a chart that provides contact information and schedules for local community naloxone training sites. This office is not endorsing any of these programs specifically but providing the information as a resource in the event you or your agency are asked by community members about these programs.

As always, if you have any feedback or suggestions about this publication, please contact me at e.rathfelder@gmail.com.

-Eric Rathfelder

Major Trauma - Major Opportunities

Jeremy T Cushman MD, EMT-P, FACEP

Heather Lenhardt MBA, EMT-P



As you know, trauma is a surgical disease. Aside from bleeding control, hypothermia prevention, and airway management, there is arguably little, if anything that EMS can do to improve survival except to minimize the time from injury to surgical intervention. Some studies have found better outcomes with BLS care when compared to ALS care, and an ongoing study in Philadelphia will shed further light on this.

To explore our region's care of major trauma patients, we obtained the PCRs from patients that were trauma team activations at Strong indicating that they met anatomic or physiologic indicators of major trauma. The results are interesting, and provide opportunities for refinement of our treatment priorities for major trauma patients.

Our goal for major trauma patients should be a scene time of less than 10 minutes. We know this is not always practical, but that should still be the goal. On average, we spend 16 minutes on scene – half of which is spent with the patient in the back of the ambulance before transport begins. These are the patients that EMS had immediate access to. Approximately 75% of the time the patient does not require extrication; when they do, on average it adds 30 minutes to our scene time. So if one of our key patient care goals in trauma care is to minimize scene time, what are we doing that might prolong that?

Before the patient even got in to the ambulance, we found that about 15% of the time we are providing BLS airway management

and the vast majority of those cases result in subsequent ALS airway management. That seems pretty reasonable as that is one of the key interventions that we should be doing in the field – along with hemorrhage control.

What we found more interesting were some of the other interventions that were done before the patient was in the ambulance and once the patient was in the ambulance but before beginning transport.

Intervention	Performed prior to loading pt	Performed after loading but before leaving	Totals (performed on scene before initiating transport)
<i>Vascular Access</i>	35%	35%	70%
<i>Blood Glucose</i>	18%	20%	38%
<i>3-lead EKG</i>	35%	45%	80%
<i>12-lead EKG</i>	5%	15%	20%

Now we are not saying that these interventions are inappropriate, but rather it's about prioritizing those interventions. After airway, breathing and hemorrhage control, the single most important intervention is moving the patient to definitive care. For example, we don't know of many trauma patients that benefit by being on a cardiac monitor or getting a 12-lead instead of moving to definitive care. In fact, nearly 1 in 5 major trauma patients were getting a 12-lead EKG before initiating transport to the hospital. The only time we think that would be necessary is if the provider believes the trauma event was related to a cardiac event. It doubtful that 1 in 5 of our trauma patients meet that criteria.

The take home point from our review is that if doing the intervention does not negatively affect the primary goal (moving to a hospital) then certainly go ahead. Otherwise, the primary treatment goal is movement to a trauma center, the secondary treatment can then be a 3 lead, 12 lead, IV, EKG, etc which can and should be deferred until time allows.

On a related note, when placing IVs, providers are increasingly using large bore IV's (14 or 16) over smaller bore (18 and up). This is a great trend and for major trauma large bore (14/16) remains the goal. But again, we don't know of any studies that demonstrate improved survival due to IV placement, but we do know that prehospital delays can negatively affect outcomes – thus the prioritization of tasks is essential.

Overall, the care of our trauma patients is excellent, but with everything, there are opportunities for improvement. Although victims of penetrating trauma (gunshot or stab) are often off the scene within 10 minutes, victims of blunt trauma often stay on scene much longer, even without a need for extrication, and this may be due to the performance of non-life-saving procedures over the initiation of transport. Prioritize your interventions, and recognize that just like STEMI and stroke, moving to the specialty center is often the most important intervention you can provide these critically ill patients.

Education Outside the Box - Podcasts

Brian Bartolick EMT-P, FP-C

As an advocate of education, I hope to present a series of articles in the newsletter highlighting educational opportunities beyond NYS EMS classes, lectures and online CME classes that we have already used in the past. Whether EMS providers are in an ambulance on post, or at their base awaiting a call, many seem to frequently use their smart phone for entertainment. There are many applications available for an EMT's smart phone that can help in their day-to-day job functions. Most of us are familiar with HAZ-MAT identification apps, scanner/radio apps, drug reference or calculation apps and applications that notify us of emergency calls. I have an application on my phone that will summon a helicopter with a touch of a button, then allow me to send real-time photos to the receiving hospital. Let me tell you about an application that is available for both Apple® and Android® devices, a podcast app which is able to download and play podcasts right on the phone.

For those unfamiliar, a podcast is a digital audio file available for download on a computer or audio player providing user specific content. In other words, for almost every human interest or subculture, there is a podcast dedicated to that topic. Most podcasts are provided weekly and when a user subscribes, the file can upload to the smart phone automatically. Subscribers can also listen to podcasts without having to download them to your phone, in most cases from a website on any computer. From an EMT standpoint, there are many good podcasts available that you can listen to during your commute, while working, or during any other downtime, covering a variety of EMS training topics. I have a long commute to work, and rarely do I listen to the FM radio stations.

Many of the podcasts discuss current topics, high-risk/low-frequency events, or just provide a good review of basic material. In my opinion, some of these podcasts are untapped educational resources in the form of audio lectures and even point/counter-point discussions. Prehospital ultrasound is a hot topic on many of the podcasts and EMTs can certainly learn about the technology and form their own opinion based upon the presented information and discussions. Recently, a local EMS agency provided 48 hours of ALS core content, and the students were required to listen to, and then come to class prepared to discuss a few podcasts each week. This allowed open exchange of ideas and offered learning opportunities not only from the podcast, but from everyone participating in class.

It is important to understand where a podcast ends and formal and regional education begins. I compare listening to podcasts to reading medical studies. A study printed in a reputable journal such as Prehospital Emergency Care or New England Journal of Medicine can be considered well researched and peer reviewed, therefore containing information one can take to the bank. A study in a pamphlet journal that nobody has ever heard of may include questionable medical information. To that end, anyone can record a podcast, so take time to review the speaker's information and credentials. An emergency room attending physician at Albany Medical Center or the University of Pittsburgh Medical Center probably has information that can benefit us as pre-hospital responders. I suggest a careful approach to presenters that have dubious credentials.

One further word of caution. The podcasts from Albany Med and UPMC are both good, but separate from our region here in MLREMS. Podcast presenters may occasionally discuss local protocols – local to them. Though their clinical treatment guidelines may be current and recommended by a physician, medical standards change often and differ over geo-political lines. Information in podcasts should never

supersede good clinical judgment, agency policies, nor standards of care as provided by our medical control physicians.

There are four podcasts I routinely download, and I would recommend EMTs of any certification level take some time to check out. Some are entry level, others have a bit more of a critical care slant, but everyone can find them interesting.

First, the Prehospital Emergency Care Podcast is presented by the National Association of EMS Physicians and provides a thumbnail sketch of various studies in the journal that EMTs would find relevant. Recent topics have included “Dual Sequence Defibrillation” and “refusals from patients that have received Narcan.” Although an audio review of medical studies can be a bit dry, the group tries to liven it up some, and typically concludes with a research hot topic. Recently the ALPS study was reviewed and broken down for all to understand. This podcast can be found at:

<http://feeds.feedburner.com/PrehospitalEmergencyPodcast>

Next, the EMS Lecture Series by Albany Medical Center. This series catalogs shorter lectures on a variety of topics great for BLS EMTs as well as advanced paramedics. The audio files are updated about every two weeks, and the topics are very wide ranging. The site is below:

<https://itunes.apple.com/us/podcast/ems-lecture-series/id268333502?mt=2>

After that, check out the UPMC CommandCast for podcasts dedicated to providing information on topics from all over the prehospital system. Full disclosure requires that I tell you that I am employed by the University of Pittsburgh (UPMC) though I receive no benefits if you click on the website. One of the value-added features of this podcast include CME credit, though only for Pennsylvania EMTs.

Regardless, topics like sepsis, VAD patients, narcotics and stroke care make this very topical and actually applicable to our practice of EMS. Look for it here:

<https://itunes.apple.com/us/podcast/upmc-commandcast/id1071340427?mt=2>

Finally, I highly recommend The FlightBridgeED Podcast. These episodes may not be as applicable to all local responders because some of the topics covered include ventilator management, RSI, ketamine and push dose vasopressors. However, all ALS techs and especially RSI and SCT paramedics will gain a wealth of knowledge from listening our colleagues that provide the content. This podcast does not change my protocols, but it does help me make decisions during my care on issues such as: morphine vs fentanyl or rocuronium vs succinylcholine for RSI. Log onto the website below to listen:

<https://www.flightbridgeed.com/index.php/podcasts>

I have presented just four podcasts here in the article but there are many more out there. You can enter “EMS PODCAST” into your favorite browser to find many more. Also, once you download a podcast app from iTunes or Google Play, you can search through the app itself to find episodes that interest you.

There are many great educational opportunities that can be found in podcasting, but some pitfalls as well. Hopefully, you can find a podcast that you like, and let me know if you do.

Next time, I will review some great vodcasts and local youtube video series that provide good learning and lot of good tips for EMS providers.

Dear Dr. Rueckmann: Phosphodiesterase Inhibitors - Friend or Foe?



Erik Rueckmann MD

What?!?!? Phosphodiesterase inhibitors?!? What is that...some kind of new detergent? Well no, phosphodiesterase inhibitors are a class of medications you are probably very familiar with. Done trying to guess? Let me give you hint...Viagra or Cialis. You know the commercial...a happy couple getting ready for an even happier moment via the wonders of pharmacology. This class of medications seems to have no place in the world of prehospital care but better living through chemistry can lead to serious adverse effects prehospital providers need to be aware of. A patient's medication list can be filled with potential significant, adverse events and prehospital care needs to be aware of these and it is important to realize these medications are not used solely to treat erectile dysfunction. Many patients diagnosed with pulmonary hypertension, Raynaud's disease, esophageal achalasia and esophageal disorders are also treated with these same medications.

Lets explore how these medications can cause significant morbidity and mortality. Phosphodiesterase inhibitors live up to their name and inhibit an enzyme called phosphodiesterase. So what does that mean? Phosphodiesterase gets rid of cyclic GMP. (I know, I know...biochemistry was not the reason you went into this business...but it's important). Cyclic GMP is a nucleotide that is key to smooth muscle relaxation. Where do we find "smooth" muscles...first hint, not the type of muscle found on the bicep of a Jersey Shore cast member. Smooth muscle is found in blood vessels, the GI tract, the pulmonary system, and other places where "involuntary" functions need to take place. This means you don't have to think about it to happen (i.e. breathing, digestion, maintaining blood pressure, etc). Therefore, the more cyclic GMP in the system, the more smooth muscle relaxation you have. So if you put 1+1 together, you probably already realized that this medication causes blood vessels to dilate (smooth muscle relaxation). In the case of Viagra and Cialis, the targets are the blood vessels of the penis causing blood to collect there causing an erection. However, no medication is perfect and thus there can be vasodilation of other blood vessels.

So how do these medications factor into prehospital care? If your patient has taken one of these pills, their effects can linger for some time. Viagra can last for 24 hours and Cialis up to 48 hours. Big deal? Well it can be. Many patients taking these medications are also at high risk for cardiac disease. Sexual activity often increases the workload to the heart...cardio the easy way...and often can cause angina/chest pain. The call for an ambulance goes out and you arrive to survey the scene. Being a good prehospital provider you get an ECG, place an IV, administer aspirin, and pop a nitroglycerin under the patient's tongue. What happens next? If a patient has a phosphodiesterase inhibitor in their system, then they're already somewhat "vasodilated". Throwing nitroglycerin into the mix will synergize the effects of both medications causing significant, systemic vasodilation. This leads to hypotension, syncope, and even worse cardiac arrest. While cardiac arrest is less common, hypotension is not which can cause significant problems in terms of syncope, related injury, end organ damage, etc. Furthermore, throw in some alcohol (a vasodilator) and now you've really set the trap for significant adverse effect.

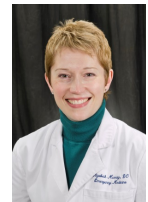
So, in summary...better living through chemistry can make life better but in some instances worse. Prehospital providers need to take an inventory of patient's medications to anticipate potential medication related adverse effect. In this case, prior to giving nitrates asking a patient if they have taken

any type of erectile dysfunction medicine in the past 2 days (of course you may have to use terms that the patient can understand—i.e. penis pills) can prevent an adverse outcome. But don't forget, patients may be on phosphodiesterase inhibitors for other causes, so further questioning about a patient's medical history and medications is warranted before shoving nitro in their donut masher. While most medicines used in prehospital care do not pose a serious risk for adverse medication events, there are a few that can. It's always a good idea to refresh your memory of the possible side effects of the medications and stay up to date on new medications that are entering the marketplace. This is a tall order but there are many resources that can help...medicine is always evolving and so should you.

Note: If you have a question for the Dear Dr. Rueckmann column, please email the editor at e.rathfelder@gmail.com

Pediatric Corner: Don't Fear the Epi

Elizabeth Murray DO



I must admit, I think I've seen more people inject their thumbs with an EpiPen than use it to correctly inject Epinephrine into their child's thigh. Though, at least they tried. Worse is the number of people that are too afraid to use the medication. It seems that somewhere along the way, Epinephrine was given a bad name. Turns out, in kids, your biggest concern should be how risky it is to not use Epinephrine when needed.

In March, The American Academy of Pediatrics (AAP) released two updated clinical reports, both about the importance of using Epinephrine in the setting of anaphylaxis. Further, Pediatricians are now asked to create an Allergy and Anaphylaxis Emergency Plan for patients similar to the Asthma Action Plans that have been available for a number of years.

Here's what we know about Epi and Anaphylaxis:

- Epinephrine works as a vasoconstrictor (tightens the blood vessels). By doing so, it will decrease swelling in the upper airway and help to prevent hypotension and therefore shock.
- Prompt, prehospital Epinephrine use is associated with a lower rate of hospitalization and more importantly, fatality.
- Benadryl, steroids, other antihistamine use all help with the symptoms of allergic reaction, but it is Epinephrine that has been shown to be the life saving agent.
- Epinephrine given by IM injection actually works faster than subcutaneous injections.
- There is no absolute contraindication to epinephrine use in the setting of anaphylaxis and most importantly, serious harmful side effects of Epinephrine are rare in children.
- I'm putting this in here twice: Serious, harmful side effects of Epinephrine are RARE in children. A heart rate of 160 or 180 in a child will be tolerated and elevated heart rate should not be a deterrent from giving Epinephrine in the setting of presumed anaphylaxis.

Symptoms and Signs of Anaphylaxis (may develop minutes to hours after exposure):

- Skin: itching, redness, hives, or swelling; oral and nasal mucosa: itching, swelling;
- Respiratory tract: hoarseness, throat itching, throat tightness, stridor, cough, difficulty breathing, chest tightness, wheeze, cyanosis;

- Cardiovascular symptoms: tachycardia, chest pain, hypotension, weak pulse, dizziness, collapse, incontinence, shock;
- Gastrointestinal tract symptoms: nausea, crampy abdominal pain, persistent vomiting, diarrhea; and
- Central nervous system: behavioral changes (infants), sense of doom, headache, altered mental status, confusion, tunnel vision.

The following is an example of what you might be handed by a parent or school nurse. (Keep in mind, this is a universal form used throughout the United States. 911 in our region will take care of the part about “send an ambulance with Epinephrine”)

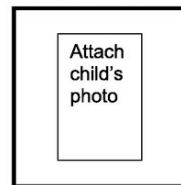
Allergy and Anaphylaxis Emergency Plan



Child's name: _____ Date of plan: _____

Date of birth: ___/___/___ Age ___ Weight: _____kg

Child has allergy to _____



- Child has asthma. Yes No (If yes, higher chance severe reaction)
 Child has had anaphylaxis. Yes No
 Child may carry medicine. Yes No
 Child may give him/herself medicine. Yes No (If child refuses/is unable to self-treat, an adult must give medicine)

IMPORTANT REMINDER
Anaphylaxis is a potentially life-threatening, severe allergic reaction. If in doubt, give epinephrine.

For Severe Allergy and Anaphylaxis
What to look for



If child has ANY of these severe symptoms after eating the food or having a sting, **give epinephrine.**

- Shortness of breath, wheezing, or coughing
- Skin color is pale or has a bluish color
- Weak pulse
- Fainting or dizziness
- Tight or hoarse throat
- Trouble breathing or swallowing
- Swelling of lips or tongue that bother breathing
- Vomiting or diarrhea (if severe or combined with other symptoms)
- Many hives or redness over body
- Feeling of “doom,” confusion, altered consciousness, or agitation

SPECIAL SITUATION: If this box is checked, child has an extremely severe allergy to an insect sting or the following food(s): _____ Even if child has MILD symptoms after a sting or eating these foods, **give epinephrine.**

Give epinephrine!
What to do

1. Inject epinephrine right away! Note time when epinephrine was given.
2. Call 911.
 - Ask for ambulance with epinephrine.
 - Tell rescue squad when epinephrine was given.
3. Stay with child and:
 - Call parents and child's doctor.
 - Give a second dose of epinephrine, if symptoms get worse, continue, or do not get better in 5 minutes.
 - Keep child lying on back. If the child vomits or has trouble breathing, keep child lying on his or her side.
4. Give other medicine, if prescribed. Do not use other medicine in place of epinephrine.
 - Antihistamine
 - Inhaler/bronchodilator

For Mild Allergic Reaction
What to look for



If child has had any mild symptoms, **monitor child.**
 Symptoms may include:

- Itchy nose, sneezing, itchy mouth
- A few hives
- Mild stomach nausea or discomfort

Monitor child
What to do

- Stay with child and:
- Watch child closely.
 - Give antihistamine (if prescribed).
 - Call parents and child's doctor.
 - If symptoms of severe allergy/anaphylaxis develop, use epinephrine. (See “For Severe Allergy and Anaphylaxis.”)

Medicines/Doses

Epinephrine, intramuscular (list type): _____ Dose: 0.15 mg 0.30 mg (weight more than 25 kg)

Antihistamine, by mouth (type and dose): _____

Other (for example, inhaler/bronchodilator if child has asthma): _____

Parent/Guardian Authorization Signature _____ Date _____ Physician/HCP Authorization Signature _____ Date _____

© 2017 American Academy of Pediatrics. All rights reserved. Your child's doctor will tell you to do what's best for your child. This information should not take the place of talking with your child's doctor. Page 1 of 2.

Bottom line: If you think you patient is developing anaphylaxis, give Epinephrine.

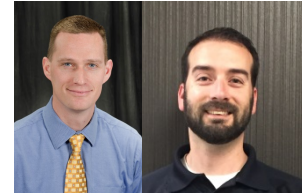
Interested in reading the full articles? They can be found in the Journal of Pediatrics and are available to the public.

Epinephrine for First-aid Management of Anaphylaxis. Scott H. Sicherer, F. Estelle R. Simons, SECTION ON ALLERGY AND IMMUNOLOGY. Pediatrics Mar 2017, 139 (3) e20164006; DOI: 10.1542/peds.2016-4006
 Guidance on Completing a Written Allergy and Anaphylaxis Emergency Plan. Julie Wang, Scott H. Sicherer, SECTION ON ALLERGY AND IMMUNOLOGY. Pediatrics Mar 2017, 139 (3) e20164005; DOI: 10.1542/peds.2016-4005

EMS Management of Traumatic Brain Injury

Jeremy T Cushman MD, EMT-P, FACEP

Ben Sensenbach CCEMT-P



Traumatic Brain Injury (TBI) is one area of medicine where our management is continually improving as more research is conducted and published. Evidence emphasizing the importance of airway management and ventilation, maintaining blood pressure and MAP, as well as sedation may have improved since you last reviewed TBI research.

The following airway management topics specifically relate to research in the management of the TBI patient. While these best practices for the management of intubated, mechanically ventilated, and patients requiring post-intubation sedation relate directly to TBI patients, but can be applied to any patient who needs this type of airway management.

A second attempt at endotracheal intubation TRIPLES mortality. All the more important to have a first pass plan that maximizes the potential for success. Failure to secure an ETT first pass for these patients really isn't an option.

1-2-3-4

1st pass success is critical

2nd attempt at ETT = 3 x mortality

A single hypoxic event = 4 x mortality

Previously, it was believed that a single episode of hypoxia doubles mortality. Actually, it probably QUADRUPLES mortality! No desaturation is acceptable. Effective pre-oxygenation is absolutely critical. Use a nasal cannula at 15 LPM with either your NRB or BVM (as the patient requires) also on high flow while preparing all of your equipment. Leave the NC in place during laryngoscopy to prevent desaturation during your intubation. Proper ventilation is even more critical than previously thought. Hyperventilation kills both because of cerebral vasoconstriction causing decreased cerebral blood flow, but also because of decreased venous return to the right side of the heart. Our target remains ETCO₂ of 35-45 and a single episode of hyperventilation, defined as an ETCO₂ of less than 32 mmHg, increases mortality. Even worse, with each subsequent decrease of 3 mmHg ETCO₂ below 32 mmHg, mortality increases. We need to be more vigilant about ventilation rates and subsequent ETCO₂, and we should make sure that when performing quality assurance (QA) on our intubated patients, ETCO₂ and ventilatory rate is part of that review.

Sedation in the intubated patient continues to be a topic of discussion. Keep in mind that hypotension in the head injured trauma patient is clearly bad. Mortality doubles with an episode of hypotension, defined as a SBP of less than 90, but may be greater than that. When you look at the association of hypotension and mortality in blunt head trauma, a systolic BP of <144 is bad. YES! Those with a systolic pressure of <144 have a greater risk of death when controlling for other factors than those with SBP >144. The pendulum in post-intubation sedation may have swung too far, and we are likely over-sedating

these patients. As a result, their BP is going down, and that is bad for brain cells. This is clearly the case for blunt trauma TBI patients, and may be very much the case for all our patients. To put it another way, I can't remember the last time I saw an issue because a provider did not sedate their patient, but the risks of sedating are likely much higher than we previously thought. The point is, don't immediately reach for the midazolam after you intubate someone. A little hypertension is a good thing. Another complication to consider is the maintenance of mean arterial pressure (MAP) in order to maintain cerebral perfusion pressure (CPP). Remember that $CPP = MAP - ICP$, so if you really want to do something, first try fentanyl alone. Laryngoscopy is a painful procedure so give the fentanyl a chance to work and then re-dose. If the patient continues to clearly be agitated and combative which is impeding your ability to appropriately oxygenate and/or ventilate, then consider midazolam or contacting medical control. However, titrate midazolam in 2.5 mg aliquots. **DO NOT GIVE MIDAZOLAM EMPIRICALLY "JUST IN CASE"**, and when giving midazolam, 5 mg at once is too much.

We have heard a number of providers talk about permissive hypotension in trauma patients. Keep in mind that permissive hypotension may have a benefit, but **ONLY** in patients that permissive hypotension was studied in - penetrating trauma **WITHOUT** head injury. All of the studies on permissive hypotension have been in that patient population. Fortunately, we very rarely have patients that meet that criteria. For any blunt trauma hypotension is decidedly bad. Don't do it.

Regardless of whether our patient is intubated or not, the head of the bed of TBI patients should be elevated thirty degrees to help lower ICP. Nausea should be treated with ondansetron as vomiting also increases ICP.

The final step in quality TBI care is documentation. A recent research project conducted in Arizona revealed startling discrepancies between the EMS run records and the cardiac monitor data. In reviewing EMS run records, it was documented that 1 in 20 TBI patients had hypoxic episodes during EMS care. This number appears reasonable when you account for how sick these patients can be, and with how much activity is involved in their care. However, a systematic and qualitative review of cardiac monitor data from the same set of patients revealed that 1 in 5 had recorded hypoxic episodes. TBI patients are frequently sick patients that decompensate because of their clinical condition, but we must be cognizant of, and anticipate these changes in our management of the TBI patient. As important as any procedure performed in the prehospital setting, the accurate and complete documentation of these events must be completed. Providers are expected to document their findings, treatments they perform, and the responses to these treatments. The choices we make, and the rationale for those choices are essential, regardless of whether the result of our interactions are for the good or to the detriment of our patient.

I hope this you have found something positive to take away from this brief update on the management TBI patient. There is always more to learn, and always the ability to become a better provider.

Videolaryngoscopy, the Best Thing Since Sliced Bread or Just Another Way to Spend Scarce EMS \$? (part 1 of 2)

Christopher Galton MD, EMT-P

Recently I was reading through the 7 Feb 17 issue of Journal of the American Medical Association (JAMA) and it made me smile. For many years now I have been defending the airway skills of emergency medical staff and I have never been a believer that toys or tricks



dramatically improve our success. I continue to maintain that a paramedic that puts in an adequate amount of time training should be able to achieve a high rate of first pass success for intubation. The article that I read¹ only further cemented my view point that better training will make us more successful, and better toys will always help us spend money, but will not guarantee improved success.

Obviously, we are not comparing apples to apples when we study airway management in the ICU and try to directly correlate it to prehospital medicine. Past studies have validated the use of videolaryngoscopy (VL) in the ICU as a means of placing endotracheal tubes, but those studies have also identified some concerns, including a longer time to ETT placement, increased risk of airway trauma, and higher mortality. The authors sought to test the hypothesis that routine use of VL for orotracheal intubation in the ICU increased successful first-pass intubation when compared to Macintosh direct laryngoscopy (DL). They utilized the McGrath Mac Videolaryngoscope as their study device. If you have a free moment, see the reference below and take a few minutes to read through this one.

Enough about the article though. I believe that VL can have an important role in prehospital airway management, just not necessarily as the primary laryngoscopic tool. After studying the airway management success rates of paramedics from around the US and over many years, I can confidently say that there is a wide diversity of first pass success rates. They range from people who haven't successfully placed an ETT in years, to paramedics who place > 30 prehospital tubes annually at a ~95% first pass success rate. So what can we all do to ensure that we all operate at the standards of the second group of paramedics and what is a reasonable success rate?

My best guess to that question is 85-90%. To get there, we need to think before we act. Spending 15 seconds putting the patient in the proper position, selecting the correct blade for each individual patient, and focusing on the immediate task, are a big part in improving our success with both DL and VL. When is the last time you pulled out an airway mannequin? Did you use all the adult blades when you practiced? Did you use a realistic time frame? Was someone doing CPR at the same time? Did you watch the clock after your RSI drugs were administered to ensure you were visualizing the glottis at the most opportune time? Was there a nasal cannula on the mannequin to promote adequate oxygenation during laryngoscopy? Most importantly, did you have another capable provider watching you to provide an adequate critique?

Video laryngoscopy has the potential to move us beyond the 85-90%, but it does not have the ability to take a mediocre paramedic and make them dramatically more successful. It has the potential to decrease hypoxic time in difficult airways, but cannot make up for poor attention to detail and lack of effort in training. It could decrease the number of surgical airways we perform, but it has not decreased our time to successful intubation.

Next issue, we will discuss how smart use of VL can fit into a well thought out difficult airway algorithm and take EMS airway management to the next level. At this point, VL should not replace DL, but supplement it in an airway algorithm like a gum elastic bougie or a light wand. The application of the difficult airway algorithm should be a frequently practiced skill to the point that it can be applied at a subconscious level. We should be as comfortable with this algorithm as we are with ACLS.

¹ Lascarrou, JB, et al. Video Laryngoscopy vs Direct Laryngoscopy on Successful First-Pass Orotracheal Intubation Among ICU Patients. A Randomized Clinical Trial. *JAMA*. 7 Feb 2017; 317(5): 483-493.

Charlton Heston gave a popular speech in 2000 that ended with him holding a flintlock rifle over his head saying, “from my cold, dead, hands!” That’s the only way a direct laryngoscope should ever leave us, “from our cold, dead, hands!” Unless of course, sound, evidence based medicine suggests that it should ... Until the summer issue, I can be reached at christopher_galton@urmc.rochester.edu if you have any questions about this article.

MLREMS Awards Nominees

Submitted on behalf of the MLREMS PIER Committee

Thank you for all of the thoughtful submissions recognizing our very worthy EMS providers and other local health professionals. Here are the nominees for awards for 2016:

Agency of the Year

- American Medical Response
- Gates Fire District
- Gates Volunteer Ambulance
- Monroe Ambulance
- Nunda Volunteer Ambulance

ALS Provider of the Year

- Tucker Costich
- Luke Jackson
- Brian Obark
- Christopher O’Brien
- Laura Wolcott

BLS Provider of the Year

- Martha Blair
- James Bucci
- Kelsey Costello
- Xanthia Garcia
- Carolyn Hanna
- Matthew Rothberg
- Samantha Rudy
- Hardy Schulz
- Jeanette Zavislan

Educator of Excellence

- James Cassin
- Richard Race

EMS Communications Specialist of the Year

- Davin Eshleman
- Ken Keirn
- Tory Zinsmeister

Harriet C. Weber EMS Leadership Award

- Norm Caccamise
- Kelsey Costello
- Robert Faugh
- Chris Gray
- Lance Hester
- Shawna Rizzi

Physician of Excellence

- Jeremy Cushman
- Jay Schueckler

Registered Nurse of Excellence

- Brigid Farley
- Joe Gervace
- Tegan Rathfelder

Excellence in EMS Quality & Safety

- American Medical Response

Dick Tripp Award

- William Arnold
- Martha Blair

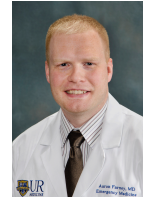
Youth Provider of the Year

- Mary Grace Shine

Additionally, Congratulations to SUNY Geneseo First Response Chief ***Kelsey Costello!*** The National Collegiate EMS Foundation selected Chief Costello as the 2016-2017 National Collegiate EMS Provider of the Year, presented at the 24th NCEMSF Conference in Baltimore this February.

Emergency Medicine Residents in the Field (part 1 of 2)

Aaron Farney MD



Have you seen a UR Emergency Medicine Resident in the field lately and wondered what they are doing? Or wondered what *can* they do, or whether they can serve as Medical Control? Or thought to yourself, “what’s the difference between a medical student and a resident?” Medical training can be confusing. In this two part series, I will attempt to clarify some of these questions. In Part I, we will review medical training, including the concept of “Residency.” In Part II, I will discuss the role of an EM Resident in the field.

What is a Medical Student?

A medical student is someone who has completed college, obtained a Bachelor’s degree (or higher), and who has enrolled in medical school to study to become a physician. Medical school is four years long. First and second-year medical students largely study in the classroom, while third and fourth-year medical students spend most of their time in the clinic and hospital seeing patients and furthering their learning. Medical students are not doctors – yet.

What is a Resident?

When students graduate from medical school, they are now doctors – albeit, doctors without experience or training in any particular field. As Medicine has become increasingly complex and specialized, post-graduate training, also known as “Residency,” is now required to practice Medicine independently in the US. Residency training programs focus on a specific field, such as General Surgery, Internal Medicine, Radiology, or in our case, Emergency Medicine. Medical students apply and match to a specific residency training program during their senior year.

EM Residency

As part of its academic mission, URMC sponsors an Emergency Medicine (EM) Residency. This training program accepts 14 new residents each July, for a total of 42 residents in the three-year program. All 42 EM residents have graduated from medical school and are doctors who are currently training to become attending Emergency Department Physicians. They work clinically under the supervision of attending physicians, who have already completed residency and who are Board Certified in Emergency Medicine.

Residents are classified according to their training year. First-year residents are identified as “R1,” or interns. Second-year residents are known as “R2,” and third-year residents are referred to as “R3,” or occasionally, “Chief Resident.” As residents progress to R2 and eventually to R3, they become increasingly knowledgeable and skillful, taking on ever more responsibility in the Emergency Department. An R3 around this time of the year is only a couple months away from becoming an attending physician, and therefore is expected to be performing at a high level; whereas an R1 in July is very green and needs closer supervision. Residents can interview and examine patients, order tests and medications, and perform procedures such as RSI/intubation, chest tube placement, and central venous catheter insertion, but do so under supervision. The intensity of the supervision depends on the level of training of the resident, the degree of risk of the procedure, and the acuity of the patient.

Emergency Medicine Residents spend most of their time seeing patients in the Emergency Department at URMC Strong. However, they also rotate through other services, such as Obstetrics Labor and Delivery, Trauma and Acute Care Surgery, ICU, Anesthesia/OR, and, of course, EMS! These rotations serve to broaden the knowledge and skills of the residents, and many are required by the Accreditation

Council of Graduate Medical Education, or ACGME. ACGME is the national accrediting body that oversees the quality of US medical training programs.

EM Residents & EMS

As interns, EM residents spend one day each July orienting to EMS, where they meet EMTs and paramedics, become familiar with EMS equipment, and get the opportunity to attempt CPR in a moving ambulance. During their second year, UR EM residents complete a two-week long dedicated EMS rotation. In addition to completing a Quality Improvement project, the EMS rotation includes several field ride-alongs with various local EMS services. While some EM Residents may have prior EMS experience, for many, this is their first time “in the streets,” and is an invaluable and eye-opening experience.

Conclusion

In Part I of this series, we reviewed medical training, the concept of “Residency,” and learned about Emergency Medicine Residents. In the next edition, we will discuss in more detail the role of the EM Resident in the field.

Community Naloxone

Eric Rathfelder MS, BA, EMT-P

Each of these programs will train community groups by appointment. Any scheduled trainings are open to individuals from the community, free of charge, who register for the class. Other registered programs within Monroe County only train specific groups (such as emergency responders or patients and patient’s families) or did not respond to my requests for information.

<i>Registered Program</i>	<i>Contact Information</i>	<i>Schedule</i>
<i>NYS Office of Alcoholism & Substance Abuse Services</i> J.L. Norris Addiction Treatment Center 1111 Elmwood Ave Rochester, NY 14620	Julie Hutchinson Julie.Hutchinson@oasas.ny.gov 461-0410 x228	2nd Tuesday, every-other month (1:00 – 2:30PM) June, August, etc. Location: 1732 South Avenue
<i>Strong Memorial Hospital MMTP</i> 300 Crittenden Blvd Box Psych Rochester, NY 14642	Michele Herrmann 275-1829	1 st Tuesday, monthly (5:30-7:00PM) Location: Strong Recovery, 300 Crittenden Blvd
<i>Trillium Health</i> 259 Monroe Avenue Rochester, NY 14607	Olinda Ford oop@trillium.org 545-7200	4 th Saturday, monthly (1:00-2:00PM) Location: 259 Monroe Ave
<i>Villa of Hope</i> 3300 Dewey Avenue Rochester, NY 14616	Stacey Gray 865-1555 x110	By appointment