

DPM NEWS

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Physician Response Vehicle (906)

Have you ever wondered about the capabilities or responsibilities of the on-call EMS physician? Learn how car 906 might be able to assist you with your job on *page 2*.

Don't Forget about the Spine!

On *Page 3*, Eric Thomas, a new contributor to this newsletter, discusses the importance of c-spine immobilization since backboards have gone out of favor.

Videolaryngoscopy (part 2 of 2)

Dr. Christopher Galton unveils the eagerly anticipated part 2 of this series on *page 5*.

From the Editor

Consistent improvement requires data to identify areas of strength, areas of weakness, determine baselines, and measure outcomes. In an EMS system, which consists of a multitude of agencies, levels of care, and several charting systems, obtaining consistent data is critical but challenging. Heather Lenhardt, QI Coordinator for the Division of Prehospital Medicine, often provides data analysis in this newsletter which helps providers improve their patient care.

When we, as providers, write charts we can assist Heather, and DPM, with data analysis through consistency. Many of the agencies in this region use emsCharts for documentation. On the last page of this newsletter, Heather has provided a documentation guide for documenting medication administrations for agencies that use emsCharts. By documenting medication administrations in a consistent manner, across agencies, we can improve data collection, as a region, to better inform our practice and improve patient care.

I hope you enjoy the summer edition of the DPM Newsletter. As always, if you have any feedback or suggestions about this publication, please contact me at e.rathfelder@gmail.com.

Upcoming Events

Melinda Johnston

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

July

11/12 - PALS Original

17 - MLREMS Meeting

17 - REMAC Meeting

September

18 - MLREMS Meeting

18 - REMAC Meeting

27/28 - ICS for major and/or complex incidents (I-400)

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.

The Physician Response Vehicle

Jeremy T Cushman MD, EMT-P, FACEP



The Monroe County Physician Response Vehicle is a resource available to all area public safety agencies. Although based in Monroe County, it has, and can, respond to unusual incidents throughout the region that may benefit by the presence of an EMS Physician. In responding, the EMS Physician may fill a number of roles, including: facilitating patient care by responders; expanding the scope of practice of responders; assisting with patient destination decisions; providing direct patient care; providing real-time quality assurance oversight; supporting the health and safety of responders; or serving as on-scene subject matter expert.

The Physician Response Vehicle's identifier is Monroe County Car 906, that of the Monroe County EMS Medical Director. The vehicle has full Monroe County communications capabilities to include Fire and EMS dispatch/working frequencies, Commercial Ambulance Services, and Law Enforcement as well as Hazardous Materials and Special Operations Teams. It has connectivity with medical and hazardous materials resources as well as County Emergency Management preplans. A full compliment of PPE including USAR, Structural Firefighting, and ballistic protection is carried by the operator.



In addition to standard ALS equipment to include all protocol medications, oxygen equipment, and a 12 lead EKG and defibrillator, the 906 vehicle carries a ventilator; a mass casualty oxygen manifold; non-invasive Co-Oximetry for measuring COHb and MetHb; extensive medications for sedation and pain control in cases of extended extrication/entrapment; treatments for various toxic exposures (such as cyanide, HF, cholinesterase inhibitors, etc); supplies for the management of patients with severe crush injuries; an amputation kit; warmed and chilled IV fluids; and supplies to maintain the operational health of team members (antibiotics, wound closure materials, etc).

Car 906 is automatically dispatched to any Mass Casualty Incident, Greater Rochester International Airport Alert 3, and Hazardous Materials or Special Operations Incident Level 1 or greater occurring in Monroe County or the City of Rochester.

However, any level provider may request the availability of Car 906 through the Monroe County/City of Rochester Emergency Communications Department for any circumstance in which a physician presence may be beneficial such as a motor vehicle accident with multiple vehicles, a large occupancy vehicle (bus), or with person's trapped and a prolonged extrication; mechanical/machinery entrapment; trench, confined space, or structural collapse with person's trapped; high angle or other technical rescue; multiple victims of a carbon monoxide/Hazmat/ unknown substance inhalation; working fires with or without person's trapped; and hostage/active shooter situations.

Every effort is made to assure Car 906 is available 24/7 and is most often staffed by Drs. Cushman (E906), Farney (E907), or Galton (E909). In rare circumstances it will be out of service and this information is relayed to ECD when it does occur, although there is always a physician on-call and if scene response is not possible then direct phone communication between scene providers and the EMS Physician may facilitate patient care at the scene.

The Physician Response Program is a joint venture supported by Monroe County and the University of Rochester Division of Prehospital Medicine.

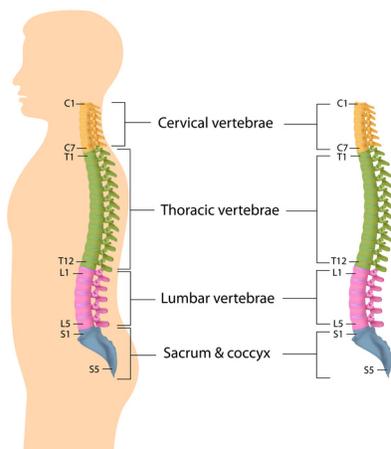
Cervical Spinal Precautions: Don't Toss Them Out with the Backboards

Eric M. Thomas MS, PA-C, EMT-B



The evidence based suppression of long backboards from the prehospital setting has led to a decrease in the number of patients who are appropriately receiving cervical spinal motion restriction, when indicated. Given that spinal column trauma is associated with a 7.5 fold increase in the potential for neurological injury, early prehospital recognition and management is imperative to improve long-term outcomes for our patients.

Accurately identifying and appropriately treating spinal column trauma in the prehospital setting not only protects the patient from a secondary injury, but also passively alerts receiving institutions of the need for appropriate triage, work-up, treatment, and follow-up care during the patients' emergency department visit and hospital admission.



The vertebral column provides anatomical structural support and protects the spinal cord. The spine of a human consists of 33 bony vertebrae: 7 cervical, 12 thoracic, 5 sacral (fused), and 4 coccygeal (potentially fused). The lordotic cervical spine is the most commonly injured section of the spine given its range of flexibility and level of exposure above the torso. Level C2 (axis) is the most commonly injured area, followed closely by C5, C6, and C7. The unique mechanical makeup of the bones, discs, ligaments, and musculature of the spine that allows for flexion, extension, rotation, and lateral motion of the head/neck provide an impressive functional framework for activities of daily

Figure 2: Anatomical picture of the spinal regions

living; however, such intricate framework creates an environment very susceptible to injury, especially in the case of any traumatic injury.

Furthermore, EMS providers shall recognize that the incidence of spinal column trauma follows a bimodal age distribution with peaks in incidence at ages: 15-29, and, >65. Trauma to the spinal column is more common in male patients than in female patients- on both ends of the bimodal distribution. This is probably because younger male patients are the most susceptible to traumatic injuries, and, patients >65 have co-morbid medical conditions that also make them more susceptible to trauma, and, injuries thereafter.

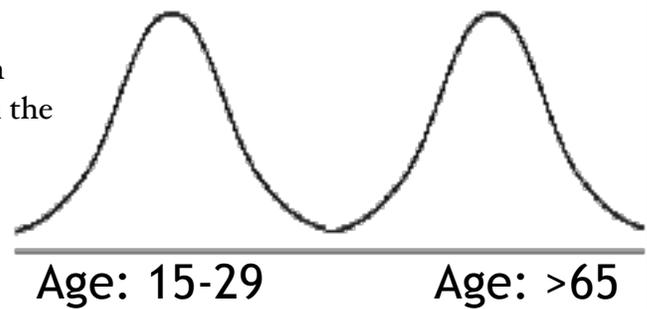


Figure 1: Bimodal age distribution of the incidence of spinal column trauma injuries.

Prehospital care providers should suspect an injury to the spinal column in the setting of any traumatic injury. This is especially true in motor vehicle collisions, falls, assault, or sports-related injuries. A heightened sense of suspicion should be considered in patients with drugs/alcohol on board, in cases of a distracting injury, or frankly in any case of evidence for altered mental status. The bottom line is to have a low threshold to initiate these precautions given the low risk and high reward nature of the application of a cervical collar, and, motion restriction practices.

Consider the following brief clinical scenario:

You are dispatched to a 92-year-old female who mechanically fell and is complaining of paraspinal cervical neck pain. She is neurologically intact with no noted focal deficits. The patient has a past medical history significant for: hypothyroidism, osteoporosis, hypertension, diabetes mellitus II, and dyslipidemia. The patient got herself up after the fall and has been walking around her house before summoning EMS. She originally wished not to be transported to the hospital; however, after divulging more into her history you discover that she has sustained 4 other recent falls over the past 3 months and you are concerned that she may fall again if you leave her home alone. You are also very concerned given her paraspinal cervical spinal pain and tenderness to palpation in the setting of repeat trauma in a 92 year old with risk factors for fracture (osteoporosis, hypothyroidism).

As a result, you apply an accurately sized cervical spinal collar and initiate precautions per protocol. The transport was otherwise uneventful and the patient remained hemodynamically stable. Upon arrival at the receiving institution you provide a detailed triage report and the patient is assigned to an appropriate care area. The triage nurse, bedside nurse, and treating provider are also visually clued to the potential for spinal injury given your astute prehospital application of a cervical collar. The patient is imaged appropriately and treated/admitted for a fracture in the cervical spine at the level of C5 with risk of spinal cord compression.

As EMS providers we are often challenged with multivariable clinical scenarios as to what precisely may be the correct course of action. In this patient's case, had cervical precautions not been properly carried out, the potential certainly exists for ongoing permanent secondary injury,

improper triage at the receiving facility, and prolonged identification and treatment of the cervical spinal fracture. The low risk and high reward nature of cervical spinal motion restriction practices in the prehospital setting is something that each and every care provider should consider, and, engage a low threshold to utilize, and execute. Do not throw away your cervical spinal precautions with your backboards!

Pediatric Corner: Epinephrine (2 of 2)

Elizabeth Murray DO



Epi, Epi, what's with the Epi? Well, it's not something to fear and so often I hear providers express worry about using it in children. So, here we go, part II in the Epinephrine series: All you never knew you wanted to know about Epinephrine.

A few years ago Racemic Epinephrine was in short supply so the hospital said we could only use Epinephrine. Suddenly, people started to ask, why is it that we use Racemic Epinephrine for nebulization? Does it really matter? We don't ask our EMS Providers to nebulize a special Epinephrine. Turns out, it doesn't matter. Here's the difference: very little.

Sorry, it's Organic Chemistry time. Some molecules can have 2 versions of themselves, a right and a left version. These are mirror images of each other. The example I was taught was to think of the different molecules like gloves. They are the same, but also distinctly different. A racemic mixture is one that includes equal parts of the left and right versions. When it comes to the function of the medication, both work equally well. This is a similar concept that was applied to Albuterol to create Xopenex. Xopenex is one "glove" of Albuterol. The hope was that Xopenex would have less side effects than Albuterol. Technically, it does, but practically those differences aren't significant. The same is true with Racemic Epinephrine. It won't do more than regular Epinephrine to help a child with stridor and it won't cause fewer side effects.

About stridor... when we need to treat stridor in children (or technically anyone else) we are talking about stridor at rest. This distinction is important because it is very easy for a crying child to have stridor in the setting of an upper respiratory infection. Crying makes everything worse, heart rate, respiratory rate, blood pressure, and stridor. The downside to using nebulized Epinephrine if the patient does not need it? The patient will need to be observed in the ED for 3 hours after taking the Epinephrine and that's about it. If a child is crying, then he's active and you have time to plan your next step. When the child calms, if there is an inspiratory noise, you know it's stridor and go ahead and treat. Chances are, everyone will feel better in a few minutes.

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

Christopher Galton MD, EMT-P

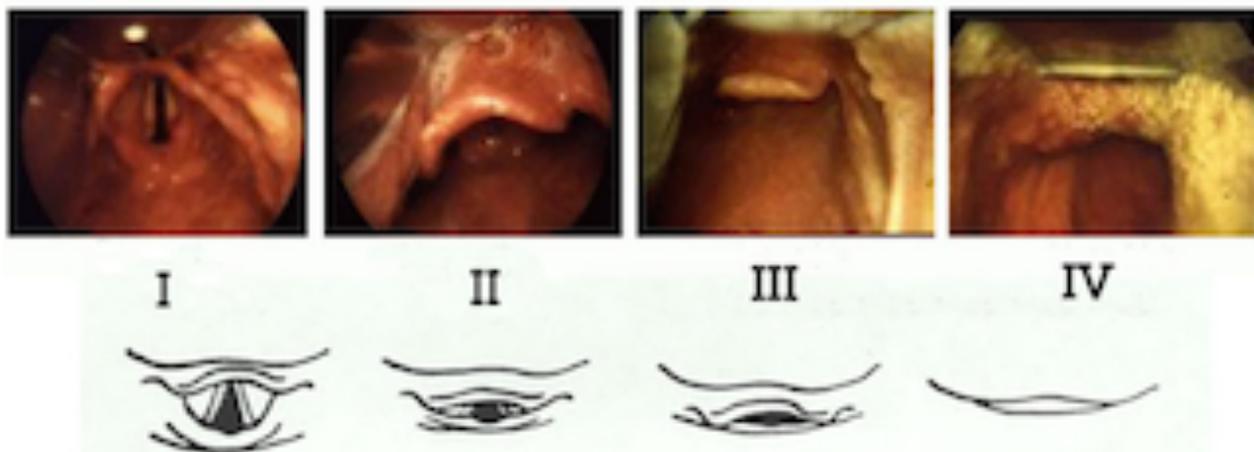


Besides the dreaded EMS question "what is the craziest thing you have ever seen," second on my list over the last five years is "why isn't videolaryngoscopy (VL) used for the first pass." Depending on how much time I have available to answer that question, it ranges

from “because there is no evidence to suggest that it is better,” all the way to a multi-hour class on VL. I always thought a better question to ask me would be “do you foresee a time in the near future that VL will become the preferred method for first pass success?” The answer to that is simple: yes, if we are lazy and accept mediocrity; no, if we continue to educate ourselves and train to be the best EMS personnel that we can be.

I like to see the best in people. Optimism is the only mindset to have if you expect to have a long, healthy career in EMS. It is from this mindset that I will continue to advocate for direct laryngoscopy (DL) until the evidence suggests that a change in my thinking is necessary. Before I delve into where VL fits in our airway management scheme, I want to reiterate that to date, there is no evidence in EMS literature that demonstrates VL to be superior to DL in successful ETT placement.

Having said that, let’s discuss where I think VL fits in the way we approach airway management today. Once we get to the point that we know airway instrumentation is necessary, the next step is assessing the airway and using the right tools for the job. Assuming your assessment leads you to think the airway will be relatively straightforward, I would start with either a Mac 3 or a Miller 2. Next, have the patient in the best position you can possibly start with given their unique situation. Then, place the blade halfway down their tongue, identify landmarks, and determine the Cormack-Lehane score once the blade is either engaging the hyoepiglottic ligament or lifting the epiglottis out of the way.



At this point, it’s all about what you see. For grade I and II airways, I place the ETT and move onto the patient’s next problem. Grade III airways require a gum elastic bougie to be placed and then an ETT to be “railroaded” in. Grade IV airways is where the most successful paramedics separate themselves from the pack. This lack of visualization requires a collected paramedic to understand why a more adequate view is not being obtained.

Based on this quick assessment, there are a variety of moves to be made that include:

- 1) Suctioning contaminants out of the airway
- 2) Increasing the size of the blade to more adequately engage the correct structures
- 3) Adjust the positioning to facilitate better visualization
- 4) Exchanging DL to VL equipment due to anterior positioning of the glottic opening
- 5) Placing a supraglottic airway as a rescue device
- 6) Consider needle or surgical cricothyrotomy

Occasionally, I would use VL as a primary laryngoscope. These rare situations probably represent < 5% of patients. These patients would present with a thyromental distance of < 2 finger breaths, limited neck mobility such as cervical fusions, known previous airway surgeries, or a mouth opening that barely fits a blade.

This strategy is predicated on the idea that we are using an enhanced direct laryngoscopy device to perform video laryngoscopy. Trying to apply this type of algorithm to channel devices would not be effective because of the lack of flexibility. EMS providers need tools that give them options based on their skill set. They don't need a device with limited options that only helps with relatively standard airways.

VL will undoubtedly be a hot topic in the coming years for EMS airway management. I believe that with the right training, a paramedic with an enhanced DL tool can go from an 80-85% first pass success rate to a 90-95% success rate. If you are not there yet, practice your DL skills in realistic situations. When you think you are ready, practice more. There is a famous quote that goes something like "a novice practices until they get it right, an expert practices until they cannot get it wrong." Are you OK with being a novice, or should we hold ourselves to the level of experts? I'm sure you know my answer.

If you have any questions about this article or any other EMS questions, I can be reached at christopher_galton@urmc.rochester.edu.

MLREMS Awards

Submitted on behalf of the MLREMS PIER Committee

The EMS Week Kickoff Event was May 21, 2017. Thank you to everyone who made this possible and attended the event to support our providers. Please see the listing below for all of our MLREMS award winners!

Agency of the Year - Gates Fire District

ALS Provider of the Year - Christopher O'Brien

BLS Provider of the Year - Matthew Rothberg

Excellence in EMS Quality & Safety - American Medical Response

Youth Provider of the Year - Mary Grace Shine

Educator of Excellence - James Cassin

EMS Communications Specialist of the Year - Ken Keirn

Harriet C. Weber EMS Leadership Award - Robert Faugh

Physician of Excellence - Jay Schueckler, DO

Registered Nurse of Excellence - Tegan Rathfelder

Richard "Dick" Tripp Community Service Award - William Arnold

It's never too early to think about nominations for next year's awards! As you go through your work days, if you see one of your fellow providers do something great, please consider nominating them for an award next year.

If you have ideas for which educational topics you would like to see at next year's event, please feel free to email us at mlrems@mlrems.org.

Specialty Care Transport (SCT) Training

Jay Scheuckler DO

The second annual SCT Education Day will be September 27, 2017, here at College Town. We will cover topics that are tested on the CCP-C and the FP-C exams. The topics will be presented by members of the Division of Prehospital Medicine as well as other physicians from URMC. We are also including a presentation on SCT pediatric transport. Similar to last year there will be a working lunch where we will have hands on education time as well as some dedicated case studies. If you are interested in attending please feel free to contact DPM for further information. We look forward to seeing you at the education day.



Save the Date! 2nd Annual Specialty Care Transport Conference



Wednesday, September 27, 2017
44 Celebration Drive,
2nd Floor, Room 2.007
Rochester, NY 14620



0800-1600



Introducing . . . Eric Thomas

Tell us about your experience in medicine and your current career path.

I started doing EMS in high school as a volunteer with Pittsford Ambulance. I went to RIT to become a Physician's Assistant (PA) and I am currently finishing a post-graduate fellowship in Emergency Medicine at the University of Rochester. This fellowship is a newer and expanding area developing at academic medical centers throughout the country for Advanced Practice Providers (APPs). I plan to stay with the University of Rochester following my fellowship. I also continue to practice EMS as an EMT with CHS Healthcare.



Is there anything in emergency medicine, or prehospital medicine, about which you are particularly passionate?

I enjoy learning about the expanding role of the prehospital provider and how EMS is best integrated into system-based care models. Some of my favorite areas include: comprehensive stroke care, opioid alternative analgesia, and critical care medicine. I have an expanding passion for teaching and I am hopeful that it is at least, in part, integrated into my future career.

What do you like to do with your time outside of work?

I enjoy skiing of any kind - waterskiing on Honeoye Lake in the summer and alpine skiing in the winter. I also enjoy golfing, spending time with friends, and working on my house.

* Need help with the new "NEMESIS" Fields? *

PRID: 45667166

At Ref: 09:42 At PT: 09:42

RA SpO2

Resp

1. Use the Add Action box in the Activity Log to document any medication administration. Scroll in this drop down box to find Medication.

Add Action: Medication

SAVE / Add Line

Time Action Comment

05/08/17 12:00 80 Palpated HR Method

SpO2 LOC

Alert

Temp

Comments:

GCS: E: 4 Spontaneous V: 5 Oriented M: 6 Obeys Command Total: 15 Pain: 8 Pain Scale Pain Quality

Assessed By: Heather Lenhardt

* Need help with the new "NEMESIS" Fields? *

PRID: 45667166

05-08-17 Crew ID#

Medication Log

Wasted

Medication Dose

Aspirin 324 MG

Route: PO Concentration: Lot #:

Comp: 1 Response:

Size Authorization

Comments

Submit Information

This box will appear after you push Save/Add Line button.

You should enter ALL of the following:

- 1. Medication Administered
- 2. Dose
- 3. Route
- Make sure the time on the activity log entry is