DPM NEWS

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COVID Musings

Starting on *page 1*, Dr. Galton provides some unique perspectives on the pandemic in his one-of-a-kind style.

COVID & Airways

Dr. Cushman provides more evidence-based best practices related to reducing exposure risk and optimizing airway care for patients requiring high risk interventions on *page 3*.

Strokes

Dr. Dorsett analyzes the <10 minute scene time metric for patients having a suspected stroke. How is our region doing and where are the challenges? Take a look on *page 7*.

In what is likely the greatest biomedical engineering feat many of us have witnessed our lifetimes, there are now multiple, effective vaccines available to treat a virus discovered less than a year ago. This has led to feelings of relief for many, confusion for others, and discomfort for some due to the rapid pace of development. As individuals, we each have the right to make our own healthcare decisions. As healthcare providers, to varying extents, we each have a network of people and patients who view us as subject matter experts and are, or will be, looking to us for guidance for making their own personal healthcare decisions, especially related to receiving a vaccine for COVID-19.

Being in this unique position of responsibility makes it even more important we ourselves are well-informed about the topic, have the ability to direct people to accurate information, and respect each individual's right to engaged in informed, shared decision making related to their health. Providing up-to-date, reliable information and remaining humble might be the most effective and responsible means of exerting a positive influence on the health of the people with whom we are connected. I've included resources from Dr. Cushman with high quality sources of information that would be useful in this endeavor on page 7.

Eric Rathfelder
Editor-In-Chief

Life in a COVID World

Christopher Galton MD, NRP, FP-C

As many of you know, I tested positive for the SARS-CoV-2 virus in July. I had the good fortune of never developing the COVID 19 symptoms though, and none of my family members tested positive. My initial draft of this article was a description of my time in isolation. I found reading my journal of that period in my life to be quite funny retrospectively. It was equally jovial as it was very dark. Ironically, I think of myself as a rational person who handles stressful situations pretty well. The 11 day "prison" sentence and

the ensuing paranoia certainly challenged that belief. It led to some funny writing, but I do not think the MLREMS newsletter is the most appropriate avenue for those words.

Instead, I thought I would offer some meaningful and some less meaningful reflections about the world we are currently living and working in. I hope that they will provide you with some holiday cheer.

1) The COVID pandemic has not put a dent in the strong work ethic that EMS providers maintain.
2) There are at least ten different ways that people try to wear a protective mask, most of which are completely wrong. How they screw it up, I can only guess?
3) Why do people insist on pulling their masks down to speak? Other than sneezing and coughing, speaking is the best way to spread secretions. Maybe they are just trying to spread the VID.
4) It is not fair that the VID took the summer away from us. We live in Upstate NY and those 4-5 months of good weather are the reason we deal with the rest of the year.
5) I hate to admit it, but it is easier and safer to think that everyone has the VID. This is my first experience thinking like a paranoid conspiracy theorist and I do not like it.
6) I spend a lot of time worrying about the wellbeing of the emergency service staff that are out their dealing with all these headaches. I wish there was something else I could do to make this safer for all of you.
7) How much of this infectious disease concern will continue even after an effective vaccine is available or we achieve herd immunity?
8) I miss my friends and phone calls or video conferences just do not cut it. I know that large gatherings are dangerous and I will not be participating in any, but nothing replaces being around your friends.
9) I am not smart enough to understand why this first world nation continues to have a much higher disease burden than the rest of the majority third world planet that we live on. This is embarrassing.
10) I am very fortunate to have a stable job with a stable income. Many of the members of our various communities are not as fortunate.
11) This is the holiday season and is always the happiest time of year. I hope this terrible pandemic does not deflate everyone's enthusiasm for the season.
12) If this keeps up, will we all be wearing SCBAs to treat patients? At least this is not Ebola.
13) Is anyone else thinking that a SARS CoV 2 vaccine is the perfect set up for the zombie apocalypse?
14) The bonds you build with your EMS partners should only be stronger because of this terrible pandemic. The partners you work with through brutal calls and tough scenarios are the ones you will always remember.
15) If you are a skier like I am, there is nothing worse than rain in December.
16) After intubating more COVID patients than I want to admit to, although I understand the associated risks, I feel confident in the PPE and process that we follow. You should feel confident in your own safety as long as you follow the protocols that are in place.
17) I wish the exhaust vents in the back of ambulances were more effective. Not just for COVID.
18) Wrapping yourself in all the necessary PPE to make COVID care safe is a good weight loss plan.

19) Before this is all done, we will all have friends and colleagues who will get the COVID sentence. A simple phone call or text message goes a long way to keep them sane.

20) Of all the things I miss from my days as a full timer, I do not miss driving the ambulance with all those idiots out on the road actively trying to get in your way.

21) Why in the world did people make a run on toilet paper at the beginning? Canned soup, hand sanitizer, sure. I am all for clean living, but toilet paper instead of pasta and some batteries. Really?

I think that is about enough for my perspective/satire on the COVID situation. I hope you find a creative, safe way to enjoy whatever holidays you choose to celebrate. If you have any questions about this article or just want to reach out to a COVID survivor, please feel free to contact me at christopher_galton@urmc.rochester.edu.

Airway Choice in Cardiac Arrest in the COVID Era

Jeremy T Cushman MD, MS, EMT-P

COVID has no doubt caused modifications to our practice, and one of the most significant areas of discussion surrounds airway management in cardiac arrest. Consensus opinion suggests that chest compressions have the potential to generate aerosols.[1] With existing evidence suggesting similar cardiac arrest outcomes in airways managed with a supraglottic airway (SGA) such as a Laryngeal Tube ("King Airway" LTS-D) or iGel when compared to endotracheal tube (ETT), 2 the question becomes whether to orotracheally intubate or place a supraglottic device to minimize potential aerosolization.

A few recent mannequin and cadaver studies have provided some guidance, although all were qualitative studies and could not quantitatively measure the amount of aerosol exposure to the rescuer. Nevertheless, there are some important take-home points that I'll share.

Not surprisingly, bag-valve-mask (BVM) ventilation and a simple oxygen facemask had the highest rate of aerosol particle spread during CPR. A cuffed endotracheal tube with a viral filter provided an effective closed system to prevent aerosolization during CPR.[3] An SGA with a viral filter decreased aerosolized particle spread compared to facemask and BVM, but did not achieve the level of control that a cuffed endotracheal tube and viral filter provided.[4] Of note, there was no difference in the amount of aerosolization amongst the different SGA's tested (AuraGain, I-gel, LMA, Proseal, LMA Supreme, Combitube, or LTS-D).[3]

From this we can offer that ventilating through an SGA and viral filter is likely better to limit spread of aerosolized particles than BVM ventilation. However, SGAs do allow egress of aerosolized particles, although the amount and area of distribution in clinical practice is unclear. Endotracheal intubation with a cuffed endotracheal tube and viral filter remains the best way to avoid ongoing aerosolized particle spread with chest compressions.

Now how can I apply this to my practice?

First, and most obvious, appropriate PPE remains crucial to limiting healthcare workers' risk of infection and must be prioritized, even/especially in the management of patients in cardiac arrest.

Second, we should move to an advanced airway as early as practicable in a suspected COVID patient so that they may be ventilated using a viral filter and thus decrease the risk compared to BVM ventilation alone.

Third, although in the past we have not wanted to stop CPR to perform any airway management and thus lose precious compression time, in the setting of suspected COVID patient it is appropriate to take a pause to minimize our exposure while placing either an SGA or ETT.

Fourth, with proper PPE and an experienced intubator that is maximizing their first pass success, placing an ETT reduces exposure risk for all rescuers for the duration of the resuscitation. One could argue (correctly!) that intubation is the highest risk procedure for causing potential exposure, but if we consider that such a high risk exposure is for a very short period of time (should be less than 15 seconds) followed by tens of minutes of essentially minimal if any exposure because of a closed system; as compared to a moderate risk exposure during SGA placement followed by tens of minutes of continued aerosol exposure because of the inability to maintain a closed system, the fact that an SGA system in cardiac arrest is unable to provide the same level of aerosol control favors ETT placement.

As with everything this pandemic, more data will likely present itself, but for now I think it's important to recognize that SGAs should not be considered as safe as ETT for control of aerosols so that you can make the best decisions to provide outstanding care while minimizing exposure risk to yourself, and your fellow rescuers.

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[1] Couper K, Taylor-Phillips S, Grove A, et al. COVID-19 infection risk to rescuers from patients in cardiac arrest. Consensus on Science with Treatment Recommendations. International Liaison Committee on Resuscitation (ILCOR). http://ilcor.org

[2] Benger JR, Kirby K, Black S, et al. Effect of a Strategy of a Supraglottic Airway Device vs Tracheal Intubation During Out-of-Hospital Cardiac Arrest on Functional Outcome: The AIRWAYS-2 Randomized Clinical Trial. JAMA. 2018;320(8):779091. dob: 10.1001/jama.2018.11597

[3] Somri M, Gaitini L, Gat M, et al. Cardiopulmonary resuscitation during the COVID-19 pandemic. Do supraglottic airways protect against aerosol-generation? Resuscitation. 2020. doi: 10.1016/j.resuscitation.2020.10.103

[2] Ott M, Milazzo A, Liebau S, et al. Exploration of strategies to reduce aerosol-spread during chest compressions: A simulation and cadaver model. Resuscitation. 2020;152:192-8. dob: 10.1016/j.resuscitation.2020.05.012

Report Writing

Eric Rathfelder MS, EMT-P, Police Sergeant

I was recently asked an interesting question by an EMS provider, "Do you write better PCRs than most paramedics because you're a police officer?" My response was, "I'm sure there are many providers who write better PCRs than I do but I think I have the *ability* to write a better chart than the *average* provider based on things I've learned through my other career but truthfully, practical factors like how many charts I'm down, the time of day, and how close I am to the end of my shift probably have a greater influence on the quality of any given chart I write." I'm no more proud of that reality than I am of the giant run-on sentence I used to express it - but that's the truth. That being said, I'm still writing an article on report writing tips.

Feedback as a Motivator

One of the most consequential motivators of good report writing in law enforcement is feedback. Every report written by a law enforcement officer incurs, at a minimum, one layer of review since an officer's

reports are reviewed and signed off by their first line supervisor. Oftentimes, that supervisor will kick the report back for corrections or clarifications before he is comfortable signing it. Depending on the agency and the particular report, it might then go through additional levels of review by higher level supervisors, data entry staff, investigative supervisors, internal affairs, etc. The feedback provided by these reviewers hones the report writer's abilities and provides some inherent motivation since the author knows with certainty the report is going to be reviewed.

One thing every EMT has heard before is some version of, "you need to write a thorough PCR because you might need to use it to testify in court a year later." This is true but only in a theoretical sense since many providers will never be subpoenaed to testify in court or provide a deposition, and for those who are, it is a rare circumstance. On the other hand, a typical law enforcement officer will testify in court many times each year, often basing their testimony on the reports they wrote about an incident. The much higher likelihood of using a report for court testimony and the feedback provided by cross examination from an attorney who is looking for the holes and weaknesses in your report are sobering motivators to write thorough reports. When all eyes are on you, and a stenographer is recording everything you say, it can become rather embarrassing and ineffective to repeatedly state "I don't know" because you didn't document things and don't have any independent recollection of many facts. As you write your report, think about what an attorney, law enforcement, or your QA auditor might be curious about when reading it - and provide the answers to those anticipated questions.

Read, Edit, Spell Check

We all make errors as we chart. There are built-in, automatic queries in most of the electronic charting software EMS uses which will catch, and prompt a correction, for some of these errors. However, it certainly won't catch syntax errors, grammar, noting the wrong side of the body, or inputting an incorrect GCS due to a "fat finger foul-up". Fortunately, many of these are easily caught and corrected by a quick reread or use of the spell check feature. Unfortunately, there are factors working against our ability to affectively do these things. Time constraints, writing charts after our shift ends, distractions, more patients, fatigue, and laggy internet connections can all work to influence us to quickly close a chart as soon as we reach the end, without reviewing it. Spell check feature dictionaries that do not include medical terminology or commonly used medical abbreviations can be slow and frustrating, motivating providers to bypass them. Charting software designed to meet state and billing reporting criteria can be awkward, slow, and non-intuitive. However, if the goal is to write a great chart, reading it, editing it, and using spell check features are all necessary. Especially since, unlike in the law enforcement world, your boss is much less likely to be scrutinizing your chart for spelling, grammar, and thoroughness then providing you with feedback and corrections like your 11th grade English teacher. In EMS, that's on us!

Sarcasm and Opinions

It sure does feel good to get some frustrations off your chest, opine about abuse of the EMS system as a taxi service, or include a few of your most clever one-liners in a chart. Especially at 3:00AM. Most likely those things won't read quite as clever a few months later if there is some scrutiny about the chart for legal, medical, or QA reasons. The benefits of keeping it professional in your chart, no matter how good it feels to slide down the slippery sarcasm slope, will always outweigh the short-term satisfaction of not doing so.

Opinions are a somewhat different matter because an opinion can range from a baseless, non-pertinent thought about an issue to a fact-based, educated thought based on your training and experience. After all, most of the time when a prehospital provider determines their working diagnosis this is a form of

opinion. But it is a type of opinion determined through physical exam, history taking and experience which is constantly evaluated and updated as new information is incorporated. It is a a necessary opinion since it will be used to make treatment and transport decisions and is integral to your reason for being with this patient. Limiting your written opinions to those relevant, and justified, for patient care and documenting them in a professional manner is good documentation.

Be the Reviewer

As a first line supervisor at a busy, urban police department, I have the opportunity to review dozens of a reports daily. Reviewing reports is a powerful method for making yourself a better report writer. It provides you the opportunity to glean the best styles, ideas, and language from all of the authors of the reports you are reviewing and it trains your eye to focus on the criteria that are most important or most frequently missed. A good way to improve the quality of your charts is to review the charts written by others. You might have that opportunity if you have a chance to get involved with QA or auditing. Or, less formally, you can certainly review the charts your partners write. If you see something you like during this process, incorporate it into your own writing.

Checklists or Formats

Consistency can reduce the chances of omitting something important. So, develop a format that works for you to write a thorough chart and use it. For certain types of calls it might be helpful to reference a checklist to make sure you haven't missed anything. For example, on calls that result in a sign off, you might reference the bullet points on our regional "refusal" form to make sure you have addressed everything appropriately. If you're writing an intubation chart perhaps it would be useful to reference the regional intubation checklist when you document your intubation. Our workplace environment conspires against us to provide every impediment to writing a thorough, high quality PCR. Using a checklist or common format can help act as a foundation for the report to counter the distractions and roadblocks thrown our way.

Conclusion

I have never heard an EMT or a police officer say their favorite part of the job is writing reports. Nevertheless, every EMS run we make will result in the need to write one. For most reports we will not receive any feedback and it will simply be submitted and forgotten but there are unseen downstream effects that stem from these reports: billing implications which ultimately impact the viability of the organization, clinical implications for the trajectory of a patient's care, and sometimes civil/criminal implications when the report becomes involved in a lawsuit or criminal case. For these reasons, it is important to be the best report author you can be. Many people will only know you as a name on your reports and for those people, your reputation could be based solely upon their quality - so make it great!

Reliable COVID Vaccine Information

Jeremy T Cushman MD, MS, EMT-P

Colleagues, to help provide accurate information about the vaccine and its safety and efficacy in the context of imminent access to vaccine, I offer the following resource materials.

I created a 30 minute video which I hope helps to address some common questions about both vaccines. To my knowledge it is accurate based on the information I had as of last night (12/20/20) and can be found at: https://youtu.be/sn4D8mHq-MQ

The CDC has excellent resources including:
Overview of the COVID Vaccine - https://www.cdc.gov/vaccines/covid-19/index.html
Vaccine FAQ's - https://www.cdc.gov/coronavirus/2019-ncov/faq.html
Information about vaccines and anaphylaxis - https://www.cdc.gov/coronavirus/2019-ncov/vaccines/safety/allergic-reaction.html

The primary data for each vaccine can be found here:
Pfizer-BioNTech EUA Documentation - https://www.fda.gov/media/144245/download
Pfizer-BioNTech Fact Sheet for Vaccine Recipients - https://www.fda.gov/media/144414/download
Moderna EUA Documentation - https://www.fda.gov/media/144452/download
Moderna Fact Sheet for Vaccine Recipients - https://www.fda.gov/media/144638/download

For individuals that are pregnant or expect to become pregnant, recommendations can be found from the American Society of Reproductive Medicine:
https://www.asrm.org/globalassets/asrm/asrm-content/news-and-publications/covid-19/covidtaskforceupdate11.pdf

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Scene Time for Suspected Stroke

Maia Dorsett MD, PhD, FAEMS

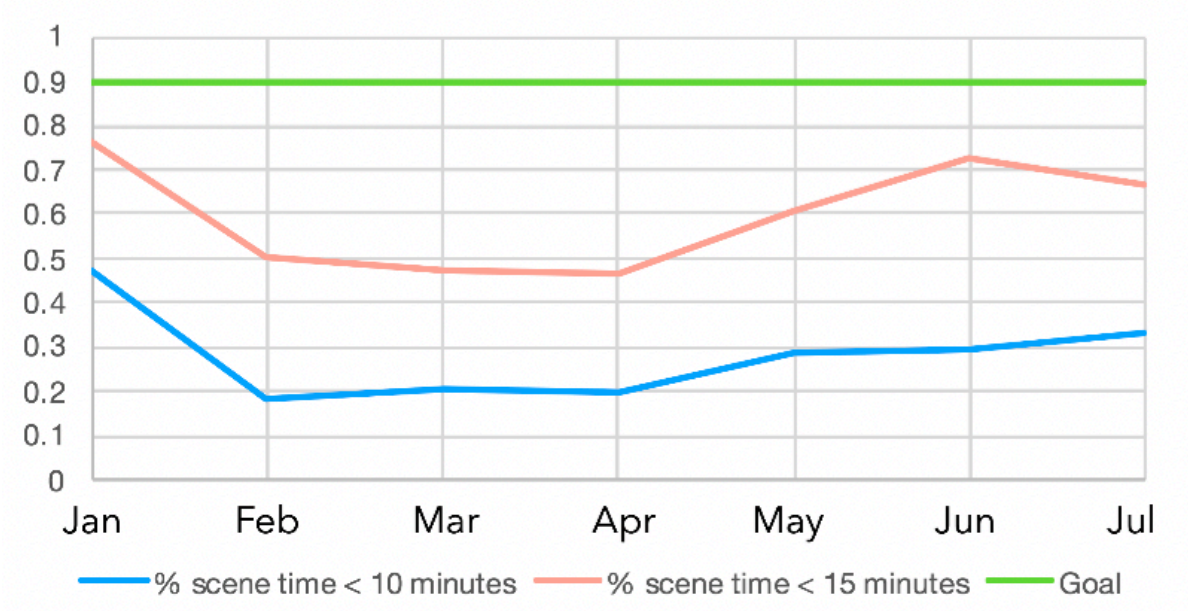
Scene time is a stroke quality measure with a regional goal of < 10 minutes when possible. Regionally, we exceed this the majority of the time. The greatest modifiable contributor to reducing scene time in suspected stroke appears to be unnecessary on-scene procedures, such as 12-lead ECG and intravenous access when not clinically indicated. Providers should consider whether a procedure or test will positively impact patient care in such a way that initiation of transport should be delayed; if it will not, defer until after transport has been initiated or indefinitely. The hallmark of good prehospital stroke care remains good BLS care.

The adage "Time is Brain" is more than a catchy phrase – indeed, time to reperfusion is a key factor in determining patient outcome following ischemic stroke. Time to reperfusion is a complex measure that is ultimately a byproduct of a number of factors: time to recognition and activation of emergency response, prehospital scene time, hospital and stroke team prenotification and emergency department processes. EMS plays a key role in reducing time to reperfusion, not just through stroke recognition and hospital prenotification, but via scene time minimization.

As part of the recent Regional Quality Improvement Academy, scene times for patients with suspected stroke were evaluated on a regional level. The goal scene time based on the MLREMS regional rubric is 10 minutes or less. We found that while the median scene time was just shy of this at 14 minutes, there was significant variability in scene times with the goal of scene time < 10 minutes being met only 26% of the time and scene time < 15 minutes being met 59% of the time for the time period between January – July 2020 (see Figure).

Extended scene times could be due to multiple factors such as delayed stroke recognition because of difficulty obtaining patient history or atypical presentation, patient extrication, or the performance of unnecessary procedures prior to initiation of patient transport. Several members of the quality academy

evaluated the contribution of such factors by taking a closer look at stroke patient care records where the scene time exceeded 20 minutes. They found that while only about 1/3 of these cases were dispatched as a likely stroke, delayed recognition was a factor in extended scene times only in minority of cases, and that the majority of the time there was a second party to provide clinical history. Extrication delay was documented in only 25% of these cases.



As far as procedures unlikely to impact patient outcome, 12 lead ECG was performed before leaving the scene in approximately 1/3 of cases. Intravenous access was also performed prior to leaving the scene in approximately 1/3 of cases, though primarily for the purpose of obtaining blood for blood glucose measurement in only a minority of the time. Blood glucose measurement was also commonly performed on scene (52% in patients without diabetes). While blood glucose measurement is a key component of prehospital stroke care, it is unlikely to change on scene management in a patient without a history of diabetes and could be appropriately delayed until after transport has been initiated. Thus, reduction in unnecessary on-scene procedures is likely the most immediately modifiable factor in reducing regional scene times for suspected stroke.

Intravenous access and 12 lead ECGs are indicated only in the rare minority of suspected stroke cases, but take up valuable minutes that can be used to move the patient towards reperfusion therapy. Before performing either of these prior to initiating transport, strongly consider whether they are likely to change your patient management in any meaningful way. If the answer is no, then defer at least until transport has been initiated. Rarely will 12 lead ECGs be indicated. Intravenous access is useful as it permits more timely performance of imaging modalities requiring intravenous contrast administration.

We extend our deepest thanks to participants in the Regional Quality Academy and in particular to members of the Scene Time Quality workgroup who analyzed charts for data collection: Paul Drotar, Jennifer Everett, Matt Jarrett, Rebecca Searchfield, and Sharyl Stumpf.