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Update 17 - COVID-19 – From Office of the Medical Director 24 APR2020 1000

To All EMS Personnel in the EMS System for Metropolitan Oklahoma City & Tulsa

Key Content:

- **What's Ahead Now?**
- **Nursing Home Correlation – WHO Europe**
- **STEMIs in the COVID-19 Era – Implications for EMS & Emergency Medicine**
- **Out of Hospital Sudden Cardiac Arrest in the COVID-19 Era**
- **Educational Resource – The Osterholm Update – Episode 5**

I'd be remiss if I didn't first re-advise you've entered a political free zone. If you haven't the first clue my personal political leanings, then I have done a fine job in my writings. I believe in these updates and in our states, there are no blues or reds, donkeys or elephants, liberals or conservatives or whatever elses, there's just people. Every "number" of a case, a positive test, a negative test, an admission to hospital, a discharge from hospital, a death...that number is a person. And that's who I took an oath to serve that meant something when I took it years ago. I'm writing with frustration. You're allowed to have it and so am I.

What's Ahead Now?

Facts:

1. The SARS-CoV-2 virus infects humans.
2. A human with SARS-CoV-2 virus can infect one or more other humans.
3. The route of infection spread for SARS-CoV-2 is primarily droplet AND airborne.
4. There is no scientifically proven vaccine for SARS-CoV-2 today.
5. There will be no scientifically proven vaccine for SARS-CoV-2 for many months.
6. Social/physical distancing has decreased the number of cases in OK so far.
7. Lifting social/physical distancing in OK will increase person-to-person contacts.
8. There are more confirmed cases of COVID-19 in OK today than 6 weeks ago.
9. There is no data to suggest that summer heat slows SARS-CoV-2 spread.

So that's where we are heading. Expect more patients with COVID-19 than you've seen to date. When you encounter a crowded society, you won't see the result the next day. Look 2+ weeks ahead. It will be easier than ever to contract COVID-19 simply because there are more cases in our communities today than in earlier weeks and that will ebb and flow for the months ahead with peaks that will decidedly test our EMS system and overall healthcare system.

What is ahead is worse than what we've experienced. We best stay informed, so...

Nursing Home Correlation – WHO Europe

We've identified multiple times the heightened risks to residents of nursing homes/long term care facilities. The World Health Organization (WHO) agrees and reflects that a significant percentage of COVID-19 illnesses and fatalities in Europe to date is represented by these facility residents. This statement was released yesterday in Copenhagen, Denmark and can be found here: <http://www.euro.who.int/en/media-centre/sections/statements/2020/statement-invest-in-the-overlooked-and-unsung-build-sustainable-people-centred-long-term-care-in-the-wake-of-covid-19>

We must continue to work carefully with patients residing in nursing homes/long-term care facilities and minimize exposures within these facilities.

STEMIs in the COVID-19 Era – Implications for EMS & Emergency Medicine

One of the aspects of our EMS system that brings me (and hopefully you) great pride is our collective ability to identify ST (segment) Elevation Myocardial Infarctions (STEMIs) rapidly, convey that information decisively to emergency departments/emergency physicians and activate interventional cardiologists/cardiac catheterization lab teams in an amazingly short time span. "Time is (heart) muscle" as the saying goes, and we do a heckuva good deed in minimizing the death and disability from STEMI in Metropolitan Oklahoma City and Tulsa. No shortage of you have now taken a patient not to the ED, but through the ED direct to cath lab. That's now going to largely change. Here's why:

COVID-19 can and does directly impact the myocardium, causing myocarditis – a direct viral-mediated inflammation of the heart muscle that very inconveniently can look just like a STEMI on ECG. But it's not. Medical literature has already well documented the phenomena of rushing these patients to cath lab only to find clean or relatively clean coronary arteries. So now, STEMI pattern patients with suspected COVID-19 (and by that we mean pretty much everyone until proven otherwise) will come to the ED, have a bedside echocardiogram to confirm if they do/do not have heart muscle motion abnormalities that look like STEMI before deciding whether to take them to the cath lab. There are risks to both the patient and to cath lab team members in doing procedures that aren't clinical necessary, especially in patients infected with SARS-CoV-2. This is all specified in a report released with support from the American College of Cardiology, the American College of Emergency Physicians, and the Society for Cardiovascular Angiography and Interventions. This was just released this week and is available at this link:

<http://www.onlinejacc.org/content/accj/early/2020/04/17/j.jacc.2020.04.039.full.pdf>

Here's two key passages from this report: "Until we can firmly establish the prevalence of the disease in the general population of the country, all patients presenting with a suspected STEMI should be considered COVID-19 possible. With a primary PCI (this means percutaneous coronary intervention, in other words, an emergent heart cath) strategy, ED stays should be focused and patients should be transferred to the CCL (cardiac catheterization laboratory) as expeditiously as possible. Yet, additional time to establish an AMI (acute myocardial infarction) diagnosis may be indicated (e.g. in some cases, echocardiography to assess for wall motion), and/or for COVID-19 status assessment and potential treatment (e.g. respiratory support)." And "...due to the logistical issues and time delays secondary to diagnostic uncertainty of STEMI with COVID-19, direct transport of the patient to the CCL is not felt prudent at this time. Therefore, we recommend initial assessment of all STEMI patients in the ED during the COVID-19 pandemic to ensure the correct diagnosis and care plan. The attending interventional cardiologist should be notified, but without activation of the entire STEMI team until the plan for CCL activation is confirmed."

Continue all aspects of our existing clinical standards of care for STEMI treatment by EMS, including STEMI alerts to the ED and transmission of 12-lead ECGs to the emergency physicians.

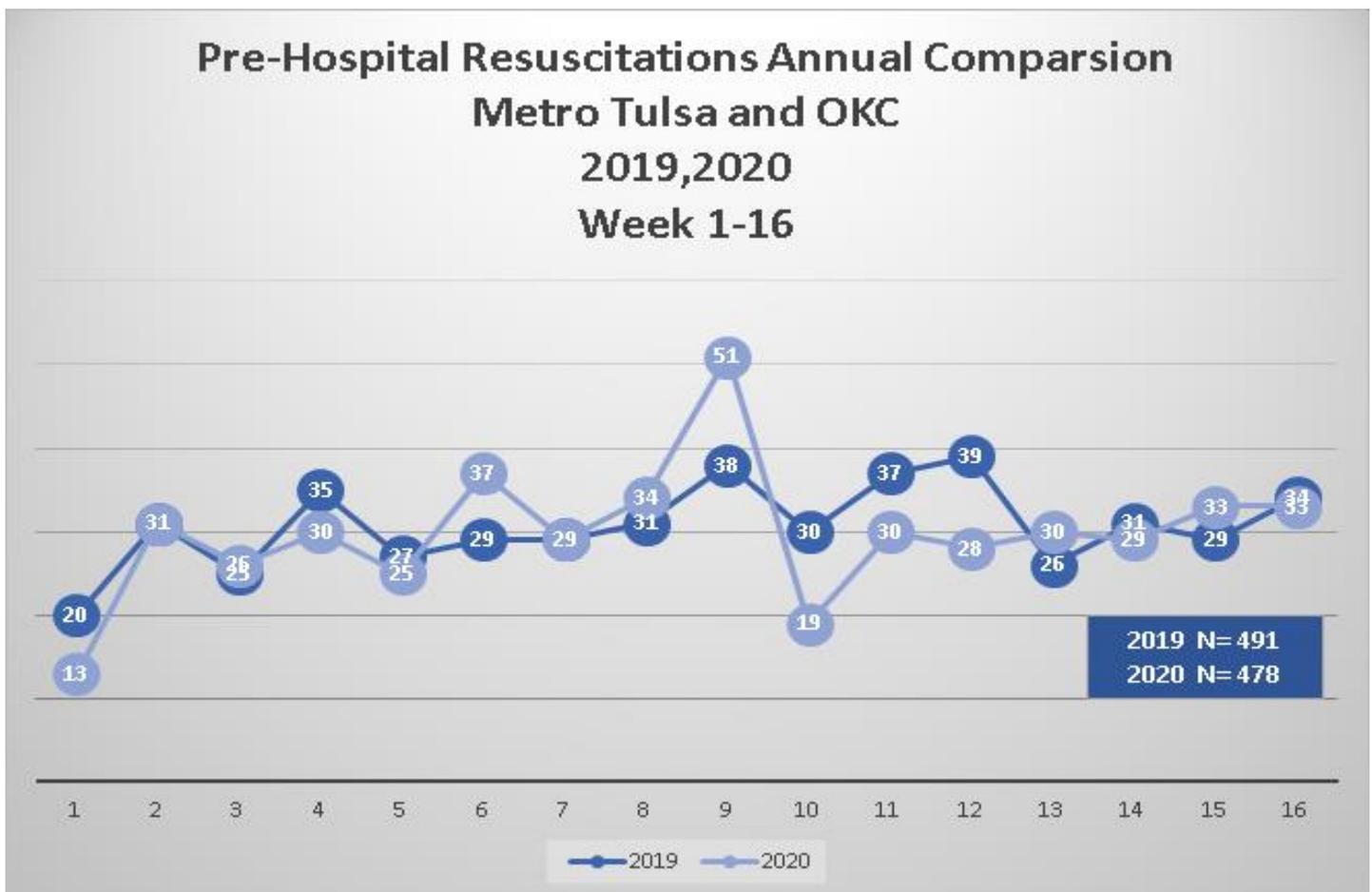
Factoring this in your personal life for the next several months, I'd recommend less sausage pizza and more kale. I hate kale. And if you smoke, quit. I care enough about you to tell you that.

Out of Hospital Sudden Cardiac Arrest in the COVID-19 Era

We don't yet know the "right" answer. We must ethically balance giving our patients every reasonable chance of survival through our aggressive resuscitation while protecting you from infectious disease.

PPE is especially important in cardiac arrest. Continue to take care of you first (by making sure you have the right PPE and that it is fitting correctly) and then do all you can to resuscitate the patient. Right now, it is simply unethical to not provide resuscitation to our patients in this era.

It will be the very, very currently rare patient that you would encounter with a lab test-confirmed active COVID-19 illness and now in sudden cardiac arrest at home or a in nursing home. These patients are nearly always transported to hospital (by you) before arrest. That could change over time and we are watching this as close as data allows us to watch. Matt Cox has done an incredible, ongoing analysis of our EMS system's cardiac arrest care. Here's a week-by-week comparison I asked for this week for calendar weeks 1-16, comparing 2019 to 2020. There are several major cities of the US reporting a notable increase in cardiac arrests within the past 2 months. You'll see that is not what we are seeing:



IF you do encounter that rare known COVID-19 positive patient (not suspected, not by symptoms, but by a confirmed antigen or antibody test that family or nursing home staff report to you) then start resuscitation and contact OMD as early as possible. We will evaluate the patient's condition in real time with you and decide who is or is not medically futile in further resuscitative efforts.

The prognostic data for COVID-19 sudden cardiac arrest survival is limited as you would expect for an illness only a few months old in the world. One report from China isn't encouraging.

In an inpatient population at Union Hospital in Wuhan, China there were 136 resuscitations reported in this study in *Resuscitation*, a world-renowned journal. All patients were 61+ years of age. 97% of arrests were witnessed, 89% had CPR started in less than 1 minute after arrest. 88% were judged a respiratory cause of arrest. The initial rhythms were 90% asystole, 6% ventricular fibrillation, 4% pulseless electrical activity. With those statistics in mind, only 18/136 (13.2%) had return of spontaneous circulation (ROSC), 4/136 (2.9%) were alive 30 days post-arrest, and only 1/136 (0.7%) survived at 30 days neurologically intact. Not good. And that's in hospital with nearly every arrest witnessed and rapidly starting CPR.

Remember though, these are all hospitalized COVID-19 confirmed patients in this study and you and I can't put these same predictors on all of metropolitan Oklahoma City and Tulsa. Most of our sudden cardiac arrests will NOT be caused by COVID-19 and we ethically must provide resuscitation care. I am continuing to monitor the issue of sudden cardiac arrest in the COVID-19 era closely. We'll discuss this more again. The link to the Wuhan study I summarized is here: [https://www.resuscitationjournal.com/article/S0300-9572\(20\)30142-8/pdf](https://www.resuscitationjournal.com/article/S0300-9572(20)30142-8/pdf)

Educational Resource – The Osterholm Update – Episode 5

With no surprise, I'm recommending you spend some more time with Dr. Michael Osterholm, Director of the Center for Infectious Disease Research and Policy at the University of Minnesota. The fifth episode of The Osterholm Update – Living with the Virus was posted on the CIDRAP website two days ago (release date 22 APR). You'll find this reinforces we are in for a haul of many, many months of viral impact.

You can access it at this link: <https://www.cidrap.umn.edu/covid-19/podcasts-webinars/episode-5> or The Osterholm Update is available on Spotify, Apple Podcasts, or Google Play Music.

I encourage you to invest the 42 minutes in this latest compilation of knowledge and insight from Dr. Osterholm.

Thank you. The days ahead aren't easy, and I'll never tell you they are. Let's get through them together. Vigilance. Safety. Evidence-Based Service to Others.

Let's be careful out there.

Dr. Goodloe