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Update 13 - COVID-19 – From Office of the Medical Director 04 APR2020 1800

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

Key Content:

- **Why is this pandemic happening?**
- **What is SARS-CoV-2? Coronavirus? COVID-19?**
- **What are the symptoms of COVID-19 and what is a “typical” illness of it?**

This communication may seem like taking a step back when it would seem we need to move forward quicker than ever, but ask yourself what are your answers to the above questions? Are you sure of your answers? What sources formed your answers and what are their sources? Those with prior or active duty military service can most easily appreciate that “fog of war” is a real dynamic, particularly in any prolonged, decentralized, complex mission. And that’s exactly what we are in, a prolonged, decentralized, complex mission.

This isn’t a tornado. This isn’t easily visible. It won’t be over quickly. It won’t confine its destruction to a neighborhood, bypassing whole communities otherwise. This is new for all of us. We’re all learning and we’ve all been impacted.

The quantity of information available 24/7 online, on TV, in print, in conversations, even when factual, is overwhelming. Add to that the troublesome amount of misinformation in the endless stream of latest breaking news and numbers, and we can easily get lost in understanding what this is.

If you are receiving this communication as a public safety or healthcare system front-line professional, public safety or healthcare system leader or support staff, a governmental leader, or a family member of any of these critically important folks, this update is meant to NOT overwhelm - you have enough stuff that hits your “inbox” daily for that.

I sense the fear of the unknown or of the uncertain about this viral pandemic is growing, especially as the numbers of ill and sadly the numbers of dead rise locally. Let’s see if we can utilize facts, established by science, to give us some deserved strength and reassurance that not all will be lost. You may find some of the language used surprisingly simple. You’re welcome. I think simple in challenging times helps us all understand.

Why is this pandemic happening?

I’ll bypass the historical, philosophical, and spiritual viewpoints and stick to what I can confirm with scientific fact. If this virus were not contagious, not able to be spread from person to person, there would be no pandemic. If we as humans had a natural immunity to this virus, a resistance to this illness that just happened on its

own without us doing anything, there would be no pandemic. If we had access to a vaccine against this virus, smartly choosing to receive it before the illness came to our communities, there would be no pandemic.

But it is contagious, we don't have natural immunity, and there is no established, safe vaccine today. So, we have a pandemic – which is a word we aren't used to using much before the past several weeks. Pandemic just means that the spread of illness is pretty much involving the whole world. In hazardous materials terminology, we could accurately say that Planet Earth is inconveniently now our “Red/Hot Zone.”

There are so many conspiracy theories about the origin of this pandemic that I quit trying to file them under “T” for “trash” what feels like a long time ago. Here's what is rooted in science, not the shadows of suspicions:

There are different types of organisms (“things” if you prefer) that can infect us. Those includes viruses, bacteria, and funguses. If you have (or had) an active child, regardless of how many times you bathe them daily, you likely have experienced all three of these in your kiddo. That's why your doctor may use an anti-fungus medication (maybe for a skin irritation caused by ringworm), or an anti-bacteria medication – aka antibiotic (maybe for strep throat). But it's also why your doctor didn't use an antibiotic when they diagnosed a viral infection, such as a cold in the fall/winter months.

Are there anti-virus medications? Yes, but only a few, targeting specific viruses that are well known, not a virus only discovered a few months ago. These include medications that you might be prescribed if you had a serious, bloody needle stick injury and the doctor is using the medications to reduce your risk of getting HIV illness. So, what about this pandemic virus? What the heck is it?

This current pandemic's origin is traced to a live animal and food marketplace in Wuhan, China, a metropolitan area of over 11 million people. The timing of the origin may vary by who/what you read, but consistently the timing is pinned to within the last 3-4 months of 2019 (the “19” in COVID-19, but we'll get to that in a bit). That has been established using epidemiology, the science of tracking things. It could have happened in so many other similar places on Earth, but there is no evidence that it did. Anywhere where there is considerable diversity of animal species to human contact carries risk for disease, including as serious as this pandemic. That is why public health departments worldwide work to establish sanitary laws. The laws are only as effective as citizens choose to follow and as enforcement efforts allow.

Because of past studies about disease spreading from animals to humans, we think this particular virus started in bats. *(source: CIDRAP/Dr. Michael Osterholm)* Those bats bit other animals. Those animals wound up in that now infamous Chinese market to be handled and consumed by humans. But that alone isn't enough to cause us disease.

A virus that can cause disease in animals doesn't necessarily cause us illness, even if we breathe it, touch it, and eat it. It has to be a virus that survives and thrives in humans. How can a virus that causes illness in animals then cause illness in a completely different species, us? Well, it has to literally change its structure, its composition, how it's built. And that's what we mean when we say a virus mutates. Why does a virus mutate? To stay alive. That simple. And, that challenging. This is a particularly challenging virus because we know by laboratory analysis there already are at least two strains, or slightly different structures, just within the earliest of outbreaks in the metropolitan Seattle, Washington area. *(source: Dr. Michael Sayre, Seattle Fire Department Medic One Medical Director)* That is why there are predictions, reasonable predictions at that, why we most likely will have COVID-20 (or named something like that) months from now because this is a mutating virus. It likes to survive at our expense. Not necessarily our death, but our expense of at least being infected, allowing it to grow in us, and as far as it is concerned, having us spread it on to others (therefore, part of the reasons we must practice social distancing now when we can).

What is SARS-CoV-2? Coronavirus? COVID-19?

The virus. It has a scientific name. That's all “SARS-CoV-2” is, a scientific name. It's short for “Severe Acute Respiratory Syndrome Coronavirus 2.” That does have importance because over the years ahead, we'll have other diseases and we

can't just say "the virus" because that will get very confusing. But for this day, "the virus" pretty much works because we aren't thinking about many other ones.

Is a coronavirus this same virus? Well, yes and no. THIS virus, SARS-CoV-2, is an example or type of a coronavirus. However, there are other coronaviruses. Coronavirus refers to the physical structure of a family of viruses that each resemble something like a crown shaped structure, hence "corona" which means crown in the Latin language. Interestingly, the "common cold" that most of us get once or twice yearly in the cooler weather months, is typically caused by other coronaviruses, those that don't carry the concern this one is causing us. However, other coronaviruses have caused great concern in the past 20 years.

Severe Acute Respiratory Syndrome (SARS) started in China in late 2002. Within months, SARS spread to more than two dozen countries in Europe, South America, Asia, and North America, namely Toronto, Ontario, Canada. A key difference in SARS is that it didn't prove contagious until AFTER infected persons showed symptoms of fever, cough, congestion. We see today that this present virus is contagious from estimates of up to 25% of infected persons BEFORE they develop symptoms to even know they themselves are ill. (sources: 1: Dr. Robert Redfield, CDC Director, interview with National Public Radio, March 30, 2020. Information accessed at <https://www.npr.org/sections/health-shots/2020/03/31/824155179/cdc-director-on-models-for-the-months-to-come-this-virus-is-going-to-be-with-us>; 2: Wei WE, Li Z, Chiew CJ, Yong SE, Toh MP, Lee VJ. Presymptomatic Transmission of SARS-CoV-2 — Singapore, January 23–March 16, 2020. *MMWR Morb Mortal Wkly Rep.* ePub: 1 April 2020)

Middle Eastern Respiratory Syndrome (MERS) started in Saudi Arabia in 2012, with episodic outbreaks since, including one in 2015 that involved South Korea. A key aspect of MERS research showed us that coronavirus is not as "seasonal" as disease as we would like to think it is. When you hear news reports that we'll be fine once summertime temperatures arrive in the United States? Well, there's absolutely no truth to that assertion. That's wishful thinking, not established fact. MERS replicates just fine in 110F weather in the Arabian Peninsula. (source: CIDRAP/Dr. Michael Osterholm; also reported in *The Osterholm Report, Episodes 1 and 2* – hyperlinks below)

While it is sad both SARS and MERS have caused notable illnesses and deaths, these coronaviruses have allowed us to know better what we know so far about SARS-CoV-2, helping us in our efforts to decrease the spread, to reduce the risk, and to keep you safer.

COVID-19, short for "coronavirus disease" per the World Health Organization (WHO) – think of WHO as Earth's public health department, is the illness caused by this particular coronavirus. And this is most challenging part of all...

A scientist in a lab with a high-powered microscope can look at this virus and say, "Aha! Coronavirus."

A laboratory worker can use a test (more about those in Update 14) and say, "Aha! COVID-19 positive or SARS-CoV-2 positive." - Or hopefully more often, they would say negative/no virus.

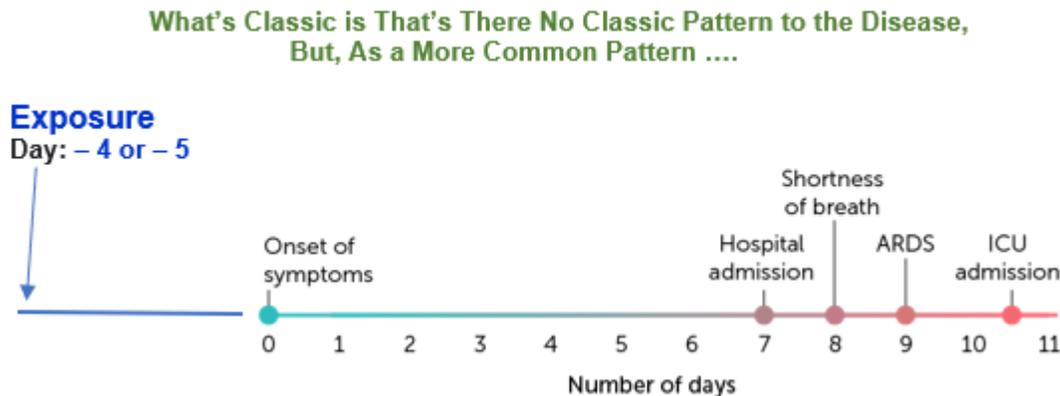
BUT... a doctor, a good doctor, or a good paramedic, or a good (you get the idea) can't just look a person and say "Virus!" or "No virus!"....these past few months have proven that humans display everything from *no symptoms even when infected* to rarely, but sadly, death within days. This is challenging and it's going to stay challenging until highly accurate, highly accessible, and rapidly resulting tests are everywhere. And that's going to take time, scientific work, manufacturing and money.

In this immediate time, and this may be the most important sentence you read in Update 13: Being infected with coronavirus, having COVID-19, does not always equal dying. It's so important to remember that. Only a very small percentage die. However, this is the big news – the death count. Yes, each of these deaths is tragic, but I truly don't want this illness to cripple your emotional well-being about life, family, work, and the future. Many of us have heightened risks by our professional duties. I'm putting my final edits to this update during a break in patients arriving to a highly-functioning American Emergency Department. Many countries envy our healthcare system. And yet, there is

no guarantee of my safety other than being responsible about the PPE choice I make, respectful of the infectious nature of this illness, and aware that as I've said this comes in all shapes and sizes and symptoms, so despite all that, I'm going to miss cases of this. In fairness to patients, how are they supposed to tell me they are worried about coronavirus when they have no classic symptoms of it yet? They can't. I don't share my Emergency Department journeys with you to make any of this about me. It's not; it's about you. And my point is, I'm right there with you. We're in this together. And we'll keep making choices as carefully and realistically as we can so we get through this together, safely, with our health.

What are the symptoms of COVID-19 and what is a "typical" illness of it?

Pictures can be so good at saving 1,000 words and making the points better anyway. Here's a graph I'm using for my own better understanding of COVID-19, recently shared in a Metropolitan Municipalities EMS Medical Directors Alliance conference:



(Image source: Dr. Paul Pepe – Metropolitan Municipalities EMS Medical Directors Alliance Briefing April 3, 2020)

The exposure could be anywhere from 2-14 days before symptoms, if symptoms even arise. The typical time from exposure to onset of symptoms we notice is 5 days at present, based on data from around the world, especially China and Italy. The symptoms are most commonly fever, achy muscles (myalgias), cough, and congestion. Sometimes gastrointestinal symptoms occur, such as nausea, vomiting, or diarrhea.

Fortunately, most people, as reported to date in many resources, most = 81% of those infected will require no hospitalization, fully recover and move on.

Of the 19% or so that need for hospitalization, it's often about a week after symptoms start. It's not an immediate need for hospitalization, which is why when sick we must stay home and be vigilant about how we are feeling and what, if anything, is changing day to day. This isn't a heart attack or stroke, either of which can appear without a moment's warning. Most of those folks needing hospitalization are because of problematic shortness of breath. Even most of those will do fine with some care in the hospital that might include oxygen and medications to manage the symptoms if home-based/over the counter medications weren't strong enough.

The estimated 5% of total infected persons that require ICU care do so because of severe lung problems, to an extent that a ventilator is needed to do the work of breathing for the patient. That is what Acute (some say Adult) Respiratory Distress Syndrome (ARDS) basically leads to, that you are going to need a ventilator as part of your care. We can easily understand if the patient is 80 years of age or older and has chronic lung disease that impairs their breathing on a good day, how this new viral illness can put them over the edge, requiring ICU care. What's harder for us to understand, and frankly scary at times, is how this same viral illness can seriously impair breathing in seemingly healthy, active persons in their 30s-50s. That sounds similar to so many of us, doesn't it?

There's a pessimistic view that once you need a ventilator, you're dead. That's not true. There are already very promising results from gifted intensive care unit physicians and nurses being shared. University Medical Center in New

Orleans just reported this week that in the over 80+ number of patients they have had to put on ventilators for COVID-19, that 40% were successfully extubated, meaning taken off the ventilator, because they improved and survived. (Source: webinar with Dr. David Janz, University Medical Center, New Orleans, LA. accessed at <https://www.youtube.com/watch?v=Nqu5-iOHdS4&feature=youtu.be&app=desktop>) That doesn't mean needing a ventilator is a great thing, but it sure isn't a death sentence. That's important to remember if you have family, friends, and co-workers that require a ventilator and ICU care as part of their treatment in the weeks ahead.

Educational Resource – COVID-19 – CIDRAP

Many of you are aware of my profound respect for an incredibly gifted epidemiologist at the University of Minnesota, Dr. Michael Osterholm. I encourage you to invest 39 minutes of time in listening to the second episode of The Osterholm Report – The Global Coronavirus Response (release date 31MAR).

You can access it at this link: <https://www.cidrap.umn.edu/covid-19/podcasts-webinars/episode-2-global-coronavirus-response> or The Osterholm Report is available on Spotify, Apple Podcasts, or Google Play Music.

If you haven't heard the first episode of The Osterholm Report – COVID-19 – How We Got Here (release date 24 MAR), then this link will get you to that recording: <https://www.cidrap.umn.edu/covid-19/podcasts-webinars/episode-1-how-we-got-here>

Where Are We Going Next?

Yes, for those keeping close score, I did anticipate this Update 13 from the Office of the Medical Director being released a few days earlier and discussing in it return to work recommendations and limitations as well as how we are currently using and anticipate having to continue using in part a “non-testing” strategy. We are in a dynamic time, one in which I haven't seen as many incoming resources as I did within the past few days. So that's where I've “been” amidst all those resources, digesting and vetting what I think will help keep you as safe as possible while delivering the best care possible. In that incoming whirlwind, I also heard a topic-changing voice. Never underestimate the benefit of what one person, speaking for those quiet, can provide. That's why this Update 13 covered what it did. Update 14 is coming as soon as I can get it down the digital production line in these next few days. It's always a balance. So much info, but only so much our “personal bandwidth” can digest at once. So, let's close this Update 13 down.

The truth that's more important than ever to share is that I am so proud of all of you for serving others in a risky time. We can reduce our risks, but none of us can eliminate our risks and still do what we do. I promise to keep in our fight for us and for others with all I can bring to it, which includes another weekend full of Emergency Department responsibilities while still being ever vigilant and responsive in our EMS system.

Let's be careful out there.

Dr. Goodloe