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Update 54 - COVID-19 – From Office of the Medical Director 31DEC2020 1630

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

Key Content:

- **The Mutants Are Here – What Does That Mean?**
– The Osterholm Update Episode 37, history.com, virological.org, [BBC](http://BBC.com), & The Washington Post
- **CDC COCA Webinar – COVID-19 Vaccine Reactions - Dec 30th**
- **Coming soon... More Questions & Dr. G Answers on COVID-19 Vaccines & Other Substances**

As we've come to expect the unexpected, so much for a short and simple Update this time around. I'm feeling like the cartoon character collected up in a massive snowball that continues rolling down the hill. That "snowball" can be correctly thought of as representing the volume of information that continues to grow about COVID-19 and this pandemic. Not all volume is good volume, so I continue to spend careful time in sorting crap, too soon to know for certain, and trustworthy information in their respective bins. Time well spent.

The Mutants Are Here – What Does That Mean?

– The Osterholm Update Episode 37. history.com, virological.org, [BBC](http://BBC.com), & The Washington Post

If you haven't heard about "mutant" forms of the SARS-CoV-2 virus yet, then either you are officially isolated from Planet Earth life or are stuck in binge listening to your Spotify playlist of "Cool Rick Astley Songs." Condolences.

Actually, we've already talked about these in the extent that all viruses mutate over time. It's literally a survival or die dynamic for the virus. We also are pretty invested in surviving to avoid dying! So, I don't want to come across as minimizing or discounting SARS-CoV-2 virus mutations. It's important we keep information accurate and in perspective. Otherwise, we can fall at least mentally prey to panic about how immediately sinister are these genetic code mutations? OR where are these coming from and can we stop them there? OR who is letting these happen?

One good resource to hear about these mutations in context is the latest update from Dr. Michael Osterholm at the Center for Infectious Disease Research and Policy at the University of Minnesota. If you've been reading these Updates regularly throughout this unexpected year of 2020, then you know about him well. If you're a new reader, he is a very accomplished PhD public health leader, with over 45 years involved in tracing infectious diseases and helping to find the answers needed for us to overcome those same illnesses. He is recently appointed to President-Elect Biden's Transition COVID-19 Advisory Board, not based upon politics but based upon his scientific expertise.

In this latest episode (release date December 23) from Dr. Osterholm, he shares his thoughts about SARS-CoV-2 mutations, specifically two of them, one identified in the United Kingdom and one identified in South Africa. Even since December 23rd, we've learned more about the mutation virus, also called a variant of the originally sequenced SARS-CoV-2 virus in Wuhan City, China. In fact, the "normal" SARS-CoV-2 virus we think of today isn't even the genetic sequence identified in China; it's one that was identified from Europe. Part of what we have learned about this latest mutations is that has been identified as present in Colorado and California in citizens that have no traceable travel or contact to the United Kingdom. I'm not surprised at all when considering other related facts. Let's talk about those after I first share the link to Dr. Osterholm's podcast: <https://www.cidrap.umn.edu/covid-19/podcasts-webinars/episode-37>. This is 1 hour and 2 minutes well invested. Remember it doesn't all have to be listened to at once. These podcasts can also be found on [Apple Podcasts](#), [Spotify](#), [Google Play](#) and now on [YouTube](#) as well.

Perhaps you have had a recent thought about what are the British trying to inflict upon the rest of the world. If so, I have too, but my answer to that question is not anything evil, rather it is that some very smart Brits are helping us to recognize important mutation information. There exists a worldwide web-based repository where viral scientists that decode a virus can then share that specific genetic sequencing for other scientists to see what genetic sequences are being found and where they are being found. This helps to track the spread of specific virus mutations as well as to develop therapies against such viruses. This has been in place long before this viral pandemic and is part of the equation of how our influenza vaccination contents are decided yearly. Now, of course, the same resource is being used to track the SARS-CoV-2 virus.

But... quantity of quality data in this viral sequencing resource is important. There is no doubt that SARS-CoV-2 viruses are rampant across the United States. For matter, this virus is rampant across the world, hence the use of "pandemic" to describe it. So, how is the United States doing in genetic sequencing (aka decoding) the virus and its mutations? Well, not so well. Dr. Osterholm shares this insight in Episode 37: From Dec 1st - Dec 23rd (or at least whenever he recorded Episode 37), the United Kingdom scientists uploaded 3,774 genetic codes to this world database. In comparison, the United States scientists uploaded 37. That's not a typo. Yes, just one fact comparing two numbers, but given that, is it any surprise we have fallen into the use of the phrases "UK variant" or "UK mutation" about this coronavirus? There's an old, and true, saying in medicine that you cannot diagnose what you do not consider a possibility and then search to find. Same applies to viral genetic sequencing.

What does all this mean? Well, it means that all the buzz in the media these past several days isn't about anything brand new. It's just recently discovered, but likely a mutation that has been around for what some very educated folks think are a few months. This mutation gets press because it does seem, though not fully proven to be accurate, that there is easier person to person transmission of this form of the SARS-CoV-2 virus, technically termed lineage B.1.1.7, than the earliest forms of the virus. We have yet to see worsening severity of COVID-19 due to it, but not fully proven yet. Time, and collecting relevant data, will help to find those certain answers.

For those that are interested in history and how easily it can be twisted or lost, it's quite easy to make a comparison of this "UK variant" to the "Spanish flu of 1918." You would be quite reasonable in assuming the influenza pandemic a century plus ago started in Spain given that widely used term. That must be why they called it the Spanish flu, right? If you consider Kansas, America part of Spain, you would be correct. You'll find this quick to read resource informative: <https://www.history.com/news/why-was-it-called-the-spanish-flu> Please keep in mind that the UK was just the first place to discover this B.1.1.7 genetic sequence. I'd play the odds it came from somewhere else, only to be discovered in the UK. And now, the Brits are the equivalent of the Spaniards of 1918 it seems.

Here's some resources I've found helpful to my own understanding of this B.1.1.7 variant:

From the British Broadcasting Corporation: <https://www.bbc.com/news/health-55388846>

From virological.org, a short, formal scientific paper on identifying this variant: <https://virological.org/t/preliminary-genomic-characterisation-of-an-emergent-sars-cov-2-lineage-in-the-uk-defined-by-a-novel-set-of-spike-mutations/563>

From *The Washington Post* regarding worldwide efforts in genetic sequencing of the SARS-CoV-2 virus: <https://www.washingtonpost.com/world/2020/12/23/us-leads-world-coronavirus-cases-ranks-43rd-sequencing-check-variants/> and note that this was published Dec 23rd with commentary towards the end that this variant of concern hasn't yet been found in the United States. Obviously, that changed this past week.

From *The Washington Post* yesterday regarding the discovery of the B.1.1.7 variant in Colorado and California: https://www.washingtonpost.com/health/covid-variant-colorado-second-case/2020/12/30/1605b40a-4abc-11eb-a9f4-0e668b9772ba_story.html

CDC COCA Webinar – COVID-19 Vaccine Reactions - Dec 30th

Some updates to share from the Centers for Disease Control and Prevention (CDC) webinar yesterday regarding vaccination safety, specifically anaphylaxis following mRNA COVID-19 vaccination. Much of the information was shared with the CDC's Advisory Committee on Immunization Practices at its meeting just before Christmas. At that time, CDC had identified 6 case reports in the US of anaphylaxis following the Pfizer-BioNTech vaccine that met the Brighton Collaborative criteria for anaphylaxis

(<https://reader.elsevier.com/reader/sd/pii/S0264410X07002642?token=3C90421269AD3DA915430E1BEA70330A397F208E07615B064A8C9E1A8E448EE538A6BF3626B70D1721C38A203491509E>)

It's important to keep perspective that these were 6 cases out of 272,001 vaccinations given in the US as of Dec 19th (source of vaccination numbers: <https://ourworldindata.org/covid-vaccinations> and the CDC) If everyone in Oklahoma got vaccinated and we used this data to estimate the number of anaphylaxis cases statewide, we would estimate a total of 87 cases of anaphylaxis. That's every single Oklahoman, from newborn to centenarian vaccinated. So, realistically, we would then only see about 40-45 cases statewide as not everyone is getting vaccinated by choice, contraindication, age, or other factors.

Very importantly, all the 6 cases in the US were recognized within the post-vaccination monitoring period at the vaccination sites. With no history of concerning allergic reactions to injectable medications or vaccines, you can expect to wait for 15 minutes post vaccination at the site. With any history of allergic reactions to injectable medications or vaccines, you can expect to wait for 30 minutes post vaccination at the site. Sites are advised by the CDC to have clinical staff readily available to monitor for any allergic symptoms and to have epinephrine for intramuscular injection available. In EMS, we must be ready to respond to a vaccination site for anaphylaxis care, though again with emphasis, this will prove a very rare event.

Specific contraindications discussed to the COVID-19 vaccine include a history of severe allergic reaction to any of the vaccine components or a history of any allergy to another mRNA vaccine. Persons with a history of immediate allergy to polyethylene glycol (PEG) or polysorbate should avoid this vaccine. As you can see, the list of specific contraindications remains quite short.

The ingredients for both the Pfizer/BioNTech and Moderna vaccines are shared at the end of this section. The source is directly from slides used in the CDC webinar yesterday, which can be accessed at: https://emergency.cdc.gov/coca/calls/2020/callinfo_123020.asp

Also, I'm sharing a table used in the webinar that can be useful to friends and family wondering about post-vaccination symptoms. It's not a bad review for us, too.

Very importantly, as I'm aware that many do have food allergies or allergies to bees, wasps, etc., the CDC vaccine safety team experts shared that there are no contraindications or precautions to getting the COVID-19 mRNA vaccines if allergic to food (including eggs or gelatin), pets, venoms, environmental agents, oral medications, or latex.

Here's the ingredients and that post-vaccination symptom table:

Ingredients* included in mRNA COVID-19 vaccines

Description	Pfizer-BioNTech	Moderna
mRNA	nucleoside-modified mRNA encoding the viral spike (S) glycoprotein of SARS-CoV-2	nucleoside-modified mRNA encoding the viral spike (S) glycoprotein of SARS-CoV-2
Lipids	2[(polyethylene glycol)-2000]-N,N-ditetradecylacetamide	PEG2000-DMG: 1,2-dimyristoyl-rac-glycerol, methoxypolyethylene glycol
	1,2-distearoyl-sn-glycero-3-phosphocholine	1,2-distearoyl-sn-glycero-3-phosphocholine
	cholesterol	cholesterol
	(4-hydroxybutyl)azanediyl)bis(hexane-6,1-diyl)bis(2-hexyldecanoate)	SM-102: heptadecan-9-yl 8-((2-hydroxyethyl)(6-oxo-6-(undecyloxy) hexyl) amino) octanoate
Salts, sugars, buffers	potassium chloride	Tromethamine
	monobasic potassium phosphate	Tromethamine hydrochloride
	sodium chloride	Acetic acid
	dibasic sodium phosphate dihydrate	Sodium acetate
	sucrose	sucrose

*As reported in the prescribing information

20

Distinguishing allergic reactions from other types of reactions

Characteristic	Immediate allergic reactions (including anaphylaxis)	Vasovagal reaction	Vaccine side effects (local and systemic)
Timing after vaccination	Most occur within 15-30 minutes of vaccination	Most occur within 15 minutes	Median of 1 to 3 days after vaccination (with most occurring day after vaccination)
Signs and symptoms			
Constitutional	Feeling of impending doom	Feeling warm or cold	Fever, chills, fatigue
Cutaneous	Skin symptoms present in ~90% of people with anaphylaxis, including pruritus, urticaria, flushing, angioedema	Pallor, diaphoresis, clammy skin, sensation of facial warmth	Pain, erythema or swelling at injection site; lymphadenopathy in same arm as vaccination
Neurologic	Confusion, disorientation, dizziness, lightheadedness, weakness, loss of consciousness	Dizziness, lightheadedness, syncope (often after prodromal symptoms for a few seconds or minutes), weakness, changes in vision (such as spots of flickering lights, tunnel vision), changes in hearing	Headache
Respiratory	Shortness of breath, wheezing, bronchospasm, stridor, hypoxia	Variable; if accompanied by anxiety, may have an elevated respiratory rate	N/A
Cardiovascular	Hypotension, tachycardia	Variable; may have hypotension or bradycardia during syncopal event	N/A
Gastrointestinal	Nausea, vomiting, abdominal cramps, diarrhea	Nausea, vomiting	Vomiting or diarrhea may occur
Musculoskeletal	N/A	N/A	Myalgia, arthralgia
Vaccine recommendations			
Receive 2 nd dose of mRNA COVID-19	No	Yes	Yes

Coming soon... More Questions & Dr. G Answers on COVID-19 Vaccines & Other Substances

This Update has already proven intense in volume and length of resources. In an upcoming Update, I'll be answering more vaccine related questions, such as questions about the CDC's advice to wait 90 days for vaccination after you've had COVID-19, especially if you had the monoclonal antibody treatment. I'll also do my best to answer your questions about substances such as zinc, Vitamin D, quercetin, and ivermectin and any potential benefits they might confer in fighting off COVID-19.

For now, I'll leave you with one quick Q&A and my thoughts on this New Year's Eve 2020.

Q: Doc, you've stayed healthy all through 2020, especially even after treating really sick COVID-19 patients in the ED. What "magic formula" of supplements are you taking to do that?

A: Isolation at home as much as work allows
400mg/hour infusion throughout the 24-hour day
Giving up travel domestically and internationally
125mg/day – and it's a painful pill to swallow each time
Wearing a mask – always N-95 at work and N-95 away from work too!
Wearing the right PPE – MEGG components when working closely with patients that have or likely have COVID-19
Washing my hands – after grocery shopping, after picking up food curbside/drive-through, and very often at work
Distancing as much as possible – including such factors as I've radically curtailed making on-scene responses this year to protect you and our patients – if we say it's important to limit the number of responding EMS personnel to clinically necessary numbers, then I have to lead by example. I've changed most academy discussions I have to a virtual format. I hate both those decisions, but I feel it safest for all.
Getting vaccinated as soon as I was contacted to see if I wanted to be vaccinated – I'm not "throwing away my shot" and I'm hoping you won't either!
Constantly reading, researching, learning about this virus – knowledge can literally translate into protection such as taking the steps above

And honestly, I'm not taking any vitamins or supplements other than trying to eat healthy. My better 99% encourages me to eat more vegetables and as I tell her, my food encyclopedia loosely defines steak as a vegetable so I'm in full agreement about that! Technically, of course she's 100% correct.

My wish for you on this New Year's Eve 2020 is that you're able to read this Update. That's no small blessing. Too many of our families, friends, work families, and fellow citizens of the world sadly can't read anything tonight or any night ahead. May they have found everlasting peace after such a difficult illness. My wish for you, too, is that tomorrow starts a calendar year that can eventually be filled with much greater safety, health, joy, and comfort. We have tough days and nights still to navigate. I'm grateful I get to navigate them with you.

Vigilance. Safety. Evidence-Based Service to Others.

Let's be careful out there.

Dr. Goodloe