



Spring / Summer 2020 Newsletter

Gregory J. Hanker, M.D., AME

Welcome to this fifth installment of our original feature on SCAUWG.ORG presented by Aviation Medical Examiner - Gregory J. Hanker, M.D. – Dr. Hanker is an orthopedic surgeon practicing at the Southern California Orthopedic Institute in Van Nuys.

Dr. Hanker's primary goal as an Aviation Medical Examiner (AME) is to assist the local aviation community in obtaining their medical certification, especially complex cases where FAA special authorization may be necessary.

Wednesday March 11, 2020 – a big day for me – my 73rd birthday! Usually I would take the day off from work to sleep in, relax, and celebrate with the family that evening. Instead, work called, as there were patients to see who needed Orthopedic care.

My Medical Assistant had the office decorated with birthday banners and balloons, and the staff all stopped by to wish me the best! As the day progressed it proved to be unlike any other day in history.

That day the World Health Organization declared a worldwide pandemic due to the global spread of the novel coronavirus. Who expected that! Each subsequent day the news from the media became more and more dire and foreboding. I worked one more day and then “sheltered in place” and stayed at home, following the direction of our public health officials and politicians. In a matter of hours our daily routine and life in general was permanently altered. Same, possibly may never return to our once scheduled, “normal.”

Instead of my usual AMEPilot newsletter focused on medical certification/FAA flight physicals and aviation related issues, I think it might be more informative for us as pilots to look at a few concepts regarding the nature of the global viral pandemic.

First, the FAA has delayed several certification and recertification of certain certificates – especially Medical Certification through June 30th (and this date will certainly be

extended due to the ongoing effect of the pandemic on society). The FAA's SFAR EXTENSION discusses this in detail regarding Medical Certification, CFI certification, Flight Review and PIC recency of flight experience. You should refer to this document on the FAA website, or found here on SCAUWG.ORG.

What is a PANDEMIC? An epidemic refers to a disease that affects many persons at the same time spreading from person to person in a locality where the disease is usually not prevalent. Consequently, a pandemic is an epidemic that has spread throughout a larger area such as an entire continent or even the whole world. The causative agent for this infectious disease is a virus – the novel coronavirus. We are all familiar with the word VIRUS, but what exactly is a virus?

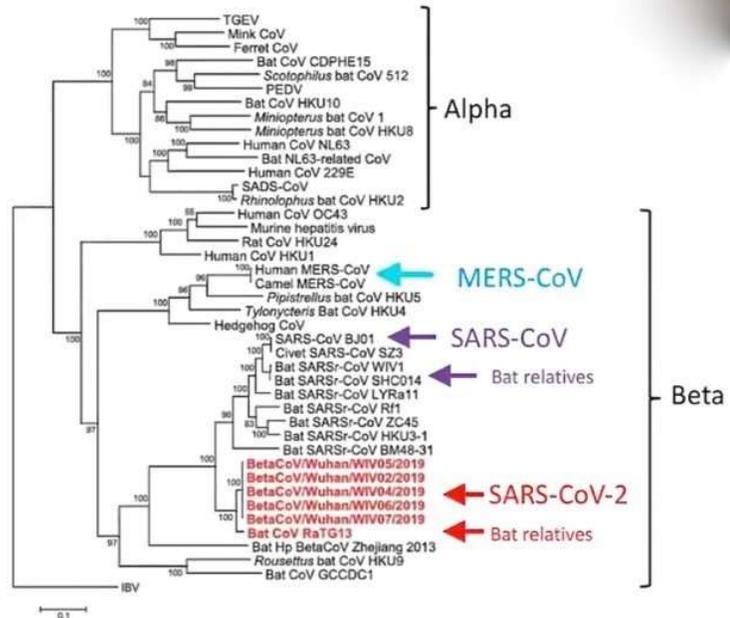
A virus is an ultramicroscopic, 20-300 nanometers, infectious agent which is metabolically inert and can only replicate within the living cells of a host, unlike bacteria which are live one cell organisms. The viral particle is composed of an RNA or DNA core, a protein coat and a surrounding lipid envelop. Viruses are considered by some biological scientists to be a "life form" because they carry genetic material which allows them to reproduce and evolve. However, they lack all of the characteristics that are necessary for "life."

Because viruses possess some, but not all of the characteristics – e.g. cell structure – some scientists have described them as "organisms at the end of life." There are billions of different types of viruses. Scientists who study viruses have told us that there are more different types of viruses than there are stars in the sky!

The novel coronavirus is a newcomer in that it has not been previously identified in humans. For decades virologists have known about coronaviruses as they typically cause a wide range of infectious disease in animals. Only seven coronaviruses are known to cause disease in humans: four of which cause familiar disease such as a mild respiratory infection, i.e. the common cold. However, three coronaviruses can result in severe respiratory infection such as pneumonia.

Coronaviruses (CoVs)

- Positive-strand RNA viruses with large genomes ($\geq 27,000$ bases).
- Both alpha and beta types cause disease in humans.
- Account for 10-30% of cases of the common cold (Pubmed [31971553](#)).
- Very stable for an RNA virus – CoV OC43 isolates from 1960s and 2001 had only 2 amino acid differences (Pubmed [15280490](#))!
- Easily hops between species
 - MERS-CoV hopped from camels to humans
 - SARS-CoV hopped from bats to humans and civets
 - SARS-CoV-2 hopped from bats to humans
 - Easily hops between species
- SARS-CoV-2 is 80% identical to SARS-CoV-1, the 2003 SARS virus



You will probably remember these three coronaviruses: SARS-CoV in 2002 resulted in severe acute respiratory syndrome (SARS); MERS-CoV in 2012 known as the Middle East respiratory syndrome (MERS); and now SARS-CoV-2, the current pandemic we call COVID-19 (for **coronavirus infectious disease 2019**). History has revealed that these viral pandemics can result in significant mortality. For example:

Spanish Flu, 1917-1918 during WWI, infected 50,000,000 people with a fatality rate of 2.5%

Severe Influenza outbreaks/Asian Flu/Russian Flu/Hong Kong Flu/Swine Flu, 1957-2010 outbreaks, infected over one billion with a fatality of less than 1%.

Ebola, beginning 1976, 11,000 infected, fatality of over 50%.

SARS-CoV, in 2002 infecting 8000 people, fatality 9.6%.

MERS, 866 infected, fatality 34.4%.

COVID-19 current fatality rate approximately 1.4 to 3.5%.

The difference between these viruses is their ability to spread in the population, easy transmission, and systemic effect on the host. Ebola and MERS were difficult to spread, but once the infection was contracted it was deadly. The coronaviruses are zoonotic in that they typically spread from an animal to a human.

COVID-19 has quickly spread worldwide because of its easy transmissibility. 40 to 60% of people who become infected with SARS-CoV-2 are virtually asymptomatic, completely unaware that they have the coronavirus in their system. These asymptomatic or presymptomatic people then pass on the virus to others perpetuating the pandemic. This community spread means that supposedly asymptomatic people that you come in contact with can infect you – possibly leading to dire health consequences.

If you become infected with the coronavirus/SARS-CoV-2 you will typically experience these symptoms:

- Fever – 78%
- Cough – 57%
- Fatigue – 31%
- Loss of smell – 25%
- Difficulty breathing – 23%

At a Medical Center in New York City they discovered that pulse oximetry is a very useful early test as an infected person's pO₂% will gradually decrease until a critical level is reached and then there is rapid disease deterioration. It is very easy to use a home pulse oximeter and measure your oxygen saturation daily; like checking your blood pressure at home.

So, what can you do? The pandemic is real, so make a thoughtful plan to ensure that you protect yourself, your family, friends and coworkers from this potentially incapacitating and deadly disease. Stay at home if possible, especially if you are at high risk for contracting COVID-19. Practice social distancing. Wear a face covering while in public. Practice good hand hygiene.

The fatality rate is dependent on multiple factors:

Age, Sex, Ethnicity, Medical comorbidities, Location

SEX: Males affected much more often than females; in some communities almost 2:1 ratio.

ETHNICITY: Blacks are 4x more likely to contract COVID-19, Hispanics 2x more likely and Asians 50% more likely than whites.

LOCATION: multiple “hot spots” throughout the world. In the USA California and New York have been epicenters; especially our own Los Angeles County.

Current Health/Medical Comorbidities:

cardiovascular disease – 13.2%

respiratory disease – 8.0%

diabetes – 9.2%

cancer – 7.6%

hypertension – 8.4%

Also, obesity and immunocompromise are at significantly higher risk of morbidity and especially fatality.

Advice from an epidemiologist Dr. Miller at Ohio State University Medical Center – reduce your transmission risk by thinking **TIME, SPACE, PEOPLE, PLACE**. As a rule of thumb: the more **TIME** you spend, and the **CLOSER in SPACE** you are to possibly infected **PEOPLE** raises your risk, and indoor **PLACES** are riskier than outdoors. To be safe always choose outdoors over indoors; always choose masking over not masking; and always choose more space with fewer people over a crowded smaller space. These mitigation efforts will go a long way in keeping you healthy.

LOWEST RISK	MODERATE RISK	HIGHER RISK	HIGHEST RISK
			
HOME ALONE OR WITH HOUSEMATES	OUTDOOR ACTIVITIES	OUTDOOR GATHERINGS	INDOOR GATHERINGS
<ul style="list-style-type: none">•Stay home as much as possible.•Try to allow only people you live with into your home.•Wash your hands.•If you're sick, stay home and isolate from housemates.	<ul style="list-style-type: none">•Wash your hands and don't touch your face.•Stay at least 6 feet from people you don't live with.•Wear a mask.•Avoid shared surfaces, like swings or benches.	<ul style="list-style-type: none">•Wash your hands and don't touch your face.•Stay at least 6 feet from people you don't live with.•Wear a mask.•Don't share food, toys, and other items, and avoid shared surfaces.•Participate in events like these infrequently.	<ul style="list-style-type: none">•Wash your hands and don't touch your face.•Stay at least 6 feet from people you don't live with.•Wear a mask.•Don't share food, toys, and other items, and avoid shared surfaces.•Open windows for better ventilation.•Try to avoid gathering indoors as much as possible.

What about flying? Virtually all health experts strongly advise against commercial flying for pleasure, especially if you are at increased risk.

Paul Bertorelli on *AVweb* looked at the issue of general aviation flying, especially flight training. He interviewed several fixed base operators for their views and came to the following conclusions and recommendations:

1. Physical distancing of 6 feet.
2. On-line briefing and meetings.
3. Staggered schedules.
4. Clean touched surfaces.
5. Good ventilation.
6. Use masks and hand sanitizer.

Obviously, flying in a cockpit approximately 3 feet wide in close contact to another pilot is somewhat risky. Each of us has to determine the hazard of close contact possibly infecting us versus the benefit of getting back into the sky to pursue our aviation aspirations.

In addition to the significant physical consequences of contracting COVID-19 there are economic, social and psychological consequences as well. Many of us are feeling the stress associated with the possibility of being infected with SARS-CoV-2 – social isolation, loss of income, anxiety and depression. 13.6% of us have reported symptoms of serious psychological distress with ¼ of people aged 18 to 29 years old being the highest group involved.

As pilots we have been trained to be resilient to stress. It's our resilience that gives us the ability to get through difficult times and come out of this perilous circumstance stronger. Consider a "resilience toolkit:"

- Accept that you are at risk.
- Accept that your resilience matters.
- Do not ignore the obvious.
- Become an ambassador of collaboration & collegiality.
- Find and protect meaning.
- Accept that life is a family affair.
- Bear through the awkwardness of current change.

Consider 10 forms of positivity: joy, gratitude, serenity, interest, hope, pride, amusement, inspiration, awe, and love.

In these challenging times we should acknowledge enjoy small daily pleasures, as they have been shown to have a greater effect on positive mood than do intense periods of feeling good. Consider these “pleasurable activities” throughout your day:

Notice what is going “right” about your day.

Savor interactions and moments that you enjoy.

Use your sense of humor.

Move it! Even little bouts of exercise can boost your nervous system’s calming reactions and dampen your arousal anxieties.

Avoid the high stress diet of junk food, caffeine, simple sugars and other stimulants.

Fill your environment with mood boosters – lighting, sounds and scents you like.

Believe in something bigger than yourself.

Resilience is shaped by sustained effort, and sustained effort is best motivated by realistic optimism. With this mindset you should be able to better handle the anxiety and stress associated with this awful pandemic that we find ourselves intimately involved in.

As I finish writing this Newsletter during the last week of June 2020, the coronavirus transmission has significantly increased throughout the country and especially California, most significantly in Los Angeles.

In California, the surge in COVID-19 has led to over 6000 new cases per day; with over 200,000 persons infected and over 6000 deaths. In LA County there are over 2000 new cases each day, over 90,000 infected, and over 35 deaths per day. The recent mass protests and clusters of social gatherings has caused this spike. By October it is estimated that 2.4 million people will be infected with COVID-19 and over 180,000 will die. These dire statistics should remind you to be extremely vigilant and cautious. Do not let your guard down.

Remember: **TIME, SPACE, PEOPLE, PLACE.**

To schedule your Flight Physical or to enquire about medical issues contact me at the Southern California Orthopedic Institute; 6815 Noble Avenue; Van Nuys, California 91405. Ask for my Medical Assistant Leyla Rivas at (818) 909-5055.

“Good health and safe flying!” – Gregory J. Hanker, M.D. AMEPilot



Aviation Medical Examiner Gregory J. Hanker, M.D., an orthopedic surgeon practicing at the Southern California Orthopedic Institute in Van Nuys.

Dr. Hanker is a former USAF transport pilot who flew the C-9A Nightingale on aero- medical evacuation missions in Europe; an Ohio USAF Reservist flying the C-123 Provider while attending medical school; and currently a general aviation pilot flying out of Van Nuys Airport.

Dr. Hanker’s primary goal as an Aviation Medical Examiner (AME) is to assist the local aviation community in obtaining their medical certification, especially complex cases where FAA special authorization may be necessary.