

# MEDICAL BITS FROM YOUR

signature MD

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"All cruelty springs from moral weakness."

**Lucius Annaeus Seneca**

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"Luck is what happens when preparation meets opportunity."

**Lucius Annaeus Seneca**

## YOUR HEALTH and Medical News!

### Viruses and the Crown

As we have briefly discussed in this segment in the past, all molecules and all creatures have a role to play and have been around a lot longer than any of us!

We have discussed that without viruses and the genetic information they carry and are able to transfer between species, the Darwinian evolution and the diversity of life we have come to appreciate and admire, would be impossible.

This past week, we have witnessed the isolation of a new virus with the potential to cause respiratory disease and human to human transmission has been corroborated. Since it is impossible to turn to any news sources without comments about the new Chinese Coronavirus, we will review the subject and put it in perspective.

"Coronavirus" derives from the Latin *corona*, which means crown and refers to the characteristic appearance under Electron Microscopy, resembling a royal crown or a solar corona.

Coronaviruses belong to a group of viruses that cause disease mostly in some mammals and birds. Our fellow virologists report that bats and birds are their ideal hosts. Phylogenetic and genomic sequencing analysis has allowed them to determine the precise evolutionary diversion points in history. Thus, the common ancestor to all coronaviruses has been traced back to around 10000 years ago, as our fellow Homo Neanderthalensis disappeared from the face of the planet (but don't agonize over this... up to 20% of their genome has survived in our own genes!). The beta coronavirus family that includes the protagonist of this brief discussion diverged approximately 5500 years ago as the first pyramids of the Old Egyptian Kingdom were rising in the Nile Valley.

A total of 7 corona virus strains are known to cause human disease, but until 2003, all of them caused relatively mild upper respiratory tract infections and common "colds". They were first discovered in the 1960's, another cause of common colds and able to infect epithelial cells from the upper respiratory tract, until the emergence of SARS-CoV in 2003. This new virus, responsible for the Severe Acute Respiratory Syndrome coronavirus, was able to infect the lower respiratory system and cause severe pneumonia and alveolar damage frequently leading to severe pneumonia, with limited infectious potential but a real concern in hospital

settings. In that epidemic, almost 8500 people became ill but more than 10% of them succumbed to the disease. Two other members known to cause mild respiratory infections were discovered in 2004 and 2005.

MERS-CoV responsible for the Middle East Respiratory Syndrome, developed in 2012, initially reported out of Saudi Arabia, Qatar and Tunisia, probably originating in camels and infecting their handlers who then transmitted the disease in hospital settings to other humans. It was later isolated by Dutch researchers. So far, it has infected almost 2500 individuals but almost 35% of them perished. It has been shown to have relatively low infectivity but high severity of illness when able to gather momentum and infect the lung tissue.

Now a new virus, provisionally labeled 2019-nCoV was identified in Wuhan, Hubei province of Southern China in people exposed to seafood in wet markets. Amazingly, in a few weeks our Chinese colleagues and researchers were able to isolate and sequence the genome of the virus. It is estimated that the virus likely mutated and infected the first human hosts in November of 2019.

An epidemiologic “radiograph” of the outbreak was published earlier today and international public health agencies are collaborating to contain this early potential epidemic. As of today, January 29<sup>th</sup>, 2020 more than 150 deaths have been reported and there are almost 7000 confirmed cases in 20 nations. There have been 5 cases reported in the US and no local fatalities.

Many of us have been captivated by the news and hype surrounding the development of this new infection and the emergence of new diseases in general, but we should not panic or worry about it!

Now, when we stop to think about the real risks posed by this new infection, we must realize that the danger is very small.

Remember that the risks associated with the common “FLU” and the chance of serious disease is hundreds of times higher. The CDC estimates that so far this season there have been at least 15 million flu illnesses, over 140,000 hospitalizations and over 10,000 deaths from Influenza!

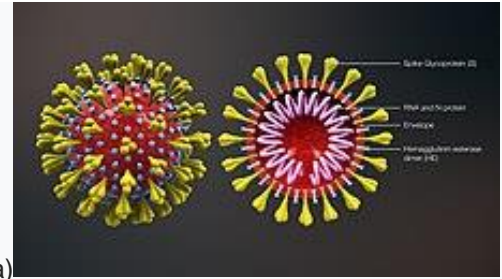
Keep in mind that the historical peak of the annual influenza epidemic is usually the first week of February and the usual symptoms of nasal congestion, runny nose, body aches, cough and fever don’t all have to be present. If you develop a fever above 101 degrees and muscles aches with a dry cough from November through March, think Influenza first and contact your doctor! Of course, similar symptoms may be caused by the novel Coronavirus, but the probability of such infection is remote!

Recall that in addition to the old 5-day course of Oseltamivir (Tamiflu) there is a new approved medication. Baloxavir (Xofluza) is highly effective if taken early on and just one dose (adjusted to the patient’s weight) may suffice to stop progression and reestablish health!

What can you do to avoid respiratory infections in general and viral infections in particular?

Remain well nourished, sleep sufficient hours, exercise intensively and make exercise part of your daily routine. It is well known that physical exertion improves your immunogenic response and not just the reflex responses of your musculature but also that of your immunologic system. Update all your vaccinations according to the recommended Vaccination Schedule and wash your hands frequently, avoiding to touch your face and nose, which may carry the virionic particles into mucosal surfaces prone to infection. Consider using a respiratory mask if your

obligations take you into confined spaces like public transportation or crowded spaces.



CORONAVIRUS (Wikipedia)

## DEBUNKING MYTHS: Q & A

**Allow me to repeat a pertinent MYTH already discussed:**

**Myth: The FLU vaccine caused me to catch the “flu” and I became ill!”! NOT TRUE!!!** There is no evidence that this is true or that it could possibly have any biologic foundation. The vaccine components are two proteins / antigens that are present in the surface of the Influenza virus, Hemagglutinin and Neuraminidase. No injectable influenza vaccine has a complete virus able to replicate and cause disease. Some people may develop a low-grade fever, fatigue and malaise which are signs that the immune system has been challenged and is mounting an immunogenic response and cranking up your antibody response. Take an acetaminophen or ibuprofen and the “storm” will pass. And be ready to be immunized again next season (until a Universal Influenza vaccine is developed).

**Myth: Vaccines may cause autism! Not true!!!** This myth began after an article published in 1998 by the British journal The Lancet reported that the parents of eight children with autism believed they developed the condition after MMR vaccination (Measles, Mumps, Rubella). Since then, and despite a 2002 article published by the New England Journal of Medicine analyzing an impressive 530,000 children found no link between vaccinations and autism, rumors and irrational behavior have obligated public health authorities to mandate vaccination in some counties where parents left too many children without protection and “heard” immunity became compromised.

**Reminder:** if you were born after 1957, you should receive another MMR booster. Also, after review of new evidence, the FDA has indicated that expansion of HPV vaccination to age 45 may be beneficial.

Will address other “myths” in future communications.

In the meantime, keep cool, eat a nutritious and diverse diet, stay active and be happy! The only fountain of youth proven by science, experience and millennia are exercise, laughter, humor and a good positive attitude! Remain optimistic, despite it all. The capacity for adaptation and survival, written into our Homo Sapiens genome has been responsible for our epic journey. We must cherish our past and protect our future!

It is our responsibility!

Enjoy every minute of the JOURNEY!

Cheers!

Carlos Picone