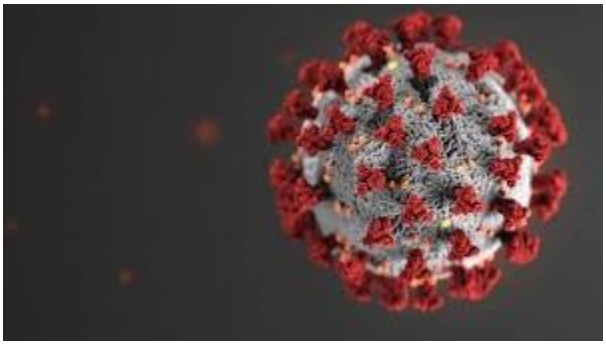
What is a Coronavirus?

Coronaviruses are part of a large family of viruses that affect vertebrates (mammals with spines). Research has shown that coronaviruses are extensive in the bat family. Other vertebrates known to be affected by coronaviruses are: members of the cat family, ferrets, camels, birds, cows, pigs, and humans. There are currently seven (7) coronaviruses known to infect humans; SARS-CoV-2, or Covid-19, is one (1) of them.

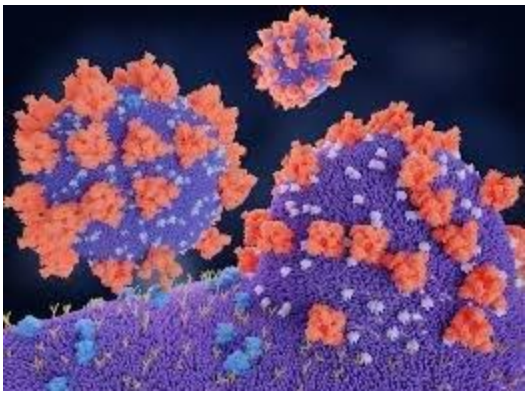
These viruses were first identified in 1965. The name coronavirus comes from the crown (corona in Latin)-like spikes on the surface of the virus cell. The Covid-19 virus is a round structure of proteins surrounded by a fatty membrane, with the spikes on top of the membrane. Inside the round structure is a very long chain of RNA (ribonucleic acid), a genetic material. The RNA extends through the fatty membrane & into the spikes on the crown.



Electron microscopy photo of Covid-19

The coronavirus is not able to survive on its own. It needs a host cell in order to multiply. I liken it to more of a parasite (an organism that lives within, on, or at the expense of another). Think……invasion of the body snatchers! ☺

In humans Covid-19 seems to have an affinity for attaching to cells that contain ACE2 (angiotensin converting enzyme). ACE2 is a protein found on the surface of many human cells. The spike proteins on the Covid-19 virus attach to the protein of the human cell like a key being inserted into a lock. Through a series of chemical reactions Covid-19 merges with the host cell and releases the long strand of RNA to, in a sense, hijack the host cell. Covid-19 then sheds the fatty membrane and turns the host cell into a factory to churn out new virus cells.



Electron microscopy photo of Covid-19 attaching/merging with host cell.

Where in the human body are these host cells found? They are found in: the lungs, heart, liver, GI tract, the lining of blood vessels, kidneys, & mucous membranes (the linings of the nose, mouth, & eyes).

Symptoms of Covid-19 begin to occur anywhere from two (2) to fourteen (14) days after becoming infected. Symptoms can include, but are not limited to: fever, chills, cough, shortness of breath, tiredness, body aches, headache, sore throat, loss of taste and/or smell, runny nose, conjunctivitis (pink eye), nausea and/or diarrhea, chest pain, blood clots, confusion. When comparing the symptoms to the cells Covid-19 hijacks, it becomes clearer to see where and why these symptoms occur.

Information gathered from:

NAM – National Academy of Medicine

APHA – American Public Health Association

NIH – National Institutes of Health

WHO – World Health Organization

CDC – Centers for Disease Control

Numerous scientific publications & articles

Numerous medical education platforms