

Note 1. Common Cold and Influenza (Flu).

This type of virus targets our lungs and bronchi. Usually they remain in what we call the upper respiratory tract, but in some cases they can go deeper and become more dangerous. Some viruses attack other organs.

Their benign form of disease is known to us all, and is characterized by a runny and stuffy nose, sneezing, cough and a sore throat. Often we lose the sense of smell and taste. That Covid19 can alter the sense of smell is thus NOT unexpected and, cannot be used, as 'proof' that it does what other members of its family do not do. The viruses enter some of the cells in our airways and, then reproduce themselves – after 10 of thousands of new viruses are made - the infected cell explodes, and all those new viruses with the cell broken pieces are expelled either by **normal breathing** or by **coughing**. This coughing can be dry or can be 'wet' (droplets of mucus). The secretions may be clear or colored (this is the sign of an additional bacterial infection).

The flu (i.e. influenza) is also a disease of the respiratory system with very similar symptoms to the common cold, but that typically also includes fever, muscle and body aches, fatigue and chills.

Viruses cause both the common cold and the flu. The influenza viruses belong to a *single* family (the *Orthomyxoviridae*), the common cold can actually be caused by numerous viruses belonging to *different* families. Here their names with our apologies:

- Rhinoviruses, Enteroviruses (*Picornaviridae*)
- Respiratory Syncytial Virus (aka. RSV and Human parainfluenza viruses (*Paramyxoviridae*))
- Adenoviruses (*Adenoviridae*)
- Human Metapneumoviruses (*Pneumoviridae*)
- and the (now infamous) Human Coronaviruses (*Coronaviridae*). There are 7 known Human coronaviruses (4 benign, MERS, SARS1, SARS2 (CoVID19)), and probably more to come.

Sometimes the disease is not benign. Some viruses may be more aggressive (virulent) than others, some may find their way deeper in the bronchi. When this happens, we start to see what we call complications. Two main complications for those viruses are the sur-infection by bacteria and what we call ARDS (Acute Respiratory Distress Syndrome) and finally Multiple Organ Failures. **For COVID19, like the flu, complications come in 10-30 % of the infected persons [see Ref #1 in Note 3].**

During the bacterial sur-infection, often it is the strepto (as the one in strep throat) that comes in. The bacteria come easily and frequently inside a person with such viral infections because the destroyed lung cells and the extra mucus offer them a good "home", an ideal medium to grow. While antibiotics cannot fight viruses, antibiotics are essential to fight those secondary infections.

What happens during ARDS, is that the virus being more aggressive and going deeper in the bronchi, generates more damage, more debris, more fluid and hence all this can 'plug' the airways. This blocks the oxygen going into some parts of the lungs, and the fluids hinder the blood oxygenation. Oftentimes, bacteria take advantage of this situation too. In this case we need either oxygen or respiratory assistance BUT also antibiotics, and sedatives [as it is near impossible to use a respirator on a patient who is not sedated, his lungs will fight the machine!!!]

References:

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- **Centers for Disease Control and Prevention at <https://www.cdc.gov>**