

## Subjective: Questions to be answered after Covid-19

The excellent description of Thucydides on the plague of Athens (430-428 BC), mentions that the disease originated in “Ethiopia above Egypt,” than spread into Libya, and after suddenly arrived to Athens, first attacking the population of Piraeus. Based on the described symptomatology (extreme headache; red, inflamed eyes; throats and tongues growing bloody; breath noisome and unsavory; sneezing; hoarseness; chest pain and cough; stomach upset and vomiting; hiccups with strong convulsions; reddening skin with welts; internal heat (fever); insatiable thirst; dysentery; and finally death in 7-9 days) <https://www.greece-is.com/what-we-know-about-the-plague-of-ancient-athens/> this description could have been the symptomatology of several serious infections, like real plague (*Yersinia pestis*), smallpox, and even some hemorrhagic fever also. Till now, we don't know the exact reason of it. Bubonic/respiratory plague has swept through the continent several times killing tens of millions in the medieval European countries. The most recent very serious respiratory pandemic was the “Spanish flu”, which started in 1918 and it was caused by an H1N1 virus with genes of avian origin. Although there is not universal consensus regarding where the virus originated, probably from Tibet, it spread worldwide during 1918-1919. It might have affected the one third of the World population with 20-50 million of deaths. (<https://www.cdc.gov/flu/pandemic-resources/1918-pandemic-h1n1.html>). Similar (H1N1) virus and pandemic emerged in 2009, which was called swine flu and according to sero-epidemiological estimates 11-21% of the world population was infected claiming 150-575 thousands of deaths [https://en.wikipedia.org/wiki/2009\\_swine\\_flu\\_pandemic](https://en.wikipedia.org/wiki/2009_swine_flu_pandemic) .

Emerging respiratory viruses and different variants of them kept on coming and going, like avian flu from Hong Kong (H5N1, H9N2, 1997, 1999), severe acute respiratory syndrome coronavirus (SARS, 2003, Hong Kong), Middle East respiratory syndrome coronavirus (MERS) from Saudi Arabia (2012), etc. (*Carina SB Tyrrell, John Lee Y Allen, Gail Carson: Influenza and other emerging respiratory viruses, MEDICINE 45:12, https://doi.org/10.1016/j.mpmed.2017.09.003*) . We are still not be able to provide an appropriate explanation for the disappearance of SARS (10% lethality) and the limited spreading of MERS (32% lethality), which, fortunately enough, cannot be compared to the rapidly spreading Covid-19.

The most remarkable phenomenon specifically related to Covid-19 is the extensive shutting down of countries, limiting movements of the population and halting economy, which has never happened before. No similar measures were implemented in the usual, yearly flu seasons, even when the morbidity, mortality figures were comparable, or even more higher. No reports had ever surfaced with the daily figures of the infected cases, the number of death, etc. during the swine flu, avian flu, or the seasonal influenza. Business went on as usual! According to CDC estimates the burden of illness during the 2018–2019 seasons included an estimated 35.5 million people getting sick with influenza, 16.5 million people going to a health care provider for their illness, 490,600 hospitalizations, and 34,200 deaths from influenza (<https://www.cdc.gov/flu/about/burden/2018-2019.html> ). The recent halting of economy, upsetting oil markets, closing down factories, etc., surely bears down on the affected population, individuals, and families, causing more harm and even losses of lives than the Covid-19 virus itself. The situation is much more tragic in the African continent where country leaders are prompted to enforce harsh measures on the already suffering and poor population because some dozens of Covid-19 infections were discovered. In countries, badly stricken by poverty, hunger and the permanent presence of very serious, deadly epidemics, like hemorrhagic fevers, malaria, typhoid fever, cholera, AIDS, tuberculosis, etc., Covid-19 might have passed unnoticed in Africa without having such publicity and hysteria related to it.

We still have to put the usual question to this unusual situation: Cui prodest?

It is worth to mention that in the developed western-European countries the identified number of Covid-19 infected person per million populations is approximately ten times higher than the former “communist” European countries, probably due to the permanent and implemented vaccination schedules starting in early childhood. The role of the so called “hygienic” factor could not be excluded either as the higher standards of living in high income countries reduce the possibility of obtaining some “natural antigens” (dirt) from the environment, stimulating the immune system from early childhood.

**Prof. Dr. Gábor Ternák**  
**22-th of April, 2020.**  
**Pécs, Hungary**