

VACCINES: OLYMPICS WITHOUT MEDALS

by The Rev. Dr. Marta Illueca

The global race to develop effective vaccines against Covid-19 has unraveled the extent of the scientific and technological capabilities of mankind. Like an Olympic competitor seeking the coveted gold medal, new vaccines emerge on the horizon in a race towards a finish line that challenges the nature and spirit of human beings. That great scientific Olympiad began a couple of centuries ago, with the history of vaccination. I would like to remind you, if I may, of the devastating global scourges of diseases like smallpox and polio. And now, instead of gratitude for the triumph of science in elucidating the identity and weaknesses of the new coronavirus, what we see is a tsunami of misinformation that generates division and mistrust.

In the history of medicine, science has taught us to battle the unfathomable mystery of viruses and it has accurately decoded the name and signature of those viruses that attack and endanger the health of humans. Shortly after the first cases of COVID-19, we figured out the identity of the villain, a new coronavirus called SARS-CoV-2. The latest member of the coronavirus family would bring great devastation to the world. This group of viruses began its attack on human health in 2002, and it was then that efforts were initiated to develop a vaccine which was "shelved" due to the eventual suppression of that outbreak. Now the new pandemic reminds us that we have no cure for the coronavirus.

I want to emphasize that one of the most intriguing and disturbing legacies of science is to make us understand that for viruses, there are practically no effective medicines. For example, available remedies for bacteria, are antibiotics like penicillin. These compounds have the ability to control and cure diseases caused by this variety of microbes. Unfortunately, they are not useful to treat viruses. The same goes for antiparasitic drugs. The reason is simple: there are too many virus variants and having a specific treatment for one, will hardly work for many others. Those medications that can help control a virus do so by affecting the genetic material of the virus, which depends on accessing human cells in order to express itself. Therefore, these antiviral drugs have the potential to be toxic and of limited use for us. Inhibiting a virus "in vivo," in the human body, entails causing "collateral damage" to the host tissues.

Therefore, there is no government or pharmaceutical company in the world with the necessary means to design and pay for effective treatments against all existing viruses. Only through a safe and effective vaccine will we be able to cut the vicious cycle and the ravages of the coronavirus. The history of medicine has proven it. Smallpox caused three hundred million deaths and was only eradicated thanks to vaccination in 1977. Polio left thousands of children paralyzed and was only controlled

with vaccines in the West in 1994. Congenital rubella, a devastating disease for newborns, was finally controlled in Latin American countries like Panamá in 2015 with its vaccine. And it was only in 2020 that an area of northeast Africa was liberated from Ebola, also thanks to a massive vaccination program. The same has been the case with diseases such as measles, mumps, tetanus, diphtheria, whooping cough, tuberculosis and rabies.

The irony of the “anti-vaccine” mentality is precisely their forgetting about the ravages of the aforementioned diseases when left to run wild, but which thanks to vaccines, no longer exist or are hardly seen. Childhood vaccination protects children, and surprisingly many adults have no idea that they have been the beneficiaries of many efficient and safe vaccination practices, because words like polio and smallpox were never part of their vocabulary.

Vaccines, like all medicines, have possible side effects. That is why there are international regulatory authorities that, based on the laws of each country, monitor the pharmaceutical development and the safety data of new treatments, each one for a specific indication.

In short, the development of vaccines has been the greatest science-based Olympiad in history and the athletes have been doctors, scientists, laboratories, governments and patients. There will be no gold, silver or bronze medals for the first vaccines against the coronavirus. And the final race isn't over until all of the approved vaccines, together, contribute to the goal of herd immunity. Only then can we declare victory for COVID-19.

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